# Energy Tidbits

April 18, 2021

Produced by: Dan Tsubouchi

## Biden: US Should Never Have Left JCPOA, Pleased Discussions Are Continuing on How US Can Be a Part of It Again

**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. Biden states US should never have left JCPOA, pleased discussions are continuing "on how we move forward and what is needed to allow us to move back into the JCPOA, and so that we are a part of it again". (Click Here)
2. Shell's Energy Transition Strategy is a must read report. (Click Here)
3. The long awaited Liberals budget is coming tomorrow. (Click Here)
4. Big week for climate with new climate targets coming from Biden and Trudeau. (Click Here)
5. US oil and gas sector better hope the Dem's End Polluter Welfare Act is cut to a fraction in any final bill to end subsidies/breaks to fossil fuels. (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 61 bcf, storage now -242 bcf YoY deficit

**YoY storage at -242 bcf YoY deficit**

The EIA reported a 61 bcf injection (vs 67 bcf injection expectations) for the April 9 week, which was above the 5-yr average injection of 26 bcf, but below last year's injection of 73 bcf. Storage is 1.845 tcf as of Apr 9, increasing the YoY deficit to 242 bcf from 235 bcf last week and storage is now 11 bcf above the 5 yr average. March was very warm, and the YoY deficit will help support natural gas prices into an expected warm summer (see below). Below is the EIA's storage table from its Weekly Natural Gas Storage Report. [LINK]

Figure 1: US Natural Gas Storage

| | Stocks billion cubic feet (Bcf) | | | | Historical Comparisons | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Year ago (04/09/20) | | 5-year average (2016-20) | |
| Region | 04/09/21 | 04/02/21 | net change | implied flow | Bcf | % change | Bcf | % change |
| East | 311 | 305 | 6 | 6 | 397 | -21.7 | 303 | 2.6 |
| Midwest | 414 | 398 | 16 | 16 | 485 | -14.6 | 398 | 4.0 |
| Mountain | 118 | 115 | 3 | 3 | 95 | 24.2 | 107 | 10.3 |
| Pacific | 205 | 198 | 7 | 7 | 203 | 1.0 | 198 | 3.5 |
| South Central | 798 | 768 | 30 | 30 | 906 | -11.9 | 827 | -3.5 |
| Salt | 251 | 235 | 16 | 16 | 283 | -11.3 | 258 | -2.7 |
| Nonsalt | 547 | 533 | 14 | 14 | 623 | -12.2 | 569 | -3.9 |
| **Total** | **1,845** | **1,784** | **61** | **61** | **2,087** | **-11.6** | **1,834** | **0.6** |

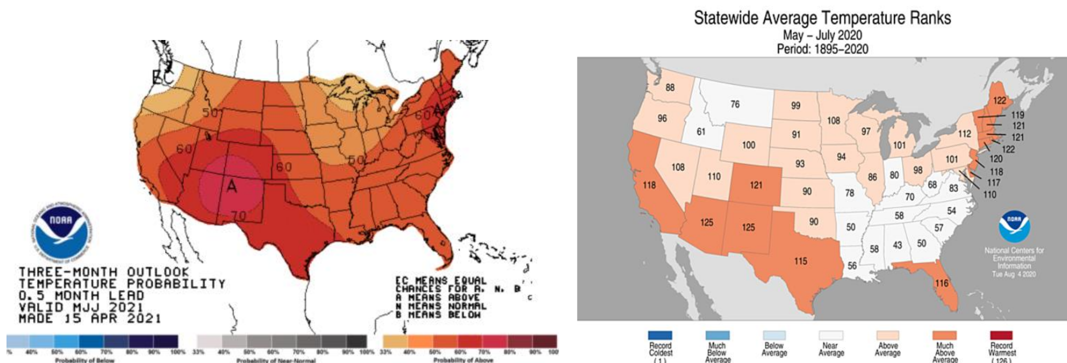
Source: EIA

## Natural Gas – NOAA continuing to forecast a hot summer

**NOAA forecasts a hot summer**

Winter 2020/21 had been tough for natural gas demand based on weather, and finished off with a very hot March, being the 14th warmest in the last 127 years and warm temps are expected to continue thru summer. However for the summer, the weather forecasts are for a hot summer which should provide some support level for HH prices. On Thurs, NOAA released its monthly update to its seasonal temperature forecasts [LINK]. NOAA is calling for well above normal temperatures for MJJ and continued warm temps thru ASO. The summer temps are expected to hot but the YoY comp is to a very very hot summer. NOAA ranked MJJ 2020 as the 9th hottest in the last 126 years and ASO was 16th hottest in last 126 years. Below are the new NOAA temperature probability maps for May/Jun/Jul and for Aug/Sep/Oct.

Figure 2: NOAA MJJ Temperature Probability Forecast vs MJJ 2020




Source: NOAA

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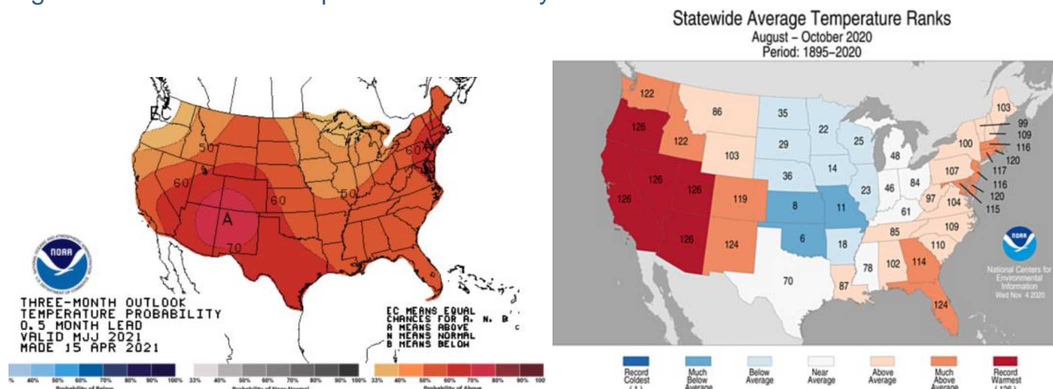
Figure 3: NOAA ASO Temperature Probability Forecast vs ASO 2020




Source: NOAA

### Natural Gas – EIA, US shale/tight natural gas to continue decline into May

**Shale/tight gas to decline into April**

On Monday, the EIA issued its Drilling Productivity Report April 2021 [LINK], which is the EIA's forecast for oil and natural gas production from the major shale/tight oil and gas basins for the current month (in this case April) and the next month (in this case May). (i) The EIA is forecasting a marginal MoM growth in US shale/tight oil in April/May and a marginal MoM decline in US shale/tight natural gas, which seems off. That doesn't make sense to us that the oil volumes are growing more than the natural gas volumes in the oil plays with associated natural gas. as these plays mature, the gas to oil ratio increases plus there has been the big push on reducing flared gas. (ii) The EIA forecasts May at 82.794 bcf/d which is -0.148 bcf/d MoM (would have been +0.206 bcf/d MoM if not for the big revisions to Apr) and down 4.090 bcf/d from the Nov/19 peak of 86.884 bcf/d. (iii) Outside of a small MoM increase in Haynesville, every US shale/tight play shows a decline MoM in May, with the largest declines coming from Anadarko -0.124 bcf/d MoM and Appalachia -0.065 bcf/d MoM. (iv) Four basins are now up YoY with Appalachia +1.120 bcf/d YoY, Permian +2.491 bcf/d YoY, Bakken +0.715 bcf/d YoY and Haynesville +0.002 bcf/d YoY. Total US shale/tight natural gas production is +3.733 bcf/d YoY for May as there was a 4.756 bcf/d drop last May due to Covid related shut-ins. (v) Remember US shale/tight gas is ~90% of total US natural gas production. So whatever the trends are for shale/tight gas are the trends for US natural gas in total. Below is our running table showing the EIA DPR data for the shale/tight gas plays, and the MoM changes in major shale/tight natural gas production. Our Supplemental Documents package includes the DPR.

Figure 4: Major Shale/Tight Play's Natural Gas Production

| | | | | | | | | | 2021 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mmcf/d | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | May YoY | May Less Apr |
| Anadarko | 6,260 | 6,623 | 6,540 | 6,525 | 6,613 | 6,325 | 6,616 | 6,485 | 6,354 | 6,033 | 6,205 | 6,085 | 5,961 | -300 | -124 |
| Appalachia | 32,993 | 32,865 | 33,862 | 34,353 | 33,401 | 33,733 | 34,799 | 35,191 | 34,897 | 34,569 | 34,320 | 34,178 | 34,113 | 1,120 | -65 |
| Bakken | 1,982 | 2,030 | 2,352 | 2,683 | 2,851 | 2,922 | 2,918 | 2,921 | 2,884 | 2,835 | 2,785 | 2,742 | 2,697 | 715 | -45 |
| Eagle Ford | 5,679 | 5,761 | 5,873 | 6,003 | 5,908 | 5,764 | 5,787 | 5,625 | 5,582 | 5,068 | 5,563 | 5,536 | 5,518 | -161 | -18 |
| Haynesville | 12,227 | 11,864 | 11,405 | 11,390 | 11,548 | 11,563 | 11,988 | 12,100 | 12,078 | 11,657 | 12,006 | 12,126 | 12,229 | 2 | 103 |
| Niobrara | 5,128 | 5,242 | 5,405 | 5,476 | 5,469 | 5,357 | 5,456 | 5,353 | 5,264 | 5,190 | 5,118 | 5,056 | 4,995 | -133 | -61 |
| Permian | 14,791 | 16,175 | 16,846 | 17,082 | 17,058 | 17,152 | 17,548 | 17,232 | 17,153 | 16,212 | 17,162 | 17,221 | 17,282 | 2,491 | 61 |
| Total | 79,061 | 80,560 | 82,282 | 83,511 | 82,848 | 82,818 | 85,113 | 84,907 | 84,212 | 81,565 | 83,160 | 82,943 | 82,794 | 3,733 | -148 |

Source: EIA, SAF

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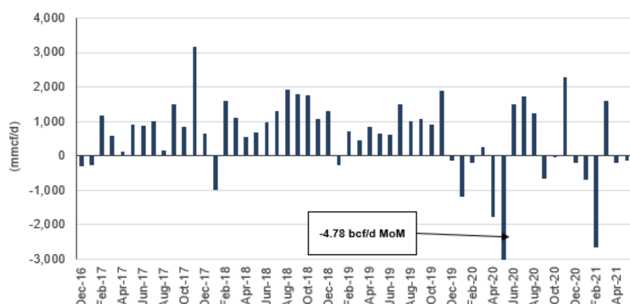
Figure 5: MoM Change In Major Shale/Tight Natural Gas Production



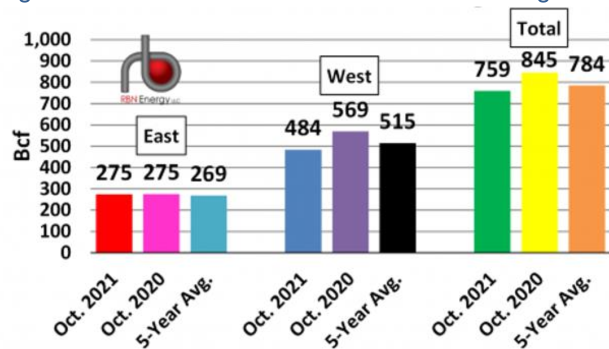

Source: EIA, SAF

**Upside price support for Cdn natural gas**

## Natural Gas – Canadian Nov 1/21 storage levels expected to be down 86 bcf YoY

Winter is over and natural gas is now storage injection season and how much natural gas will be in storage to start the winter natural gas season on Nov 1. Almost all of our focus is on US storage so its makes it very helpful that former FirstEnergy analyst Marty King is at RBN and provides the RBN outlook for the Cdn storage injection season [LINK]. The other advantage of Marty being there is that we know there is a lot of detail and analysis behind the forecast. Storage levels at the end of winter withdrawal season were 359 bcf with an average withdrawal rate of 3.24 bcf/d. Actual end of winter storage levels were lower than RBN's initial estimates of 459 bcf, mainly due to the strong withdrawals in February. For the current injection season, total supplies are expected to be 0.3 bcf/d higher than 2020. This is expected to be driven by a 0.2 bcf/d increase in Candian production as activity levels have recovered somewhat fro the covid induced lows. Along with a slight increase of 0.1 bcf/d from additional LNG and pipeline imports. For the domestic demand side, RBN expects a YoY increase of 0.1 bcf/d, mainly driven by use in the oil sands along with power generation. The big positive on the demand side is expected to come from exports to the US due to the US storage refill along with lower domestic gas production. RBN expects exports to the US to be 0.5 bcf/d higher YoY. For the balance, RBN wrote *"Next, if we net out the increase in demand of 0.6 Bcf/d versus the increase in supplies of 0.3 Bcf/d, the result is a net decrease in available gas supplies of 0.3 Bcf/d versus last summer".* Comparatively, the net change in available gas in 2020 vs 2019 was an increase of 1 bcf/d. Average injections for 2021 is expected to be 1.86 bcf/d vs 2.19 bcf/d in 2020. This means that storage levels are expected to be down 86 bcf vs 2020 to 759 bcf at end of October, and 25 bcf below the 5 yr average. Overall this YoY decline in expected storage leads to a more price supportive environment for Cdn gas thru the summer. Our Supplemental Documents package includes the RBN blog.

Figure 6: End of October Canadian Gas Storage Levels




Source: RBN

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### Natural Gas – Hard to see Total resumes Mozambique LNG development anytime soon

**More challenges for Mozambique LNG**

Our last three Energy Tidbits have noted our view that we find it hard to believe that Total resumes its Mozambique LNG Phase 1 development much before year end 2021. Recall that Total had shut down development for 3 months due to the security risk, restarted on Wed March 24, 3 days of violence/attacks followed and then Total suspended operations on Sat March 27. This week, we saw another indicator supporting this view. Bloomberg reported "*Mozambique requires about 7 billion meticais ($125 million) to rebuild government and social infrastructure in Palma, state radio reported, citing State Administration and Public Service Minister Ana Comoana*." The report reminds its not just stopping violence/attacks, its also about rebuilding the local infrastructure in the key town supporting the Total and Exxon LNG projects. We still haven't got our detailed blog posted but will sooner than later as we believe Mozambique is a significant factor on LNG markets. Then on Friday, we saw a good report from Club of Mozambique news (a good source for local news) [LINK] "*Watch: About 40 vessels that provided services to Total at anchor in Pemba Bay – TVM*". They report that supply vessels for the Total LNG development are no longer hanging around to do work for Total. Rather the supply ships are leaving, "some *of the sailing boats' owners have changed tack and gone into either fishing, or transporting passengers and cargo [from Pemba] to Ibo, Missanja or Namau."* It looks like Total is releasing services, which is another sign its unlikely to resume full development activities in the coming weeks or few months. Our Supplemental Documents package includes the Bloomberg report.

### Natural Gas – Japan and Singapore announcing carbon neutral LNG cargo

**Another carbon neutral LNG shipment**

One of the emerging themes for oil and LNG is buyers wanting to say they are importing carbon neutral oil or LNG. We expect this push to accelerate for large importers especially as countries increase their carbon targets in the lead up to COP-26 Glasgow in Nov. Our March 14, 2021 Energy Tidbits noted Tokyo Gas announcing that it had formed the 15 member Carbon Neutral LNG ("CNL") Buyers Alliance. This increasing push for cleaner LGN means that suppliers will be pushed into adding CCS, using renewable electricity where possible, and exporters incorporating carbon offsets. This week, we saw two more announcements of carbon neutral LNG purchases. (i) Toho Gas is the latest to purchase LNG offset by carbon credits, and has committed to buying more in the future [LINK]. The shipment was supplied by Diamond Gas International (subsidiary of Mitsubishi) which had bought the associated credits. (ii) LNG importers in Singapore also look to be joining the push for carbon neutral LNG. On Thursday, Pavilion Energy announced that they imported Singapore's first carbon neutral LNG shipment [LINK] with the estimated carbon emissions from the cargo being offset by retiring a corresponding amount of carbon credits. The momentum for carbon neutral LNG shipments is only growing and with it costs of the shipments as now carbon credits must be purchased to offset the emissions from the cargo. Our Supplemental Documents package includes the Energy Voice Toho report and the Pavilion release.

### Natural Gas – China domestic gas production +13.1% YoY to 21.08 bcf/d

**China domestic natural gas production trends higher**

Reuters reported on domestic natural gas production in China for March [LINK]. Domestic natural gas production had increased 13.1% YoY to 21.08 bcf/d, down slightly from 21.19 bcf/d in Feb. We have been highlighting the theme of increasing domestic natural gas production and the negatives that brings for global LNG import volumes as China will no longer be the growth engine for YoY LNG increases as it was in the 2015-2019 period. LNG imports are less as domestic natural gas production moved to bigger YoY increases in 2019 and 2020, and there was the start up of the Power of Siberia natural gas pipeline from Russia to China. There were lots of LNG supply interruptions around the world in H2/20 and then a

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cold Asia winter sent LNG to record highs, but this China trend remains with domestic gas production being +2.44 bcf/d YoY.

### Natural Gas – China natural gas imports +17% YoY to 17.46 bcf/d

**China natural gas imports**

Bloomberg reported on the preliminary release of China natural gas import data for March. Total natural gas imports in March were 13.53 bcf/d, up 26.1% YoY but down from the Jan-Feb preliminary release which had total natural gas imports averaging 17.46 bcf/d. Bloomberg is expecting China's natural gas demand in April to fall 3.9% from March, as heating demand begins to abate. Additionally, through the summer, China may favour piped gas deliveries as LNG prices continue to remain elevated.

### Natural Gas – Will Nord Stream 2 be resolved at the Biden/Putin summit?

**Will Nord Stream 2 be decided at Biden/Putin summit?**

We expect the US sanctions on Nord Stream 2 issue should come to a head in the next few months when Biden and Putin have a face-to-face summit in Europe this summer. Biden said "*When I spoke to President Putin, I expressed my belief that communication between the two of us personally and directly was to be essential to moving forward to a more effective relationship. And he agreed on that point. To that end, I propose that we meet in person this summer in Europe for a summit to address a range of issues facing both of our countries. Our teams are discussing that possibility right now*". We like to remind that Biden is the traditional old school type leader when it comes to summits. Their teams work a period to the summit on issues that can agree to or close at the summit or items that they will end up agreeing to disagree. Biden did not specifically mention Nord Stream 2 in his remarks on key issues with Russia. However, he was asked specifically about Nord Stream 2. Biden reminded he was against it, but noted its complicated. His challenge will be to keep Germany happy vs countries like Poland. And we have to believe he will at least lean to keeping Merkel happy even if she is stepping down. We still think this is one that could be a give by him at the summit. And if so, gas markets need to be prepared for the risk for Nord Stream 2 to start delivering natural gas to Europe in Q4/21. The Q&A was "*QUESTION: (OFF-MIKE) Why not Nord Stream? Why didn't you keep going with sanction -- sanctioning on Nord Stream 2, Mr. President? BIDEN: Nord Stream 2 is a complicated issue affecting our allies in Europe. I've been opposed to Nord Stream 2 for a long time, from the beginning when I was -- even when I out of office and even before office -- before I left office as vice president. But that still is an issue that is in play*."

### Natural Gas – Europe storage 29.03% full vs 5 year average of 37.16%

**Europe gas storage 29.03% full**

It was cold through March which had delayed the refill push. This winter has been another good reminder that Europe gas storage is the key indicator for the near term strength of global LNG markets. The big draw in Europe gas storage this winter was the indicator that it has been a good winter for LNG prices. Additionally, the significant YoY deficit in Europe gas storage at the end of winter indicates that there will be strong demand for European LNG imports during the refill push. Europe gas storage started the winter (Nov 1) at basically full levels at 94.66% and has 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% looks to be the bottom for withdrawal season. Storge level had since increased 1.51% to 30.41% on April 8 however it looks to be bouncing around between 29%-30% and will be until the refills pick up. Storage as of Apr 15 is 29.03%, 28.35% less than last year of 57.38% and 8.13% below the 5 yr average of 37.16%. 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.

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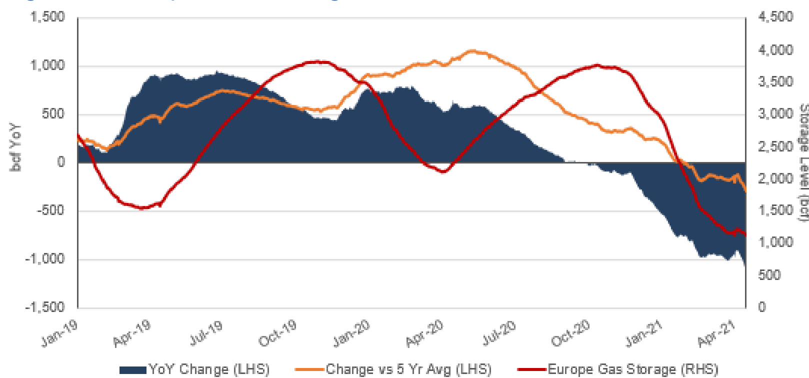
Figure 7: Europe Gas Storage Level



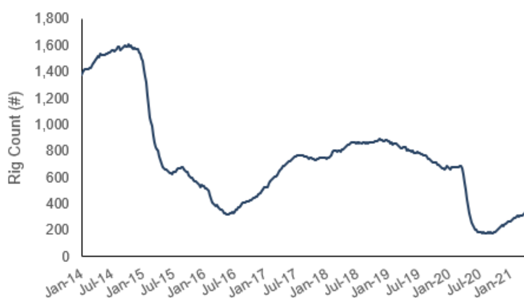

Source: Bloomberg

## Oil – US oil rigs up 7 to 344 oil rigs

**US oil rigs +7 this week**

Baker Hughes reported its weekly rig data on Friday. US oil rigs were up 7 rigs at 344 oil rigs as of Apr 16. The increases were in Granite Wash +2, the Permian +3, Bakken +1, and Other +1. There were no decreases this week. Oil rigs have been on a strong recovery path and are +172 off the bottom of 172 in the Aug 14 week. Companies are seeing high oil prices and we expect privates to increase drilling. Additionally, the recent rise in oil prices to ~$60 has led to increasing rig activity in secondary basins, “Other” basins oil rigs are +8 oil rigs in the last month. US oil rigs hit their 2020 peak at 683 on March 13 and have since fallen by 339 to 344 oil rigs (-49.6%). Below is our graph of Baker Hughes US oil rigs.

Figure 8: Baker Hughes Total US Oil Rigs




Source: Baker Hughes

## Oil – Frac spreads +14 to 220 as of April 16

**Frac spreads +16 to 220**

Every week, Mark Rossano posts a YouTube recap of frac spreads for the week on the Primary Vision Network [LINK]. He reported US frac spreads were +14 to 220 as of April 16. He had been assuming a slow increase in some of the side basins but saw a big increase in activity all at once. But as these start to roll off, he thinks this could be a near term high as move into the first week or two of May. There were also increases in the Permian and Anadarko and Permian levels are back to the point where should see growth in Permian oil production, not exponential growth but growth. But he is not seeing any acceleration in the Bakken. Below are his two key frac spread graphs.

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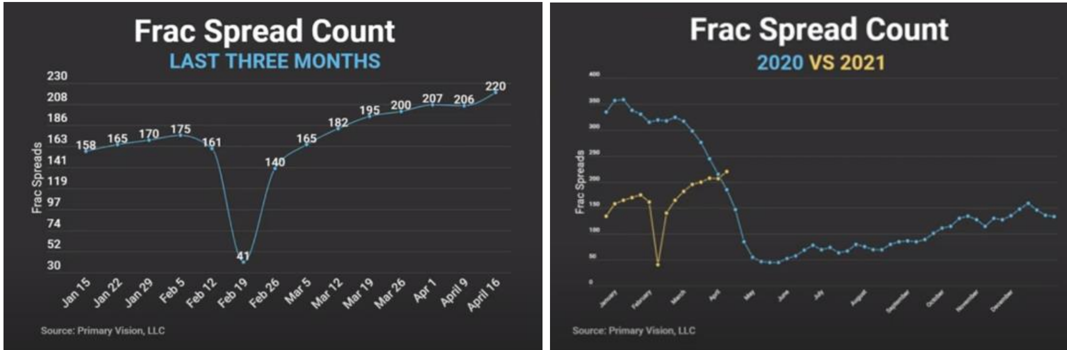
Figure 9 Active Frac Spreads as of April 16, 2021



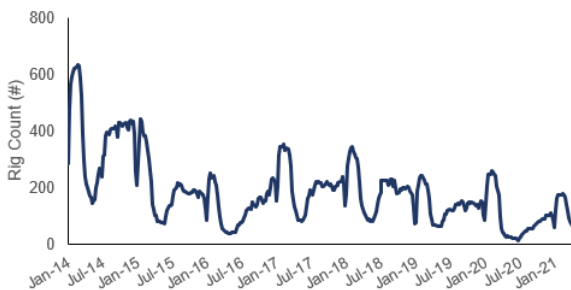

Source: Primary Vision

**Oil – Total Cdn rigs down 2 to 56 total rigs and up 26 YoY**

**Cdn rigs -2 this week**

Baker Hughes reported total Cdn rigs were down 2 this week to 56 total rigs. The continued decline this week was expected with the end of winter drilling, and we expect it to continue to modestly decrease. Typically the bottom for Cdn rigs is around the 1st week in May. Cdn oil rigs were down 2 to 17 rigs. Cdn gas rigs were were flat this week. Total rigs are now +43 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 23 for a total Cdn rigs of 30, meaning total Cdn rigs are +26 YoY but total rigs are down 10 vs 2019. Below is our graph of Baker Hughes Cdn oil rigs.

Figure 10: Baker Hughes Total Canadian Oil Rigs




Source: Baker Hughes

**Oil – US weekly oil production +0.1 mmb/d to 11.0 mmb/d**

**US oil production +0.1 mmb/d**

US oil production was up 0.1 mmb/d to 11.0 mmb/d for the Apr 9 week. Lower 48 was up 0.1 mmb/d to 10.5 mmb/d. This puts US oil production down 1.3 mmb/d YoY and is down 2.1 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. The EIA DPR released this week is forecasting slight MoM increases in April and May. The EIA forecasts May at 7.612 mmb/d which is +12,000 b/d MoM. The EIA April STEO released last week revised down US oil production for the remainder of 2021 by 0.11 mmb/d to 11.04 mmb/d, down 1.74 from Q4/19 peak of 12.78 mmb/d. YoY growth returns in 2022 with average production of 11.86 mmb/d, +0.82 mmb/d YoY with Q4/22 production of 12.18, down 0.6 mmb/d vs Q4/19. This reduction was mainly due to lower than expected activity levels outside of the Permain. The EIA Form 914 actuals for December came in 38,000 b/d higher than the EIA weekly estimates for December, much closer than the 246,000 b/d overestimate in the actuals for November which had been due to hurricane activity in early Nov.

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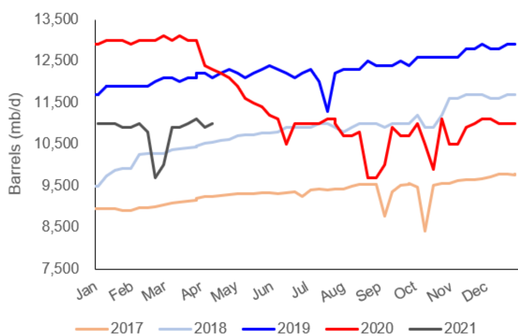
## Figure 11: EIA's Estimated Weekly US Oil Production

| | Week 1 | | Week 2 | | Week 3 | | Week 4 | | Week 5 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year-Month | 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 | | | | | | |

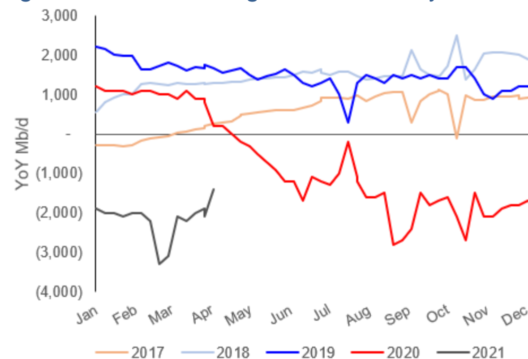
Source: EIA

## Figure 12: US Weekly Oil Production




Source: EIA, SAF

## Figure 13: YoY Change in US Weekly Oil Production




Source: EIA, SAF

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## Oil – US DPR shale/tight oil looks to have found a bottom in Feb 2020

**US shale/tight oil production**

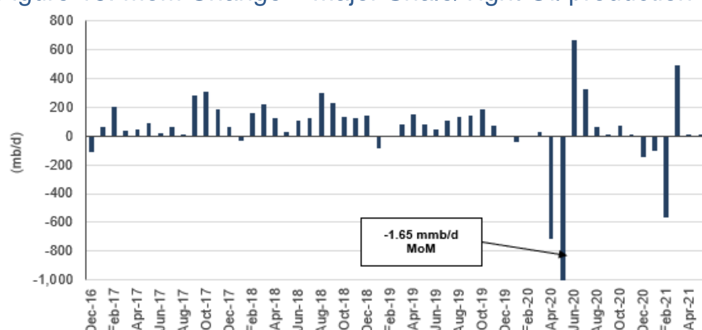
The EIA issued its Drilling Productivity Report April 2021 on Monday [LINK], which is the EIA's forecast for oil and natural gas production from the major shale/tight oil and gas basins for the current month (in this case April) and the next month (in this case May). (i) As noted earlier in the natural gas comments, something seems off with the EIA forecasts for April/May. Oil production is forecast to grow more than natural gas volumes in the oil plays with associated natural gas, which is not what should happen as these plays see increasing gas to oil ratio over time and these plays have been reduced flared natural gas. For example, Bakken May vs April was down 1.1% MoM for oil but down 1.6% MoM for natural gas. Permian May oil vs April is +1.2% Mom whereas natural gas is +0.4%. We would have expected the opposite. (ii) The EIA forecasts May at 7.612 mmb/d which is +12,000 b/d MoM (would have been +154,000 b/d MoM if not for revisions to Apr) and down 1.546 mmb/d from the Nov/19 peak of 9.158 mmb/d. (ii) Similar to the last several months, all basins are down YoY except for Appalachia (+11,000 b/d), with the largest declines coming from Eagle Ford at -284,000 b/d YoY, and Niobrara at -179,000 b/d YoY in May. Total US shale/tight oil production is now -0.813 mmb/d YoY, however this comparison is becoming less useful as production had begun to decline last April due to Covid. (iii) Even before the massive capex cuts and shut-ins, the oil shale/tight production had built a narrative for 2020 that US oil production had peaked in Nov/19 at 9.158 mmb/d, expected to plateau H1/20 and then starting to decline later in 2020. (iv) Note that shale/tight oil is approx. ~70% of total US production, so whatever the trends are for shale/tight oil are the trends for US oil in total . Below is our table of running DPR estimates of shale/tight oil production and our graph of MoM changes in major shale/tight oil production.

Figure 14: EIA - Major Shale/Tight Plays Oil Production

| | | | | | | | | | 2021 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Thousand b/d | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | May YoY | May Less Apr |
| Anadarko | 312 | 454 | 464 | 438 | 413 | 406 | 415 | 398 | 381 | 338 | 365 | 355 | 345 | -113 | -10 |
| Appalachia | 116 | 134 | 133 | 133 | 137 | 130 | 122 | 126 | 128 | 127 | 127 | 127 | 128 | 11 | 1 |
| Bakken | 890 | 927 | 1066 | 1184 | 1236 | 1244 | 1237 | 1203 | 1161 | 1145 | 1128 | 1117 | 1105 | -111 | -12 |
| Eagle Ford | 925 | 999 | 1094 | 1124 | 1105 | 1132 | 1127 | 1089 | 1067 | 960 | 1048 | 1037 | 1028 | -248 | -9 |
| Haynesville | 29 | 34 | 33 | 33 | 33 | 34 | 35 | 34 | 33 | 32 | 32 | 32 | 32 | -4 | 0 |
| Niobrara | 584 | 630 | 648 | 649 | 624 | 592 | 587 | 584 | 560 | 542 | 528 | 518 | 509 | -179 | -9 |
| Permian | 3919 | 4265 | 4330 | 4269 | 4287 | 4369 | 4395 | 4339 | 4340 | 3958 | 4366 | 4414 | 4466 | -169 | 52 |
| Total | 6,774 | 7,443 | 7,769 | 7,831 | 7,835 | 7,906 | 7,917 | 7,774 | 7,670 | 7,102 | 7,595 | 7,600 | 7,612 | -813 | 12 |

Source: EIA, SAF

Figure 15: MoM Change – Major Shale/Tight Oil production




Source: EIA, SAF

## Oil – EIA DUC's worked down by 177 in March

**DUCs continue to work down**

Our biggest concern in the past on EIA's Drilling Productivity Report [LINK] estimate of Drilled UnCompleted wells was that the data had been constantly revised and sometimes

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significantly. However, the EIA DUC data shows a clear trend since August of a continued work down of DUCs and we expect that trend is correct. On an overall basis, the reason for US shale/tight oil being up marginally is completions. The EIA estimates DUCs are down another 177 MoM in March, meaning a total of 1,632 DUCs have been worked down since the June peak of 8,544. The inference from the EIA DPR forecast for April and May is that the level of completions is enough to offset natural declines, with MoM increases in oil production for both months. DUCs are being worked down at a steady rate for the past 8 months. Below is our running table of the EIA Drilling Productivity Report DUCs.

Figure 16: EIA - Estimated Drilled UnCompleted Wells

| Drilled UnCompleted | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Mar YoY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Anadarko | 980 | 946 | 928 | 915 | 908 | 902 | 876 | 856 | 836 | 815 | 793 | 773 | 760 | 740 | -206 |
| Appalachia | 701 | 693 | 684 | 669 | 657 | 650 | 640 | 623 | 610 | 598 | 587 | 570 | 559 | 548 | -145 |
| Bakken | 831 | 813 | 841 | 851 | 852 | 842 | 828 | 795 | 766 | 744 | 714 | 690 | 669 | 647 | -166 |
| Eagle Ford | 1,262 | 1,298 | 1,319 | 1,318 | 1,299 | 1,282 | 1,245 | 1,192 | 1,153 | 1,120 | 1,086 | 1,057 | 1,037 | 1,009 | -289 |
| Haynesville | 346 | 344 | 348 | 356 | 358 | 360 | 356 | 358 | 343 | 331 | 325 | 320 | 325 | 324 | -20 |
| Niobrara | 777 | 779 | 772 | 769 | 775 | 763 | 763 | 741 | 683 | 633 | 592 | 552 | 520 | 481 | -298 |
| Permian | 3,506 | 3,506 | 3,564 | 3,657 | 3,715 | 3,733 | 3,679 | 3,580 | 3,467 | 3,359 | 3,279 | 3,221 | 3,219 | 3,163 | -343 |
| Total | 8,403 | 8,379 | 8,456 | 8,535 | 8,564 | 8,532 | 8,387 | 8,145 | 7,858 | 7,600 | 7,376 | 7,183 | 7,089 | 6,912 | -1,467 |

Source: EIA, SAF

### Oil – North Dakota Feb oil production down MoM, down 25.4% YoY

**North Dakota February oil production down MoM**

On Thurs, the North Dakota Industrial Commission posted its Director's Cut, which includes February oil and natural gas production data [LINK]. North Dakota Feb oil production was down 5.6% MoM to 1.083 mmb/d from 1.147 mmb/d in Jan and is down 25.4% YoY. Production was expected lower given the cold weather plus likely some push back with freezing weather in the south shutting refineries, etc. The question will be how much of the MoM decline is due to these one-off items and how much is natural decline outpacing new wells coming onstream. This is the lowest level for production since July of 1.165 mmb/d. But we had also expected a small decline has been expected given monthly completions for the most part have been below the levels assumed needed to keep production flat. Our Supplemental Documents package includes excerpts from the NDIC Director's Cut.

Figure 17: North Dakota Oil Production By Month

| (b/d) | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2020/2019 | 2021 | 2021/2020 |
|---|---|---|---|---|---|---|---|---|---|---|
| Jan | 935,126 | 1,191,198 | 1,122,462 | 981,380 | 1,179,564 | 1,403,808 | 1,430,511 | 1.9% | 1,147,377 | -19.8% |
| Feb | 952,055 | 1,178,082 | 1,119,092 | 1,034,248 | 1,175,316 | 1,335,591 | 1,451,681 | 8.7% | 1,083,020 | -25.4% |
| Mar | 977,178 | 1,190,502 | 1,111,421 | 1,025,690 | 1,162,134 | 1,391,760 | 1,430,107 | 2.8% | | |
| Apr | 1,003,256 | 1,169,045 | 1,041,981 | 1,050,476 | 1,225,391 | 1,392,485 | 1,221,019 | -12.3% | | |
| May | 1,040,469 | 1,202,615 | 1,047,003 | 1,040,995 | 1,246,355 | 1,394,648 | 859,362 | -38.4% | | |
| June | 1,092,519 | 1,211,328 | 1,027,131 | 1,032,873 | 1,227,320 | 1,425,230 | 893,591 | -37.3% | | |
| July | 1,114,421 | 1,206,996 | 1,029,734 | 1,048,099 | 1,269,290 | 1,445,934 | 1,042,081 | -27.9% | | |
| Aug | 1,132,241 | 1,187,631 | 982,011 | 1,089,318 | 1,292,505 | 1,480,475 | 1,165,371 | -21.3% | | |
| Sept | 1,186,228 | 1,162,159 | 971,760 | 1,107,345 | 1,359,282 | 1,443,980 | 1,223,107 | -15.3% | | |
| Oct | 1,183,515 | 1,171,119 | 1,043,693 | 1,183,810 | 1,392,369 | 1,517,936 | 1,231,048 | -18.9% | | |
| Nov | 1,188,258 | 1,181,787 | 1,034,484 | 1,194,920 | 1,375,803 | 1,519,037 | 1,227,138 | -19.2% | | |
| Dec | 1,227,483 | 1,152,696 | 942,322 | 1,182,836 | 1,402,741 | 1,476,777 | 1,191,429 | -19.3% | | |

Source: NDIC, NDPA

#### North Dakota gas-oil ratio increases as Bakken matures

One of the long term trends that we have been highlighting for all of the US tight/shale oil plays that produce associated natural gas and NGLs is that, over time, the percentage of natural gas increases in the production. We see this clearly in North Dakota where the gas-oil ratio continues to increase have having slowing down in 2017-2019 when natural gas flaring increased. But now with North Dakota reducing gas flaring, we are seeing the ramp up in gas-oil ratio. North Dakota February natural gas production was not hit as bad as oil and was down 5.0% MoM to 2.704 bcf/d from 2.848 bcf/d in Feb, and down 13.0% YoY vs 3.110 bcf/d. It makes sense that North Dakota natural gas production was down less YoY as less

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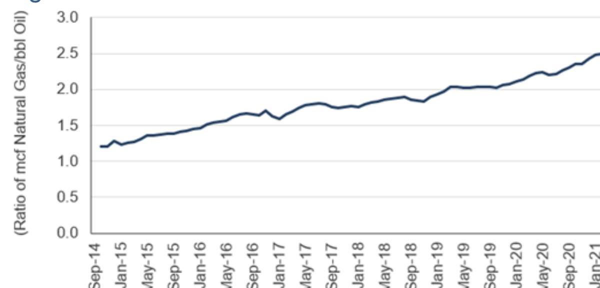
gas was flared and Bakken oil wells produce associated natural gas and the natural gas % of boe production increase as Bakken oil wells mature. The Gas to oil ratio hit 2.50 in Feb, up from 2.48 in Jan 2021. We will continue to see the gas to oil ratio increase as the Bakken matures. A year ago it was 2.14 and two years ago 1.97. The EIA DPR data did not have oil declining more than natural gas in the Bakken which does not make sense based on the above reasons. Below is our running graph of North Dakota gas-oil ratio updated for the new NDIC January production data.

Figure 18: North Dakota Gas-Oil Ratio




Source: NDIC, NDPA

### Rule of thumb, North Dakota needs ~48 completions & 17 rigs to hold 1 mmb/d

Every month, local North Dakota has good insight on North Dakota's oil and natural gas production from their monthly meeting with North Dakota's Director Lynn Helms and North Dakota PipeLine Authority's J.J. Kringstad. (i) This month, we tweeted [LINK] on an excellent insight reporting from KTVQ (Billings) on what is the breakeven level of drilling rigs and completion crews to keep North Dakota oil production flat at 1 mmb/d. North Dakota just reported Feb oil production was 1.083 mmb/d and is likely going a little lower in March KTVQ wrote [LINK] "*"As of Thursday, 17 oil rigs were operating in the Bakken along with eight completion crews. Helms said each fracking crew can complete up to six wells per month. That combination of rigs and crews according to Helms, is the break even point for North Dakota to maintain oil production at one million barrels per month*." (ii) This is different than the prior North Dakota breakeven rig/completion crew levels needed to hold North Dakota flat at ~1.2 to 1.3 mmb/d. The rule of thumb came from an Oct 8 North Dakota presentation by the North Dakota Pipeline Authority (JJ Kringstad) [LINK]. That presentation noted that North Dakota needed ~70 completions/mth and 35 drilling rigs to keep production flat at ~1.2 to 1.3 mmb/d. Our Supplemental Documents package includes the KTVQ report.

### Rolling blackouts hit North Dakota Feb output

Every month, we look to the Bismarck Tribune's monthly story on the press conference releasing the Director's Cut as there is always extra color or insight from quotes from NDIC Director Lynn Helms, although this week's story did not have the same level of detail as previous months. This month's story was titled was titled "*February's blackouts caused North Dakota oil output to fall*" [LINK]. (i) As expected rolling blackouts through North Dakota had a significant effect on production, the Tribune wrote *"State Mineral Resources Director Lynn Helms said that caused gas plants and related infrastructure to go offline for hours at a time. Some oil wells also stopped operating"*. (ii) This month there was no additional color from Helms on the

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DOI review process for federal leasing. In last months story, the Tribune wrote *"Those comments likely will focus on the checkerboard nature of mineral ownership in the state, and how prohibiting drilling through federal minerals could prevent the development of private minerals and state-owned minerals in the surrounding area, even where a tract of federal minerals is small, he said".* Our Supplemental Documents package includes the Bismarck Tribune Story.

**North Dakota 400,000 b/d could be temporarily shut in if DAPL closed**

Natural Gas Intelligence also reported [LINK] on comments from Helms on how a potential Dakota Access PipeLIne shut down would impact Bakken production. NGI wrote "*Helms said the state anticipates that there would have to be some temporary shut-ins from a DAPL closing because the pipeline has such a large proportion of firm transport customers. All of these firm customers would need time to get a force majeure designation and arrange alternate transportation, he said."*

**Oil – North Dakota crude by rail down MoM in February to ~137,000 b/d**

**North Dakota CBR down in February**

The North Dakota Pipeline Authority also posted its monthly update "February 2021 Production & Transportation" [LINK]. Please note that we always go to the backup excel sheets from the North Dakota Pipeline Authority for more detailed numbers of crude by rail out of North Dakota. The NDPA Monthly Update (graph below) report only provides rounded numbers, and these rounded numbers are not accurate enough to match the graphs. In the backup excel, the NDPA estimates crude by rail in February was a low of 122,297 b/d to a high of 152,297 b/d for an average of ~137,297 b/d. This is down from Jan low of 178,617 b/d to high of 208,617 b/d for an average of ~193,617 b/d. The MoM decrease in CBR volumes is likely due to the CBR share of total transportation decreasing 4% MoM to 12% of total volumes in February from 16% in January along with the decreased production likely mainly due to cold weather in Feb and pushback from shut refineries in the USGC. Below is a chart from the NDPA monthly update showing the crude by rail volumes since 2013. Our Supplemental Documents package includes the NDPA monthly update.

Figure 19: Estimated North Dakota Rail Export Volumes

Source: North Dakota Pipeline Authority

**Oil – >26% of North Dakota undrilled spacing units could be impacted by DOI review**

**NDIC DOI review impact assessment**

As we have noted prior, we continue to believe US oil and gas companies should be expecting the worst from Biden's Department of Interior review of federal leasing. And we have warned that having some checkerboard federal vs private lands areas in the Bakken would lead to some private lands effectively being impacted by any federal lands restrictions. Last month's North Dakota Industrial Commission Director's cut [LINK] included their

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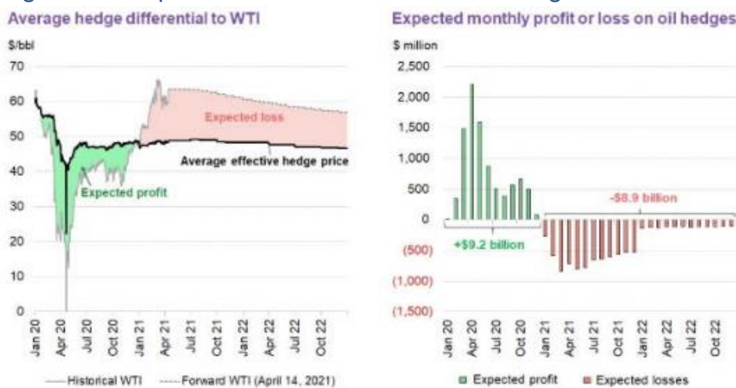
estimate of the amount of North Dakota spacing units that could be impacted by any restrictions on federal lands by this DOI review. North Dakota estimates that 26% of its undrilled spacing units could be impacted depending on how Biden's Dept of Interior review of fossil fuels leasing on federal lands. The NDIC wrote *"A spatial query found 3,443 undrilled wells in spacing units that would penetrate federal minerals, 2,902 undrilled wells in spacing units would penetrate BIA Trust minerals (700 tribal minerals and 2,202 allotted minerals), and the total number of wells potentially impacted is 6,345. The minimum number of future Bakken wells is 24,000 so the 3,443 wells on federal public lands = 14%, and the 2,902 wells on trust lands = 12%".* Our concern is that with the checkerboarding, the effective percentage is higher. There could be private lands that are scattered among federal lands owned by one operator who had put together a block of lands that included both. If so, then there could be scattered drilling sections that are more or less by themselves and the operator won't drill a scatter section. We do not know what the exact percentage would be, but we would expect the effective percentage would be higher than 26%, perhaps closer to 33%. Our Supplemental Documents package includes the NDIC writeup.

### Oil – US shale producers expected to have ~$9b in hedge losses through 2022

**Q1/21 hedges settling ~$11/b below WTI**

As previously noted, US oil producers are not getting all the benefit of $60 oil given hedges put in place in 2020 ie. why they can't crank up drilling and completions as much as might be expected with $60 oil. Bloomberg posted their updated data on Friday tracking the hedges for 50 US shale producers. Hedges in 2020 had been a significant positive, bringing in profits for the 50 tracked producers of ~$8.5b as the contracts settled ~$9 per barrel on average above WTI. But for 2021, Bloomberg wrote *"In contrast, 1Q 2021 hedges reported in end-of-year filings settled an average of $11 below WTI, generating $1.7 billion in losses. As of April 15, 2021, firms hold another $7.3 billion in unrealized losses through 2022 and half of tracked firms hold losses greater than $100 million".* Below are the Bloomberg charts tracking the hedge positions.

Figure 20: Expected Results on Crude Oil Hedges




Source: BloombergNEF

### Oil – Refinery inputs +2.386 mmb/d YoY to 15.051 mmb/d

**Throughput flat WoW**

Crude inputs to refineries were flat this week and were +0.007 mmb/d to 15.051 mmb/d and are +2.386 mmb/d YoY. Refinery utilization increased slightly this week, being +1.0% to 85.0%, which is +23.2% YoY. Total products supplied (ie demand) increased this week and was +1.092 mmb/d to 20.328 mmb/d for the Apr 9 week, and motor gasoline demand increased, being +0.162 mmb/d to 8.944 mmb/d. Gasoline consumption in the US is

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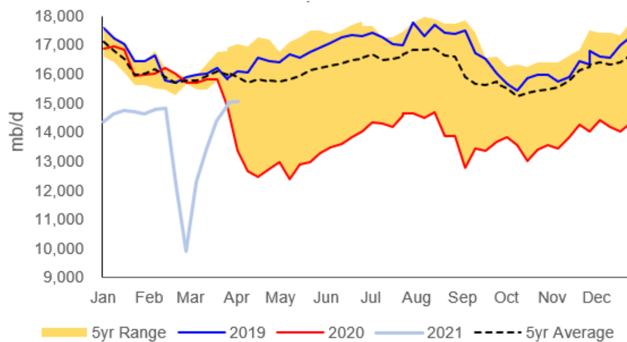
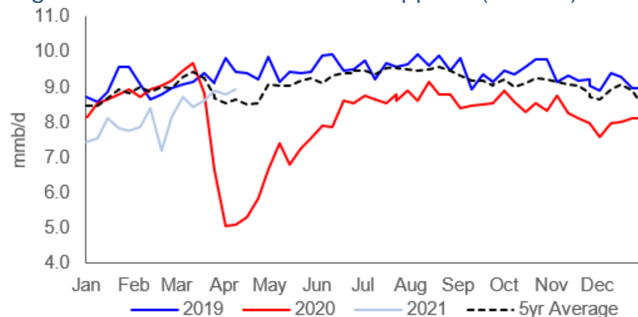
expected to continue to rise, with the EIA writing in their 2021 Summer Fuels Outlook [LINK] *"We forecast that gasoline consumption in 2021 will peak in August at 9.1 million b/d, which is up from 8.5 million b/d in August 2020 but down from the 9.8 million b/d in August 2019. We forecast that 2021 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.

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




Source: EIA, SAF

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




Source: EIA, SAF

## Oil – BP Whiting shut in 102k b/d coker for emergency heater repairs

**BP Whiting 102,000 b/d coker shut in**

As of our 7am MT news cut off, we haven't seen any update on the late Friday night news from Bloomberg "*BP Whiting Refinery Shuts Largest Coker for Heater Repairs*". The BP Whiting refinery is in NW Indiana (right at the state line across from Chicago, Illinois) has a crude oil processing capacity of 435,000 b/d and is significant as a major destination for Cdn heavy/medium crude oil. And any extended downtime will impact Cdn differentials. The EIA estimates [LINK] BP Whiting imported ~287,000 b/d of Cdn crude oil in the Covid year of 2020 and 313,000 b/d in 2019. The significance to Cdn oil is why we tweeted [LINK] "*Cdn heavy/medium #Oil producers should note @barbarajpowell8 reported late Fri, BP shut in largest coker 102 kb/d for emergency heater repairs, no timeframe yet for unit back to normal operations. In 2020, @EIAgov estimates Whiting imported ~287,000 of Cdn oil. #OOTT."* Powell reported "*BP's Whiting, Indiana, refinery had to shut its largest coker Friday for emergency heater repairs, people familiar with plant operations say. * Work on the 102k b/d coker have not begun and there's no timeframe for repairing the heater and returning the unit*

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*to normal operations."* Our Supplemental Documents package includes the Bloomberg report.

**Oil – US "net" oil imports up 0.444 mmb/d to 3.273 mmb/d**

**US "net" oil imports +0.444 mmb/d WoW**

US "NET" imports were up 0.444 mmb/d to 3.273 mmb/d for the Apr 9 week. US imports were down 0.412 mmb/d to 5.852 mmb/d and US exports were down, being -0.855 mmb/d to 2.579 mmb/d. The WoW decrease in US oil imports was driven by decreases from Saudi Arabia, Columbia and Canada. Some items to note on the by country data. (i) Canada was down this week, and was -0.470 mmb/d to 3.367 mmb/d for the Apr 9 week, which is now ~0.332 mmb/d below the average levels in Jan/Feb of 2020. Also note that PADD 2 imports were also down, being -162,000 b/d and Canada is almost all of this market. (ii) Saudi Arabia was down 0.77 mmb/d to 0.181 mmb/d this week. (iii) Colombia down 49,000 b/d to 209,000 b/d this week. (iv) Ecuador was up 11,000 b/d to 295,000 b/d. (v) Iraq was down 22,000 b/d to 223,000 b/d. (v) Venezuela remained at 0 due to US sanctions. (vi) Mexico increased 104,000 b/d to 0.739 mmb/d.

Figure 23: US Weekly Preliminary Oil Imports By Major Countries

| | Feb 12/21 | Feb 19/21 | Feb 26/21 | Mar 5/21 | Mar 12/21 | Mar 19/21 | Mar 26/21 | Apr 02/21 | Apr 09/21 | WoW |
|---|---|---|---|---|---|---|---|---|---|---|
| Canada | 3,681 | 2,831 | 3,648 | 3,635 | 3,448 | 3,418 | 3,666 | 3,414 | 3,367 | -47 |
| Saudi Arabia | 237 | 143 | 368 | 251 | 308 | 280 | 345 | 258 | 181 | -77 |
| Venezuela | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mexico | 471 | 355 | 602 | 362 | 278 | 618 | 494 | 635 | 739 | 104 |
| Colombia | 346 | 200 | 285 | 286 | 0 | 92 | 122 | 258 | 209 | -49 |
| Iraq | 227 | 0 | 68 | 141 | 165 | 105 | 88 | 245 | 223 | -22 |
| Ecuador | 186 | 55 | 114 | 59 | 127 | 132 | 247 | 284 | 295 | 11 |
| Nigeria | 70 | 50 | 89 | 0 | 44 | 161 | 86 | 161 | 129 | -32 |
| Kuwait | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Angola | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Top 10 | 5,218 | 3,634 | 5,174 | 4,734 | 4,370 | 4,806 | 5,048 | 5,255 | 5,143 | -112 |
| Others | 680 | 965 | 1,118 | 921 | 953 | 816 | 1,097 | 1,009 | 709 | -300 |
| Total US | 5,898 | 4,599 | 6,292 | 5,655 | 5,323 | 5,622 | 6,145 | 6,264 | 5,852 | -412 |

Source: EIA, SAF

**Oil – Pemex's Minatitlan 285,000 b/d refinery offline for 90 days post fire**

**Minatitlan refinery offline for 90 days**

As we noted last week, the fire at Pemex's 285,000 b/d Minatitlan refinery in Veracruz seems to indicate that there is likely to be increased Mexico medium/heavy oil being exported tot eh USGC for refining. Bloomberg reported on Monday that the refinery will likely be offline for ~90 days for repairs. All the reporting focused on the nameplate capacity being 285,000 b/d, which is why we tweeted [LINK] on the Pemex institutional data base [LINK] that showed the refinery processed only 80.0 mb/d of heavy oil in February and 30.4 mb/d of heavy and 47.9 mb/d of light oil for a total of 78.3 mb/d in January. This is well below capacity, but more or less in line with other Pemex refineries. However, it could be material in terms of impact on US imports from Mexico if an added 80,000 b/d hits the Gulf Coast refineries. Our Supplemental Documents package includes the Bloomberg report.

**Historical U.S. Weekly Oil Imports from Mexico**

U.S. Oil Imports from Mexico averaged ~596,000 b/d in 2019 and increased 46,000 b/d in 2020 to average 644,000 b/d. Imports from Mexico have been very volatile, especially over the previous summer with imports being affected by a record active hurricane season along with port issues partly due to Covid and other operational issues. Imports have declined in 2021, with the monthly average declining 135,000 b/d MoM in Feb to 469,000 b/d and declined again by 31,000 b/d to 438,000 b/d in March.

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Figure 24: Historical US Weekly Oil Imports from Mexico

Source: EIA, SAF

**Oil – Moscow Times "*Russia may have passed peak out output – government*"**

**Russia oil supply may have peaked**

No one should have been surprised by the Russian stories that Russia oil supply may have already peaked. There was a good reminder story this week out of Russia as to one of the reasons we are bullish on post Covid post 2022 oil. The Kommersant story was picked up in Moscow Times [LINK] reporting "*Russia May Have Passed Peak Oil Output – Government. Russia's oil production is unlikely to recover to pre-coronavirus levels, according to a government strategy document cited by Kommersant.*" and "*In a strategy document outlining prospects for Russia's critical oil and gas industry, the government said its "base case" — or most likely — scenario, is that Russia's oil production will never again hit the record levels recorded in 2019. In the last full year before the pandemic, Russia produced 560 million tons of oil — equivalent to 11.3 million barrels a day. But output dropped for the first time in more than a decade in 2020 as Russia agreed significant production cuts with Saudi Arabia and other members of the OPEC cartel in a bid to support oil prices at the start of the pandemic — pushing production down 9% to 10.3 million barrels per day. In the scenario labelled most probable, the Energy Ministry predicts Russia's oil output will grow over the rest of the decade — but fail to hit the record output of 2019, with production hitting a post-coronavirus peak of 11.1 million barrels a day in 2029 before decreasing to to 9.4 million barrels a day by 2035.*" Our Supplemental Documents package includes the Moscow Times report.

**Russia's Sorokin says only 36% of oil reserves are profitable**

We said this should not have surprised and tweeted [LINK] a reminder that Russia's #2 in energy behind Novak, Pavel Sorokin, gave some surprising comments on Jan 27. Its why we titled our Jan 31, 2021 Energy Tidbits memo "*Russia Says Increasing Water Cut, Deteriorating Development, Etc Mean Only 36% of Its Oil Reserves are Profitable*". At that time, we wrote "Imagine what markets would say if Exxon were to come out in their year end reporting and say that 64% of its existing oil reserves are not profitable at >$50 oil. The stock would be creamed as markets would think Exxon wouldn't have oil growth potential and its oil production had likely peaked. This is what Russia said this week for their oil reserves. We were surprised by a TASS Russian news story on Wed morning and would have thought it was a fake if it wasn't on TASS as we would never have thought Russia's #2 oil official (after Novak) would be saying what he did. We tweeted [LINK] "*1/2. must read, bullish for oil @tass_agency story "only 36% of oil reserves in Russia are profitable". multiple indicators of maturing oil supply ie. deeper, smaller pools, etc. Effectively says RUS has more or less reached peak oil supply unless #Oil prices are higher #OOTT* .." and [LINK] "*2/2. surprising RUS lays this out, but fits to Novak's Dec comments and*

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*why they would want higher oil prices for 2020s sooner. see SAF Group blog Russia Says its a Price Taker at $45 in 2021, May Be the New Strategy Needed for OPEC+ to Fix Post Covid OIl Prices For 2020s. #OOTT*". TASS wrote "*Only 36% of 30 billion tons of oil reserves in Russia are profitable, which is associated with the deterioration of development conditions and a drop in the quality of reserves, writes the Deputy Minister of Energy of the Russian Federation Pavel Sorokin in an article for the Energy Policy magazine. "According to the data of the inventory of the economics of field development, carried out on behalf of the Russian government, out of 30 billion tons of recoverable oil reserves in Russia, only 36% is profitable in the current macroeconomic conditions. This is due to the deterioration of development opportunities: an increase in water cut, the need to permeability and compartmentalization of reservoirs, withdrawal into marginal zones and strata with small thicknesses, and so on, "Sorokin explained.*" This is significant, Sorokin is basically saying Russia has more or less reached peak oil supply, or at least peak oil supply unless prices are going higher. Maybe there is some growth but Russia has to first arrest declines." There were additional comments on this, and Our Supplemental Documents package includes the Google Translate version of the TASS Russian story and our full commentary from our Jan 31, 2021 Energy Tidbits on the Sorokin comments.

**Oil – OPEC MOMR increases 2021 demand by 190,000 b/d vs last month**

**Slight increase to OPEC 2021 demand forecast**

OPEC released its Monthly Oil Market Report on Tues. The overall takeaway of the new April MOMR is a small positive. Demand was revised up slightly, but based on the OPEC+ meeting comments, we think it was likely that most were expecting a lowering of oil demand forecast in 2021. And the OECD stocks continue to improve relative to the 2015-2019 average. (i) OPEC's Apr demand forecast vs Mar forecast in brackets. Apr demand for 2020 of 90.51 mmb/d (90.39), Q4/20 revised up slightly to 94.21 (94.13). For 2021, OPEC slightly increased its demand growth to +5.95 mmb/d (5.89). Apr forecast for 2021 demand of 96.46 mmb/d, up slightly from 96.27 mmb/d in the Mar forecast. OPEC increased Q1/21 by 0.40 mmb/d but decreased Q2/21 by 0.52 mmb/d. But OPEC sees stronger economic rebound than assumed last month so overall 2021 is up. QoQ ramp up remains strong with Q3/21 2.66 mmb/d QoQ (+1.82) and Q4/21 +1.70 mmb/d (+1.48). Note Q4/21 of 99.45 mmb/d is still below Q4/19 of 100.79 mmb/d. (ii) OPEC Mar production per "secondary sources" in total was up 201,000 b/d to 25.042 mmb/d, which is slightly below the Bloomberg survey which showed production of 25.330 mmb/d. As expected the key reason for the MoM increase was Iran at +137,000 b/d to 2.304 mmb/d. One surprise is Venezuela was basically flat at 525,000 b/d in March vs the Bloomberg survey which had a 30,000 b/d decrease to 440,000 b/d. Given the report from last week on allocating diluent to refineries instead of blending with 10-12C for transportation, the Bloomberg survey made sense, but that concept isn't in the Secondary Sources march estimates. (iii) OPEC revised non-OPEC supply up 42,000 b/d for 2020 so now a 2.52 mmb/d decline to average 63.83 mmb/d. For 2021, growth was revised down 18,000 b/d for YoY growth of 930,000 b/d to average 63.83 mmb/d. OPEC is expecting a 0.09 mb/d YoY decline in US crude to 11.24 mmb/d for 2021. Canada growth was revised up slightly to 0.31 mmb/d YoY vs 0.30 mmb/d in Mar. OPEC notes that they are accounting for the Q2 turnaround season with Q2/21 supply -0.37 mmb/d QoQ. (iv) On stocks, Feb stocks were better than Jan. Feb was down 44.9 mmb/d MoM to 2.978 mmb, 94.1 mmb higher YoY, and 29.0 mmb above the latest 5 yr avg and 57 mmb above the 2015-2019 avg. Note, the March MOMR estimate Jan OECD commercial oil stocks at Jan 31 were +125.7 mmb vs 2015-2019 average. Additionally, Feb was actually a little better as Jan was revised lower. April estimate assumes Jan was 3,023 mmb whereas March MOMR estimated Jan at 3,052 mmb. (v) Call on OPEC was increased for 2020 by 0.1

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mmb/d to 22.5 mmb/d. The call on OPEC for 2021 was also revised upwards to 27.4 mmb/d, +4.9 mmb/d YoY. The YoY growth remains the same with the 0.1 mmb/d increase to 2021 reflecting the 2020 increase. Our Supplemental Documents package includes excerpts from the OPEC MOMR.

**Oil – IEA OMR, sees 2 mmb/d undersupply in the market in H2/21**

**IEA sees undersupplied market in H2/21**

The IEA released its monthly Oil Market Report for April on Wed. They only release very limited public info, but fortunately Bloomberg did their normal IEA market wrap and stories. (i) On our first read, we tweeted [LINK] on the key positive – the sees the need for 2 mmb/d in H2/21. The big headline from the IEA OMR is that while they expect some order of price weakness in the near term as OPEC+ restores some production, the second half of the year will still be tight. The IEA press release states *"The market changes dramatically in the latter half of this year as nearly 2 mb/d of extra supply may be required to meet expected demand growth - even after factoring in the announced ramp-up of OPEC+ production".* (ii) Increase to 2021 demand driven by China and US. 2021 oil demand forecast was revised up 230,000 b/d to +5.7 mmb/d YoY to average 96.7 mmb/d. IEA revised China demand up 160,000 b/d on average for 2021. For the US, IEA cut its Q1/21 demand by 120,000 b/d, but then had big revisions of +360,000 b/d in Q2/21, +370,000 b/d in Q3/21, and +110,000 b/d in Q4/21 for an overall +180,000 b/d revision on average for 2021. Oil demand doesn't get back to pre-covid levels during forecast period, Q4/21 forecast is 99.5 mmb/d, vs Q4/19 of 100.7 mmb/d. (iii) OPEC March production was up 0.21 mmb/d to 25.05 mmb/d. The IEA has Iran up 0.11 mmb/d MoM to 2.30 mmb/d in March and estimates Iran exports to China were 0.6 mmb/d in March vs an average of 150,000 b/d in the first nine months of 2020. (iv) Immaterial changes to their non-OPEC supply forecasts, lowering growth by 0.1 mmb/d to average 63.8 mmb/d in 2021. Of note, Norway is expected to reach 10-yr production high by year end driven by Johan Sverdrup which is expected to hit 535,000 b/d by midyear, 85,000 b/d above original expectations. For Brazil, Bloomberg wrote *"Brazil is on track to make up last year's oil output losses, but Covid outbreaks may frustrate this effort, IEA says in its monthly report. * Data for early April show production up 200k b/d from an estimated 2.8m b/d in March".* (v) In the OMR, the IEA highlighted that global refinery throughput reached YoY levels in March for the first time since 2019 due to a strong recovery in the US along with increases from China and Middle East, while no surprise, Europe continues to lag. For runs going forward, Bloomberg wrote *"Crude runs in Americas and Europe will rise q/q in 2Q while Asian throughput is forecast to fall ** Chinese runs will decline m/m in April * Still, IEA notes that the peak in refined product demand was 2018 and refinery throughput won't return to the pre-pandemic peak before 2023".* (vi) For global stocks, the IEA wrote *"OECD industry stocks fell for the seventh consecutive month in February, by 55.8 mb or 2 mb/d, led by a sharp draw in product inventories (-66.8 mb). At end-February, total oil stocks stood at 2 977 mb, reducing the overhang versus the 2016-2020 average to 28.3 mb. March data for the US, Europe and Japan show that industry stocks built by a combined 15.3 mb in total".* (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.

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Figure 25: IEA OMR Global Demand Forecast

| mmb/d | 2019 | Q1/20 | Q2/20 | Q3/20 | Q4/20 | 2020 | 20-19 | Q1/21 | Q2/21 | Q3/21 | Q4/21 | 2021 | 21-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apr 21 | 99.7 | 93.7 | 82.9 | 92.6 | 94.7 | 91.0 | -8.7 | 93.7 | 95.1 | 98.3 | 99.5 | 96.7 | 5.7 |
| Mar 21 | 99.7 | 93.8 | 82.9 | 92.7 | 94.7 | 91.0 | -8.7 | 93.9 | 95.0 | 97.8 | 99.2 | 96.5 | 5.5 |
| Feb 21 | 99.6 | 93.8 | 82.9 | 92.7 | 94.7 | 91.0 | -8.6 | 93.7 | 94.9 | 97.9 | 99.2 | 96.4 | 5.4 |
| Jan 21 | 99.9 | 94.1 | 83.1 | 93.0 | 94.5 | 91.2 | -8.7 | 94.1 | 95.2 | 98.1 | 99.0 | 96.6 | 5.4 |
| Dec 20 | 99.9 | 94.1 | 83.1 | 93.0 | 94.7 | 91.2 | -8.7 | 94.7 | 95.4 | 98.0 | 99.2 | 96.9 | 5.7 |
| Nov 20 | 99.9 | 94.0 | 83.0 | 93.2 | 94.9 | 91.3 | -8.6 | 94.9 | 95.8 | 98.4 | 99.1 | 97.1 | 5.8 |
| Oct 20 | 99.9 | 94.1 | 83.0 | 93.6 | 96.1 | 91.7 | -8.2 | 95.6 | 96.1 | 98.2 | 98.8 | 97.2 | 5.5 |
| Sept 20 | 99.9 | 93.9 | 83.0 | 93.7 | 96.0 | 91.7 | -8.2 | 95.6 | 95.8 | 98.2 | 98.9 | 97.1 | 5.4 |
| Aug 20 | 99.9 | 94.1 | 83.2 | 93.8 | 96.7 | 91.9 | -8.0 | 95.4 | 95.8 | 98.6 | 98.7 | 97.1 | 5.2 |
| July 20 | 99.9 | 94.0 | 82.9 | 94.3 | 97.1 | 92.1 | -7.8 | 95.5 | 96.2 | 99.0 | 98.9 | 97.4 | 5.3 |
| June 20 | 99.9 | 93.9 | 81.4 | 94.6 | 96.9 | 91.7 | -8.2 | 95.6 | 96.6 | 98.7 | 98.7 | 97.4 | 5.7 |
| May 20 | 99.9 | 93.5 | 79.3 | 95.1 | 96.9 | 91.2 | -8.7 | - | - | - | - | - | - |
| Apr 20 | 99.8 | 93.3 | 76.1 | 95.0 | 97.6 | 90.5 | -9.3 | - | - | - | - | - | - |

Source: IEA, SAF

**Oil – Aramco OPM push could include "supply-chain finance to free up cash"**

**Aramco continued OPM push**

We have been highlighting our expectation for Saudi Aramco to be expanding their use of Other People's Money most likely via equity/debt issuances and infrastructure sales, but we had not been expecting them to use supply chain finance. Yesterday morning, we tweeted [LINK] on the WSJ story "*Saudi Aramco Looks to Supply-Chain Finance to Free Up Cash*" [LINK]. The WSJ wrote an Aramco spokesperson confirmed they were exploring a supply chain financing initiative. Basically what the WSJ reported so it could "*finance billions of dollars in payments to its suppliers, the latest in a series of moves by the crude giant to generate cash in a low-oil price world, according to people familiar with the proposal."* Sounds like the issue is that local suppliers who probably have a tough demanding to be paid by the national oil company are not paid very quickly. The WSJ wrote "*The Saudi government, which owns almost all of Aramco's shares, wants small companies that do businesses to get paid more quickly, as a form of economic stimulus. Last year, it pledged $13 billion to expedite payments for government contractors. There is often a long delay in payments to Aramco's suppliers, some of the people said. Aramco has more than 10,000 suppliers in Saudi Arabia, according to people familiar with the company and one of the documents reviewed by the Journal".* Our tweet noted that this reinforces markets and capital providers should be looking for more Aramco OPM deals in 2021. Our Supplemental Documents includes the WSJ report.

**Oil –JCPOA discussions are continuing so haven't broken the chance for a deal**

**JCPOA discussions are continuing**

Our news cut off is 7am MT. And we haven't yet seen any specifics from US officials on the weekend meetings. However, the key insight is from Biden's Friday afternoon comments on JCPOA. He reminds that he wants to get back into JCPOA, the US should never have left and he is pleased the discussions are continuing on how to get back into the JCPOA. The common message from Iran, Europe and Russia seems to be positive meetings, some progress being made but still work to be done. The key item to note is that meetings are continuing. The main messaging seems to come from Iran. Earlier this morning, Bloomberg reported "*World powers working to end the standoff between Iran and the U.S. are due to reconvene Sunday amid signs of a thaw that may lead to a revival of the 2015 nuclear deal and reduce tensions in the energy-rich Persian Gulf. Iran's lead negotiator, Deputy Foreign Minister Abbas Araghchi, said Saturday a "new understanding" was taking shape at the talks in Vienna and that his country would start work on a full draft text for negotiators to discuss. While the U.S. hasn't yet responded, the European Union and Russia echoed his optimism without suggesting a breakthrough was imminent."* Last week, we wondered if the JCPOA meetings in Vienna on April 14 would be a make or break event. The key for us is that the discussions have reported shifted to the details and there seems to be progress. The

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feedback is all to the positive, although reserved as to the ultimate success. On Friday, we tweeted [LINK] on Biden's comments on the JCPOA status at his press conference with Japan PM Suga. We call getting Iran back to the JCPOA compliance as one of his moon shots for 2021 that he wants to accomplish. Note that we listened to the press conference replay and think the White House made a typo in using the words "in direct" and should have used "indirect" as in Iran continuing its indirect discussions with the US as opposed to direct face to face discussions. The White House transcript [LINK] said " *Let me respond to the Iran question. We do not support and do not think it's at all helpful that Iran is saying it's going to move to enrich to 60 percent. It is contrary to the agreement. We are, though, nonetheless pleased that Iran has continued to agree to engage in discussions — in direct discussions with us and with our — our partners on how we move forward and what is needed to allow us to move back into the JOPCA [JCPOA], and so that we are a part of it again — that we should have never gotten out of, in my view — without us making concessions that I'm — we're just not willing to make. And so the discussions are underway. I think it's premature to make a judgement as to what the outcome will be, but we're still talking*." And then yesterday morning, we tweeted [LINK] on the key development "*#JCPOA. experts been working (and still working) on details last couple days. Now an official meeting, feels like its to tick the box on at least some of less contentious items to show progress. Likely why @POTUS was positive yesterday. #OOTT*". Our Supplemental Documents package includes the excerpt from the White House transcript of Biden's comments.

**JCPOA discussions are continuing**

### Oil –FT reports Iran and Saudi senior officials met in Iraq

Yesterday, the FT reported "*Saudi and Iranian officials hold talks to patch up relations*" [LINK] *"Senior Saudi and Iranian officials have been holding direct talks in a bid to repair relations between the two regional rivals, five years after they cut off diplomatic ties, according to three officials briefed on the discussions. The negotiations, which took place in Baghdad this month, are thought to be the first significant political discussions between the two nations since 2016 and come as Joe Biden seeks to revive the nuclear deal Iran signed with world powers in 2015 and de-escalate regional tension."* As the official notes, this is moving faster because of the US JCPOA talks and also because of the escalating Houthi attacks. There were a number of denials on Twitter, but we remind on how the Saudis denied the reports that Netanyahu made a secret visit in Nov to meet with MBS and Pompeo. The FT report also says "*Saudi Arabia is keen to end its war in Yemen against Iranian-aligned Houthi rebels, who have stepped up their attacks against Saudi cities and oil infrastructure. The Houthis have launched dozens of missiles and explosive-laden drones into the kingdom this year.*" It will be interesting to see how the coming years play out in Saudi Arabia. The big MBS plans/priorities haven't worked and this report, if true, suggests that Saudi Arabia wants to end two of MBS key priorities (fight against Iran and the Houthis). No question Biden's recalibrated relationship changes Saudi Arabia's perceived strength. But we also have consistently reminded on how Saudi needs to stop the raiding their safety net of net foreign reserves. So it makes economic sense that Saudi needs to somehow stop the billions it spends every year fighting the Houthis and in defense against potential attacks. Our Supplemental Documents includes the FT report.

### Oil – China's oil imports +17% YoY in Jan/Feb to 11.13 mmb/d

**China oil imports**

China's strong import demand has continued into March. Bloomberg reported that China customs data showed March imports were 11.69 mmb/d, down slightly from the Feb average of 11.73 mmb/d and up from 9.09 mmb/d in December. March is up 21% YoY, but keep in mind this is off a relatively low base as Covid had hit early 2020 imports. Q1 oil imports averaged 11.29 mmb/d, up 10.7% YoY from 10.2 mmb/d in Q1 2020. Imports remained strong in March due to refinery throughput and a seasonal increase in demand as

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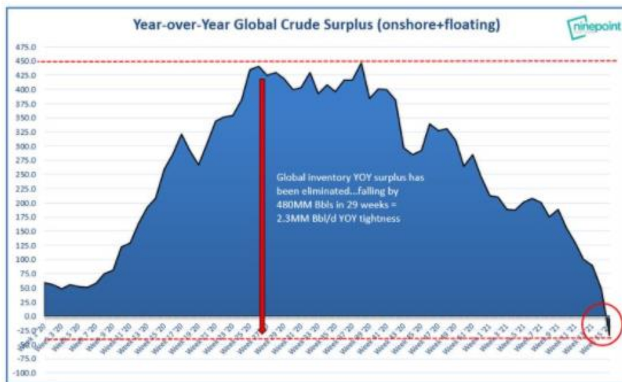
infrastructure projects ramp up again. Refinery throughputs had increased 19.7% YoY in March to 14.08 mmb/d. Though as maintenance season is now beginning, imports may fall slightly in April.

### Oil – Global oil inventory surplus has been eliminated

**Global oil inventory surplus eliminated**

Great charts and insight again this week from Ninepoint Energy Fund PM Eric Nuttall in his tweet [LINK] "*Big milestone achieved this week in the oil market: Kpler data showing the year-over-year global inventory surplus has been eliminated. Inventory draws to further accelerate as demand seasonally improves and vaccine rollout = more flying and driving. $70WTI in 2H'21.*" The correcting oil inventory surplus is not a new revelation for Eric, rather he has been tweeting on this for some time. I may not follow a lot of people on Twitter, but I do follow Eric and he regularly tweets on the correcting inventory. We don't have access to the paid global storage data so his tweets are big value add. Below are the two graphs in his tweet.

Figure 26: Vortexa Global Floating Storage Level (5yr)




Source: Kpler, Eric Nuttall Ninepoint Energy Fund

Figure 27 Global Onshore Inventories

Source: Kpler, Eric Nuttall Ninepoint Energy Fun

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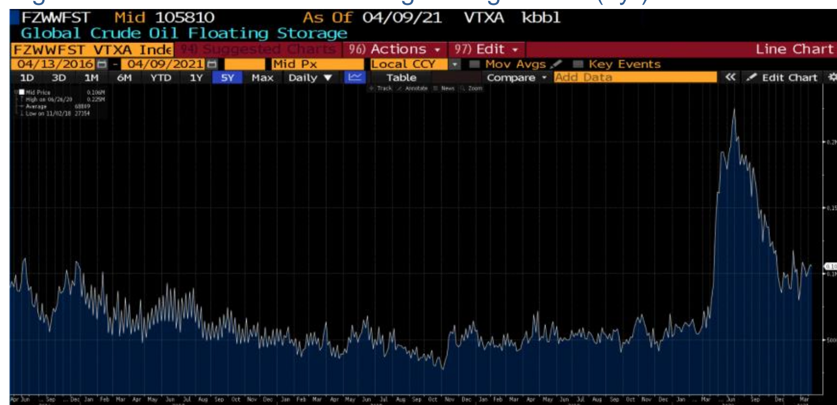
### Oil – Vortexa floating storage -1.0% WoW, Braemar hits 11-month low

**Vortexa and Braemar floating storage**

The Suez Canal blockage and traffic jam looks to have cleared from floating storage data, which should reduce some of the volatility in the data. (i) Bloomberg reported on Vortexa floating oil data that showed a WoW decrease of 1.09 mmb or +1.0% WoW to 105.81 mmb on April 9 from 106.90 mmb on April 2nd. Vortexa revised down the previous week's level significantly from 113.35 mmb to 106.90 mmb. This makes sense as there likely was still affects of the Suez blockage as it wasn't back to normal until April 3. Floating storage is down 51.1% since the June 19 peak of 216.38 mmb but is still 28% higher than a year ago. The Middle East was up 40% WoW to 8.63 mmb, while the U.S. Gulf Coast was down 52% WoW to 2.36 mmb. (ii) Bloomberg later reported on the Braemar data. Braemar doesn't estimate the barrels of oil in floating storage but notes there was a decrease of 12 VLCC in floating storage to 30, which is the lowest since at least May 26, 2020 when Bloomberg began compiling data. Total tankers of 229 as of Apr 12 is flat WoW. Our Supplemental Documents package include the Bloomberg Vortexa report.

Figure 28: Vortexa Global Floating Storage Level (5yr)




Source: Bloomberg, Vortexa

### Oil – Bloomberg Oil Demand Monitor, Europe's lockdown slows mobility recovery

**Bloomberg's Oil Demand Monitor**

We recommend reading the weekly Bloomberg terminal Oil Demand Monitor for a good recap of key oil demand indicators around the world. Although gasoline demand in India rose to a four-month high in March, energy consumption is set to drop this month as India is experiencing a resurgence in cases. Mumbai will have a strict lockdown from late Friday until Monday morning during this month and a curfew every night in an effort to slow the spread. Due to a slow vaccine roll-out in Japan, the government has imposed new restrictions in Tokyo, Kyoto and Okinawa for the next month. Conversely, congestion on Chinese city streets rose again this week. In Shanghai, journey times were up 22% MoM and 42% higher than they were in 2019. Beijing also experienced increased congestion at 18% higher than in 2019. In Europe, oil demand continues to be mixed while generally lagging other geographies. The UK is experiencing rising fuel sales, but these levels remain below last summer's levels. The picture US oil demand continues to improve with total vehicle miles traveled just 2% under the comparable 2019 week, experiencing a boost from the Easter weekend. However, city traffic is still down big from 2019 levels – New York (-42%) and L.A. (-56%). Passengers going through TSA checkpoints has fallen slightly from the high on Easter weekend, but with the 7 day moving average at 1.469mm people, it is still 37% below 2019 levels. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

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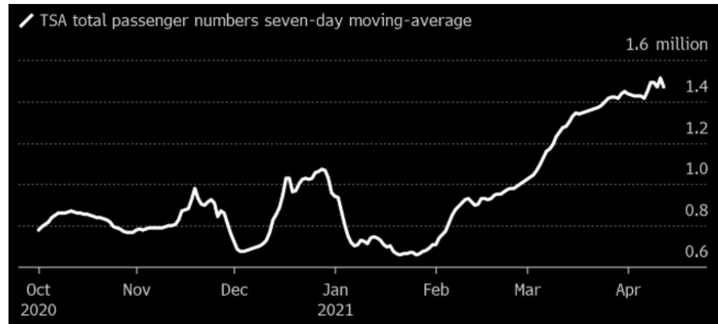
Figure 29: U.S. Airline Passenger Throughput



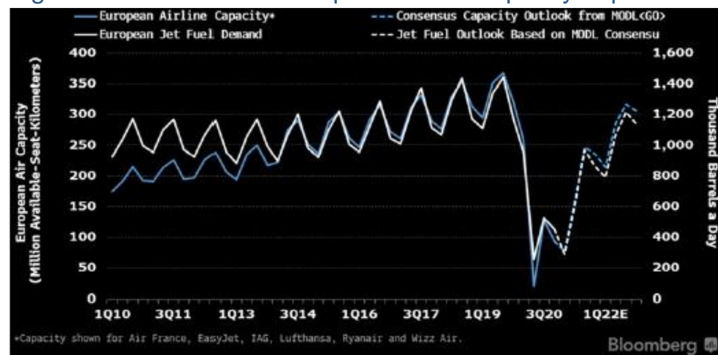

Source: Bloomberg, Transportation Security Administration

**Oil – Bloomberg, Europe jet fuel to return to normal in 2023 or later**

**European jet fuel demand won't return to normal until 2023 or later**

Europe has been hit hard by covid and related restrictions, and likely will continue to lag other geographies in terms of demand recovery for some time. As a result of continued strict travel restrictions, Europe air travel has fallen the furthest behind. According to Bloomberg, European jet fuel demand could be 600,000 barrels a day lower in 2021 vs 2019's pre-pandemic demand, reaching average consumption of only 700,000 b/d in 2021 vs 1.3 mmb/d in 2019. This would only be up 160,000 b/d vs 2020. Available seat kilometers, a good proxy for fuel demand is expected to be well below 2019 levels this year for all European airlines. Bloomberg is expecting that many European carriers won't see a full recovery until 2023 or later with capacity in Q4/22 total capacity may still be 5% below Q4/19. Weak jet fuel means the European refinery margins may remain challenged as long as jet fuel consumption remains depressed. Bloomberg wrote *"This comes amid potential structural declines in other parts of the barrel driven by rising plug-in sales and green reforms, which could knock total European crude consumption down to about 12.2 million barrels a day in 2025, or about 1.6 million barrels a day lower vs. 2019".* Below is a graph of Bloomberg's consensus capacity expectations.

Figure 30: Consensus European airline capacity expectations




Source: Bloomberg

**Oil – France bans short-haul domestic flights where train alternatives exist**

**Bans short-haul flights where train alternative is 2.5 hours**

Besides the slow pace of mobility recovery in Europe keeping jet fuel demand lower for longer, France has made a move that if followed by others would increase the likelihood that jet fuel demand in Europe never reaches 2019 levels again. BBC reported that last weekend [LINK] France moved to ban all domestic flights where a train route exists that is under 2.5 hours travel time. The original proposed plan was for banning flights were train rides under 4

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hours but it was ultimately set to 2.5. The issue for European jet fuel demand is that others will surely follow this mandate. The reality is that many of the EU countries are too small, but the question is if countries like Germany, Italy, Spain, and Poland follow, how much jet fuel demand would be wiped out permanently.

**Oil & Natural Gas – Dems "End Polluter Welfare Act" would hammer oil, gas and coal**

**"End Polluter Welfare Act"**

We are a little surprised US oil and gas and coal stocks weren't hit hard on Friday, but it must be that US investors believe the Sanders/Omar bill "*End Polluter Welfare Act"* has no chance of passing and will be significantly watered down. We are concerned that even a watered down version will be a big hit the oil and gas sector. Our Thursday night tweet [LINK] said this bill would be a crippling blow to oil and natural gas and needs Senator Joe Manchin to take a hatchet to the bill. Sanders/Omar followed up on Biden's plan that says will end subsidies and loopholes for the fossil fuel industry. We recognize that this is the Dem introduced version and there will have to be a Senate version (has to be less) and ultimately a Biden signed off version. The question isn't if this gets done or not, I think the question is where does the final version end up? Removing subsidies is a Dem position. But we have to believe its gets negotiated lower. We raised this point with the current review of "fossil fuels" leasing programs on federal lands. Its not just that the are fossil fuels, the bill makes sure they are framed as polluters. There is no way a Sen Manchin from a coal state will sign off on this proposed bill. We recommend reading the summary of the bill. If this is passed, it doesn't take a rocket scientist to see that the oil, gas, coal, etc get hammered big time. Our fear is that even it is only half as bad, we think it will still be brutal. The bill goes thru item after item that will materially increase costs, taxes, longer writeoff periods, etc that will hammer cash flows and returns. It also increases liability exposure for the oil and gas companies. Plus it does more than hit oil and gas companies, it will serve to cut off capital to oil and gas. The bill says "*Eliminates the liability loophole in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), which allows large financial institutions or major investors to avoid liability for the environmental damage caused by their investments"*. We recommend reading the summary. Our Supplemental Documents package includes the 6-pg summary of the bill and the Sanders release announcing the bill. [LINK]

**Oil & Natural Gas – Look for new US/CAN methane emissions reductions very soon**

**Increased methane emissions reduction on oil and gas**

The US and Cdn oil and gas sector should expect new stronger common methane emissions reductions requirements, which should come as early as this week ahead of the Biden April 22/23 Climate Summit. We would expect the new requirements to hit all places within the oil and gas life cycle from drilling thru to the ultimate delivery of oil or natural gas to customers. On Monday, Canada's Minister of Environment and Climate Change, Jonathan Wilkinson, spoke with US Special Presidential Envoy for Climate, John Kerry on a high level ministerial dialogue on climate ambition. The readout was different in that it had some specific action items including reducing methane emissions on oil and gas with common US/Canada standards. The other reminder to the Cdn oil and gas sector is that this was a Liberal government release and it made sure it was clear that reducing methane from the oil and gas sector was their priority. The readout said "*Minister Wilkinson reaffirmed Canada's interest in taking a continental approach to addressing methane emission reductions from the oil and gas sector. The Minister proposed to build on the objective to reduce North American emissions by 40% by 2025—which Canada has continued to pursue over the last four years—toward the potential for a more aggressive 2030 policy reflecting recent statements by the International Energy Agency that countries should target a 75% emission reduction against forecast emission*s." Our Supplemental Documents package includes the Liberal government release. [LINK]

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**Oil & Natural Gas – China refinery intake expected to grow 4.5% in 2021**

**CNPC 2021 forecast**

CNPC had released a forecast for China's oil and product demand for 2021 on Friday. China's apparent oil demand is expected to grow 2.8% vs 2020 to 15.18 mmb/d. This increase will be partly fueled by a jump in crude imports of 3.7% YoY to average 11.23 mmb/d, up from a record 10.8 mmb/d in 2020 as China was on a buying spree to take advantage of the low oil prices for much of the year. Refinery throughputs are also expected to increase 4.5% YoY to 14.15 mmb/d. On throughputs, Argus wrote [LINK] *"The projected rise in throughputs is mainly the result of ramp-ups at private-sector ZPC's 800,000 b/d Zhoushan refinery, state-controlled Sinopec's 200,000 b/d Zhanjiang refinery and the new 320,000 b/d Lianyungang refinery operated by private-sector Shenghong Petrochemical".* With the increasing expectation for refining along with continued global demand recovery, net exports of gasoline, diesel, and kerosine are expected to rise 31.7% vs 2019. CNPC is also expecting China's natural gas demand to reach 34.27 bcf/d in 2021, up 8.6% YoY due to increases in heating demand, power generation, and industrial use. LNG imports are also expected to average 10.01 bcf/d in 2021, up from the 2020 average of 8.83 bcf/d. LNG import capacity is expected to grow significantly to 2025, with Reuters writing *"We expect around 100 million tonnes per annum of LNG receiving capacity to be added over 2021-2025. But such big amount of new capacity would lower the utilisation rates at LNG terminals," said Wu Minjie, senior economist at CNPC's ETRI".* Our Supplemental Documents includes the Argus report.

**Oil & Natural Gas – New Sask budget provides help for oil & associated gas**

**Sask 2021/22 budget**

We have to give Alberta Premier Kenney and Saskatchewan Premier Moe credit as they keep trying to help the oil and gas sector survive and be positioned for growth. Saskatchewan released its 2021-2022 budget on Wednesday which featured a few key energy related items. (i) Projecting a deficit of $2.6b, improving over the next 3 years with a deficit of $1.7b in 2022/23, $1.2b in 2023/24, and $770mm in 2024/25 and reaching a balance in 2026/27. (ii) Associated natural gas royalty moratorium. This will impact any oil play that has associated natural gas such as the Bakken. The moratorium is over a 5 yr period to March 31, 2026 where zero royalties on associated natural gas production. The objective is also to stop venting/flaring of natural gas, and also to encourage produces to invest in new methane emissions reduction projects. (iii) High water-cut oil royalty structure. Encourage capital to increase recovery and rate from high water cut wells ie. wells over 90% water cut either producing or suspended for 6 consecutive months. $20k per well must be spent and these wells will receive a 2% royalty rate reduction on all their production. Its also a 5 yr program until March 31, 2016. (iv) One of the headlines against the budget was how Sask was going to tax EVs to effectively pay for a share of roads maintenance. This will be one of the big questions for all states and provinces on how they figure out how to get fuel tax revenues high enough to repair roads. Fuel tax revenues are not enough to pay road maintenance capex ie. 2019/20 fuel tax $454 mm vs road maintenance of $616 mm As a result, EVs to pay $150 every year in a new annual tax. (v) The budget assumes WTI $55 in 2021 and 2022. Sask oil production forecast is 2021/22 of 438,000 b/d vs 410,000 b/d in 2020/21., plus continued small increases past 2021/2022. (vii The small business corporate income tax was eliminated Oct 1/20, but will return to 1% on July 1/22 and then to 2% July 1/23. Our Supplemental Documents package includes excerpts from the Saskatchewan Budget.

**Surprised no mention of mini-nukes in the Sask budget**

There was one surprise in the Sask budget and that was something that was not in the budget – the budget had zero mention of nuclear power or mini-nukes. Our June 28, 2020 Energy Tidbits highlighted Saskatchewan's June 24 announcement that

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they were setting up an office to look into the potential of small nuclear reactors for power generation. Mini-nukes are not a new idea. Long term readers might remember we first wrote on using mini-nukes to power the oil sands in the early 2000's when the former Cameco CFO told me this was something they were trying to get people up in Fort McMurray to do to power the oil sands. There was some interest, but there was more fear on nuclear at that time. Mini nukes make a lot of sense in various settings. Our Aug 19, 2018 Energy Tidbits had an item "Mini nukes for powering China's South China Sea islands makes sense". Our Nov 3, 2019 Energy Tidbits reviewed Saudi's plan to reduce emissions and we said "makes us wonder about nuclear power, especially mini nukes" for Saudi. The Sask release [LINK] said "*Small modular reactors are nuclear power reactors that can produce electricity in the range of 50 to 300 megawatts, as compared to current nuclear power plants that range between 600 and 1,600 megawatts. Small modular reactors are low emitting technology that can provide baseload power within an electrical grid*." The reason why we believe mini-nukes will gain traction is that they can be buried deep underground in cement bunkers. On June 26, 2020 we tweeted [LINK] *"Also key reason why mini-nuke power generation can be game changer not just for Sask. @Kim_Goheen exCameco reminds small 50MW modular reactor can be buried deep underground in cement bunker. Very small above ground footprint. Out of sight, out of mind*". Nuclear has many benefits, its clean energy and its provide the intense power needed to be able to power all industrial needs ie. make steel.

### Oil & Natural Gas– BP sells 49% stake in US pipelines for $700mm

**BP asset sale**

We continue to see international oil companies sell assets to pay down debt and this is including more deals to sell oil and gas pipeline infrastructure. Bloomberg reported on Monday that BP sold a 49% stake in a BP Pipelines US affiliate to Sixth Street for $700mm. Bloomberg wrote *"The sale of the stake in the affiliate, which includes pipelines tied to Whiting, the energy giant's largest refinery, fetched about $700 million, the person said. It forms the basis of a joint venture for future midstream investments, the person said, asking not to be identified discussing confidential information".* This partial disposition is part of BP's targeted reduction to $35b of net debt, which was reached in Q1/21. There was no specific release from BP on this transaction, however it was noted in their release for the net debt target update [LINK], BP wrote *"$0.7 billion from the sale of a 49% interest in a controlled affiliate holding certain refined product and crude logistics assets onshore US".*

### Energy Transition – Uniper to create hydrogen hub at Wilhelmshaven

**Uniper planning hydrogen production facility**

On Wednesday, Uniper announced that that they will be establishing a hydrogen hub on the coast of Germany in Wilhelmshaven [LINK] with commissioning expected in late 2020s. The hub is expected to include a green ammonia import terminal and ammonia cracker for producing green hydrogen, which will also be connected to a planned hydrogen network. Also to be included is a 410 megawatt electrolysis plant. These components together would be able to supply 295,000 metric tons of hydrogen, ~10% of expected hydrogen demand for Germany by 2030. Uniper also reminded of what seems to be the key use case for hydrogen, heavy industry. Uniper wrote *"It is essential that Germany and Europe remain industrial powerhouses: If we want to achieve this and still hit our ambitious climate protection targets, we need hydrogen to power sectors such as steel production, the chemicals industry or in freight, shipping and air transport".* The Uniper release also points to a key theme of the mismatch between clean energy aspirations/demand and the current and planned generation capacity. Uniper wrote *"Currently, Germany plans to generate 14 TWh of green hydrogen in 2030, but the demand for that year is forecast to be 90–100 TWh — the discrepancy between these two figures is abundantly clear".* What the release doesn't remind of is that Uniper had

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previously planned for this site to be a floating LNG import terminal. However, there was little interest shown during the period for binding bids for import capacity from Sept 22-Oct 30 2020. We have to wonder if part of the lack of interest in the LNG terminal was a reflection that natural gas users in Germany ultimately believe Nord Stream 2 will get done. Our Supplemental Documents package includes the Uniper release.

**Energy Transition – India, natural gas is needed in the hydrogen push**

**India to use natural gas infrastructure for hydrogen blending**

The push for hydrogen use as new energy source has accelerated significantly over the last few years, however the main barrier of significantly higher costs and infrastructure requirements remains. India is planning to speed up its build out of hydrogen infrastructure, hoping to piggy back off existing natural gas infrastructure. Platts wrote on Pradhan's comments [LINK] *"Presently, as in the case of other countries, our petroleum sector is the largest producer of hydrogen for various refinery process operations. Hence, we realize the petroleum sector's capability to produce hydrogen molecules, stored and traded as gas, making it a natural votary of this new energy form".* Indian Oil Corp is working on a technology to develop hydrogen blending into compressed natural gas to be used in automotive and domestic cooking applications. Platts wrote *"Under this process, the entire CNG of a pump station passes through a new reforming unit and part of the methane gets converted into hydrogen, with the outlet product having 17%-18% hydrogen".* Our Supplemental Documents include the Platts report.

**Energy Transition – Many great insights from Shell's Energy Transition Strategy**

**Shell's Energy Transition Strategy**

We recommend reading Shell's Energy Transition Strategy [LINK] as it provides excellent insight on the energy transition challenge, opportunity and specific action areas. We may point out a few negatives, but this is an excellent report and kudos to Shell. For companies that haven't put together their energy transition plans, this document will provide most key areas to consider. We could write pages on this strategy of relevant items and challenges and will do so over the coming weeks as we link back to this report. Below are just a few of the challenges/concepts to consider. Again, this is just the tip of the iceberg. Our Supplemental Documents package includes most of the Energy Transition Strategy report.

**Importance of policy driven initiatives on end use of energy**

One item that jumped out at us was Shell reminding that "*Of the more than $1.5 trillion extra annual spending on energy-sector investment which is required under the IEA's Paris-aligned Sustainable Development Scenario, 55% will need to be spent on end use or what is more commonly known as demand-side investment*." More than half of the extra spending is on demand side investment. A big chunk will be spent on items like EV charging, but there is much more. Shell says "*decarbonising the energy system requires structural change in the end use of energy as well. It requires energy users to improve, update or replace equipment so that they can use carbon-based energy more efficiently, or switch to low- and zero-carbon energy."* This isn't just EVs, it's a range of other items such as replacing coal and oil fired furnaces with electrical furnaces. This is also reminds that there are simple ways to deal with emissions – replacing coal/oil furnaces with electricity isn't complicated. But it also has huge implications to the energy mix.

**Sustainable aviation fuel is an "*uncompetitive choice for the airlines*"**

Our March 21, 2021 Energy Tidbits highlighted sustainable aviation fuel developments but also that the National Renewable Energy Laboratory [LINK] noting that this is not the silver bullet inferred to us that they know this higher cost Sustainable Aviation Fuel (SAF) isn't cost competitive. We said that that won't stop

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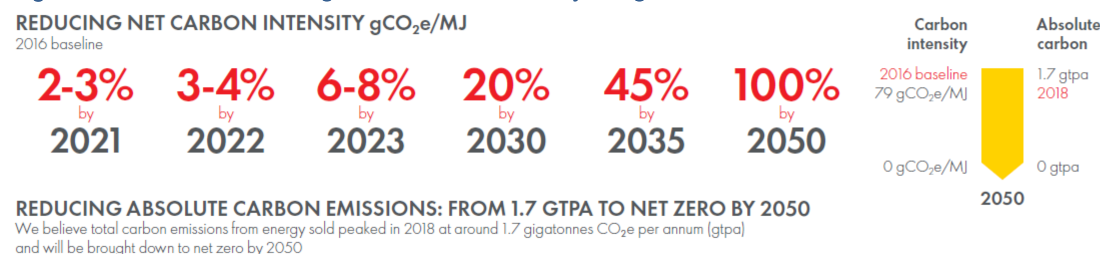
airlines from some small blending and passing on the costs. Shell's Energy Transition Strategy reminds SAF is not competitive. Shell wrote "*For example, if we invested in producing sustainable aviation fuel, and made it available on commercial terms at all the airports Shell serves today, the investment would not significantly lower our or society's carbon emissions. Most aircraft are not yet certified to fly on 100% sustainable aviation fuel and the cost of the fuel is considerably more than traditional jet fuel, making it an uncompetitive choice for the airlines."*

### Dispositions will be critical to hit near term carbon reduction targets

A couple of items to note from Shell's Reducing Net Carbon Intensity Targets. (i) Committing to Net Zero also means committing to specific interim targets to reduce carbon ie. 2030. And by doing so, it means taking action now. Shell provided its interim targets below. (ii) Dispositions are key to hitting near term targets. On Thursday, we tweeted [LINK] the below interim targets noting that dispositions will be critical to hitting near term targets ie. selling higher carbon assets to get them off the books to someone else. Shell doesn't say this in their Energy Transition Strategy but it is the logical interpretation by their decision to use 2016 as the baseline for carbon intensity as opposed to using 2018 or 2019 or 2020. We tweeted *"#NetZero. reminder dispositions will be key to how big #Oil makes immediate reductions to emissions. $RDSA provides detailed carbon intensity reduction targets to measured vs baseline of 2016. Shell sold its Cdn #OilSands to $CNQ in 2017. #OOTT #EnergyTransition."* We just think it is hard for any big oil company to make a good sized dent in their emissions without dispositions. All the big integrated oil moved to major dispositions programs to reduce debt following the Covid hit, we suspect most of these assets will be on their higher carbon intensity list.

Figure 31: Shell's Reducing Net Carbon Intensity Targets




Source: Shell

### Upstream funds the dividends and the energy transformation

This is not a surprise, rather a reminder that Upstream is crucial to both fund dividends and provide the capital to fund an energy transition. Shell doesn't say it specifically, but it is also a reminds of the relative cash flow generation of each sector and raises the challenge that Transition and Growth pillars have to get to much higher returns and cash flow generation if they are to fund dividends in the future. The dividends are funded from Upstream. Shell wrote "*Our business has three pillars: Growth, Transition and Upstream. Within each pillar, we expect the underlying businesses to evolve and transform as demand for our products changes, driven through our sector-based businesses. Our Upstream pillar delivers the cash and returns needed to fund our shareholder distributions and the transformation of our company, and provides vital supplies of oil and natural gas which the world needs today. Our Transition pillar comprises Integrated Gas, and our Chemicals*

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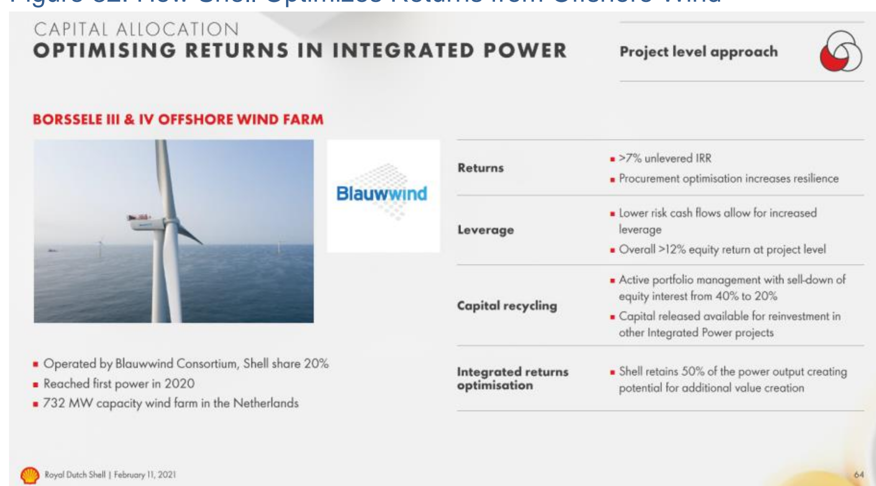
*and Products business, and it makes the products needed to enable the energy transition. It produces sustainable cash flow and gives us the asset infrastructure to support our investments in our Growth business. Our Growth pillar includes our service stations, fuels for business customers, power, hydrogen, biofuels, charging for electric vehicles, nature-based solutions, and carbon capture and storage. It focuses on working with our customers to accelerate the transition to net zero and is the foundation for the future businesses in Shell."*

### Reminds the way to get renewable returns up is to farm out and trading

There was another good reminder on how Shell get returns from renewable like offshore wind up to needed levels. Shell doesn't say it directly in its Energy Transition Strategy but clearly reinforces the key to renewable project returns is farming down interests, but marketing/trading output on behalf of the other project participants. In Offshore Wind, Shell wrote "*Shell is part of the Blauwwind Consortium that was awarded the right to develop, construct and operate the Borssele III and IV wind farm off the Dutch coast. Shell entered with a 40% share in 2016 and Shell Energy Europe Limited secured a contract to sell 50% of the power produced. We sold half of our joint venture partnership in 2018 when we brought on board an additional partner. The wind farm is now fully operational and has a total installed capacity of 731.5 MW, equivalent to powering 825,000 Dutch households. We still sell 50% of the power produced."* Shell starts with 40% interest, sells down to 20% interest, but retains the right to sell 50% of the output. The Blauwwind Consortium project is the same offshore wind project highlighted in Shell's Feb 11 Strategy day 2021. Shell outlined how it took a >7% unlevered IRR offshore wind project to get higher returns.

Figure 32: How Shell Optimizes Returns from Offshore Wind




Source: Shell

### Board of Directors responsibility is to set, not approve, company strategy

Our first thought as we started to read the Energy Transition Strategy was that the report starts with a message from the Chair, Chad Holliday and not starting with the CEO Van Buerden message. We look to Europe for governance leadership. We saw it on climate leadership and the difference today is that these governance issues,

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whether from companies or investors, seems to follow faster to North America than most expect. And then in Holliday's message, the chair clearly messages the board's role isn't just to check mgmt's strategy or oversee it or approve it. Rather the chair says clearly it's the board's responsibility to "set" strategy. He writes '*Your Directors recognise their responsibility to set the company's strategy. This is unchanged*." This is a clear statement. We will watch to see if Cdn boards start to state this clear responsibility to "set" strategy, or if investors start to want that clarity. The bottom line is that the role and responsibility of directors is increases, at least at Shell.

### Risk of Stranded Assets only spoke to existing oil and gas reserves

One of the headlines on the strategy was Shell estimating "*At December 31, 2020, we estimate that around 75% of our current proved oil and gas reserves will be produced by 2030 and only around 3% after 2040. We also estimate that around 70% of our proved plus probable oil and gas reserves, known as 2P, will be produced by 2030, and only 5% after 2040."* The reality is that every other oil company in the world other than oil sands would probably say the same thing. That the existing reserves will be mostly produced out by 2040. When we read it, it felt like something to make the climate change side happy ie. don't worry, we won't have oil and natural gas left in 20 years. Under their current plan on reducing capital allocation to Upstream, we fully expect their oil and gas reserves will be lower, we just don't how much lower. The other item that isn't addressed in this statement is what does the energy transition do the future value of oil and natural gas infrastructure ie. will there be stranded oil and gas infrastructure?

## Climate Change – Biden's new US climate ambition to be announced this week

**Biden's new climate targets expected this week**

Biden's climate summit is April 22/23 and the expectation is that he will announced the new US climate ambitions before the summit. We have to give Biden credit for being disciplined and focused on his moon shots for 2021, which includes climate change. Biden has been clear that climate change is one of his moon shoots. Our July 28, 2020 blog highlighted Biden's July 2020 "*The Biden Plan to Build a Modern, Sustainable Infrastructure and an Equitable Clean Energy Future*". [LINK] In our blog, we said that the most important takeaway for energy markets to understand is that Biden wants to put the US on "*an irreversible path to achieve net-zero emissions, economy-wide, by no later than 2050*". Our worry is that, to put the US on an "*irreversible path*", he will have to move fast and big in his first four years. Biden's plan, if implemented, will dramatically change the US energy mix to hugely reduce fossil fuels. In Friday's press conference with Japan PM Suga, Biden said clearly he will be committing to Net Zero, just like he warned last July. On Friday, Biden said "*Japan and the United States are both committed to achieving net zero emissions by 2050, and we know to do that will require setting and meeting our 2030 goals. And we'll work together to advance clean energy technologies and help nations throughout the Indo-Pacific region -- especially developing countries, develop renewable energies and decarbonize their economies.*" Biden's comments also reminded of something that most still don't appreciate about committing to Net Zero – it means committing to emissions reductions targets to an interim period (most use 2030) and that means actions need to be taken now to be on that path.

## Energy Transition – Biden's infrastructure bill adds 2.7mm jobs not 19 mm jobs

**Biden infra plan adds 2.7 mm jobs**

We know the energy transition is going to happen, unfortunately, it will take longer, be a bumpy road and cost more. We just believe that people should be prepared for the added costs and risks. And that applies to people. There will be more people costs, in great part because the new plans aren't going to create the number of new jobs as being portrayed to

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the public. This was put on display last Sunday. We give Transportation Secretary Buttigieg credit. Just like during the primaries, he doesn't duck interviews although he probably wished some other Biden official had gone on Fox News Sunday with Chris Wallace on Apr 11. Wallace was ready, ran a clip of Buttigieg on ABC This Week on April 4 saying the American Jobs Plan is "*going to create 19 million jobs*". Wallace then asks "*But it turns out the study you're citing from Moody's Analytics says the economy will add 16.3 million jobs without the infrastructure bill, and 2.7 million more with it. So it doesn't, as you said last Sunday, create 19 million jobs. Again, Secretary Buttigieg, why misled folks?*" Buttigieg replies "W*ell, you're right, I should have been more precise. The 19 million jobs that will be created are more than the jobs that will be created if we don't do the plan. And it's very important to make this point, as you've just showed* us." Wallace "*Right, but 2 million -- 2 million is not 19 million*." Buttigieg "*Now Moody's is saying that we will create 2.7 million -- yes, exactly, it will create 2.7 million more jobs than if we don't do it. And that's very important, because there are people on this network and others saying with a straight face that this would somehow reduce the number of jobs.".* Our Supplemental Documents package includes the Fox transcript.

**Energy Transition - Granholm new technology not much different than coal mining skills**

**Unions don't buy Biden's ease of job transition**

We wouldn't have included this item if we weren't surprised that the Biden administration hadn't changed its messaging on how easy it will be to transition fossil fuel workers to renewable energy jobs. We assumed the messaging would change after the Buttigieg Q&A on ABC This Week on April 4, when George Stephanopoulos asked "*from the Boilermakers Local 154 in Pennsylvania talked about this focus green new jobs. And he said, "They keep saying, we're going to transition you into solar jobs. That's not how it works. We build power plants, petrochemical plants and maintain steel mills. Would you ask Tom Brady to play middle linebacker just because he's a football player?"* Buttigieg's answer was probably as good as a non answer as possible, but certainly wouldn't have given the boilermaker any change of view. It turns out we were wrong to assume that type of exchange would at least cause a change in messaging on this job transition. But that wasn't the case as one week later on the ABC This Week, Energy Secretary Granholm spoke on the job transition "*Republicans and Democrats agree upon the importance of not leaving communities behind, where the market has moved in a different direction, like in coal. And so this will help to train people who are in that industry to move to these new technologies that are not a whole lot different from the skills that they may be using in mining coal."*

**Capital Markets – Long awaited Liberals budget is tomorrow**

**Liberals budget coming Apr 19**

Tomorrow is budget day in Canada and what isn't clear is how the recent increases in Covid cases in a number of provinces, in particular Ontario, have forced the Liberals to make some shifts in their plan. Its interesting to watch the media who favor the Liberals and how they have seemed to shift in the last 2-3 weeks as to where the Liberals have to deliver. Anyone who knows politics knows this is just part of working together with the media to make sure the budget is viewed as successful. The best example is how child care has emerged as one of the key issues for the Liberals budget. The challenge with the Covid outbreak and Canada's lagging in vaccinations will keep a priority on fighting the virus and not pivoting to a full on return to growth. It will be interesting to see how the Liberals success on Covid is messaged because, watching the political speakers on CBC and CTV, even the Liberals supporters are having a tough time saying the Liberals are doing a great job on vaccinations. The other big theme will be climate change, no surprise there and we expect to see the new enhanced commitment to Net Zero messaged as being the key for a better future for the economy by building back better. For revenue increases, my non scientific polling of people with some wealth and CEOs is they all believe the Liberals will look to taxation as a key way to raise

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revenues. Many of my contacts have already done some trading with a view of locking in capital gains under today's regime, as well as other personal tax planning.

**Capital Markets – New York State pension to sell remaining oil sands holdings**

**Pension targeting net zero by 2040**

One of the big challenges for oil sands companies is that there is a constantly shrinking pool of institutional investors as more institutional investors, in particular pension funds, commit to having their portfolio be Net Zero in the next 10 or 20 years. As they make that commitment, they start to take actions. This has happened more in Europe, but it has been coming to North America. This week, the New York State Common Retirement Fund announced on Monday [LINK] that they will be restricting investments in oil sands companies as part of their target for their portfolio to be net zero by 2040 and will be selling the remaining oil sands holdings. The New York State Comptroller stated *"We have carefully reviewed companies in the oil sands industry and are restricting investments in those that do not have viable plans to adapt to the low-carbon future. Companies responsible for large greenhouse gas emissions like those in this industry, pose significant risks for investors".* The fund is restricting and selling out of holdings in Imperial Oil, CNRL, Husky/Cenovus, MEG, Athabasca, and Japan Petroleum Exploration. This will result in a sell off of the remaining immaterial amount of securities that was disclosed as down to $7 million. Our tweet [LINK] noted that they did not say how much they have already sold to be down to $7 million. They are a $248 billion fund and there is no way they would have only had $7 million of stocks in 7 oil sands companies. So the question is how much did they sell already? We can't help note one of the reasons for this is that *"The Fund determined the following seven companies failed to show they are transitioning out of oil sands production".* Our Supplemental Documents package includes their release.

**Capital Markets – BlackRock positive on near term oil but not long term**

**BlackRock positive on near term oil but not long term**

BlackRock posted their weekly commentary on Monday, outlining their outlook for oil [LINK]. BlackRock is expecting that the near-term recovery will be the strongest driver for oil demand globally as mobility and other economic activity returns to normal levels. However, they are less bullish for the long-term oil demand and price picture. BlackRock wrote *"The first is oil and other fossil fuels. A strong economic restart may still support prices of oil and related assets in the near term. Yet the prospect of peak oil demand is now well accepted, and we see the "green" transition likely to erode oil demand over the long run".* Their bearish outlook on long-term oil is stemming from the energy transition and concerns on peak oil demand. Though they do not give a timeframe for their expected demand abatement, however it is likely a long way off given the current sluggish pace of development for usable and affordable renewable energy technologies. Use of new energy technologies is even further off in developing countries which are growing demand centers for oil and products. Our Supplemental Documents package includes their weekly commentary.

**Capital Markets – Other insights from BlackRock CEO on CNBC Squawk Box**

**Larry Fink on Squawk Box**

BlackRock also reported this week and the big story was the big inflows into funds. In addition, BlackRock CEO Larry Fink made his regular appearance on CNBC Squawk Box and, as usual, there were a number of insights from his comments thereon. (i) He highlighted there Is a record foundation of cash still sitting on the sidelines. He says he is incredibly bullish on markets. (ii) He is incredibly bullish on markets, warns its not without risk and noted the biggest risk we don't get to herd mentality. Unfortunately he didn't get a chance to expand as he was interrupted with another question. (iii) He wasn't as worried about interest rates, at least for now. (iv) We hadn't thought about the multiplier effect and he didn't say this but, he was asked about stimulus checks giving people money to invest it in the market. He said another reason is money saved during remote working. The example he used is the

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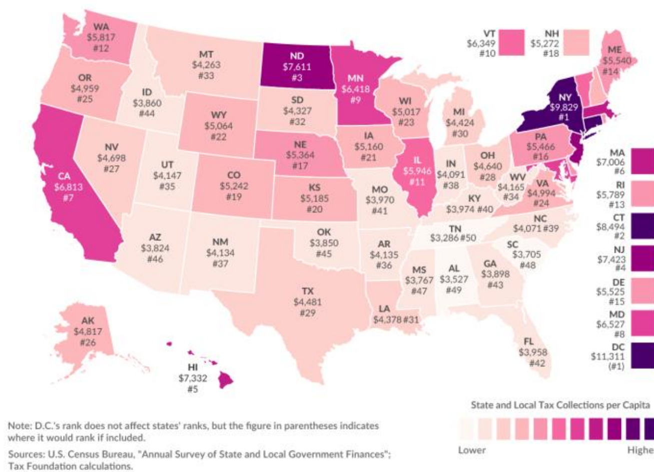
average New Yorker saves $400 to $500 a month remote working by not commuting. It doesn't make a difference what city, remote working probably going to save something like that. He didn't say this, but the simple math is that for every 1 million workers, that's $400 to $500 million a month! (v) Interesting comments on crypto. We tweeted [LINK] "*@andrewrsorkin ask on institutional money desperate to get into #Crypto. Fink says not so far with them. also "i do believe this could become a great asset class". Is it inevitable @blackrock eventually comes in to institutionalize space via funds/ETFs?* (vi) We also have to wonder about financial services challenges to get the best talent. In the 90's and first decade in the 2000s, anyone who wanted to make big big money came into financial services. You can still make big big money in financial services (look at Fink himself) but what has changed in the last 5 to 7 years or so is that there are alternative sectors to make big big money in addition to financial services. And now people can also make big big money in technology and crypto and other areas. We have to wonder if this is part of the reason why Fink highlighted the flexibility of office location to attract the best talent. We wonder if the real issue is that they aren't seeing all the best talent and aren't retaining all the best talent, and that the primary objective of his firm is attract and retain the best talent. its not as bad as the oil patch, but the concept is that there are other places that you can make big big money so they have to be flexible to do so.

### Capital Markets – See why high income move from NY and California to Florida/Texas

**Tax collections nearly half in FL and TX vs NY and CA**

The Tax Foundation published a guide comparing per capita tax collections by state [LINK]. Not surprisingly, New York ranked highest, coming in at $9,829 of tax collections per capita. If D.C. were included, it would have ranked #1, at $11,311 per person. California is also quite high-up in the rankings, with its citizens paying $6,813 each in taxes. North Dakota ranked #3, however this result is slightly misleading, the Tax Foundation wrote *"the resource-rich state generates a substantial part of its tax revenue from severance taxes on oil and natural gas, which are borne mainly by consumers outside North Dakota"*. With Texas and Florida ranking #29 and #42 respectively and charging less than half of NY's taxes per capita, it's no surprise why high-income earners are fleeing to these more tax-friendly states. Our Supplemental Documents package includes the Tax Foundation blog.

Figure 33: State and Local Tax Collections per Capita (2018)




Source: The Tax Foundation, U.S Census Bureau

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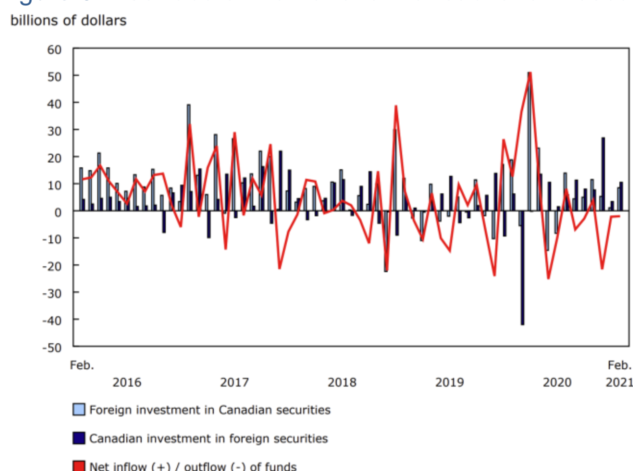
### Capital Markets – Cdns buy US shares, but foreigners buy Cdn shares in Feb

Stats Canada reported that over the month of February, Canadian investors acquired $10.5bn of foreign securities, while foreign investment in Canadian securities reached $8.5bn [LINK]. Of Canadian investors' $10.5bn in foreign investments, $9.7bn (94.2%) were in US shares and focused on large cap technology firms and investment fund shares that tracked broad market indexes. Canadian investors also had increased their holdings of debt securities by $958mm. On the other hand, foreign investment in Canadian securities reached a four-year high at $9.5mm, and shares of Canadian banks accounted for the bulk of these purchases. Below is a graph that shows Canada's international transactions in securities for the month of February.

**Foreign investment in Cdn securities reaches 4 yr high**

Figure 34: Canada's international transactions in securities (February)




Source: Statistics Canada

### Demographics – Canadian home prices expected to end year 13.5% higher than 2020

Royal LePage released its latest House Price Survey on Tuesday with some key insights into the Canadian housing market [LINK]. As of the end of Q1, the average price of a home in Canada is up 14.1% YoY to $749,165 as demand continues to exceed supply in almost every market. Home prices are expected to continue its YoY growth in Q4/21 to $805,000, +13.5% YoY mainly due to increased economic stability with the vaccine rollout and continued low interest rate environment. The market for homes in Toronto remains strong with the aggregate price increasing 7.4% YoY to $984,709, led by the median price of two-storey homes increasing 11.8% YoY to $1,550,577 and bungalows increasing 14.7% YoY to $1,061,534 while condos were the weak spot falling 0.6% YoY to $637,551. Montreal is also still showing significant demand with the aggregate price of a home increasing 11.1% YoY to $635,907 in Q1 2021, driven by a 15.7% YoY increase in the median price of a two-storey home to $888,021, a 12.3% increase in bungalows to $594,437 and condos increasing 7.8% YoY to $455,433. Home sales in Vancouver continue to be driven by significant demand, with almost all properties receiving multiple offers. The aggregate price of a home increased 7.0% YoY to $1,271,363 in Q1/21, as median price for a two-storey home increased 9.9% to $2,218,099, bungalows increased 10.7% to $1,563,971, and condos increased 5.2% to $782,979. Comparably Calgary is a much more balanced market, however inventories are still quite low, with the exception of condos. The aggregate price of a home in Calgary was up 5.2% YoY to $481,694, with two-storey houses rising 5.4% YoY to $530,192, bungalows increased 4.0% YoY to $507,957, while condos decreased 1.6% to $243,902.

**Canadian home prices expected to end year 13.5% higher than 2020**

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## Demographics – Canada ranked #1 in best countries ranking

Canada ranked #1 in best countries ranking

On Wednesday, the U.S. News & World Report released its annual Best Countries Ranking [LINK] in which, after several years at 2 and 3, Canada finally climbed to the 1 spot. It ranked first in both the Quality of Life and Social Purpose subrankings. The U.S. missed out on the top five this year. An interesting point to note is the differing perceptions of the US from its citizens and the rest of the world. 66% of Americans agreed that the country *"is a good role model in a functioning democracy",* whereas only 52.5% of global survey respondents agreed. Among to bottom-most rankings, corruption and political instability were common denominators. Iraq ranked at the bottom of the list overall and ranked worst on 3/10 categories.

Figure 35: Country Rankings

| | Top 10 Highest-Ranked Countries | Top 10 Lowest-Ranked Countries |
|---|---|---|
| 1 | Canada | Iraq |
| 2 | Japan | El Salvador |
| 3 | Germany | Serbia |
| 4 | Switzerland | Belarus |
| 5 | Australia | Lebanon |
| 6 | United States | Uzbekistan |
| 7 | New Zealand | Kazakhstan |
| 8 | United Kingdom | Ukraine |
| 9 | Sweden | Oman |
| 10 | Netherlands | Guatemala |

Source: US News & World Report

## Demographics – Japan passport gives most travel freedom

Japan is #1 passport

Henley & Partners released their Passport Index for Q2/21 [LINK]. The ranking criteria is based on which passport allows access to the most destinations without a visa, "*For each travel destination, if no visa is required for passport holders from a country or territory, then a score with value = 1 is created for that passport. This also applies if passport holders can obtain a visa on arrival, a visitor's permit, or an electronic travel authority (ETA) when entering the destination.*" Japan was #1 at 193, followed by Singapore at 192. The United States was tied for 16th at 187 and Canada tied for 25th at 185 with Australia. Another interesting fact to note is that two top countries below (Austria and Malta) allow for Citizenship-by-Investment. This is a process whereby in exchange for a significant economic contribution, candidates are granted full citizenship. The threshold is EUR 3mm investment for Austria and EUR 738,000 for Malta. We created a table for the top 10 scores.

Figure 36: Henley Passport Index Top Ten

| Rank | Score | Passport |
|---|---|---|
| 1 | 193 | Japan |
| 2 | 192 | Singapore |
| 3 | 191 | Germany, South Korea |
| 5 | 190 | Finland, Italy, Luxembourg, Spain |
| 9 | 189 | Austria, Denmark |
| 11 | 188 | France, Ireland, Netherlands, Portugal, Sweden |
| 16 | 187 | Belgium, New Zealand, Switzerland, United Kingdom, United States |
| 21 | 186 | Czech Republic, Greece, Malta, Norway |
| 25 | 185 | Australia, Canada |
| 27 | 183 | Hungary, Lituania, Poland, Slovakia |

Source: Henley Index

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## 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

### Little boy doesn't panic and gets out from under the Peleton back tread

On Friday, the US Consumer Product Safety Commission issued a release "*CPSC Warns Consumers: Stop Using the Peloton Tread+*" [LINK] "*The urgent warning comes less than a month after Peloton itself released news of a child's death by a Peloton Tread+ and CPSC's announcement of an investigation into that incident. The agency is continuing to investigate all known incidents of injury or death related to the Peloton Tread+. To date, CPSC is aware of 39 incidents including one death. CPSC staff believes the Peloton Tread+ poses serious risks to children for abrasions, fractures, and death. In light of multiple reports of children becoming entrapped, pinned, and pulled under the rear roller of the product, CPSC urges consumers with children at home to stop using the product immediately.*" The CPSC release included a linked video [LINK] that shows a little boy getting sucked under the back of the tread but this little boy is impressive because it looks like he doesn't panic and pushes himself out from underneath the still moving tread.

### A favorite food holiday tomorrow for Japanese – National Rice Ball Day

I have to believe that any one growing up in a Japanese family had to have rice balls as a staple as a snack or instead of a sandwich for lunch at school or for when we would drive from Toronto to Fort William to see our relatives. So how I could not note that April 19 is National Rice Ball Day. [LINK]. And we did call them rice balls or as Foodimentary notes, Onigiri. Onigiri is different from Nigiri sushi. Onigiri is a rice ball. Nigiri sushi is what you get at restaurants.

### Reminder how unwanted visitors were a year ago

All the talk this week about BC and Ontario wanting to restrict inter provincial travel and not just pleading with Canadians to not visit their provinces unless it is related to real essential travel in the last week reminded that BC said the same thing a year ago when the world was only just over a month into Covid. The BC request to stay away reminded that, a year ago, there were many other places that also didn't want visitors. For example, here is sign greeting visitors to Canmore (Alberta) after getting off the Trans Canada highway to turn onto Three Sisters Parkway. The issue for Canmore was that its hospital is modest in size/capacity and could have quickly been maxed out. And, there was also an influx of people trying to avoid cities and moving

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to more outdoors towns. On an update note, the expectation in Canmore is for a very busy summer for staycations within Canada.

Figure 37 Canmore Street Sign April 22, 2020

Source: SAF

### Surprising intercity comparison of taxes and utilities

The Saskatchewan Budget detail included a comparison of taxes and utilities in cities across Canada. Some of the numbers make sense such as Winnipeg, Montreal and Vancouver having the lowest electricity costs give the hydro generation in those provinces.  But we were surprised that Calgary has the highest electricity costs given our reliance on coal and natural gas. And overall, we were surprised that Calgary, without a sales tax, trailed Vancouver and Regina in taxes and utilities for a family with $75,000 income. Below is the table from the Saskatchewan Budget.

Figure 38: Intercity Comparison of Taxes and Utilities

2021 Intercity Comparison of Taxes and Utilities
Family at $75,000 Total Income
(Values in Dollars)

| | Vancouver | Calgary | Regina | Winnipeg | Toronto | Montréal | Saint John | Halifax | Charlotte-town | St. John's |
|---|---|---|---|---|---|---|---|---|---|---|
| *Provincial Taxes* | | | | | | | | | | |
| Provincial Income Tax | 2,067 | 2,837 | **2,347** | 4,942 | 1,505 | 4,425 | 4,511 | 5,357 | 5,039 | 4,581 |
| Tax Credits and Rebates | (1,380) | 0 | **0** | 0 | (1,290) | (4,324) | (60) | 0 | 0 | 0 |
| Health Premiums | 0 | 0 | **0** | 0 | 750 | 1,324 | 0 | 0 | 0 | 0 |
| Sales Tax | 1,755 | 0 | **1,905** | 2,003 | 2,808 | 3,502 | 3,511 | 3,511 | 3,511 | 3,511 |
| Gasoline Tax | 718 | 260 | **300** | 280 | 294 | 444 | 310 | 310 | 302 | 410 |
| Total Provincial Taxes | 3,160 | 3,097 | **4,552** | 7,225 | 4,067 | 5,371 | 8,272 | 9,178 | 8,852 | 8,502 |
| *Household Utility Costs* | | | | | | | | | | |
| Home Heating | 987 | 851 | **836** | 747 | 933 | 1,857 | 2,279 | 2,119 | 1,837 | 1,747 |
| Electricity | 830 | 1,730 | **1,414** | 813 | 1,086 | 641 | 1,039 | 1,410 | 1,342 | 1,180 |
| Telephone | 362 | 361 | **258** | 394 | 388 | 388 | 391 | 392 | 394 | 389 |
| Auto Insurance | 2,850 | 3,256 | **1,231** | 1,355 | 5,312 | 1,899 | 1,621 | 1,992 | 1,754 | 2,991 |
| Total Household Utility Costs | 5,029 | 6,198 | **3,739** | 3,309 | 7,719 | 4,785 | 5,330 | 5,913 | 5,327 | 6,307 |
| **Total Taxes and Utilities** | 8,189 | 9,295 | **8,291** | 10,534 | 11,786 | 10,156 | 13,602 | 15,091 | 14,179 | 14,809 |

Source: Saskatchewan Budget

### MacDonald's is another example of US getting way better deals

Here is a tidbit to MacDonald's Big Mac lovers. Someone sent me a YouTube clip of The Deal Guy talking on the great deal in the US.  He said instead of getting a Big Mac, order two cheeseburgers, ask them to put Big Mac Sauce on instead, dump one of the bun tops and you get a Big Mac equivalent for half the price. We checked Seattle prices and Big Mac is $6.19 vs two cheeseburgers at $4.10 ($2.05 for one). We couldn't help check the MacDonald's Calgary prices and unfortunately, it isn't that big of a saving.  Canadians must have already caught on as a Big Mac costs $5.89 vs two cheeseburgers $5.18 ($2.59 for one) and some Big Mac sauce at $0.30.

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