Energy Tidbits

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Form’s 1st Commercial Deployment Of Its Long-Duration Energy Storage System Is Worth Watching

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. It may not affect oil and natural gas today, but Form Energy’s first commercial deployment of its “proprietary long-duration energy storage system” is a potential game changer to watch for the mid/long term. (Click Here)

2. Q1 disclosures suggest curtailment/voluntary shut-in now look to be >1.07 mmb/d of US oil and >1.67 mmboe/d of US oil/NGLs. (Click Here)

3. Since March 18 peak, US oil rigs -53% to 292 oil rigs, Permian -53% o 198 oil rigs, and Bakken -62% to 20 oil rigs. (Click Here)

4. Warren Buffet’s AGM comments last Sat that the economic outlook “still has this enormous range of possibilities”. (Click Here)

5. Happy Mother’s Day to all the wonderful moms in the world. There is no doubt that none of us would be where we are today without having fantastic, loving moms.

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 109 bcf, storage now +796 bcf YoY surplus
The EIA reported a 109 bcf natural gas injection (vs 109 bcf injection expectations) which was way higher than the 5-yr average injection of 74 bcf. This brings storage to 2.319 tcf as of May 1, which is a widening of the YoY surplus to 796 bcf from 783 bcf last week and with storage now 395 bcf above the 5 yr average. This is only the second time the EIA has reported a 100+ injection in April and the negative to HH prices continues to be the combination of leaving winter with a +876 bcf YoY surplus and an increasing number of cancelled LNG cargoes without a home, which sets the stage for gas injections above the 5 year average until natural gas declines work to offset lower LNG exports. Below is the EIA’s storage table from its Weekly Natural Gas Storage Report. [LINK]

Figure 1: US Natural Gas Storage

Source: EIA

Natural Gas – NYMEX implements measures to support negative LNG price contracts
On Friday we tweeted [LINK] “2020 is the lost year for #LNG prices, but who would have thought it would get to NYMEX feeling the need to “putting measure in places to support negative prices and strikes on certain natural gas contracts” incl #LNG JKM, Gulf Coast LNG futures, etc.”. Everyone knows that LNG prices are extremely weak, but it did surprise that NYMEX felt the potential risk and need to put in measures to support negative prices and strikes on natural gas contracts is an eye opening reflection of a brutal LNG market. The CME Group release wrote “Subject to operational readiness, negative prices and strikes will be supported on or after the effective date should market conditions warrant”. Below is the CME Group table of contracts that will be supported [LINK].

Figure 2: Natural Gas Contracts to Be Supported From Negative Prices and Strikes

Source: CME Group
Natural Gas – Hope the warm May in Japan continues longer than expected

Every Thurs, the JMA issues a next 30 day forecast for Japan temperature and it looks good for natural gas for May with above average temperatures. In looking at cities like Tokyo and Osaka, instead of daytime highs in the low 20’s, the forecast is more 24 to 27. Warmer and a modest plus to natural gas demand. But what markets need is a hot July/Aug/Sept. The latest JMA forecast for June/July/Aug is now 2 weeks old, but has been a call for a normal to slightly above normal temperatures. Below is the new Japan Meteorological Agency May 9-June 8 temperature forecast [LINK] and its latest June/July/Aug temperature forecast [LINK].

Figure 3: Japan Temperature Forecast May 9- June 8

Source: Japan Meteorological Agency

Figure 4: Japan Temperature Forecast June/July/Aug

Source: Japan Meteorological Agency

Natural Gas – China April natural gas imports +15.4% MoM to 12.4 bcf/d

China hasn’t been the growth engine for LNG imports with coronavirus impact in 2020, but it is up YoY in April so is better than we expected with the startup of the Power of Siberia.
Russia to China gas pipeline on Dec 1, 2019. This week, China’s General Administration of Customs released its preliminary data for April trade data [LINK]. April natural gas imports for totaled 12.37 bcf/d which is +1.0% YoY from April 2019 of 12.25 bcf/d. Similar to what we have seen with improving oil demand and industrial activity recently in China, the MoM increase was strong, as April was +1.65 bcf/d MoM from 10.72 bcf/d in March. Although the slight YoY increase is somewhat positive given the big coronavirus impact, this growth is way lower than prior years and is nowhere near enough to absorb excess LNG and natural gas. We don’t have the split of pipeline natural gas vs LNG, but the China customs should post this detailed data in the next few weeks.

**Natural Gas – Refinitiv data shows a YoY increase for China LNG imports in April**

The above China Customs data did not provide an official split out of natural gas imports into pipeline imports vs LNG imports. Our Energy Tidbits memos and tweets have been highlighting the positive data on Chinese oil refinery runs along with a rebound in China’s industrial activity and this week, we saw some positive data on China LNG imports. On Tues, Refinitiv Natural Gas tweeted [LINK] “According to @Refinitiv’s LNG trade flows data, Chinese imports witnessed a year-on-year increase in April, signalling a recovery in #gas demand as #COVID—19 lockdown measures eased”. Shortly thereafter, we tweeted [LINK] “yes #LNG prices have been extremely low in 2020, but this is still another positive indicator that China has clear positive momentum in industrial/manufacturing. just need consumer and exports to catch up. hope trump trade rhetoric doesn’t hurt recovery. thx @Refinitiv for data”. It may not impact prices, but is definitely a positive for LNG markets and fits the commentary from the new Bloomberg Global LNG Monthly which highlighted a big rebound in China’s April LNG imports as the country emerges from the Coronavirus impact. Below is the Refinitiv graph of China’s LNG imports.

**Figure 5: China LNG Imports**

![China LNG Imports](source: Refinitiv)

**Natural Gas – India’s LNG import growth depends on pipeline networks**

For the past couple years, we have been highlighting that the growth in India’s natural gas consumption (and linked LNG imports) has been very low due to the slow build out of domestic natural gas infrastructure and LNG import facilities. This week, EIA blog “Growth in India’s LNG imports will depend on completion of connecting pipelines” [LINK] reiterated India infrastructure as a limiting factor for LNG imports and said “The lack of pipeline infrastructure near LNG terminals is affecting both existing and planned LNG terminals. In southwestern India, LNG imports to the existing Kochi terminal are currently limited to local markets; pipelines expanding to nearby Mangalore are expected to come online in 2020 and...
**Banagalore in 2022**. The key item to note in the EIA blog is the expectation for India to add 2.5 bcf/d of LNG import capacity by 2023, which fits the theme in our Oct 23, 2019 Energy blog “Finally, Some Visibility That India Is Moving Towards Its Target For Natural Gas To Be 15% Of Its Energy Mix By 2030”. In the blog, we commented on the visibility for India to increase the natural gas weighting in its energy mix based on comments from India Oil Minister Dharmendra Pradhan saying there are $60 billion of natural gas infrastructure and LNG import terminals that are “under execution”. In the blog, we said “Natural gas consumption in India is only now back to 2011 levels at 5.6 bcf/d and represents only 6.2% of its energy mix. If India hits its 15% target of its energy mix by 2030, it would add natural gas demand, on average, of >1.5 bcf/d per year. There are several other good insights in the EIA blog, which we have included in our Supplemental Documents package. Below is the EIA graph of India’s LNG imports and import capacity.

**Figure 6: India LNG Imports and Import Capacity**

![Graph showing India LNG imports and import capacity](source:EIA)

**Natural Gas – Total “anticipates deferments in LNG uplifts” in Q2 and Q3**

We have been calling for weaker LNG in 2020 and 2021 for over a year, and that was only made worse with the impact of another warm winter in Asia and then Coronavirus. No one should have been surprised to see Total’s comments on 2020 LNG markets in its Q1 on Tues. On the Q1 release, we tweeted [LINK] “Total Q1 headlines are another $1b to make total capex cuts of $4b, 2020 prod down at least 5% to 2.95 to 3 mboe/d. other tidbits: no cut to$1.5 to $2b/yr in “low-carbon electricity”, “anticipates deferments in LNG uplifts” in Q2 and Q3/20.” Total said “taking into consideration the lower demand due to the global economic slowdown, Total anticipates deferments in LNG uplifts during the second and third quarters of the year.”.

**Oil – US oil rigs down 33 to 292 oil rigs and now down 391 from March peak**

Baker Hughes reported its weekly rig data on Friday, which continues to show a huge pullback in US oil rigs as expected. US oil rigs were down 33 to 292 oil rigs at May 8 vs 805 oil rigs a year ago. There were no increases, decreases were in Permian -21, Williston -6, Eagle Ford -3, Others -2, and Ardmore Woodford -1. US oil rigs hit their 2020 peak at 683 on March 13 and have since fallen 391 to 292 oil rigs, with the Permian accounting for 220 of this decline. The massive capex cuts are continuing to roll thru to lower US rig activity and will only accelerate as subsequent rounds of capex cuts are announced. The rig decline should continue to lower throughout May and thereafter with major services companies calling for North American drilling and completions spending to fall at least 50% YoY in 2020. Below is our graph of total US oil rigs.
Oil – Permian and Bakken rigs continue to be hit hard

Shortly after the Baker Hughes weekly rig data was posted on Friday, we tweeted [LINK] “Baker Hughes US oil rigs -33 to 292 oil rigs at May 8, and -53% vs March 18 peak of 683 US oil rigs. Some may be surprised Permian is being hit just as hard at -53% to 198 oil rigs, but Bakken continues to be hit harder -62% to 20 oil rigs. #OOTT”. We have been regularly commenting on the huge pullback in Permian oil rigs, but its important to note that Bakken rigs continue to be hit harder and have fallen to just 20 oil rigs, down 62% from March 13 of 52 oil rigs. Below is our graph of 2020 YTD US oil rigs up to May 8.

Oil – Total Cdn rigs down 1 to 26 total rigs

Baker Hughes reported total Cdn rigs were down 1 to 26 total rigs. Cdn oil rigs were flat at 7 oil rigs. Cdn gas rigs were down 1 to 19 gas rigs. AECO pricing has been holding in well, but its still spring breakup. Cdn oil rigs are at their second lowest point since 2000 at 7 Cdn oil rigs. Outside of the past 6 weeks, Cdn oil rigs have only fallen below 10 one other time which was in April 2016 when WTI went to ~$34. We don’t expect any resemblance of a big post spring ramp up with Cdn producers announcing production shut-ins and subsequent rounds of capex budgets. To put in perspective, a year ago, Cdn oil rigs were 22 and Cdn gas rigs were 41 for a total Cdn rigs of 63, meaning total Cdn rigs are -37 YoY. Below is our graph of total Cdn oil rigs.
Oil – US weekly oil production -0.2 mmb/d to 11.9 mmb/d, now -0.3 mmb/d lower YoY

We are seeing increasing voluntary shut ins and capex budget cuts rolling in as US producers report their Q1 results, which will take time to be fully captured in the data, but even still, US oil production is beginning its accelerated decline. On Wednesday, the EIA reported US crude oil production was down 200,000 b/d to 11.9 mmb/d for the May 1 week and Lower 48 was down 100,000 b/d to 11.5 mmb/d. US oil production is now 0.3 mmb/d lower YoY and down 1.2 mmb/d from the March peak of 13.1 mmb/d. We noted last week that the EIA Form 914 “actuals” for Feb US oil production was ~0.2 mmb/d lower than the EIA weekly data for Feb. This is similar to what we saw in the Jan actuals and should imply that the weekly production data is too high. We expect US oil production to continue its decline and will only accelerate in the coming weeks/months with the big shut-in announcements from US producers this week. Below we pasted an excerpt from the EIA weekly oil production data.

Figure 10: EIA’s Estimated Weekly US Oil Production

<table>
<thead>
<tr>
<th>Year-Month</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
<th>Week 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>End Date</td>
<td>Value</td>
<td>End Date</td>
<td>Value</td>
<td>End Date</td>
</tr>
<tr>
<td>2019-Jan</td>
<td>01/04</td>
<td>11,700</td>
<td>01/11</td>
<td>11,900</td>
<td>01/18</td>
</tr>
<tr>
<td>2019-Feb</td>
<td>02/01</td>
<td>11,900</td>
<td>02/08</td>
<td>11,900</td>
<td>02/15</td>
</tr>
<tr>
<td>2019-Mar</td>
<td>03/01</td>
<td>12,100</td>
<td>03/08</td>
<td>12,000</td>
<td>03/15</td>
</tr>
<tr>
<td>2019-Apr</td>
<td>04/05</td>
<td>12,200</td>
<td>04/12</td>
<td>12,100</td>
<td>04/19</td>
</tr>
<tr>
<td>2019-May</td>
<td>05/03</td>
<td>12,200</td>
<td>05/10</td>
<td>12,100</td>
<td>05/17</td>
</tr>
<tr>
<td>2019-Jun</td>
<td>06/07</td>
<td>12,300</td>
<td>06/14</td>
<td>12,200</td>
<td>06/21</td>
</tr>
<tr>
<td>2019-Jul</td>
<td>07/05</td>
<td>12,300</td>
<td>07/12</td>
<td>12,000</td>
<td>07/19</td>
</tr>
<tr>
<td>2019-Aug</td>
<td>08/02</td>
<td>12,300</td>
<td>08/09</td>
<td>12,300</td>
<td>08/16</td>
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<tr>
<td>2019-Sep</td>
<td>09/09</td>
<td>12,400</td>
<td>09/16</td>
<td>12,400</td>
<td>09/23</td>
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<tr>
<td>2019-Oct</td>
<td>10/04</td>
<td>12,600</td>
<td>10/11</td>
<td>12,600</td>
<td>10/18</td>
</tr>
<tr>
<td>2019-Nov</td>
<td>11/04</td>
<td>12,600</td>
<td>11/08</td>
<td>12,800</td>
<td>11/15</td>
</tr>
<tr>
<td>2019-Dec</td>
<td>12/06</td>
<td>12,800</td>
<td>12/13</td>
<td>12,800</td>
<td>12/20</td>
</tr>
<tr>
<td>2020-Jan</td>
<td>01/05</td>
<td>12,900</td>
<td>01/10</td>
<td>13,000</td>
<td>01/17</td>
</tr>
<tr>
<td>2020-Feb</td>
<td>02/07</td>
<td>13,000</td>
<td>02/14</td>
<td>13,000</td>
<td>02/21</td>
</tr>
<tr>
<td>2020-Mar</td>
<td>03/06</td>
<td>13,000</td>
<td>03/13</td>
<td>13,100</td>
<td>03/20</td>
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<td>2020-Apr</td>
<td>04/03</td>
<td>12,400</td>
<td>04/10</td>
<td>12,300</td>
<td>04/17</td>
</tr>
<tr>
<td>2020-May</td>
<td>05/01</td>
<td>11,900</td>
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<td></td>
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</tbody>
</table>

Source: EIA

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Oil – North Dakota oil production now down 450,000 b/d with 6,800 wells shut in

Our April 26, 2020 Energy Tidbits memo [LINK] highlighted the Apr 24 Bloomberg terminal story saying “Producers in North Dakota have shut ~6.2k oil wells, which account for ~405k b/d of supply, says Katie Haarsager, a spokeswoman for North Dakota Oil and Gas Division”. Since then, we have seen an acceleration in US production shut ins, which fits with the comments from the Wednesday North Dakota Department of Mineral Resources announcement on creating a “Bakken Restart Task Force” [LINK]. In the release, the department wrote “At this time, North Dakota has 6,800 wells shut-in – amounting to 450,000 barrels per day of production. There are still 27 rigs operating and 5 frac crews running”. On the task force, it is focused on three core areas and sounds like they want to do something similar as in Canada, including help on abandonment/reclamation and maybe some financing support. The core support areas include regulatory relief, economic stimulus and the “Bakken Smart Restart”. For the economic stimulus, they write “identifying all existing programs and funding sources, investing in projects with long-term benefit to the state such as abandoned well plugging, environmental remediation, research pilot projects, etc., to get the service industry back to work with the added benefit of investing in needed projects at a time when labor and service costs to the State are at an all-time low”. And for the Bakken Smart Restart, they say its focused on “the long-term recovery of our oil and gas industry,”
Oil – US curtailments/voluntary shut-ins >1.07 mmb/d.

We have been tracking the Q1 reporting to note what the oil and gas companies are indicating for curtailed/voluntary shut in US oil production. Not all the companies provide detailed split of US volumes, but we have been able to come up with estimates for all except Shell, who only disclosed that total company Upstream production in Q2 would be 1.75 – 2.25 mmboe/d, down from Q1 of 2.71 mmboe/d. We have now tracked 27 companies and have an estimated curtailment/voluntary shut in of 1.01 mmb/d of oil and 1.56 mmboe/d of oil/NGLs. This group of 27 companies represent approx. 6.4 mmb/d of total US oil production and 10.8 mmboe/d on total US/NGLs production. Below is the summary of our estimates curtailment/voluntary shut-in. Our Supplemental Documents package includes the detailed table showing by company voluntary shut-in. All of the estimates are from our own review of public disclosure and not sourced from other analyst estimates.

**Figure 13: SAF Estimated US Curtailment/Voluntary Shut-in Oil Production**

<table>
<thead>
<tr>
<th>Company</th>
<th>US Oil b/d</th>
<th>US boe/d</th>
<th>International boe/d</th>
<th>Period</th>
<th>Q1 US Oil Prod. b/d</th>
<th>Q1 Prod. US boe/d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continental</td>
<td>61,875</td>
<td>109,602</td>
<td>415,000</td>
<td>April/May</td>
<td>206,249</td>
<td>365,341</td>
</tr>
<tr>
<td><strong>Total US</strong></td>
<td><strong>1,071,125</strong></td>
<td><strong>1,674,352</strong></td>
<td><strong>415,000</strong></td>
<td><strong>6,573,425</strong></td>
<td><strong>11,164,105</strong></td>
<td></td>
</tr>
</tbody>
</table>

Note: Total excludes Shell
Note: All estimates are from SAF review of company disclosures
Note: Excludes >90% natural gas producers
Source: Company Reports, SAF

**Oil – Exxon curtails high rate wells to preserve value**

Exxon held its Q1 call last Friday and there is no question that Exxon is taking a different approach to voluntary curtailments than the independents. Exxon’s primary focus is on preserving the return and, rightly so, means that its curtailed volumes are focused on newly completed oil wells that are in their high initial production rate and high decline period. In the Q&A, mgmt. replied “So I think that's where we're at today. All right. We are looking now and you saw in the presentation that Stephen gave with the second quarter outlook, we are taking economic shut-ins in the Permian. And that's really a function of, if you think about a lot of these wells that are early in their lives. Just started up you get very high production rates. So I think that's where we're at today and. All right. We are looking now and you saw in the presentation that Stephen gave with the second quarter outlook, we are taking economic shut-ins in the Permian. And that's not -- that's really a function of, if you think about a lot of these wells that are early in their lives. Just started up you get very high production rates. From an economic maximizing the NPV of those wells, you're better off deferring that high production rate into a period with better pricing, and so a lot of the shut-ins that we're doing and the Upstream are associated with kind of a value play around making sure that we're bringing those high production rates into a market, it's more conducive to high production rates. And of course, looking forward depending on how the market evolves. We've got the flexibility to bring a lot of those wells back on quickly and ramp up, what we're doing in the international space. So it is, you all have talked about that we've talked about it that short
cycle investment gives us a lot of flexibility and we’re certainly leveraging. There’s a lot of value there too. I would tell you, we continue to feel very good about the ability for that resource when we get it online to compete in a low price environment. The challenge we’ve got today is the investment where we can -- we’re making to get in that position. And that’s kind of what is inhibiting us. But once we get into it. We feel really good about operating competitively in oversupplied market.” Even though most of the shut-ins are being announced as shutting-in marginal wells, we expect some other high rate wells being shut in, or at least not being put on production. Its why , on Monday, we tweeted [LINK] “A reason why US shale oil (associated #NatGas) voluntary shut ins likely higher than expected. Exxon says shutting in higher rate, new Permian wells first to preserve greater value. “you’re better off deferring that high production rate into a period with better pricing”.

Oil – Texas RRC voted No on curtailment
As expected, on Tues the Texas RRC voted no on curtailment. This was the expectation going into the meeting following last week’s public No curtailment position by Chair Wayne Christian in is Houston Chronicle op-ed and the known, but not publicly stated, No curtailment position of commissioner Christi Craddick. The only Yes vote was commissioner Ryan Sitton. Note on Tues, the RRC approved two orders, one of which is a fee reduction on certain items. The other was interesting but we don’t know if really has too much near term potential and that was to provide exemptions that would allow hydrocarbons to be stored in underground geological formations, other than just in salt formations. Our Supplemental Documents package includes the approved orders. [LINK]

Oil – Cdn light oil producers bucking the trend and providing 2020 production guidance
It seems like one of the common themes from the US independent shale oil players Q1 calls to date has been that most have removed 2020 production guidance with the uncertainty of how their production forecasts will change as they are forced to make big capex cuts. Almost all the shale oil independent hadn’t reported when Whitecap reported Q1 back on April 30, but many have by the time Crescent Point reported on Wed afternoon. Its why on Thursday, we tweeted [LINK] “An overlooked advantage of Cdn light oil vs US shale oil producers - more predictable light oil production (lower decline, deep inventory). Allows $WCP and now $CPG to provide 2020 oil production guidance bucking popular trend for US oil producers to remove 2020 guidance. #OOTT” The Cdn light oil producers have been forced to live within cash flow, more or less, for the past 3 to 4 years as investors moved oil capital to US shale oil players. They were forced earlier to adapt to the no equity world and have developed more predictable oil forecast models. Perhaps the biggest advantage is established lower oil decline rates in the existing oil production base. The best example is WCP, who in the Q1 slides, noted that its low decline rate is currently at 19% and decreasing to 13% to 15% Current at 19% and decreasing to 13 to 15% by year end. We should note that large cap, CNQ really provided production guidance without providing guidance. On Thurs, we tweeted [LINK] “Also note, Yes $CNQ is removing 2020 production guidance, but also say “however, if the current strip pricing continues for the remainder of 2020, the Company forecasts that targeted production will meet the previous issued corporate guidance range.”

Oil – Irving Oil gets approval to source Alberta crude – through the Panama Canal
Similar to the US, Canada mandates that only Canadian-registered vessels can move cargo between domestic ports (Jones Act in the US) which has been a hold up in Irving Oil’s elaborate plan of supplying oil sands crude to its 300,000 b/d St. John refinery via shipping crude through the Panama Canal and back around to eastern Canada. However, there was positive news this week, with the Financial Post reporting on Irving Oil receiving federal government approval to deliver Canadian crude through the Panama Canal [LINK]. Although
its a lengthy tanker trip, Irving was forced to get creative post TC Energy shelving the Energy East project and the company is also looking to source Canadian crude at Gulf Coast terminals. The Irving application to the federal government wrote “It is critical to our customers, to our business, and to energy security throughout Atlantic Canada that we are able to use foreign crude oil tankers to access Western Canadian crude oil on an urgent basis and going forward for one year to allow for effective and flexible supply chain planning and to strengthen the link between Canadian oil producers and our refinery in this challenging and uncertain time”. Below is a map of the proposed route thru the Panama Canal. Our Supplemental Documents package includes the Financial Post story.

Figure 14: Shipping Route From Western Canada to Saint John, NB

Source: Financial Post

Oil – Cenovus says Alberta oil inventory at 32-33 mmb, vs tank tops 42-43 mmb
Unlike in the US with the weekly EIA data, Canadian oil storage data is relatively opaque and those without a Genscape subscription have difficulty obtaining relevant data. Fortunately, Cenovus provided some good detail on Alberta storage in their Q1 call, which seems to look more optimistic than most would have expected. In the Q1 call, mgmt. said “And we currently see Alberta essentially flat on inventory levels so kind of sitting in that 32 million to 33 million barrel range and not really material builds kind of week on week. So we actually think the market is reacting to the requirement to reduce production and balancing on that. On top of that Cenovus has a significant storage capacity both in Alberta as well as down in the U.S. Gulf Coast and U.S. that exceeds over 10 million barrels. So we have a lot of opportunity to use that storage to capture market opportunities that become available both here in Alberta as well as down in the Gulf Coast”. This was positive, but mgmt. cautioned of implications from rising storage levels and said “And if we were to see that start getting moving toward tank tops kind of in that 42 million 43 million barrels of storage in Alberta. At
that point things could happen very fast and you could see -- there could be some real unanticipated consequences”.

Oil – Enbridge to store crude in Mainline, gives another 1 mmb to Alberta oil storage

It’s no surprise that with weak global oil demand and rising onshore storage levels, Canadian companies are scrambling to find any storage capacity possible and this week, Reuters reported on Enbridge reaching a deal with shippers to store 912,000 barrels on its mainline system starting June 1 [LINK]. This announcement ties in well to the above item on Cenovus warning on the unanticipated consequences of moving towards tank tops. Enbridge using the mainline to temporarily store crude should help to avoid these consequences and on Monday, we tweeted [LINK] “Enbridge to temporarily store 910,000 bbls on Cdn mainline system. Helps avoid big negative ($CVE says real unanticipated consequences) to Cdn oil if AB storage gets full. Cenovus Q1 call, mgmt est AB oil storage at 32-33 mmb vs 42-43 mmb tank tops. #OOTT”.

Oil – US “net” oil imports up 166,000 b/d to 2.166 mmb/d

US “NET” imports were up 166,000 b/d to 2.166 mmb/d for the May 1 week. US imports were up 410,000 b/d to 5.712 mmb/d and US exports were up 244,000 b/d to 3.546 mmb/d. This puts US oil exports +1.224 mmb/d YoY. US oil exports have remained strong considering the previous expectation for exports to drop drastically with global oil demand destruction and are +76,000 b/d vs the Jan/Feb average. Some items to note on the by country data. (i) Canada was down 19,000 b/d to 3.173 mmb/d for the May 1 week, which is down ~525,000 b/d from the average levels in Jan/Feb and this fits the general expectation for imports from Canada to remain lower with increasing shut ins, lower mainline volumes and CBR ramping down. (ii) Saudi Arabia was up 214,000 b/d to 579,000 b/d. The continued expectation is for a flood of Saudi crude to reach the USGC in the coming weeks, with reports this week of 43 mmb of Saudi crude set arrive in the US by May 24. (iii) Colombia was flat at 214,000 b/d. (iv) Ecuador often shows big WoW variance, and was up 119,000 b/d to 207,000 b/d. (v) Venezuela remained at 0 due to US sanctions. (vi) Mexico reversed the big increase from last week, and was down 443,000 b/d to 437,000 b/d, which is below the May 2019 average of ~630,000 b/d. Below is our table of the US oil imports by major country.

Figure 15: US Weekly Preliminary Oil Imports By Major Countries

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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Saudi Arabia</td>
<td>443</td>
<td>425</td>
<td>604</td>
<td>368</td>
<td>369</td>
<td>410</td>
<td>368</td>
<td>365</td>
<td>579</td>
<td>214</td>
</tr>
<tr>
<td>Venezuela</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mexico</td>
<td>603</td>
<td>816</td>
<td>687</td>
<td>517</td>
<td>894</td>
<td>610</td>
<td>467</td>
<td>880</td>
<td>437</td>
<td>-443</td>
</tr>
<tr>
<td>Colombia</td>
<td>529</td>
<td>293</td>
<td>215</td>
<td>143</td>
<td>461</td>
<td>295</td>
<td>143</td>
<td>215</td>
<td>214</td>
<td>-1</td>
</tr>
<tr>
<td>Iraq</td>
<td>352</td>
<td>169</td>
<td>395</td>
<td>267</td>
<td>236</td>
<td>36</td>
<td>188</td>
<td>0</td>
<td>251</td>
<td>251</td>
</tr>
<tr>
<td>Ecuador</td>
<td>80</td>
<td>216</td>
<td>212</td>
<td>486</td>
<td>65</td>
<td>295</td>
<td>168</td>
<td>88</td>
<td>207</td>
<td>198</td>
</tr>
<tr>
<td>Nigeria</td>
<td>0</td>
<td>68</td>
<td>48</td>
<td>123</td>
<td>35</td>
<td>43</td>
<td>0</td>
<td>106</td>
<td>62</td>
<td>-44</td>
</tr>
<tr>
<td>Kuwait</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Angola</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Top 10</td>
<td>5,631</td>
<td>5,799</td>
<td>5,518</td>
<td>5,316</td>
<td>5,215</td>
<td>4,948</td>
<td>4,541</td>
<td>4,806</td>
<td>5,053</td>
<td>245</td>
</tr>
<tr>
<td>Others</td>
<td>781</td>
<td>750</td>
<td>599</td>
<td>731</td>
<td>659</td>
<td>732</td>
<td>396</td>
<td>494</td>
<td>659</td>
<td>165</td>
</tr>
<tr>
<td>Total US</td>
<td>6,412</td>
<td>6,539</td>
<td>6,117</td>
<td>6,047</td>
<td>5,874</td>
<td>5,680</td>
<td>4,937</td>
<td>5,302</td>
<td>5,712</td>
<td>410</td>
</tr>
</tbody>
</table>

Source: EIA, SAF

Argentina may guarantee a $45 oil price

Oil – Did Argentina come up with a simple but best support program for the oil patch?

As of our news cut off at 8am MT, we still haven’t seen any confirmation of this event but we expect that any delay is due to Argentina and the creditors not yet agreeing on a deal. Rather the latest development is that there is a May 11 deadline. The big Argentina oil news

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were the reports, such as the FT, that Argentina was going to guarantee a local oil price of $45 until year-end 2020. We have to give Argentina credit for taking what looks to be a “KISS” approach to try to help the oil patch with the reports that they are setting a minimum oil price of $45 locally until Dec 31. The oil patch says it has a revenue issue so fix the revenue problem. And that is what Argentina is reportedly trying to do. Our Supplemental Documents package includes the FT story. [LINK]

Imagine if the Liberals had guaranteed an average $35 oil price to Dec 31

Patience is running thin, but there is still the expectation that the Liberals will be doing something for liquidity support to large companies in all sectors including the Cdn oil patch. So far, the Liberals are putting out $1.7b support to the provinces on the cleaning up of inactive wells and orphan wells, and an undetermined amount in their loan support package for <100,000 boe/d oil and gas companies. We haven’t seen any indication of how many $ billions the Liberals believe they are effectively allocating on the loan support. Its hard to determine the $ billion as it is a loan support plan and not a pay out of capital program. It will be interesting to see how much the Liberals believe they are allocating to the oil patch in the <100,000 boe/d loan support program and liquidity support for large caps, assuming it comes. We have to believe they view it at least several billion but we don’t know. For those of us who were in the oil patch under the infamous National Energy Program brought in by Pierre Elliott Trudeau, we wondered how the oil patch would have reacted if Trudeau Jr. brought in a tweak to a part of the NEP playbook on a made in Canada oil price. Here is some fun math if the Liberals had taken an Argentina approach and guaranteed some sort of local oil price to the producers. At ~4.6 mmb/d, every $10/b on average for June 1 to Dec 31 would cost the Liberals $9.7b. We have to believe that if the Liberals effectively guaranteed a $35 Cdn reference price and a set WCS differential therefrom, there would have been huge applause from the oil patch. Also, the banks could have just put things on hold for 9 months and it would have given everyone a pause for several months.

Oil – Brazil Mar oil production +16.1% YoY to 2.973 mmb/d

Brazil was expected to be one of the big non-OPEC oil supply growth countries in 2020, with the EIA Jan OMR estimating Brazil oil output would be +310,000 b/d YoY in 2020 and the OPEC MOMR for Jan calling for Brazil oil to be +290,000 b/d YoY in 2020. However, we have previously commented on Petrobras cutting 200,000 b/d of production, which wipes out a huge portion of this expected growth. This week, Brazil’s National Agency of Petroleum, Natural Gas and Biofuels (ANP) released its oil and natural gas production data for March [LINK] which showed Mar oil production of 2.973 mmb/d, +16.1% YoY from 2.560 mmb/d in Mar 2019 and flat MoM from Feb. The ANP release wrote “In this month of March, offshore fields produced 96.7% of oil and 85.4% of natural gas. The fields operated by Petrobras were responsible for 94.3% of the oil and natural gas produced in Brazil”. Below is our running table of Brazil monthly oil production. Our Supplemental Documents package includes the Brazil production update.
**Figure 16: Brazil Monthly Oil Production**

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2019</th>
<th>19/18</th>
<th>2020</th>
<th>20/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>2,615</td>
<td>2,631</td>
<td>0.6%</td>
<td>3,168</td>
<td>20.4%</td>
</tr>
<tr>
<td>Feb</td>
<td>2,617</td>
<td>2,489</td>
<td>-4.9%</td>
<td>2,972</td>
<td>19.4%</td>
</tr>
<tr>
<td>Mar</td>
<td>2,557</td>
<td>2,560</td>
<td>0.1%</td>
<td>2,973</td>
<td>16.1%</td>
</tr>
<tr>
<td>Apr</td>
<td>2,597</td>
<td>2,604</td>
<td>0.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>May</td>
<td>2,607</td>
<td>2,731</td>
<td>4.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>June</td>
<td>2,590</td>
<td>2,557</td>
<td>-1.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>July</td>
<td>2,575</td>
<td>2,775</td>
<td>7.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aug</td>
<td>2,522</td>
<td>2,989</td>
<td>18.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sept</td>
<td>2,486</td>
<td>2,927</td>
<td>17.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oct</td>
<td>2,614</td>
<td>2,964</td>
<td>13.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nov</td>
<td>2,567</td>
<td>3,090</td>
<td>20.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dec</td>
<td>2,691</td>
<td>3,107</td>
<td>15.4%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Brazil ANP

**Oil – Petrobras reached record exports in April of 1.0 mmb/d**

This week, Petrobras announced [LINK] it exported a record 1.0 mmb/d of oil in April, vs the previous record of 771,000 b/d in Dec 2019. The company highlighted that exports were supported by IMO 2020, due to the low sulfur crude produced by Petrobras, and they write "We are attentive to international movements and accessing all markets. Our oil, which is low sulphur, maintains its value in the international market due to the specifications of IMO 2020". The record exports seems to reinforce the positive oil demand data coming out of China, as Petrobras states China took 60% of all exports for the first four months of 2020, and we have to assume the strong April exports were driven by China. Also note that on April 4, Petrobras announced [LINK] its production cuts were escalating to 200,000 b/d and said "The company is adjusting the processing of its refineries, in line with the demand for fuels". We have to wonder if the increasing export volumes were partially due to less refinery runs within the country, similar to what we see in Mexico with their relatively strong oil exports which is basically just a function of very poor refinery utilization. Our Supplemental Documents package includes the Petrobras release.

**Oil – Aramco raises OSP for June, in particular for Asia**

Saudi Aramco released its official selling prices (OSP) for June on Thurs morning, which the market viewed positively with Brent jumping ~$2 post the release as the sales prices signalled some demand recovery. Aramco raised its sales price across the board for all regions and crude types, with the exception of the thinly traded super light crude to Asia. Unlike last month where Aramco made big reductions to Asian prices in its fight for market share, Aramco raised its June Asian prices, which makes sense as this is their key market and Aramco can benefit from Asia emerging strongly out of the Coronavirus oil demand hit, which works to offset lower Saudi production volumes starting in May. For Northwest Europe, Aramco make big increases to its selling prices for all crudes. This is Russia’s key market and the move seems like a concession to Russia. As a reminder, Aramco slashed sales prices to NW Europe in April in the midst of the oil price/volume war and markets viewed the big increase in June as a sign of improved cooperation between the two countries. Similarly, Aramco had increased for the US in all grades, which looks another wink/wink nod/nod to the US. Below is our graph of Saudi crude selling price to NW Europe relative to Brent. Our Supplemental Documents package includes the Aramco pricing sheet.
Figure 17: Saudi Crude Selling Price to NW Europe Relative to Brent

Source: Bloomberg, SAF

Oil – Interfax says Russia oil production down to 8.7 mmb/d vs 8.5 mmb/d target
Prior to the OPEC+ cuts taking effect on May 1, reports indicated Russia had maintained oil production of 11.29 mmb/d in April thru April 23, but the twofold question was how quickly the country could ramp down production and whether or not they would fully comply with the mandated cuts. This week, Bloomberg Terminal reported on an Interfax Russian story which said “average daily production oil in the first week of May could reach 1,186.7 thousand tons (or 8.7 million b/d in terms of a coefficient of 7.33). According to the terms of the transaction, an average of May, oil production in Russia should be 8.5 million bpd”. Condensate volumes are excluded from the OPEC+ cuts, but the story also mentioned that Russia condensate production is currently ~775,000 b/d. Our Supplemental Documents package includes the Bloomberg Terminal story.

Oil – Now we know why Israel has been hitting Iran’s Syria presence
One of the Saudi Arabia stories this week was how the US was reportedly withdrawing their Patriot missiles from Saudi because they said the Iran missile risk was effectively gone. Yesterday, we tweeted on a reminder from Israel that the risk from Iran is from more than missiles. Our tweet [LINK] was “May well be less need for US Patriot missiles in KSA, but Israel reminds Iran can hit in other serious ways ie. cyber on water system Apr 24/25. Explains stepped up Israel attacks on Iran positions/allies in Syria. Should keep a watch just in case.” Time of Israel (and all other Israeli news similarly) yesterday reported “A meeting this week of the high-level security cabinet, the first to be held in months, dealt in part with a recent Iranian cyberattack on Israel's water infrastructure, Israeli television reported Saturday. Quoting unnamed senior officials, Channel 13 news said the attack in late April is viewed as a significant escalation by Iran and a crossing of a red line because it targeted civil infrastructure. “This is an attack that goes against all the codes of war. Even from the Iranians we didn't expect something like this,” an official was quoted saying.” The good news for Israel is that any cyber attack did not impact the integrity of the water system. However, it also explains why there has been an escalation of Israel attributed attacks on Iran positions/allies in Syria in the last two weeks. We suspect Iran has no idea if Israel plans any more attacks. But the cyber attack and reprisals remind that the Middle East remains a powder keg and no one ever knows what will happen next. As usual, the Middle East is something we need to watch. Our Supplemental Documents package include the Times of Israel reporting. [LINK]

CSIS warned on the risk of Iran cyber attacks on water
Our prior comments on Iran’s cyber attacking risk has always been written in the context of the attacks going against Saudi Arabia. Last year (Aug 5, 2019) we
tweeted [LINK] “Must read CSIS ‘Iran’s Threat to Saudi Critical Infrastructure’ report. Missile risk to oil/gas, desalinization, electricity grid, cyber on SCADA. US/Saudi should focus on deterring Iran escalation, but may be impossible to stop cyber and Houthis”. We check yesterday and the CSIS report link [LINK] and it still works. The report is directed at the threat to Saudi Arabia, but we have to believe the cyber threat section is applicable to Israel or others. The four relevant cyber items from the CSIS report to note are (i) Good reminder that CSIS reminds that the Iran risk is also to Saudi Arabia’s desalination plants. I.e. the world’s largest desalination plant is “Ras al-Khair, located on the Persian Gulf coast of Saudi Arabia just north of Jubail. The plant was commissioned in 2014 and has a daily production capacity of 1.025 million cubic meters of desalinated water.57 The majority of the water produced (some 800 cubic meters per day) goes directly to Riyadh, while the other 200 cubic meters is distributed to Figure 5: Ras Tanura Oil Terminal – Offshore Loading. (ii) Linked risk to electrical grid because oil is input for nearly 2/3 of Saudi electricity generation. CSIS said “Beyond the problems caused by the infrastructure itself, Saudi Arabia’s electrical grid offers at least four potential vulnerabilities in the event of an Iranian attack. First, a successful attack on the oil and gas sector could also impact the electrical grid. Due to its significant oil reserves and heavily subsidized domestic oil prices, Saudi Arabia is largely dependent on hydrocarbons as fuel for the electricity sector. Crude oil is used as the input in nearly two-thirds of electricity generation, and natural gas serves as fuel for most of the remaining portion.” (iii) SCADA (Supervisory Control and Data Acquisition) systems risk. This is the primary risk for cyber attacks as SCADA is critical for electrical, pipelines, power transmission, water distribution systems, etc. And CSIS notes some of the prior cyber attacks on SCADA systems. (iv) Focus should be on deterrence but there are wildcards with the biggest risks being Iran cyber and the Houthis. CSIS writes “The challenge, however, is that it will be difficult—and perhaps impossible—to deter Iran from some types of offensive cyber operations and irregular attacks from partners, such as the Houthis. This is the nature of irregular warfare.”

Oil – Aruba has 5.2 mmb crude, 0.65 mmb clean products, 0.52 mmb naptha storage
Additional storage capacity has become available after Aruba terminated a refining project with PdV Holding, the opposition controlled US subsidy of Venezuela’s PDVSA [LINK]. Currently, Aruba has 10 available storage tanks with capacity for 650,000 barrels of clean products, 5.224 mmb of crude and 518,000 barrels of naptha with another 4.224 mmb of crude capacity awaiting repairs. Argus wrote “The storage became available after Delaware-based PDVH signed an agreement with the government of Aruba and Refineria di Aruba (RdA) that puts a definitive end to a $1.1bn refinery project spearheaded by PdV in Caracas in 2016 and inherited by Venezuela’s political opposition last year when it took over PdV’s US assets”. Under the new agreement, PdV Holding agreed to pay $17m in back taxes to Aruba. This is a positive for traders and companies searching for incremental oil storage space across the world, however it will take at least a month to carry out inspections and start sending the crude to Aruba. Our Supplemental Documents package includes the Argus story. [LINK]

Oil – Rystad sees demand trough of 71.8 mmb/d in Apr, moving to 83.5 mmb/d in Jun
We don’t recall seeing any forecasts that do not have April as the trough for global oil demand and for oil demand to move up reasonably strongly in May and June. Demand has been a huge moving target so we appreciate that Rystad has been updating its 2020 oil demand forecasts on a weekly basis. Their latest update was on Thurs [LINK]. They made a small downward revision to overall 2020 oil demand, which is now forecast to be -10.8 mmb/d.
YoY to 88.7 mmb/d (vs 88.8 mmb/d last week), but the important item to note was the monthly oil demand forecasts. (i) Rystad estimates global oil demand bottomed in April at 71.8 mmb/d, then moves up 5.9 mmb/d to 77.7 mmb/d in May and the new forecast has June +5.8 mmb/d MoM to 83.5 mmb/d. (ii) For context, if we take the average of all 3 months, Rystad implies Q2 oil demand of 77.6 mmb/d, which compares to the most recent IEA forecast of 76.1 mmb/d in Q2/20. (iii) No surprise, Rystad sees jet fuel demand to be hit the worst among all fuel sectors, with jet fuel demand falling by at least 2.4 mmb/d YoY and they write “Jet fuel demand in April was as low as 2.1 million bpd, and will shrink further to 1.9 million bpd in May before rebounding to 3 million bpd in June”. Our Supplemental Documents package includes the Rystad demand update. [LINK]

Oil – Good database for trends in driving, public transport and walking
On Tues, we tweeted [LINK] “US driving has moved nicely off the bottom. Thx @Apple for Mobility Trends Reports, its a great database to see driving, travel, walking % changes. data is available at country, state or city level. Great for analysts as data can be downloaded”. Apple has been updating mobility trends by tracking requests for directions in Apple Maps, which tracks data on driving, public transport and walking on a relative basis compared to a Jan 13 baseline for a wide range of countries, cities and states. This is a great tool for real time (updated daily) data on how cities/countries are emerging from Coronavirus lockdown and is relevant for analysts to see the pickup in driving activity. For the US, the weekly EIA oil data has been showing a solid move off the bottom in motor gasoline demand, which is supported in the Apple data. Apple shows US driving activity bottomed in early April at down ~60% relative to Jan 13 and has since recovered to ~19% as at May 6 which should be reflected in continued strengthening in US gasoline demand for next week’s EIA oil data release. The Apple Mobility Tracker can be viewed at [LINK].

**Figure 18: Apple Mobility Trends for US – Up to May 6**

Source: Apple

Oil and Natural Gas – sector/play/market insights from Q1 calls
This is our favorite time each time of each quarter as it is quarterly reporting and this is when we get the best insights into a range of oil and gas themes/trends, sectors and plays. As a reminder, our Energy Tidbits memo does not get into the quarterly results, forecasts or valuation. Rather the purpose of highlighting a company is to note themes/trends and plays that will help shape a reader’s investment thesis to the energy sector. In the conference calls, we also tend to find the best insights from the Q&A portion as opposed to the prepared
remarks. Plus we tend to get the best E&P sector insights from services, pipelines, refineries and utilities and that was the case again this week.

**Delek – US gasoline demand has moved off the bottom**

Delek US Holdings held its Q1 call on Wednesday. (i) Gasoline consumption has moved off the bottom in Arkansas and Texico and is picking up i.e. a good sign for the consumer. They are optimistic on driving demand, given people wanting to avoid mass transportation and flying, and in the Q&A, mgmt. commented on Texas, which peaked at down 40% in gasoline demand, but said “Today, we’re in an environment of less than 20% decline in gasoline demand in Texas or at least in the areas that we serve”. They also spoke to positive data in Arkansas as rural areas don’t get hit as hard as the bigger cities. (ii) Good reminder on how people just want to get in and out of stores. Mgmt used their convenience store data to illustrate. In the Q&A, mgmt replied “I know, most people don’t are not interested in our convenience stores, but the same store sales inside the store jumped significantly. Over the last four to six weeks, people don’t want to go and stand in lines in big boxes and people really don’t want to be exposed to a lot of people, so they come in and out to these stores”. (iii) See increasing challenge for US export barrels. In the Q&A, mgmt. replied “We still believe that the United States will need that oil. Our assumption is that export won’t be as cheap anymore because the outside countries like Russia won’t allow United States to export as many, many bear that it used to be. But at the same time, oil will be needed inside United States. So that we are going to look at Dutch[ph] bismol in light of not only export, but all that is needed in other places of the country and how are the people model will modify their behavior.”. (iv) In the Q1 release and, also on the Q1 call, mgmt. highlighted their niche advantage “our niche product markets tend to be more resilient during a downturn and the regions where we conduct business appear to be on-pace for re-opening from COVID-19”. They say this will allow their refinery utilization rates to be above industry average in Q2. Our Supplemental Documents package has excerpts from the Delek US Q1 call.

**Hess – Storing 6 mmb Bakken crude in VLCCs, 1 Bakken rig until WTI $50**

Hess held its Q1 call on Thurs. (i) Didn’t shut in any Bakken oil, rather did something better. Hess said “to maximize the value of our production, the Corporation has chartered three VLCCs to store 2 million barrels each of May, June and July Bakken crude oil production that is expected to be sold in the fourth quarter of 2020.” And in the Q&A, mgmt. reviewed how the contango in Brent prices allowed them to make money on this over the cost of tankers storage. (ii) Not a huge vote of confidence to Bakken competing for capital as Hess said have moved from 6 rigs, now at 2 and going to 1 rig shortly. But will not increase from 1 Bakken rig until WTI stabilizes in the $50 range. (iii) No surprise, Hess said “Our top priority is Guyana”. Mgmt noted phase 1 and 2 are on track but the target to hit 750,000 b/d has been delayed to 2026. Mgmt said “The lease of phase one development achieved first production in December and is expected to reach its full capacity of a 120,000 gross barrels of oil per day in June. The lease of phase 2 development remains on track for a 2020 to start up with a production capacity of 220,000 gross barrels of oil per day. Development of the Payara field with a production capacity of 220,000 gross barrels of oil per day has been deferred 6 to 12 months pending government approval to proceed. In addition, pandemic related travel restrictions have temporarily slowed our drilling campaign in Guyana, as a result our production objective of more than 750,000 post barrels of oil per day has been moved into 2026”. Our Supplemental Documents package includes excerpts from the Hess Q1 call.

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Parsley – Back to drilling ~$30 WTI, suspends 2020 production guidance
Parsley held its Q1 call on Tues. (i) The headline post the call was how Parsley was signaling it would increase drilling if WTI moved over ~$30. Parsley said it was “budgeting at $20-$30 for the remainder of 2020”. Parsley’s slides show that at <$20, WTI all rigs are idled, but that at ~$30 WTI they would move to 4-5 rigs and 1-2 frac crews. (ii) Parsley said it voluntary curtailments were down 28-30,000 net bopd in May, and provided a split ~1,000 bopd vertical wells, ~500 bopd older horizontal wells, ~4,500 bopd of gas flaring wells, and ~23,000 bopd of other wells. (iii) “We were running 15 rigs and 5 frac crews during January and February, but steadily reduced activity throughout March as oil prices and market fundamentals deteriorated. In mid-April, we temporarily suspended sanctioning all new drilling and completion operations”. (iv) Seeing physical signs for better prices. In the Q&A, mgmt. replied “We’re watching May and June and we think Midland maybe short volumes in June June and that providing the uplift that we’re seeing recently or -- sorry in May that were seen recently for June, I think it’s a few different signals with all of the curtailments across the space. I think there’s no concern about volumes flowing. We don’t have concerned about being able to place those barrels. And I think the price of the volume or of the crude is essentially showing that. We continue to watch the June role and in the disc and those will close out around the 20th and 25th of May and will give us additional price small price signals and help determine what we plan to do and in June”. (v) Parsley says “guidance on production temporarily suspended”. Our Supplemental Documents package includes the excerpts from the Parsley Q1 call and Q1 call slide deck.

Pioneer – Only 7,000 b/d oil shut-in, sees physical market improvement
Pioneer held its Q1 call Thursday. (i) Shut in of 7,000 b/d of oil. In the Q&A, mgmt. was asked about a peak curtailment (ie. above the 7,000) and mgmt. replied “I really don't anticipate any more in the 7,000 those were our high cost vertical wells and you given what's happened to the forward strip. I wouldn't anticipate any more than that”. (ii) Believe most of the shut-in in the Permian aren't voluntary shut-ins, but due to a lack of ability to move the oil. (iii) Q1 production average was 223,000 b/d of oil, 2020 exit forecast at 190-195,000 b/d. (iv) Building DUCs in 2020. This is another industry theme. Mgmt. revised down their forecast average rig counts from the March revised guidance and in the Q&A, mgmt. said “the revised guidance in March we pointed to taking the rigs down to 11 and then roughly running 2 to 3 frac fleets. We were able to accelerate that and we really started to dropping out our rigs to where we're roughly around 7 rigs right now running one frac fleet, allowing us to build up our DUCs to what I would say is a more greater than a normalized dot count. If you look at, let's call it a working inventory of DUCs.” (v) Physical market continues to improve. Mgmt. said “I can tell you that we’ve sold all of our April and May volumes on the Gulf Coast and we’re well on our way on June sales talking to our marketing team. I can tell you that things feel much better than they did in May, and June market still stronger and more positive than we did in May”. (vi) Good example to reinforce the concern that the cuts in operating costs have to have some sort of impact down the road on production either declines or costs. The concern is that when you cut out doing the normal every day maintenance and tune up of the zones, it has to come back to come back. Its like the race car in the Indy 500 that passes on a pit stop and doesn’t change tires. In the call, mgmt. said “These efficiency gains coupled with service cost deflation are continuing to drive down our well costs our production operations team is doing what they do best by intentionally focusing on
lowering our LOE we're also limiting our maintenance activities and curtailing our higher cost vertical well production”. (vii) Very few US shale producers can grow at WTI $45-$50. In the Q&A, mgmt. was asked about Pioneer returning to a growth vs cash flow balance. Mgmt replied “I think there'll be very few companies growing in the shale industry, most of them will have to use a lot of the extra free cash flow to delever obviously Pioneer will have the options whether to pick go back to 15 or go to 10 or go to 5”. [Note the 15, 10 and 5 are in regards to % growth rates]. (viii) Reminded of their call that US oil probably down 2 to 3 mmb/d by year end 2021. When asked about cash flow use in the Q&A, mgmt. replied “like I said earlier, in all depends on the strip -- the strip right now, I've been on record saying in US production is going to drop probably 2 million to 3 million barrels a day by the end of 21 at the current strip as the strip keeps moving up and so we could be down to 10 million to 11 million barrels a day from 13 earlier this year by end of ’21 and as cash flow increases, a lot of companies are going to use -- they can't raise equity. So they're going to use the cash flow to repair their balance sheets and that's about 90% of the independents. The ones that are public and also private”. Our Supplemental Documents package has excerpts from the Pioneer Q1 call.

**Plains - Estimate Permian shut-ins to be 1 mmb/d in June**

Plains held its Q1 call on Tuesday. (i) Estimate Permian shut-ins to be 1 mmb/d in June, with some activity coming back in August, but ultimately the return of activity will be price dependant. (ii) They believe the worst is in May and June for shut-ins, maybe not booming growth thereafter, but some modest recovery of volumes. In the Q&A, mgmt. was asked if they are assuming some recovery in Q3 and Q4 relative to May and June, mgmt. replied “Its just more of a flattening. So the pace of the underlying decline will naturally mitigate itself as well as the decline happens, but there’s some activity that will come in just to offset the additional decline. So its a very low level of activity, but that’s consistent with our forecast”. (iv) Estimates Permian oil production at 2020 exit is down 15-20% YoY. This is roughly a decline 0.7 to 0.9 mmb/d down YoY. For 2021, mgmt. said “It remains too early to call Permian growth trajectory for 2021, but we expected to be lower and what we internally forecasted to the beginning of the year pre coronavirus”. (v) Expecting shale production to be down YoY in all shale basins, resulting in a 1mmb/d decrease in their expected transportation volumes from 7.6 mmb/d to 6.6 mmb/d. (vi) Not a lot of detail on other basins. But note the “quality challenges” in the Eagle Ford, we believe this refers to the high API (more super light), whereas the refineries prefer more in the 40 API range. They also note the aggressive cuts from the Williston. In the Q&A, mgmt. replied “Jean, I think you look at activity across and it's going to differ by Basin, I think there’s been some quality challenges in the Eagle Ford, which third, which is pulled a lot of activity out of there so you could see steeper declines and they go forward, I think the Williston shut-ins have probably been the most aggressive of anywhere it's further from market Canadian production, we would expect that to normalize once the that's going to be largely driven by shut-ins. So it's going to differ by Basin the DJ you can see the activity declines, I think the Permian is going to be lower the shallower than some of the other basins is the way I look at it”. Our Supplemental Documents package includes excerpts from the Plains Q1 call.

**TC Energy – Keystone XL could be delayed by up to 1 yr**

TC Energy held its Q1 call on Monday. (i) TC didn’t see any real impact of Covid-19 on Q1 volumes. During the call, mgmt. said volumes were similar or greater YoY and said “Evidence of this can be seen in the volumes transported across our systems
with the NGTL system, field receipts averaging about 12.2 Bcf a day, the Canadian Mainline Western receipts averaging 3.2 Bcf a day, our broader US pipeline network moving approximately 26 Bcf a day and our Mexican pipelines moving approximately 1.5 Bcf per day”. (ii) Expecting KXL to enter service in 2023 and is underpinned by 20 year take or pay contracts. Mgmt also commented on the AB government providing US$1.1b of equity and guaranteeing a US$4.2b project level credit facility and said “Once the project is completed and placed into service, we expect to acquire the Alberta Government’s equity investment and refinance the credit facility”. (iii) On construction of Keystone XL, mgmt was asked what they are doing to keep advancing the project as much as possible given the negative permit ruling. Mgmt commented on continuing construction along the border crossing and they highlighted the potential to avoid certain routes in the event of being completely blocked on the current ruling. TC still expects to complete a significant amount of work in the US in 2020. (iv) In the Q&A, mgmt. was asked about KXL timing in light of the Montana judge overturning the Permit 12. Mgmt. responded “The long-term potential delay with any of these kind of very omnibus type filings or motions to vacate a permit that broad could have up to a year delay on the ultimate project, much like many of the circumstances that we've faced historically. However, we've been mitigating those types of impacts by a way of pursuing other forms of the scope in parallel, which was what we had anticipated prior to taking FID is that we have been following the regulatory standards and the rule of law and we feel that we will ultimately cure the issues that are present in front of us right now and be able to continue pursuing activities”. (v) On force majeure risk for the Keystone pipeline, in the Q&A mgmt replied “Patrick, under our take-or-pay contracts, there is no provision for force majeure, be it for supply or production upsets or otherwise. And I think where we sit today with Keystone when you consider the markets we serve, when you consider our -- the advantages we've bringing to marketplace as far as the product quality, the direct path, the visibility into delivery times, I feel confident that we will continue to run at high volume. Then you consider the take-or-pay nature of our contracts and being 94% contracted on Keystone, I don't foresee any significant reduction in the throughput, notwithstanding what we're seeing on the supply side and notwithstanding what we're seeing with some of the challenges with some differentials”. (vi) Expecting some slowdown of construction and 2020 capex with Coronavirus related safety programs and safety protocols. (vii) In the Q&A, mgmt. was asked about counterparty risk, each division head replied. US natural gas pipeline replied “We're still seeing high load factors with more than half of our large producers flowing that load factors in excess of 90% tells us that producers are continuing to get proper value for the capacity that they hold on our system”. Cdn natural gas pipelines highlighted that 2/3rds of revenues come from investment-grade customers and nearly 90% is creditworthy and the remainder have collateral with TC. Liquids pipelines replied on the Keystone shippers “The vast majority are integrated, where they have arrangements in place to move productions to their associated refineries. I would say that probably weighted average in that BBB+ range. So generally, well-capitalized and diversified shipper group”. (viii) Had force majeure event on their Bruce Power Unit 6 Major Component Replacement because of COVID-19, but Bruce Power has been able to continue limited work on critical path activities”. Our Supplemental Documents package has excerpts from the TC Energy Q1 call.
Oil & Natural Gas – EIA updates UAE country brief

On Wednesday, the EIA updated its country brief on UAE [LINK]. We continue to recommend adding the country briefs to reference libraries as they provide good quick overviews. UAE has jumped up to be the third largest oil producer in OPEC at 4.0 mmb/d in 2019 and remains at #7 in global oil reserves. The EIA reports that 93% of the exports from the UAE are directed to Asia. Despite being ranked #7 in terms of proved reserves of natural gas, UAE imported 919 bcf in 2018 — a number that has been steady since 2014. Our caveat is that, as noted below, we thought the new EIA country brief didn’t include as much good UAE data as last time. Our Supplemental Documents package includes the EIA brief.

Prior EIA briefs had better info on Fujairah

We didn’t think the new brief provided as good info on two key UAE oil infrastructure items — the Fujairah terminal and Abu Dhabi Crude Oil Pipeline. We highlighted these in our May 12, 2019 Energy Tidbits. The Fujairah terminal is a critical part of the global oil supply chain. It is a hugely strategic oil terminal and bunkering facility. What makes this significant is that it on the east coast of UAE and therefore on ocean bound side of the Strait of Hormuz. This location would allow it to be unaffected if there is any Straight of Hormuz risk. Fujairah is the UAE’s major oil export terminal and the world’s second largest bunkering port. The EIA Country Analysis Brief UAE May 6, 2020 says “Already the world’s second-largest bunkering port, the export terminal in Fujairah will expand its storage capabilities significantly over the coming years. Plans to expand the terminal include several new private tank storage units, which have an anticipated capacity of 42 million barrels by 2022. When complete in 2022, the Abu Dhabi state oil firm Abu Dhabi National Oil Company’s (ADNOC) Fujairah Underground Storage facility will be able to store three different types of crude oil, providing ADNOC with increased flexibility to export crude oil through Fujairah’s Arabian Sea oil terminal”. On refining capacity “the UAE plans to invest in a new 250,000 b/d Fujairah refining complex focused on producing bunker fuel that complies with the International Maritime Organization’s sulfur regulations. The first phase is expected to be operational by the first quarter 2020. A new 600,000 b/d refining and petrochemical complex in Ruwais is expected to be complete by 2025”.

EIA updates UAE country brief
Electricity – Worth watching, Form Energy “long duration energy storage system”

On Friday, we tweeted [LINK] “Surprised @FormEnergyInc 1st commercial deployment of its “long duration energy storage system” didn't get noticed. IF its a breakthru in long duration storage, its a potential game changer for renewable power and therefore fossil fuels. Need to watch this space.” Form’s press release on Thursday immediately caught our eye so we were surprised that it didn’t get much attention on Friday, certainly zero from the oil and gas sector. Form announced “Form Energy, a company developing ultra-low-cost, long-duration energy storage for the grid, today announced it signed a contract with Minnesota-based utility Great River Energy to jointly deploy a 1MW / 150MWh pilot project to be located in Cambridge, MN. Great River Energy is Minnesota's second-largest electric utility and the fifth largest generation and transmission cooperative in the U.S. This system will be the first commercial deployment of Form Energy's proprietary long-duration energy storage system. Form Energy’s aqueous air battery system leverages some of the safest, cheapest, most abundant materials on the planet and offers a clear path to transformationally low-cost, long-duration energy storage”. Long term readers of Energy Tidbits know that, since early 2014, we have been alerting to the potential for storage of electricity to be a game changer to the world and energy (especially fossil fuels) once there was visibility that storage would be commercially available in some reasonable period (i.e. <5 years) at reasonable prices. Our concern was that once there was this visibility, capital flows would change and the long term value of oil and natural gas would be diminished. We thought it was also significant that this is in Minnesota, which normally has winters similar to Canada. It sounds like a key advantage vs lithium batteries is that the Form system can discharge power for period of up to 150 hours. Lithium have a discharge period a fraction of this lengthy period. Form does not say anything about the system but, in reviewing US Dept of Energy July 2019 ARPA-E Award [LINK] to Form Energy, it sounds like the key element is the common Sulphur. The DOE wrote “Form Energy will develop a long-duration energy storage system that takes
advantage of the low cost and high abundance of sulfur in a water-based solution. Previous MIT research demonstrated that aqueous sulfur flow batteries represent the lowest chemical cost among rechargeable batteries. However, these systems have relatively low efficiency. Conversely, numerous rechargeable battery chemistries with higher efficiency have high chemical costs. The solution requires low chemical cost, high efficiency, and streamlined architecture. The team will pursue several competing strategies and ultimately select a single approach to develop a prototype system. Focus areas include developing anode and cathode formulations, membranes, and physical system designs.” We recognize it’s a weekend, but we think an item like that that has such a potential significance to oil and natural gas would have received some attention. Regardless, we recommend putting this on radar screens for all energy investors. Our Supplemental Documents package includes the Form release [LINK], he brief DOE ARPA-E Award, and a general Oct 2019 MIT Technology Review that includes Form Energy. [LINK].

Capital Markets – Warren Buffet “enormous range of possibilities” for the economy
Saturday is one of our big crunch days for our Energy Tidbits memo so we didn’t have time to listen to all of the marathon live feed of Warren Buffet’s AGM comments. We did listen to the replay and also pasted in the transcript, which was 39 pages singled spaced. There were many insights from Buffet’s presentation and Q&A. Here are a few of our takeaways. (i) His market comments didn’t seem too much different than what many investors hold. There were no extreme or surprising positions. (ii) He also said what many expect such as “Get a cross section. And in my view, for most people, the best thing to do is to own the S&P 500 index fund.” (iii) The big headlines were on his views that there are still “enormous range of possibilities” on the direction of the economy. “But in any event, the range of probabilities on health narrowed down somewhat, I would say the range, the probabilities, or possibilities, and on the economic side are still extraordinarily wide. We do not know exactly what happens when you voluntarily shut down a substantial portion of your society. In 2008 and ‘09, our economic train went off the tracks, and there were some reasons why the [inaudible 00:12:23] was weak in terms of the banks and all of that sort of thing. But anyway, this time we just pulled the train off the tracks and put it on a siding, and I don’t really know of any parallel in terms of very, very one of the most important country in the world. Most productive, huge population. In effect sideling its economy and its workforce and obviously and unavoidably creating a huge amount of anxiety and changing people’s psyche and causing them to somewhat lose their bearings in many cases, understandably. This is quite an experiment and we may know the answer to most of the questions reasonably soon, but we may not know the answers to some very important questions for many years. So it still has this enormous range of possibilities.” (iv) why he sold airline stocks “The world has changed for the airlines, and I don’t know how it’s changed, and I hope it corrects itself in a reasonably prompt way. I don’t know whether the Americans will have now changed their habits or will change their habits because of an extended period if it happens that we’re semi shut down in the economy.” (v) Changing retail. “that well before and I’m not talking about Barman Spivey, but they got a couple of them and there’s a couple of them. And it may be that in effect, what’s happened in the last couple of months has accelerated the decline and of those businesses or their customers are developing different habits. People are developing different habits in retail. There’s no question about that.” He also notes “And the supply and demand for retail space may change fairly significantly. The supply and demand for office space may changed significantly.” (vi) Litigation. “Well, the amount of litigation that is going to be generated out of what’s already happened, let alone what may happen, is going to be huge. Now, just the cost of defending litigation is huge, enormous expense, depending on how much there is.” (vii) Highlighted capital opportunities in energy transition. “So it’s to build incremental wind, incremental transmission, that services the wind or other types of
renewable, solar. That's all incremental to the business and drives incremental both growth in the business. It does require capital, but it does drive growth within the energy business."

(viii) Bank loan issues. “I wouldn’t say that with a 100% certainty because there are certain possibilities that exist in this world where banks could have problems. They’re going to have problems with energy loans. They’re going to have problems. Some, they’re going to have extra problems with consumer credit. They’re going to have that. But they know it, and they’re well reserved.” Our Supplemental Documents package includes excerpts from the transcript.

Buffets sold his airlines in April, airline CEOs said the outlook had changed

Warren Buffet said he sold his airline positions in April because, as noted above, the world has changed for airlines. This is not a unique view, rather he looks like he is listening to what the airlines themselves are saying. That is probably one of his underrated skills – he listens. (i) Boeing. Our April 5, 2020 Energy Tidbits highlighted Boeing’s April 2 layoff s and Boeing saying “When the world emerges from the pandemic, the size of the commercial market and the types of products and services our customers want and need will likely be different. We will need to balance the supply and demand accordingly as the industry goes through the recovery process for years to come.” (ii) Lufthansa. Our April 12, 2020 Energy Tidbits highlighted Lufthansa’s restructuring announcement that said “The Executive Board of Deutsche Lufthansa AG does not expect the aviation industry to return to pre-coronavirus crisis levels very quickly. According to its assessment, it will take months until the global travel restrictions are completely lifted and years until the worldwide demand for air travel returns to pre-crisis levels”. (iii) WestJet. This week, the Calgary Herald interview with WestJet CEO spoke on the future and said “In an exclusive interview with Postmedia, the head of the Calgary-based airline said the unprecedented collapse in demand for air travel as a result of the virus means WestJet must decide what size of fleet will be commercially viable for the next several years. “We might not be our previous size for a long time, if ever,” Sims said. “We just might not get back there.” Our Supplemental Documents package includes the Calgary Herald WestJet interview. [LINK]

Capital Markets – US Federal Debt >$25 trillion, govt debts at all levels going up
We are all hoping that the gradual reopening of the US, Canada and all economies can be proceed without any relapse and push back into a big shut down. And if the market can keep focusing on the reopening economy, we also expect markets to also pivot to look at the problem, post Coronavirus crisis, of massive budget shortfalls in all countries at all levels of govt down to municipal levels. And if so, it will also have to focus on the inevitable where do govs get money? And the logical ones have to be increasing tax burden on at levels on higher income, and on corporations. And, of course, in the US, tariffs have to always be in the discussion. And then there will have to be the discussion of spending cuts somewhere within govt spending. Last week, we highlighted the Saudi financial pitch. This week, two high profile stories highlight the US debt issue. (i) California. On Thurs, CNBC [LINK] and others reported on California’s announcement that it estimates a $54.3b budget shortfall this year vs a $21b surplus last year. (ii) US federal debt. CNSNews [LINK] and others reported this week on the US Treasury dept data that showed US federal debt was now over $25 trillion.

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Figure 20: US Federal Debt

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Source: CNSNews

Demographics – US 33.4 mm jobless claims would be #44 largest country in world

Being an analyst, we can’t help hearing a number and always looking behind the number or, in the case of the US unemployment data, relate that number to other data. One of the Thursday US economic stories was how the number of jobless claims over the past seven weeks (a general market for when people consider the start of the crisis in the US) reached 33.4 million. Our first thought was that’s almost as much as Canada’s population. We looked at the Worldometers 2020 population data [LINK] and here are the rankings above and below the 33.4 million. #38 Poland 37.8 mm, #39 Canada 37.7 mm, #40 Morocco 36.9 mm, #41 Saudi Arabia 34.8 mm, #42 Uzbekistan 33.5 mm, #43 Peru 33.0 mm, #44 Angola 32.9 mm, and #45 Malaysia 32.4 mm.

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 19 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 – Sign up on our email distribution for tidbits and blogs
For those interested in receiving out Energy Tidbits memos and blogs, please go to our blog sign up. We will be using the blog notification list for Energy Tidbits. The blog sign up is available at [LINK].

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].

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

Signs that things are getting back to normalcy – photo radar is back
Alberta is still not officially reopen but there is no question that there is increasing activity. It was evident on the drive back from Canmore (an hour west of Calgary) back to Calgary on Sat. The volume of traffic going west to the mountains from Calgary seemed no different than what would be seen on any spring Sat morning. But perhaps indicator that traffic is getting back to normal levels was that we passed two photo radars in the city, the fist photo radar that we have seen in about two months. And these were in spots that aren’t normally the tier 1 photo radar spots, maybe in the tier 2 spots.

18th anniversary of classic 76ers Iverson “we’re talking about practice” rant
The lack of live sports and sports news talking about the gams just played means that every sports fan has seen every show about top 10 plays, games, this day in sports history, etc. On Thurs, one of the replays was the 18th anniversary of the classic Philadelphia 76ers point guard Allen Iverson “we’re talking about practice” rant. Iverson had come off his MVP 2001 season and the 76ers had a disappointing 2002 season losing in the first round to the Celtics. 76ers coach Larry Brown criticized Iverson for missing practice and following the last defeat, Iverson, in his post game conference, went on the classic practice rant saying it 14 times. It’s a classic for sports fans, a replay is at [LINK]

“You’re still not investing with mom and dad’s guy?
Who doesn’t love a punchy commercial? I couldn’t help include the Questrade commercial of a millennial age son asking his slightly older millennial brother “you’re still not investing with mom and dad’s guy?” [LINK] that was running this week on BNN Bloomberg. I have always been a big believer that good fund managers are worth their weight in gold, deliver better performance, aren’t held hostage to feelings, and let you sleep better at night. But I still like the Questrade commercials because they remind you on how fees, without the related performance, eat away right off the top. Questrade is clearly focused on millennials, but I am surprised that they decided to portray mom and dads as sleepy because mom and dads control a lot more wealth for fees.