

Energy Tidbits

April 4, 2021

Produced by: Dan Tsubouchi

In-Person JCPOA Meetings This Week, Feels Like 1st Momentum Shift for a Potential Return To Deal Before June

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. Not face-to-face, but 1st US/Iran/JCPOA countries in-person labor type mediation meetings in Vienna this week. ([Click Here](#))
2. Pre-meeting messaging was quota rollover but OPEC+ and Saudi Arabia surprised with increases. ([Click Here](#))
3. Iran keeps increasing production/exports. ([Click Here](#))
4. Biden's infrastructure plan has many major oil/gas impacts especially his carbon free electricity by 2035. ([Click Here](#))
5. Interior Secretary Haaland noting the "fundamentally broken" oil and gas leasing program on federal lands can't be a positive indicator. ([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 14 bcf, storage now -225 bcf YoY deficit

The EIA reported a 14 bcf injection (vs 19 bcf injection expectations) for the March 26 week, which was well below the 5-yr average draw of 24 bcf while last year was a draw of 19 bcf. Storage is 1.764 tcf as of Mar 26, decreasing the YoY deficit to 225 bcf from 263 bcf last week and storage is now 36 bcf below the 5 yr average. HH gas prices have softened in the last few weeks with warmer weather but, its been a good winter for gas storage moving from ~200 bcf YoY surplus to start the winter to now being -225 bcf YoY. Below is the EIA’s storage table from its Weekly Natural Gas Storage Report. [\[LINK\]](#)

YoY storage at -225 bcf YoY deficit

Figure 1: US Natural Gas Storage

Region	Stocks billion cubic feet (Bcf)				Historical Comparisons			
	03/26/21	03/19/21	net change	implied flow	Year ago (03/26/20)		5-year average (2016-20)	
					Bcf	% change	Bcf	% change
East	307	307	0	0	384	-20.1	310	-1.0
Midwest	401	405	-4	-4	478	-16.1	407	-1.5
Mountain	112	112	0	0	92	21.7	106	5.7
Pacific	194	193	1	1	197	-1.5	189	2.6
South Central	749	734 R	15	15	838	-10.6	787	-4.8
Salt	226	215	11	11	256	-11.7	239	-5.4
Nonsalt	523	519 R	4	4	583	-10.3	548	-4.6
Total	1,764	1,750 R	14	14	1,989	-11.3	1,800	-2.0

R=Revised.

The reported revision caused the stocks for March 19, 2021 to change from 1,746 Bcf to 1,750 Bcf. As a result, the implied net change between the weeks ending March 12 and March 19 changed from -36 Bcf to -32 Bcf.

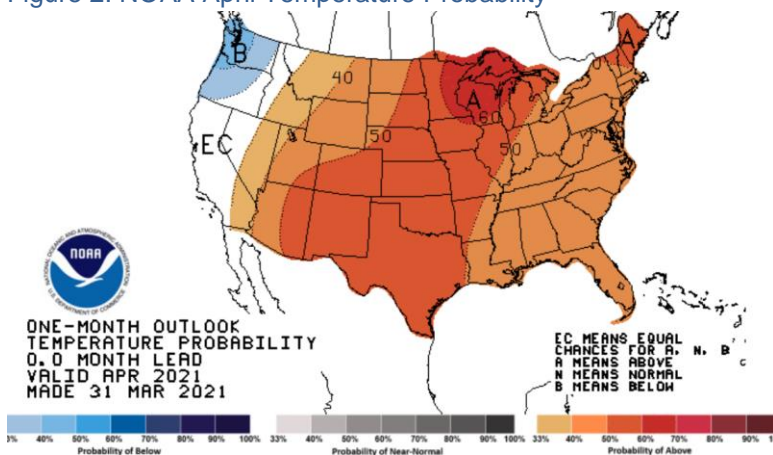
Source: EIA

Natural Gas – A warm April tends to mean perfect temp to leave the windows open

It doesn’t look like April weather will bring any real push for natural gas demand. April is shoulder season and the only real natural gas demand comes with the occasional cold days in early April. But in looking at the next few days temperatures forecasts, it doesn’t look like there will be that boost. Plus the overall April temperature outlook is for warmer for than normal April temperatures. But this is shoulder season so warmer than normal tends to mean leave the windows and get some fresh air time.

A warmer than normal April

Figure 2: NOAA April Temperature Probability



Source: NOAA

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Natural Gas – US Jan gas production down 2.6 bcf/d YoY, -0.1 bcf/d MoM

The YoY declines in US natural gas production was a big positive for US HH gas prices in Q4/21 but the YoY declines will be gone in the next couple months. The YoY deficit in US dry natural gas production continues to decline, being -2.6 bcf/d YoY in Jan 2020 vs -3.0 bcf/d YoY in Dec. EIA released its Natural Gas Monthly on Wednesday [\[LINK\]](#), which includes its estimates for “actuals” for January gas production. US gas production in Jan was 92.5 bcf/d, down 0.1 bcf/d MoM from December of 92.6 bcf/d. The MoM decrease puts the decline to Jan at -3.9 bcf/d since Nov/19 which is largely driven by a decline in associated natural gas as oil wells were shut in. Below is our running table of US dry natural gas production along with our graph of US dry gas production by year. Our Supplemental Documents package include excerpts from the EIA Natural Gas Monthly.

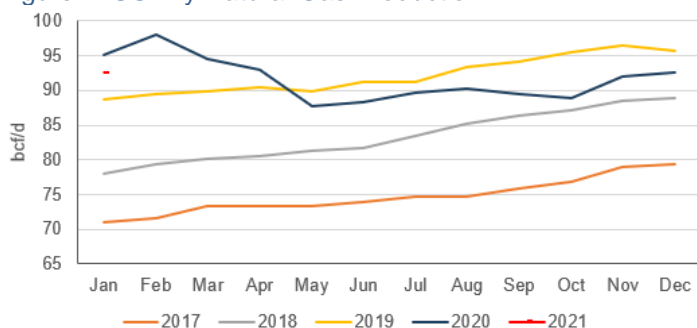
US Jan gas production down 2.6 bcf/d YoY

Figure 3: US Dry Natural Gas Production

bcf/d	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Jan	56.0	60.0	65.9	65.3	67.8	72.6	73.8	71.0	77.9	88.6	95.1	92.5
Feb	57.3	58.8	65.2	65.9	67.5	73.7	74.7	71.6	79.4	89.4	98.1	
March	57.3	61.5	65.1	65.4	68.2	74.1	74.0	73.3	80.2	89.9	94.6	
Apr	57.6	62.3	65.4	66.0	68.6	75.0	73.8	73.4	80.4	90.4	92.9	
May	58.0	62.4	65.6	66.3	69.5	74.2	73.5	73.3	81.3	89.9	87.8	
June	57.2	62.1	65.4	66.3	69.8	74.3	72.5	73.8	81.8	91.2	88.4	
July	58.3	62.5	65.8	67.0	70.6	74.3	73.1	74.7	83.4	91.3	89.8	
Aug	58.9	63.2	65.4	67.0	71.6	74.3	72.3	74.7	85.2	93.3	90.2	
Sept	59.1	63.1	66.2	67.2	71.7	75.0	71.9	75.8	86.4	94.2	89.5	
Oct	60.1	65.1	66.5	67.6	72.2	74.1	71.4	76.9	87.2	95.4	89.0	
Nov	60.1	65.9	66.6	68.6	73.1	74.1	72.1	79.0	88.6	96.4	92.0	
Dec	61.0	65.6	65.8	66.6	74.7	74.0	71.2	79.5	88.9	95.6	92.6	
Average	58.4	62.7	65.7	66.7	70.4	74.1	72.8	74.8	83.4	92.2	91.7	

Source: EIA

Figure 4: US Dry Natural Gas Production



Source: EIA

Natural Gas – US LNG exports continue at record 9.8 bcf/d in Jan

The EIA Natural Gas Monthly also reported “actuals” for US LNG exports, which were 9.8 bcf/d in January, which is +2.7 bcf/d YoY and was flat from December of 9.8 bcf/d. Note our table rounds to one decimal and the actual is 9.843 bcf/d for Jan. The continued record volumes is not a surprise given the ramp up in natural gas flows to LNG export terminals, averaging 10.4 bcf/d in January. February should show a decline vs January due to the Texas freeze shutting down export terminals, with flows averaging only 8.3 bcf/d. March will show a recovery with flows to LNG facilities averaging 11.1 bcf/d. Below is our table of EIA’s monthly LNG exports.

US Jan LNG exports +2.7 bcf/d YoY

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Figure 5: US LNG Exports (bcf/d)

(bcf/d)	2016	2017	2018	2019	2020	2021
Jan	0.0	1.7	2.3	4.1	8.1	9.8
Feb	0.1	1.9	2.6	3.7	7.8	
March	0.3	1.4	3.0	4.2	7.9	
Apr	0.3	1.7	2.9	4.2	7.0	
May	0.3	2.0	3.1	4.7	5.9	
June	0.5	1.7	2.5	4.7	3.6	
July	0.5	1.7	3.2	5.1	2.7	
Aug	0.9	1.5	3.0	4.5	3.6	
Sept	0.6	1.8	2.7	5.4	5.0	
Oct	0.1	2.6	2.9	5.7	7.2	
Nov	1.1	2.7	3.6	6.3	9.4	
Dec	1.3	2.7	4.0	7.1	9.8	
Full Year	0.5	1.9	3.0	5.0	6.5	
Full Year bcf	186	708	1,084	1,817	2,390	

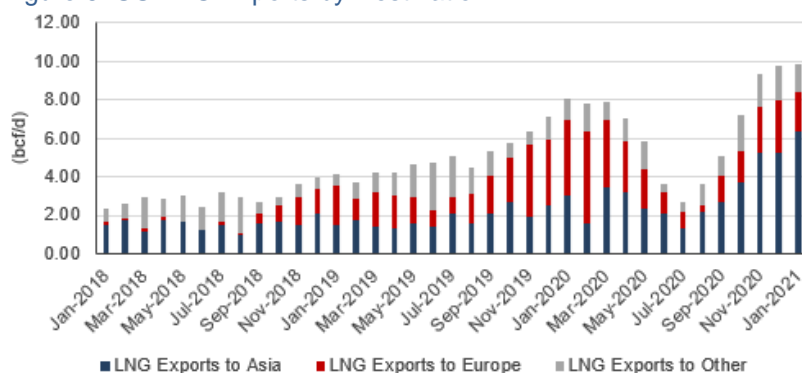
Source: EIA

Natural Gas – US Jan LNG exports were mostly to Japan, South Korea and China

The US Dept of Energy also posts a DOE LNG Monthly report that has more details on LNG exports by cargo. Increasing US LNG exports has been a significant driver of HH strength in Dec and Jan with exports reaching record highs. The DOE reported new record monthly US LNG exports of 9.9 bcf/d in Jan, +22% or +1.8 bcf/d YoY vs 8.1 bcf/d in Jan 2020. The prior record was Dec at 9.8 bcf/d. US deliveries of LNG to Asia were strong, with the top three export destination being Japan 2.1 bcf/d, South Korea 1.8 bcf/d, and China 1.4 bcf/d. Other major export destinations was Turkey 0.9 bcf/d and UK 0.7 bcf/d. On Tuesday, we tweeted [\[LINK\]](#) on one other advantage of the DOE LNG Monthly report, it comes out a day before the EIA Natural Gas Monthly. We tweeted “US #LNG exports hit record 9.9 bcf/d in Jan driven by cold Asia temp with top 3 destinations Japan 2.1 bcf/d, South Korea 1.8 bcf/d, China 1.4 bcf/d. Reminder actuals come out day earlier in @ENERGY LNG Monthly vs @EIAgov #NatGas Monthly”. The EIA is part of the DOE and the monthly data is always within rounding.

Lower MoM US LNG exports to Europe in Jan

Figure 6: US LNG Exports by Destination



Source: EIA

Natural Gas – US pipeline exports to Mexico +0.3 bcf/d MoM to 5.6 bcf/d in Jan

One of the issues that doesn't show up in Jan data is that the US reduced natural gas pipeline exports to Mexico during the Texas big freeze, but will show up in the Feb data. The EIA Natural Gas Monthly also provides its “actuals” for gas pipeline exports to Mexico, which were 5.6 bcf/d in January, +0.4 bcf/d YoY and up 0.3 bcf/d MoM from 5.3 bcf/d in December. We continue to see the set up for increasing US pipeline exports to Mexico post the Texas

US Jan pipeline exports to Mexico +0.3 bcf/d MoM

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big freeze impact. Mexico natural gas production remains stuck below 5 bcf/d and the completion of new pipeline infrastructure such as the Wahalajara system [\[LINK\]](#) increases US penetration further into Mexico. Below is our table of the EIA's monthly gas exports to Mexico.

Figure 7: US Pipeline Gas Exports To Mexico (bcf/d)

bcf/d	2014	2015	2016	2017	2018	2019	2020	2021
Jan	1.7	2.2	3.2	3.9	4.4	4.9	5.2	5.6
Feb	1.8	2.3	3.4	4.1	4.5	4.8	5.2	
March	1.9	2.4	3.3	4.2	4.3	4.8	5.4	
Apr	1.9	2.6	3.5	3.9	4.4	4.7	4.6	
May	2.0	2.8	3.7	4.2	4.4	5.0	4.7	
June	2.2	3.0	3.9	4.5	4.6	5.2	5.4	
July	2.2	3.3	4.0	4.4	4.9	5.4	5.8	
Aug	2.1	3.3	4.3	4.4	5.0	5.4	6.0	
Sept	2.2	3.3	4.1	4.2	5.0	5.4	6.0	
Oct	1.9	3.2	4.2	4.3	4.9	5.5	6.0	
Nov	1.9	3.0	4.0	4.5	4.7	5.3	5.5	
Dec	2.1	3.2	3.7	4.4	4.5	4.9	5.3	
Full Year	2.0	2.9	3.8	4.2	4.6	5.1	5.4	

Source: EIA

Natural Gas – No surprise, Total reportedly pulls all staff out of Mozambique

We are hopeful of writing a more detailed blog this week on the impact of Total's work suspension of its Phase 1 LNG development in Mozambique. But no one should be surprised to see the reports late this week that Total was pulling all of its staff out of Mozambique. Last week's (March 28, 2021) Energy Tidbits noted Total was shut down for 3 months waiting for Mozambique to fix the security risk, restarts development on Wed March 24, 3 days of violence/attacks immediately follow, and Total suspends operations again on Sat March 27. We thought we find it hard to believe that Total will just wait a short period of weeks or a month or two and then restarts development again. Rather we expect Total will need a much higher level of confidence in the situation. If so, we think the risk is that an early restart of development is towards the end of 2021 ie. they effectively lose a year on their timeline. There is no timeline as of yet for a restart but we think the timeline of a 1 year delay at the least is a reasonable planning assumption. We will have much more to say on this in a blog we are hopeful of posting on Wed.

More violence in Mozambique

Natural Gas – Qatar Petroleum will not renew Qatargas 1 JV at the end of 2021

This week, Qatar Petroleum announced that they will not be renewing the JV agreement for Qatargas 1 with Total, Exxon, Marubeni, and Mitsui at the end of 2021 [\[LINK\]](#). As a result, Qatar Petroleum will become the sole owner of the 1.3 bcf/d facility beginning Jan 1, 2022. The Qatargas 1 JV was established in 1984 and was the first LNG facility in Qatar. The first LNG shipment from Qatar was from the Qatargas 1 facility in 1996 and was sent to Japan. One item not included in the Qatar Petroleum release was that Qatargas 1 also had a combined condensate capacity of about 51,000 b/d.

Qatar takes over 100% of Qatargas 1

Natural Gas – Europe storage 28.84% full vs 5 year average of 35.39%

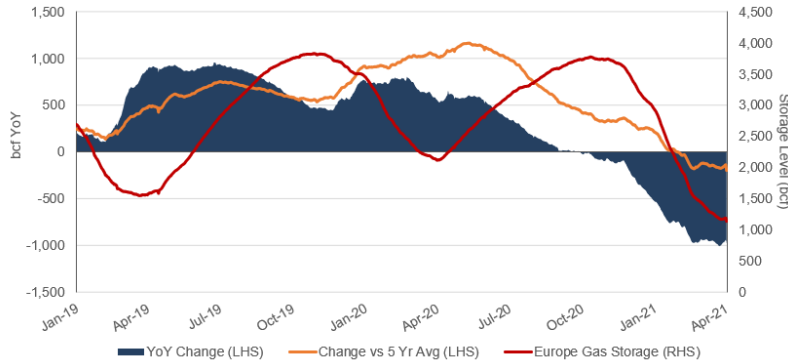
Winter has is coming to an end in Europe and our focus for Europe gas storage will be turning to how quickly it fills off the low point this winter. Its been cold through March and this has delayed the refill push. This winter has been another good reminder that Europe gas storage is the key indicator 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 35.39% full

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Europe gas storage started the winter (Nov 1) at basically full levels at 94.66% and has dropped by 65.82% to be 28.84% at Apr 1. This 65.82% 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. Storage at Apr 1 of 28.84% is 25.19% less than last year and 6.55% less than the 5 yr average. Europe storage levels this summer will be the key item to watch for indications on LNG markets going into the winter. Below is our graph of YoY change in net LNG flows to NW Europe.

Figure 8: Europe Gas Storage Level



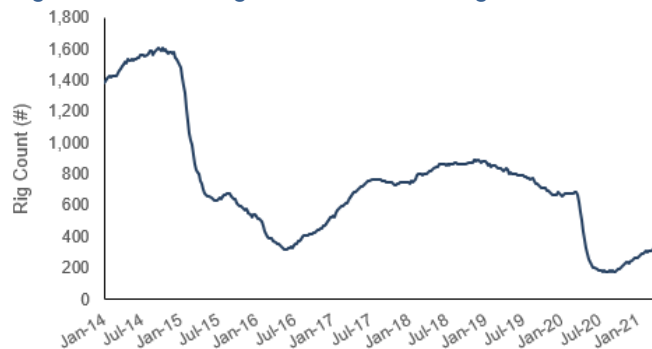
Source: Bloomberg

Oil – US oil rigs up 13 to 337 oil rigs

Baker Hughes reported its weekly rig data on Thursday with the Good Friday holiday. US oil rigs were up 13 to 337 oil rigs as of Apr 1. The increases were in the Permian +2, Eagle Ford +2, Granite Wash +1, and Others +8. There were no decreases this week. Oil rigs are +165 off the bottom of 172 in the Aug 14 week. New Mexico rigs were +3 this week and are +10 since the Mar 12 week, which we believe was related to the DOI “fossil fuels” review process kickoff. We believe that operators are likely trying to drill ahead of any results from this process. US oil rigs have been modestly increasing, but the key will be the next several weeks to see if there is continued stronger increases in rigs now that WTI has been at or over \$60 for about 1.5 months. And now with WTI still ~\$60 post OPEC+ planned production increases, we expect to see US oil rigs to continue to modestly increase over the next couple months. US oil rigs hit their 2020 peak at 683 on March 13 and have since fallen by 346 to 337 oil rigs (-50.7%). Below is our graph of Baker Hughes US oil rigs.

US oil rigs up 13 this week

Figure 9: Baker Hughes Total US Oil Rigs



Source: Baker Hughes

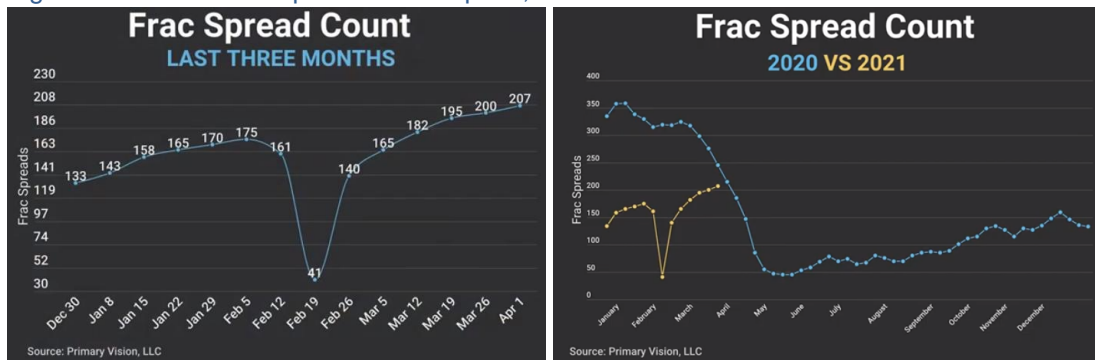
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Oil – Frac spreads +7 to 207 as of April 4

Every week, Mark Rossano posts a YouTube recap of frac spreads for the week on the Primary Vision Network [\[LINK\]](#). With Good Friday, he reported US frac spreads were +7 to 207 as of April 4. The Permian continues to be the area with the most increase, but he is seeing a pick up in other areas including the Anadarko and Powder River Basin. He expects the frac spreads to continue to increase until get to 230 or so, and then should plateau. He expects the pace of frac additions to slow and the pace of rig activity to pick up as that is how they can manage the DUC situation because have seen a lot of DUCs worked thru in the Bakken and Eagle Ford. And there will be some pricing pressure needed to move frac spreads to the next level, which is why he expects the pace of additions to slow down. Below are his two key frac spread graphs.

Frac spreads +7 to 207

Figure 10: Active Frac Spreads as of April 4, 2021



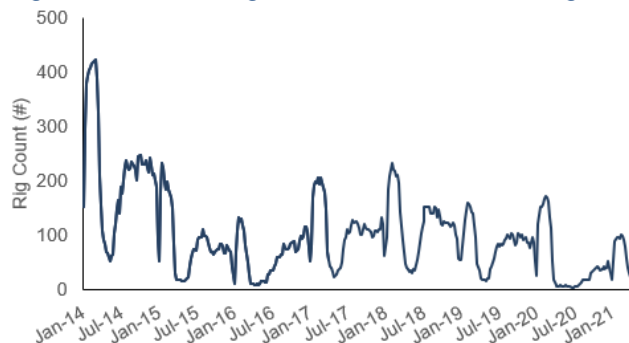
Source: Primary Vision

Oil – Total Cdn rigs down 12 to 69 total rigs and up 28 YoY

Baker Hughes reported total Cdn rigs were down 12 this week to 69 total rigs. The big decline this week was expected with the end of winter drilling. Cdn oil rigs were down 7 to 24 rigs. Cdn gas rigs were down 5 to 45 gas rigs. Total rigs are now +56 since the June 26 all-time low. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 9 and Cdn gas rigs were 32 for a total Cdn rigs of 41, meaning total Cdn rigs are +28 YoY and total rigs are down +1 vs 2019. Below is our graph of Baker Hughes Cdn oil rigs.

Cdn rigs -12 this week

Figure 11: Baker Hughes Total Canadian Oil Rigs



Source: Baker Hughes

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Oil – US weekly oil production +0.1 mmb/d to 11.1 mmb/d

US oil production was up 0.1 mmb/d to 11.1 mmb/d for the March 26 week, and Lower 48 was up 0.2 mmb/d to 10.7 mmb/d. This puts US oil production down 2.0 mmb/d YoY, and is down 2.1 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. This puts US oil production down 1.9 mmb/d YoY, and is down 2.0 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. The EIA DPR has the expectation of continued MoM declines in March and April, which we believe is due to the Texas freeze hammering completions for two weeks. The EIA forecasts April at 7.458 mmb/d which is -47,000 b/d MoM. The EIA March STEO slightly lowered Q1/21 production mainly due to the freeze with Feb production averaging 10.4 mb/d, 0.5 mmb/d lower than Jan production. However, the EIA revised up the remainder of 2021 and is continuing to show modest growth thru 2021 with the 2021 exit at 11.46 mmb/d, down 1.32 from Q4/19 peak of 12.78 mmb/d. YoY growth returns in 2022 with average production of 12.02 mmb/d, +0.90 mmb/d YoY with Q4/22 production of 12.41, down 0.34 mmb/d vs Q4/19. The EIA Form 914 actuals for January came in 130,000 b/d higher than the EIA weekly estimates for January, larger than the 76,000 b/d overestimate in November and much closer than the 246,000 b/d over estimate in the actuals for November which had been due to hurricane activity in early Nov.

US oil production +0.1 mmb/d

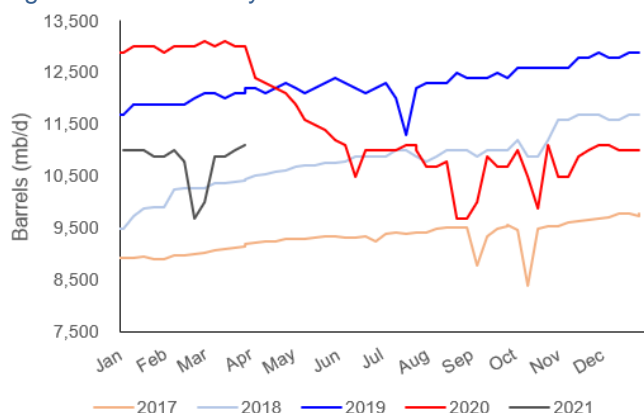
Figure 12: EIA's Estimated Weekly US Oil Production

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

Source: EIA

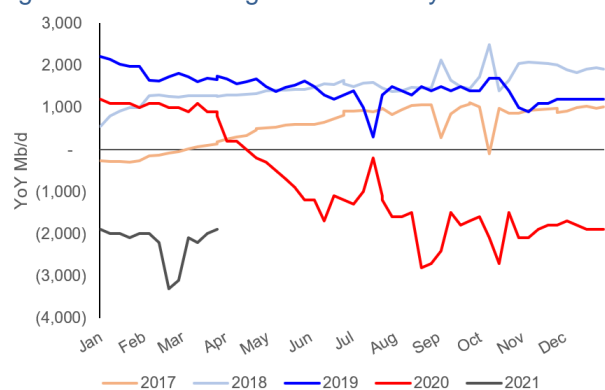
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Figure 13: US Weekly Oil Production



Source: EIA, SAF

Figure 14: YoY Change in US Weekly Oil Production



Source: EIA, SAF

Oil – EIA Form 914 Jan actuals 130,000 b/d higher than weekly production estimates

The EIA released its Form 914 data [\[LINK\]](#) on Friday, which is the EIA’s “actuals” for January US oil and natural gas production. There are a few important takeaways. There are no significant takeaways from January actuals as this is pre the increasing prices and views of increasing activity. Rather Jan actual production is really a reflection of Q4/20 activity and outlook. (i) January was down 21,000 b/d MoM to 11.080 mmb/d. This puts January down 1.657 mmb/d from March and down 1.799 mmb/d from the Nov/19 peak of 12.860 mmb/d. Note December volumes were revised upward by 38,000 b/d from 11.063 mmb/d previously. (ii) The actuals came in 130,000 b/d higher than the average of the weekly estimates and higher than the previous overestimate in December of 76,000 b/d (was 38,000 b/d higher prior to Dec revision) but both months were much closer than November when the actuals were 246,00 b/d higher than the weekly estimates due to hurricane activity in Nov. (iii) In the Mar STEO, the EIA has Jan US oil production at 10.942 mmb/d, which is 138,000 b/d below the Jan actuals. Therefore, we should likely see a small upward revision to Q1/21 US oil production in the EIA STEO for April. (iv) North Dakota had the largest MoM decline and was -45,000 MoM to 1.109 mmb/d, which is slightly lower than the North Dakota Industrial Commission having North Dakota at 1.147 mmb/d in Jan. However note completions were only 32 in Feb and 59 in Jan, meaning North Dakota oil production should continue to decline

**EIA Form 914
January**

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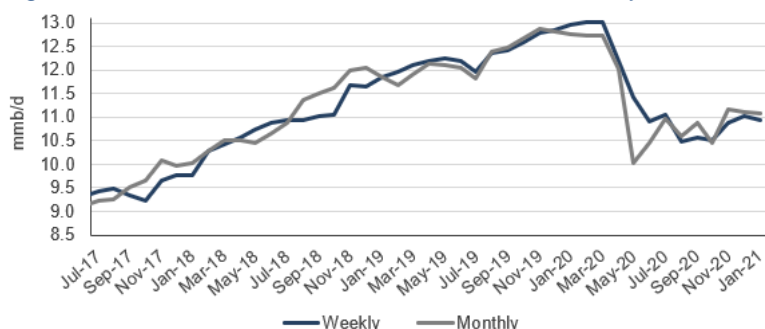
Feb. The only states substantially up MoM were New Mexico and Texas. New Mexico was up 21,000 b/d to 1.090 mmb/d. Texas increased 25,000 b/d MoM to 4.663 mmb/d. Below is the EIA Form 914 data for oil, and our graph of EIA actuals oil production data vs the weekly estimates.

Figure 15: EIA Form 914 US Oil Production

thousand barrels per day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	11,080											
2020	12,755	12,746	12,737	12,010	10,019	10,442	10,973	10,584	10,870	10,439	11,168	11,101
2019	11,865	11,679	11,937	12,135	12,163	12,088	11,819	12,425	12,495	12,673	12,860	12,802
2018	9,998	10,261	10,489	10,496	10,457	10,605	10,903	11,384	11,463	11,554	11,907	12,004
2017	8,874	9,108	9,192	9,115	9,208	9,134	9,266	9,264	9,534	9,668	10,088	9,993
2016	9,203	9,065	9,089	8,871	8,834	8,671	8,664	8,686	8,544	8,841	8,906	8,846
2015	9,388	9,510	9,585	9,661	9,481	9,362	9,447	9,416	9,491	9,406	9,337	9,281

Source: EIA

Figure 16: EIA Form 914 US Oil Production vs Weekly Estimates



Source: EIA

Oil – Interior Secretary Haaland on the “fundamentally broken” oil/gas federal lands

We continue to believe US oil and gas companies should be expecting the worst from the Dept of Interior review of oil and gas leasing program on federal lands, or as they titled the review “Interior Department Outlines Next Steps in Fossil Fuels Program Review” [LINK](#). As we highlighted then, making sure they termed it fossil fuels and not oil and gas wasn’t a good sign. This low expectation was reinforced by Interior Secretary Haaland’s comments on Friday. We tweeted [LINK](#) “Negative to #Permian #Bakken mid term production growth. @SecDebHaaland comments on “fundamentally broken” #Oil #Natgas leasing program on federal lands can’t be a positive indicator for @Interior review. Thx @jendlouhyhc @RachelFrazin for quotes.” Haaland gave more comments on what she called a “fundamentally broken” oil and gas rights program on federal lands. She didn’t give any specific recommendations, but her comments were pretty clear on what she considers to be the priorities and they point to something worse for the oil and gas sector, we just don’t know how bad from the review of oil and gas rights on federal lands which is being done by her department. One example is her comment “,whether it fairly accounts for the impacts of climate, whether there’s adequate opportunity for public input, including from Indian tribes, and whether we have the right mechanisms in place to avoid irreparable harm to wildlife, water, sacred sites and beyond”. Again, don’t forget the official press release calls this a “fossil fuels program review”. Our Supplemental Documents package includes the Bloomberg and The Hill reporting.

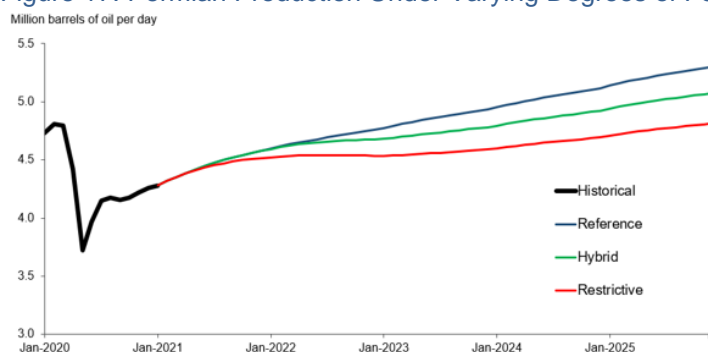
“Fundamentally broken” oil and gas lease program

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Dallas Fed estimated worse case Biden federal lands hits Permian -0.5 mmb/d

It is important to remember any federal lands restrictions will impact all basins to some degree, but in particular the Bakken and Permian. Our March 7, 2021 Energy Tidbits highlighted the Dallas Fed estimate on how Biden's federal lands policies could affect Permian production, on the New Mexico and Texas side, out to 2025 [\[LINK\]](#). The Dallas Fed Restrictive Case that could hurt Permian by 0.5 mmb/d. Remember this is just the impact on the Permian and does not include the impact on other shale basins (ie, Bakken) or the Gulf of Mexico. The Dallas Fed wrote "Restrictive Case: No new federal permits or extensions are granted starting in 2023. This is when the most-recently issued permits will expire. The existing permitting freeze adversely affects production in the near-term due to a lack of approvals of permit modifications and pipeline rights-of-way. As in the Hybrid Case, companies shift their focus to nonfederal acreage. Permian production climbs to 4.8 mb/d in 2025, or 0.5 mb/d below the Reference Case. New Mexico's output drops to 0.7 mb/d, or 0.8 mb/d less than the Reference Case." Our Supplemental Documents package includes the Dallas Fed blog.

Figure 17: Permian Production Under Varying Degrees of Federal Restrictions



Source: Federal Reserve Bank of Dallas

Oil – TMX in-service date pushed back to early 2023

We recommend reading RBC Greg Parady's Thurs comment on an update on the Trans Mountain expansion (TMX) based on his recent discussion with Trans Mountain CEO Ian Anderson and CFO Mark Maki. There is much more in the comment than our noting the new in-service date. We have been wondering for the past few months on the impact of changing construction protocols under Covid, the recent temporary shut down of construction activities, along with incremental return of the workforce would have on the in-service timeline for TMX. RBC wrote "While delays in 2020 added some costs (including standby costs on equipment and management personnel), the overall impact on the schedule is not likely to be significant; the expansion pipeline is expected to be in-service in early 2023". We were surprised by this date and expected a later date in 2023 ie. mid 2023. Its only a slight push back of the original date of December 2022. Overall in 2020, the expansion ended the year at 23% complete, below the original target of 30% and it is expected that the project will be 60-65% complete by the end of 2021. The existing Trans Mountain line has seen significant utilization reaching record throughput levels in July-August last year of 335,000-345,000 b/d and is expected to have average throughput of 315,000 b/d in 2021. Our Supplemental Documents package includes Greg's comment.

**TMX in-service
now expected
early 2023**

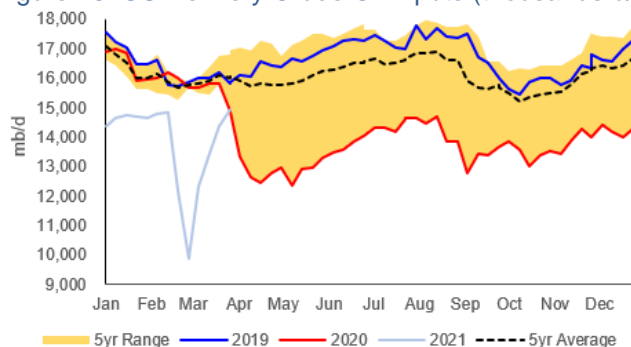
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Oil – Refinery inputs +0.552 mmb/d YoY to 14.941 mmb/d

We are seeing the impact of refinery shutdowns/turnarounds started during the freeze coming to an end and the ramp up in refinery volumes with an expected ramp up as US continues its rapid escalation of vaccinations. Crude inputs to refineries continued to ramp up this week and were +0.552 mmb/d to 14.941 mmb/d and are +0.044 mmb/d YoY. Refinery utilization increased this week, being +2.3% to 83.9%, which is +1.6% YoY. Total products supplied (ie demand) increased this week and was +1.611 mmb/d to 20.313 mmb/d for the Mar 26 week, and motor gasoline demand increased, being +0.275 mmb/d to 8.891 mmb/d. Below is our graph of crude inputs to US refineries and our graph of US motor gasoline supplied.

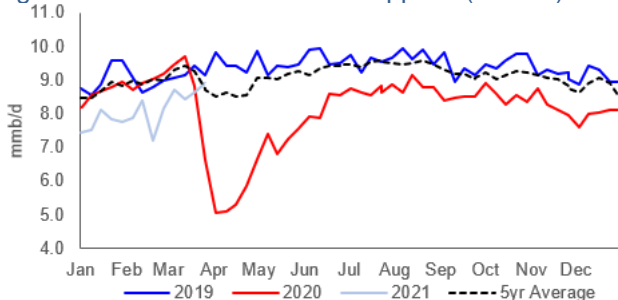
Refineries continuing to ramp up

Figure 18: US Refinery Crude Oil Inputs (thousands b/d)



Source: EIA, SAF

Figure 19: US Motor Gasoline Supplied (mmb/d)



Source: EIA, SAF

Oil – Repsol halts Spain refinery fuels output, reflects Europe's lagging in recovery

The common story over the past year has been refineries shutting down temporarily or even some permanently in response to Covid impacting demand. But these reports have basically gone away over the past few months as the world recovers out of Covid. But this week, there was a good example of how Europe continues to lag in the recovery out of Covid. On Thursday, Argus Media reported [\[LINK\]](#) that Repsol has shut the CDU at its 135,000 b/d Puertollano refinery in Spain. Argus wrote "The company confirmed the shutdown today and said the refinery will go on to halt all fuels production, although it did not give a timeframe for the wider stoppage. It will not restart until market conditions improve". This refinery halt serves as a good reminder that Covid and related restrictions continue to wreak havoc on mobility across Europe. Our Supplemental Documents package includes the Repsol report.

Repsol shuts fuel production at Puertollano

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Oil – US “net” oil imports down 0.170 mmb/d to 2.941 mmb/d

US “NET” imports were down 0.170 mmb/d to 2.941 mmb/d for the Mar 26 week. US imports were up 0.523 mmb/d to 6.145 mmb/d and US exports were up, being +0.693 mmb/d to 3.174 mmb/d. The WoW increase in US oil imports was driven by increases from Mexico and Nigeria. Some items to note on the by country data. (i) Canada was up slightly this week, and was +0.248 mmb/d to 3.666 mmb/d for the Mar 26 week, which is now ~34,000 b/d below the average levels in Jan/Feb of 2020. Also note that PADD 2 imports were also up, being +133,000 b/d and Canada is almost all of this market. (ii) Saudi Arabia was up 0.65 mmb/d to 0.345 mmb/d this week. (iii) Colombia up 30,000 b/d to 122,000 b/d this week. (iv) Ecuador was up 115,000 b/d to 247,000 b/d. (v) Iraq was down 17,000 b/d to 88,000 b/d. (vi) Venezuela remained at 0 due to US sanctions. (vi) Mexico decreased 124,000 b/d to 0.494 mmb/d.

**US “net” oil imports
-0.170 mmb/d
WoW**

Figure 20: US Weekly Preliminary Oil Imports By Major Countries

	Jan 29/21	Feb 5/21	Feb 12/21	Feb 19/21	Feb 26/21	Mar 5/21	Mar 12/21	Mar 19/21	Mar 26/21	WoW
Canada	4,238	3,730	3,681	2,831	3,648	3,635	3,448	3,418	3,666	248
Saudi Arabia	180	282	237	143	368	251	308	280	345	65
Venezuela	0	0	0	0	0	0	0	0	0	0
Mexico	723	446	471	355	602	362	278	618	494	-124
Colombia	305	336	346	200	285	286	0	92	122	30
Iraq	90	114	227	0	68	141	165	105	88	-17
Ecuador	100	105	186	55	114	59	127	132	247	115
Nigeria	175	0	70	50	89	0	44	161	86	-75
Kuwait	0	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0	0
Top 10	5,811	5,013	5,218	3,634	5,174	4,734	4,370	4,806	5,048	242
Others	696	844	680	965	1,118	921	953	816	1,097	281
Total US	6,507	5,857	5,898	4,599	6,292	5,655	5,323	5,622	6,145	523

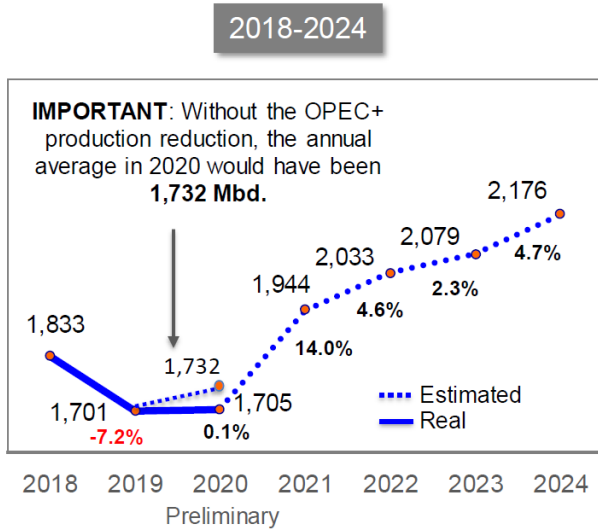
Source: EIA, SAF

Oil – No surprise, Mexico lowers 2021 production forecast, still looks a little high

No one should be surprised that Mexico is lowering its oil production forecast for 2021. On Wed, we tweeted [LINK](#) “No surprises here, MEX admits 2021 #Oil production fcast too high. @MddeH reports finance ministry fcasts 1.794 mmb/d vs their Sept 1.857 fcast. But @Pemex Jan 28 fcast was 1.944 mmb/d. Closer but still looks a little high, needs >1.8 mmb/d for last 10 mths to get there.” This didn’t come from Pemex, but from the Finance ministry. Bloomberg reported “The Finance Ministry also sees oil at \$55 per barrel in 2021 and \$53.1 next year. It expects oil output to be 1.794 million barrels per day this year, down from 1.857 million in its September forecast, and 1.867 million in 2022.” Finance references its Sept forecast, but this 1.794 mmb/d for 2021 is even lower relative to Pemex’s 2021 forecast. Our Feb 7, 2021 Energy Tidbits highlighted the Pemex Jan 28, 2021 investor presentation that included Pemex’s 2021 forecast of 1.944 mmb/d. At that time, we said it looks way too high. Our tweet said we think the 1.794 mmb/d still looks too high. Last week’s (March 28, 2021) Energy Tidbits noted the Pemex Feb actuals of 1.669 mmb/d, which combined with 1.651 mmb/d in Jan, means that oil production would have to average >1.8 mmb/d from March thru Dec. Its why we think its still a little high for 2021. And it also looks like the Pemex 2021 forecast of 2.033 mmb/d looks too high. Below is the Pemex production forecast slide from their Jan 28, 2021 investor slide deck. Our Supplemental Documents package includes the Bloomberg report.

**Mexico lower
2021 oil
production**

Figure 21: PEMEX Total Oil Production (thousand b/d)



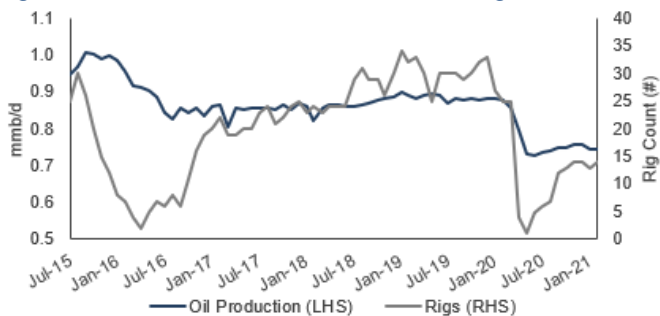
Source: Pemex Jan 28, 2021 Investor Presentation

Oil – Colombia oil production in Feb flat MoM at 0.745 mmb/d

It looks like Colombia’s oil production is going to stay stuck around current levels unless drilling starts to accelerate. On Wednesday, the Colombia Ministry of Energy and Mines reported production data for Feb which showed Colombia oil production was 0.745 mmb/d. This is down 15.1% YoY from 0.878 mmb/d in Feb 2020, and flat MoM from 0.745 mmb/d in Jan. Colombia oil production had bottomed in June at 0.730 mmb/d, down from the 2020 peak of 0.884 mmb/d in January 2020. Production slowly increased thereafter, reaching 0.761 mmb/d in Nov 2020. During this period, Colombia rigs had fallen from 27 in Jan 2020, down to 1 in May, and built back up to 14 in December. Colombia rigs in Feb were up 1 MoM to 14. Rigs have been flat at 13-14 since November, suggesting production will remain relatively flat to down in the coming months. Below is our table of Colombia monthly oil production.

Colombia oil production 0.745 in Feb

Figure 22: Colombia Oil Production and Rig Count



Source: Bloomberg, Baker Hughes

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Figure 23: Colombia Oil Production

million b/d	2015	2016	2017	2018	2019	19/18	2020	20/19	2021	21/20
Jan	1.036	0.986	0.860	0.860	0.899	4.5%	0.884	-1.7%	0.745	-15.7%
Feb	1.030	0.955	0.864	0.823	0.893	8.5%	0.878	-1.6%	0.745	-15.2%
Mar	1.023	0.917	0.804	0.856	0.885	3.3%	0.857	-3.1%		
Apr	1.029	0.915	0.857	0.865	0.891	3.0%	0.796	-10.6%		
May	1.027	0.904	0.851	0.866	0.895	3.3%	0.732	-18.2%		
June	1.010	0.888	0.857	0.864	0.892	3.3%	0.730	-18.2%		
July	0.947	0.843	0.856	0.860	0.869	1.0%	0.735	-15.4%		
Aug	0.968	0.827	0.858	0.866	0.883	1.9%	0.742	-15.9%		
Sept	1.009	0.859	0.851	0.869	0.879	1.2%	0.749	-14.8%		
Oct	1.005	0.846	0.864	0.879	0.883	0.4%	0.751	-14.9%		
Nov	0.990	0.855	0.851	0.883	0.880	-0.3%	0.761	-13.5%		
Dec	0.999	0.837	0.870	0.889	0.882	-0.8%	0.759	-14.0%		

Source: Bloomberg

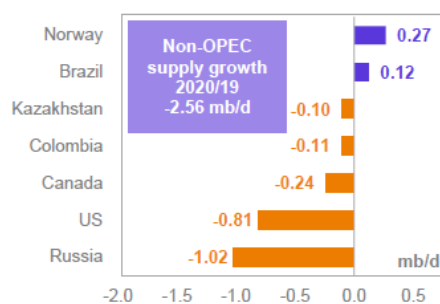
Oil – Brazil Feb oil production down 1.9% MoM, down 5.1% YoY

We have been highlighting our view that one of the 2021/2022 positives to oil is the likelihood that Brazil disappoints on its production growth targets. We still believe it has to be very difficult for Petrobras to execute their plan given the big changes forced on them by Bolsonaro’s CEO and board changes. Making big changes at the top has to have some impact on plan execution. And even if that wasn’t an issue, Brazil is probably being hit the hardest right now by Covid. On Thursday, Bloomberg reported “Brazil’s oil production fell 1.9% compared to Jan. and decreased 5.1% compared to Feb./2020, according to regulator ANP’s report.” Its early in the year, but starting out behind is never good when growth is expected. It’s a positive to oil markets as Brazil is expected to be one of the key 2021 non-OPEC oil growth areas. Below are two of the OPEC MOMR March graphs on non-OPEC oil growth. Our recent Feb 22, 2021 tweet [\[LINK\]](#) included the below graph from Petrobras Day Strategic Plan on Dec 1, 2020 [\[LINK\]](#). Our Supplemental Documents package includes the Bloomberg report.

Brazil Feb oil production down

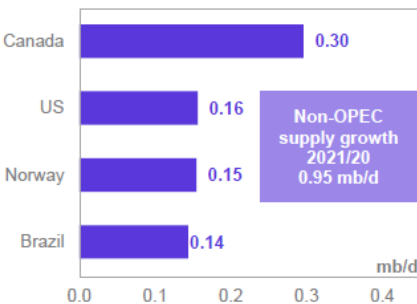
Figure 24: Key non-OPEC YoY Changes for 2021

Graph 5 - 1: Annual liquids production changes for selected countries in 2020*



Note: * 2020 = Estimate. Source: OPEC.

Graph 5 - 2: Annual liquids production changes for selected countries in 2021*

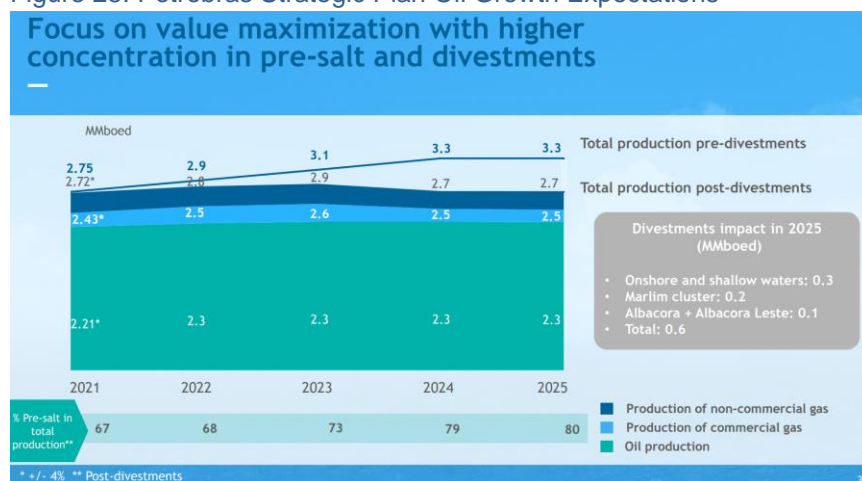


Note: * 2021 = Forecast. Source: OPEC.

Source: OPEC Monthly Oil Market Report March 2021

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Figure 25: Petrobras Strategic Plan Oil Growth Expectations



Source: Petrobras Day Strategic Plan Dec 1, 2020

Oil – Expect Venezuela oil exports to keep increase, Maduro says “oil for vaccines”

We think markets should expect to see continued modest ramp up in Venezuela oil exports. Our Jan 24, 2021 Energy Tidbits noted our concern that humanitarian concerns from the new Biden administration would allow for more Venezuela barrels onto oil export markets. This was one of our concerns in our Jan 21 BNN our Thurs day BNN interview with Andrew Bell [\[LINK\]](#). For Venezuela, in his Senate hearing, Blinken noted the “brutal dictator in Maduro” and the need for free and fair elections, but also made a point of noting “certainly I believe there’s more that we need to try to do in terms of the United States (ph) assistance given the tremendous suffering of the Venezuelan people”. On BNN, we suggested that perhaps it will be the US turning a blind eye to Venezuela swapping oil cargoes out for diesel and other fuel cargos to international players. It looks like that has been happening, but now Maduro has come up with an even better idea that would be difficult to for the US to stop. On Tuesday, we tweeted [\[LINK\]](#) “More VEN oil to hit export markets in China, India? @livemint (India financial news) reports #Maduro offers “Oil for vaccines”. Seems difficult for @POTUS to stop this on humanitarian reasons even if just a shrewd play by Maduro?” Maduro reportedly said “Venezuela has the oil tankers, it has customers ready to buy oil from us. It would devote part of its production to obtain the vaccines it needs. Oil for vaccines!” Maduro would seem to be telling oil markets that he wants to get vaccines from China and India in exchange for oil. Our Supplemental Documents package includes the Live Mint report. [\[LINK\]](#)

Maduro offers “oil for vaccines”

Oil – Venezuela tanker loadings up MoM in March to 429,678 b/d

On Tuesday, Bloomberg reported its tanker tracker loading data for Venezuela for March. Bloomberg reported tanker loadings in March were up MoM to 429,678 b/d, vs 411,714 b/d in Feb, but down YoY from 699,443 b/d in March 2020. No surprise, China is the primary buyers with March loadings estimated at 391,613 b/d. Linked to Maduro’s “oil for vaccines”, Bloomberg reported zero loadings to India for Feb or March 2021, but noted that March 20 loadings to Venezuela were 245,398 b/d. We have to believe Maduro is reaching out to India. Below is the Bloomberg tanker tracker data.

Venezuela loadings 429,678 b/d in March

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Figure 26: Venezuela Tanker Loadings

b/d	March 21	Feb 21	March 20
China	391,613	361,000	303,449
Cuba	38,065	15,000	58,000
India	0	0	245,398
Malaysia	0	0	76,467
Spain	0	0	16,129
Unknown	0	35,714	0
Total Loadings	429,678	411,714	699,443

Source: Bloomberg Tanker Tracker

Oil – Russia crude production ~161,000 b/d above their Mar quota

Russian oil output jumped in March after lowered production in February due to extreme weather. On Friday, Bloomberg reported Russian crude and condensate production in March rose to 10.429 mmb/d along with its quota increase. The official Russian data doesn't split out crude vs condensate, but if Russia's condensate production is in line with Feb, crude output would be 9.410 mmb/d, ~161,000 b/d above than their 9.249 mmb/d quota for March. Russia has been allowed to add back a small amount of production each month since Jan, rising 65,000 b/d from Feb to March. Russia's quota will rise a further 130,000 b/d in April and increase by 116,000 b/d by July reaching 9.495 mmb/d. Our Supplemental Documents package includes the Bloomberg report.

Russia
production
increases

Oil – Bloomberg OPEC survey data, OPEC March +300,000 b/d to 25.330 mmb/d

There weren't any major surprises in the Bloomberg survey of OPEC March oil production released on Thursday. Total production increased 300,000 b/d MoM to 25.330 mmb/d in March. As expected the key reason for the increase is Iran, who is getting more oil out onto export markets despite sanctions. Iran was estimated +140,000 b/d MoM to 2.320 mmb/d, which is the highest level of Iran oil production since May 2019. As expected Angola and Libya were each +100,000 b/d. Venezuela was down 30,000 b/d to 440,000 b/d, Saudi Arabia was still showing the impact of its voluntary 1 mmb/d and was 8.150 mmb/d for March. Below is our table of the Bloomberg survey data.

Bloomberg
OPEC survey for
March

Figure 27: Bloomberg Survey of OPEC Production March 2021

thousand b/d	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	MoM	YoY
Algeria	1,010	1,020	820	810	810	870	870	870	860	860	880	880	880	0	-130
Angola	1,400	1,360	1,270	1,240	1,180	1,250	1,270	1,230	1,180	1,180	1,180	1,100	1,200	100	-200
Congo	310	320	290	300	280	290	310	260	290	270	270	260	290	30	-20
Equatorial G.	110	140	100	130	120	120	100	110	110	130	130	100	120	20	10
Gabon	200	210	190	220	160	160	180	200	190	190	170	190	180	-10	-20
Iran	2,030	1,960	1,950	1,940	1,960	1,920	1,950	1,930	1,970	2,020	2,140	2,180	2,320	140	290
Iraq	4,620	4,600	4,210	3,910	3,790	3,690	3,710	3,870	3,810	3,880	3,870	3,910	3,970	60	-650
Kuwait	2,750	2,900	2,290	2,150	2,220	2,270	2,310	2,300	2,240	2,270	2,330	2,350	2,320	-30	-430
Libya	100	90	90	110	100	80	150	450	1,090	1,210	1,160	1,150	1,250	100	1,150
Nigeria	1,930	1,910	1,630	1,510	1,510	1,520	1,490	1,610	1,540	1,520	1,470	1,600	1,580	-20	-350
Saudi Arabia	9,990	11,590	8,660	7,530	8,450	8,920	8,940	8,990	8,990	9,000	9,120	8,210	8,150	-60	-1,840
UAE	3,430	3,680	2,500	2,430	2,450	2,990	2,680	2,490	2,560	2,540	2,610	2,630	2,630	0	-800
Venezuela	750	660	550	340	360	310	310	340	430	410	460	470	440	-30	-310
Total OPEC	28,630	30,440	24,550	22,620	23,390	24,390	24,270	24,650	25,260	25,480	25,790	25,030	25,330	300	-3,300

Source: Bloomberg

Oil – OPEC+ and Saudi surprise with increasing production

Once again, Saudi Arabia energy minister Abdulaziz surprises oil markets at the OPEC+ ministers meeting on Thursday. Going into the meeting, markets seemed to be led to the expectation of a rollover ie. no increase given the increasing restrictions in Europe and uncertainty of demand recovery. That changed a bit in the last 24 hrs, but the set up for the days prior were mostly for a rollover. As a result, it was a surprise to the market that OPEC+

OPEC+
Ministerial
Meeting

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agreed to start to increase production in May and Saudi Arabia also indicated they would start to bring back their 1 mmb/d of voluntary cuts. and the rationale was demand was strong and recovering. Oil was up on the increase driven by the market seeing their positive view on demand recovery. OPEC+ countries agreed to a gradual increase, which would see a collective output increase of 350,000 b/d in May, another 350,000 b/d in June and 441,000 b/d in July. OPEC provided a schedule of the production quotas by country. Saudi Arabia would roll back its voluntary 1 mmb/d cut by increasing its production by 250,000 b/d in May, 350,000 b/d in June and by 400,000 b/d in July. Our Supplemental Documents package includes the OPEC+ release and the OPEC table of production quota by country.

Figure 27: OPEC+ Quotas as of March Ministerial Meeting

OPEC (mmb/d)	Reference Level	Production May-July 2020	Aug-Dec 2020	Jan 2021	Feb 2021	March 2021	April 2021	May 2021	June 2021	July 2021	Jan/21 - Apr/22 per Apr/20 Agreement
Algeria	1,057	816	864	876	876	876	876	887	898	912	912
Angola	1,528	1,179	1,249	1,267	1,267	1,267	1,267	1,283	1,298	1,319	1,318
Congo	325	251	266	269	269	269	269	273	276	281	281
Equatorial G.	127	98	104	105	105	105	105	107	108	110	110
Gabon	187	144	153	155	155	155	155	157	159	161	161
Iran	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Iraq	4,653	3,592	3,804	3,857	3,857	3,857	3,857	3,905	3,954	4,016	4,016
Kuwait	2,809	2,168	2,297	2,329	2,329	2,329	2,329	2,358	2,387	2,425	2,424
Libya	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Nigeria	1,829	1,412	1,495	1,516	1,516	1,516	1,516	1,535	1,554	1,579	1,579
Saudi Arabia*	11,000	8,492	8,993	9,119	8,119	8,119	8,119	9,232	9,347	9,495	9,495
UAE	3,168	2,446	2,590	2,626	2,626	2,626	2,626	2,659	2,692	2,735	2,735
Venezuela	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total OPEC	26,683	20,598	21,815	22,119	21,119	21,119	21,119	22,396	22,673	23,033	23,031
OPEC vs. ref.	0	-6,085	-4,868	-4,564	-5,564	-5,564	-5,564	-4,287	-4,010	-3,650	-3,652

*Saudi Arabia quota for Feb-Apr 2021 includes voluntary 1mmb/d cut. May-July includes wind down of voluntary cut

Non-OPEC	Reference Level	Production May-July 2020	Aug-Dec 2020	Jan 2021	Feb 2021	March 2021	April 2021	May 2021	June 2021	July 2021	Jan/21 - Apr/22 per Apr/20 Agreement
Russia	11,000	8,600	8,993	9,119	9,184	9,249	9,379	9,418	9,457	9,495	9,495
Kazakhstan	1,709	1,319	1,397	1,417	1,427	1,437	1,457	1,463	1,469	1,475	1,475
Oman	883	682	722	732	732	732	741	750	762	762	762
Azerbaijan	718	554	587	595	595	595	595	603	610	620	620
Malaysia	595	459	486	493	493	493	493	499	506	514	513
Bahrain	205	158	168	170	170	170	170	172	174	177	177
Sudan	75	58	61	62	62	62	62	63	64	65	65
South Sudan	130	100	106	108	108	108	108	109	110	112	112
Brunei	102	79	83	85	85	85	85	86	87	88	88
Total Non-OPEC	15,417	12,009	12,603	12,781	12,856	12,931	13,081	13,154	13,227	13,308	13,307
Non-OPEC vs. ref.	0	-3,408	-2,814	-2,636	-2,561	-2,486	-2,336	-2,263	-2,190	-2,109	-2,110
Total OPEC+	42,100	32,607	34,418	34,900	33,975	34,050	34,200	35,550	35,900	36,341	36,338
OPEC+ vs ref.	0	-9,493	-7,682	-7,200	-8,125	-8,050	-7,900	-6,550	-6,200	-5,759	-5,762

Source: Bloomberg

Oil – Saudi nest egg, its net foreign assets down \$8.8b MoM in Feb

We look at Net Foreign Assets for someone like Saudi Arabia as their nest egg to help them thru the Energy Transition. Saudi is far from going broke, but the data supports that their nest egg is being depleted at a faster rate than most expect. Saudi Arabia saw a significant decline in their net foreign assets in 2020, but also since the peak in 2014. The decline in 2020 has been fueled by low oil prices a long with higher spending. This a driving factor for the Saudi's want/need for higher oil prices and, perhaps just as significantly, the increasing of other people's money (outside capital) in funding the future of Saudi Arabia. Saudi net foreign assets were \$436.7b as of Feb 2021, down \$8.8b vs Jan 2021 at \$445.5b and down \$54.9b YoY vs Feb 2020 of \$491.6b. However, as noted above, the decline in net foreign assets has not just occurred in 2020. The peak was in Aug 2014 at \$737.0b, bringing the decline to Feb 2021 to \$300.3b an average decline of \$46.2b/month. Declining reserves is one reason Saudi Arabia has been such a driving force in OPEC+ cuts/discipline, but also why we expect a step up in infrastructure sales and additional Aramco equity/debt issuances. Plans for Vision 2030 will require a significant amount of spend, meaning foreign assets will need to be elevated to pay for it, along with increased foreign investment. Below is our graph of Saudi Arabia net foreign assets.

Saudi net foreign assets continue to decline

Figure 28: Saudi Arabia Net Foreign Assets



Source: Bloomberg

Oil – Houthis claimed 4 drones at Riyadh, but no indications of success

On Thursday, the Houthis claimed that had success with 4 drones at sensitive and important targets in Riyadh. We couldn't see any confirmation or reports on the web or Twitter that any of the drones hit Riyadh. There were no Saudi media reports, but that isn't unusual. Often, the Saudi media won't report any drone hits even if successful. However, the best evidence that the drones were not successful was that there wasn't any security warning from the US Embassy in Riyadh. We look to the US Embassy in Riyadh "Security & Emergency Messages" [LINK](#) for confirmation of any drone/missile attacks in Riyadh.

Houthis claimed drone attack at Riyadh

Oil – Houthi's warned of attacks on Aramco if Saudi kept attacking Marib

No one should be surprised by the Houthis escalation of drones and ballistic missile attacks on Saudi Aramco. The Houthis have been warning they will be attacking Saudi Aramco. So the attacks on Saudi Aramco's Riyadh refinery last week, the earlier missile attack on the Saudi Aramco major loading terminal and refinery at Ras Tanura, and their claimed drone attack on important and sensitive targets in Riyadh should not be a surprise. We have been highlighting the battle for Marib in Yemen with our view that this is likely the major battle that signals the end may be nearing for the Saudi/Houthi war. Tied to the Marib battle, our March 7, 2021 Energy Tidbits highlighted that week's warning by the Houthis to Saudi that if Saudi continued its air strikes in the battle for Marib, the Houthis would turn their attacks to Saudi Aramco facilities. That has happened. In the March 7 memo, we wrote "Earlier this week, on Tuesday the Jerusalem Post reported [LINK](#) on the Houthis "will strike at Saudi Arabia's Aramco if Saudi Arabia or UAE "fighters or supporters" commit "aggression" in certain areas. The Houthis pointed to the "Safer oil fields", as an example. It was not clear where this red line was or what specific infrastructure they don't want targeted." "The most important message is to warn the Saudi regime not to think of attacking Ma'rib oil structures. Therefore, if the Safar oil sectors are targeted by Saudi or Riyadh-based fighter jets, the Sanaa forces will also use "UAVs and missiles will bomb Saudi oil structures in a large-scale operation." He warned of another Abqaiq-style attack".

Houthis warned they would attack Aramco

Oil – Biden withdraws Patriot missiles including from outskirts of Riyadh

There was a great indicator of the recalibrated US relationship with Saudi Arabia with the WSJ Thursday story "*Biden Trimming Forces Sent to Mideast to Help Saudi Arabia*" [LINK](#). At a time of increasing Houthi drone/missile attacks including on Riyadh, the WSJ reported "In moves that haven't been previously reported, the U.S. has removed at least three Patriot antimissile batteries from the Gulf region, including one from Prince Sultan Air Base in Saudi Arabia, that had been put in place in recent years to help protect American forces. Other capabilities, including an aircraft carrier and surveillance systems, are being diverted from the Middle East to answer military needs elsewhere around the globe, according to U.S. officials.

US pulls Patriot missile from near Riyadh

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Additional reductions are under consideration, officials said.” The Prince Sultan Air Base is the primary US base in al-Kharj, which is on the southern outskirts of Riyadh, about 60 km south of the Royal Palace. As of our 7am MT news cut off, we haven't seen any official Saudi response to the WSJ story, in particular the removal of Patriot missiles. Our Supplemental Documents package includes the WSJ report.

Figure 29: Feb 20, 2020 Patriot missile at Prince Sultan Air base



Source: Stars and Stripes

Oil – Iran exports to China expected to reach ~871,000 b/d in March

We have been of the view that Biden will turn a bit of a blind eye to more Iranian oil hitting export markets as long as he still keeps his principal target of a return to JCPOA in his sights. And it's also no secret that China continues to increase oil imports from Iran. Our March 14, 2021 Energy Tidbits included an estimate from Kpler that China would import 856,000 b/d of crude from Iran in March. This week, we saw a report on Bloomberg on these volumes for March, Bloomberg wrote *“Refinitiv Oil Research estimates this month's arrivals at 3.75 million tonnes (27 million barrels), topping the previous record in January of 3.37 million tonnes. “The trend seems to be continuing, though buying appetite is waning because of high inventories at ports and abundant supplies,” said Emma Li, a senior Refinitiv analyst”*. If this estimate is correct, China would have imported ~871,000 b/d of Iranian crude in March. And it's a significant step up from estimated volumes from Refinitiv for the first 19 days of March of 650,000 b/d. China had imported a record 797,000 b/d in January, and 490,000 b/d in February. In our March 21, 2021 Energy Tidbits we had noted an FT report [\[LINK\]](#) on a statement from the US regarding the Iranian imports. The FT wrote *““We've told the Chinese that we will continue to enforce our sanctions,” the senior administration official said. “There will be no tacit green light”*. It will be interesting to see if the US takes any steps to further enforce these sanctions in the coming weeks. Our Supplemental Documents package includes the Bloomberg report.

**China
continuing to
import Iran
crude**

Oil – 1st momentum shift for a potential return to JCPOA deal before June elections

We recognize Friday was a holiday, but it was potentially a very big oil market day. We think oil markets should at least be prepared for the potential that Iran oil could come back on markets this summer. (i) When Biden was elected, there seems more worried that a return to JCPOA was possible in Q2 (we were in that group) and Iran oil start to return as early as the summer. That view changed in Feb/March to a consensus that wouldn't happen and Iran oil wouldn't be back until year end or early 2021 at the soonest. But we have to believe there is a shift in momentum to parties looking to be making or at least trying to make a return to the JCPOA before Iran's June elections. There were two key breaking news on Friday. (ii) Early

**JCPOA
meetings in
Vienna this
week**

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Friday morning, we tweeted [\[LINK\]](#) on The National report [\[LINK\]](#) on the Iran et al virtual meeting and plans to meet in person in Vienna on Apr 6. We tweeted *“Breaking: #JCPOA, positive comments coming out of Iran, RUS, CN, UK, FR, DE virtual meeting. In-person followup Apr 6 in Vienna. Seems like 1st momentum shift for potential return to JCPOA and return for more Iran oil to markets.”* Yesterday, Iran, UK, France, Germany, China and Russia met virtually on finding a path forward to a return to the JCPOA. And the comments were positive and the parties have agreed to meet in person in Vienna on Tuesday. (iii) Then a five hours later, Reuters reported the US would also have officials in Vienna. They weren't going to be meeting face-to-face with Iran, rather there would be shuttle meetings between meetings with Iran and separately with the US. Reuters reported [\[LINK\]](#) reported *“A Western diplomat said a shuttle diplomacy approach would be adopted. U.S. State Department spokesman Ned Price said the talks would be structured around working groups that the EU is going to form with remaining participants, including Iran. “We don't anticipate an immediate breakthrough as there will be difficult discussions ahead. But we believe this is a healthy step forward,” he said in a statement, adding that Washington remained open to direct talks with Tehran.”* (iv) The key is that both parties are going to Vienna knows the other side's public and back channel positions and is prepared to be in Vienna for these meetings knowing the other side is there. On Friday and Saturday, we saw both sides reaffirm their positions going into Vienna. The US State Dept Principal Deputy spokesperson Jalina Porter said *“But again, I'll reiterate what was shared earlier, in that the issues that will be discussed are nuclear (ph) steps that Iran would need to take in order to return to compliance with the terms of the JCPOA, as well as the sanction release steps that the United States would need to take in order to return to the compliance as well.”* No surprise, Iran reaffirmed their position on Saturday morning, PressTV reported *“In an exclusive interview with Press TV, Iran's Foreign Ministry spokesman Saeed Khatibzadeh rules out any step-by-step lifting of sanctions imposed on the Islamic Republic under former US president Donald Trump. “As has been clearly stated many times, no step-by-step plan is being considered,” Khatibzadeh said on Saturday. “The definitive policy of the Islamic Republic of Iran is the lifting of all US sanctions, whether those which Trump reimposed after withdrawing from the JCPOA or those which he initiated, as well as sanctions imposed under any other heading,” he said. “Obviously, this lifting of sanctions must be effective and must be verified by Iran,” Khatibzadeh added.”* Supplemental Documents package includes The National, Reuters reports, Bloomberg transcript of Porter comments, and the PressTV report.

The US seemed to signal in advance that it was more flexible

We were wondering if the US was trying to signal to the UK, France, Germany, China and Russia ahead of the meeting that they would be more open to trying to find a path forward. At Wednesday's US State Department briefing, spokesperson Ned Price didn't lead off with the normal US position that Iran needs to return to full compliance first before there can be any move by the US. The Bloomberg terminal transcript was *“QUESTION: Just follow on Iran -- with the reported -- that the Biden administration plans to put forth a new proposal to jumpstart talks with Iran maybe as early as this week. Can you give us an update on timing and a comment on that? PRICE: Well, we have been clear for a number of weeks now, almost two months, I believe it has been, that we are ready to pursue a -- a -- a joint return to compliance with the JCPOA. We have been open that we are talking with our partners in the P5+1 and elsewhere about the best way to achieve this. We did so in Europe last week. Secretary Blinken met with several of his counterparts at the NATO Summit in Brussels, where Iran was a topic of discussion. We had a meeting with the E3 in the multilateral format last week, as well. And those discussions have been ongoing*

about the best way to achieve that return to compliance, including through a series of initial and mutual steps. We've been looking at options for doing so, including with indirect conversations with our European partners. We're not going to comment on the details of our diplomatic conversations but of course we've been very clear that we want to see Iran constrained permanently and verifiably so that it can't produce or acquire or obtain a nuclear weapon. That remains our goal. Yes?"

Oil – West Africa crude deliveries to China being hit by Iran oil exports

As noted above, China has been stepping up crude imports from Iran as of late. This shift in Chinese imports has been mainly driven by the lower prices offered for the Iranian crude. Platts noted this and wrote *"West African crude exports to China so far this year have averaged only 1.24 million b/d, according to data intelligence firm Kpler, the lowest in four years"*. WAF exports averaged 1.45 mmb/d in 2020 and 1.50 mmb/d in 2019. Kpler estimates that China imports from Iran reached 896,000 b/d in March, up from 406,000 in Feb. Waf volumes are also losing out to North Sea blends, with imports of medium North Sea crude increasing to 940,000 b/d in March, up from 543,000 in March 2020. This lowered demand has contributed to a hit to WAF differentials. Platts wrote *"Crude differentials for Republic of Congo's Djeno, a crude beloved by Chinese refiners, sunk around \$2/b through the first quarter to Dated Brent minus \$2/b, according S&P Global Platts data"*. And with momentum growing for a return to JCPOA sometime in 2021, it is likely the pressure on WAF differentials will not abate anytime soon. Our Supplemental Documents package includes the Platts report. [\[LINK\]](#)

WAF exports to China averaging lowest in 4 years

Oil – Not seeing usual warnings this year on terrorism potential during Ramadan

We hope it's a good sign for a peaceful Ramadan, which is 10 days earlier this year, and starts the evening of Tues April 13, and ends the evening of Wed May 12. We are now only a week away. And we have been tracking and are pleasantly surprised to see no security threat warnings so far. This is different than in prior years so we hope this means it will be a peaceful Ramadan. We look to the US Overseas Security Advisory Council [\[LINK\]](#) for Security Alerts that typically refer to Ramadan and, in prior years, have noted that *"martyrdom during the month may hold a special allure to some"*. It is described by the LiveScience [\[LINK\]](#) *"Ramadan is the most sacred month of the year in Islamic culture. Muslims observe the month of Ramadan, to mark that Allah, or God, gave the first chapters of the Quran to the Prophet Muhammad in 610, according to the Times of India. During Ramadan, Muslims fast, abstain from pleasures and pray to become closer to God. It is also a time for families to gather and celebrate"*

Monthly long Ramadan starts April 13

Oil – India may not be able to squeeze Saudi oil supply as much as desired

India has made no secret of its displeasure with Saudi Arabia over the past couple months on its oil policy and India's desire to diversify oil supply away from Saudi Arabia. It looks like it may be able to do so, but to nowhere near its target. Early Friday morning, Reuters reported *"Analysis: Power play: India wields oil 'weapon' to cut dependence on Saudi"* [\[LINK\]](#) on this push to diversify supply away from Saudi Arabia. Reuters also noted that *"India's oil ministry is working with refiners on a framework to jointly negotiate terms with suppliers."* However, five hours later India's Live Mint reported *"Oil marketing companies may find it tough to shift to non-Opec crude"* [\[LINK\]](#) on the reality that it isn't easy to replace Saudi crude oil supply. Its not just finding suppliers, its finding suppliers that will supply at lower all in costs (ie. including transportation) and supply oil that runs with India refinery specifications. All oil is not the same. Live Mint wrote *"State-owned refiners are likely to face a challenge in attempts to find a reliable crude oil supplier, according to the three persons, all of whom requested anonymity. They also spoke about the increased costs involved in importing non-Opec crude"*

India's power play attempt on Saudi

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because of additional freight charges. "We have been building our refineries substantially on Middle Eastern crude not only because of the availability of a variety of crude cocktails but also because we are ensured a continuous and voluminous supply, something other countries promise often but fail to deliver," said one of the three people cited above." Our Supplemental Documents package includes the Reuters and Live Mint reports.

Abdulaziz sends a message to his "friend" Pradhan, raises price \$0.20-0.50/b

We have no idea what nickname, if any, oil insiders give to Saudi Energy Minister Abdulaziz. We don't think smiling assassin is right because that means he is an enemy and we don't think enemy is the right characterization. But he clearly smiling and doesn't mind taking advantage of the opportunity to give a teaching moment like earlier this morning with India. Teaching moment is not quite right as they are unplanned, whereas Abdulaziz is ready for these moments. We couldn't help highlight Saudi Aramco's new Official Selling Prices (OSP) for May posted earlier this morning because it looks like Abdulaziz is sending a clear message to his "friend" India energy minister Pradhan. Last week's (March 28, 2021) Energy Tidbits noted the Abdulaziz/Pradhan comments and we wrote *"It may be interesting to watch the tit-for-tat between India and Saudi Arabia on the price of oil"*. We found out this morning in the Aramco OSP that hit Asia prices the most. Aramco raised OSP for Asia by \$0.20 to \$50/b for May vs April, in particular for grades of medium that work for India. For all other regions, there was essentially no change to prices. Last week's memo noted the tit-for-tat exchange of statements. We wrote *"One of the Friday headlines was India energy minister Pradhan calling Saudi's suggestions "undiplomatic", saying "that was in a way (an) undiplomatic answer by some of our old friend. I politely disagree with that kind of approach. Certainly India has its own strategy, when and how to use our own storage, and we are conscious about our interests". This was in response to Saudi energy minister Abdulaziz saying "with regard to India, very simple. I would ask my friend that he (Dharmendra Pradhan) withdraw some of the cheap oil they bought in April, May and June (last year). There is an opportunity cost for not withdrawing it now."*

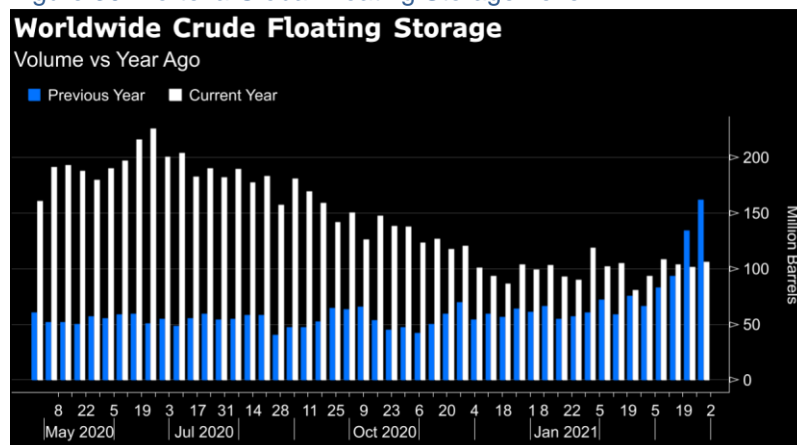
Oil – Vortexa floating storage +4.5% WoW, Braemar up by 13

We think the floating storage data won't be clear for at least another week because of the Suez Canal blockage. It wasn't just tankers stuck waiting to transit thru the Suez Canal. There would be tankers (both oil and products) that may have loaded and just stayed put instead of sailing towards the Suez Canal without knowing when the blockage would end. Its why we think the floating storage numbers are going to hard to interpret as to what is really floating storage or just waiting on the Suez Canal ship jam up. Its why we weren't surprised to see both Vortexa and Braemar report sharp increases in "floating storage". According to Vortexa, 96 tankers carrying oil, gas and products were affected by the blockage. (i) Bloomberg reported on Vortexa floating oil data that showed a WoW increase of 4.58 mmb or +4.5% WoW to 105.35 mmb on March 26 from 100.77 mmb on March 19. Floating storage is still down 52.39% since the June 28 peak of 221.3 mmb. The Middle East was down 31% WoW to 6.14 mmb. (ii) Bloomberg later reported on the Braemar data. Braemar doesn't estimate the barrels of oil in floating storage but notes there was an increase of 1 VLCC in floating storage to 35, as well as an increase of 12 Suezmaxes in floating storage to 31 as of March 29. Total tankers of 215 as of March 29 is +17 WoW. Our Supplemental Documents package include the Bloomberg Vortexa and Braemar stories.

Vortexa and Braemar floating storage

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Figure 30: Vortexa Global Floating Storage Level



Source: Bloomberg, Vortexa

Oil – Saldanha Bay crude storage drains as Supertanker heads to China

There is another positive indicator in crude oil markets correcting with the reports that crude in storage at Saldanha Bay in South Africa is continuing its declining trend that began in Dec. Bloomberg reported in late Dec that 6 mmb were removed in December by two VLCCs. On Monday, Bloomberg reported that another VLCC was moored at the terminal last Thursday. This would be the 9th tanker to load at Saldanha since the beginning of December. Bloomberg wrote “VLCC *Maria P. Lemos* left Saldanha Bay on Saturday, with a draft indicating it is full with a cargo of about 2 million barrels of crude”. Storage levels at Saldanha Bay had fallen to 34.2 mmb on March 18, their lowest since last April, according to OliX. The Saldanha Bay terminal had been a dumping ground for crude in early 2020 with Bloomberg reporting that 31 tankers had delivered ~32 mmb to the terminal during Covid to the beginning of Dec. Our Supplemental Documents package includes the Bloomberg report.

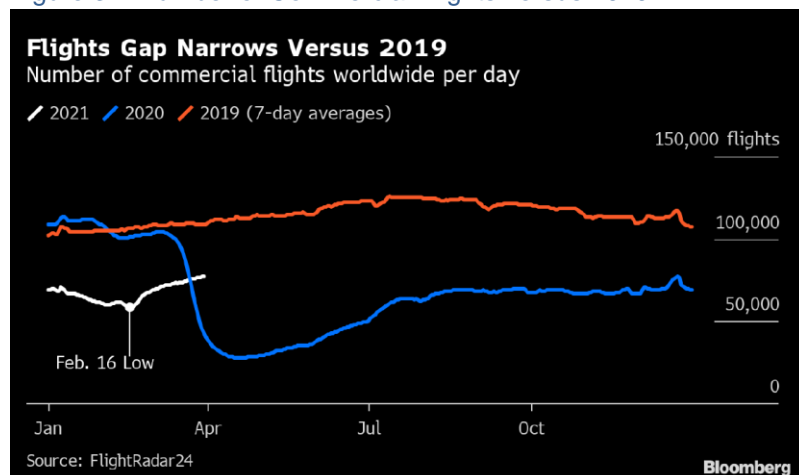
Falling crude stocks at Saldanha Bay

Oil – Bloomberg Oil Demand Monitor, Europe air travel and mobility continues to lag

We recommend reading the weekly Bloomberg terminal Oil Demand Monitor for a good recap of key oil demand indicators around the world. Lockdown measures across Europe are beginning to eat away at fuel demand and general mobility. Traffic congestion in Rome, Paris, Madrid, and Berlin were all below 2019 levels, with Paris being 50% lower vs 2019 levels. Shanghai and Berlin are once again the only cities with higher congestion vs 2019, with Shanghai up 16% and Beijing +13%. For air traffic, the situation is showing signs of improvement with global commercial flights being down 29% vs 2019. An improvement vs mid-Feb when flights were down 45% vs 2019, mainly driven by Asia and North America. Bloomberg wrote “Latin America, the Middle East and Africa are about at half strength and Europe trails in last place, at 71% below 2019 capacity, according to the OAG data”. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

Bloomberg’s Oil Demand Monitor

Figure 31: Number of Commercial Flights versus 2019



Source: Bloomberg, OAG Aviation

Oil – US domestic air travel basically back to normal

We expect its not just Canadians that are envious of how much farther along the population vaccination path the US is and how that is dramatically changing the travel outlook within the US. Its not just domestic car travel, but US domestic leisure air travel is basically back to normal. This US domestic leisure air travel is roaring back. (i) On Thursday, Simple Flying reported [LINK](#) “Last week, United Airlines Senior Vice President of Flight Operations, Bryan Quigley, emailed his 12,000 plus pilots telling them the unexpectedly strong rebound in domestic travel demand would see the airline start hiring again. “I’m excited to share that United will resume the pilot hiring process that was halted last year,” the memo said. “We’ll start with the approximately 300 pilots who either had a new hire class date that was canceled or who had a 2020 conditional job offer.” And “United Airlines expects to have all of its existing pilots back working their normal number of hours by May.” US business air travel may still be at very low levels, but the expectation is that pent up demand will see domestic leisure air travel at higher levels than pre Covid. We expect United Airlines CEO Scott Kirby’s public comments in a month or so will be that they are back at pre Covid levels instead of his comments two weeks ago “Domestic leisure demand has almost entirely recovered.” (ii) We expect the airlines reservations were busy this weekend following Friday’s CDC announcement of relaxed travel restrictions for fully vaccinated Americans. [LINK](#) CDC wrote “Fully vaccinated travelers do not need to get tested before or after travel unless their destination requires it. Fully vaccinated travelers do not need to self-quarantine”

US domestic air travel is back

Oil – Caixin General Manufacturing PMI to 50.6 in Mar from 50.9 in Feb

The big positive for oil in 2020 (aside from vaccine news) was the strong and timely recovery out of Covid in China and its related recovery in oil/products demand. The China growth story remains intact, but at a slower rate and is also reflected in sentiment and manufacturing activity. The Caixin China General Manufacturing PMI data for March [LINK](#) shows a MoM decline, however the index still remains in expansionary territory. We recommend reading the short release as opposed to just seeing the headlines as there is more color on China. Last Sunday, we tweeted [LINK](#) “China Caixin manufacturing PMI hits 10 month low in Mar at 50.6 vs 51.4 est, 11th consecutive month of expansion, but lowest since Apr “indicates post-epidemic recovery was continuing to falter”. Worth a read for good China recap Thx @IHSMakitPMI #OOTT.” While the index is still reading in expansionary territory, this is the third consecutive MoM decline. A Sr. Economist at Caixin stated “Overall, the manufacturing

Caixin PMI still in expansion, but hits 10 month low

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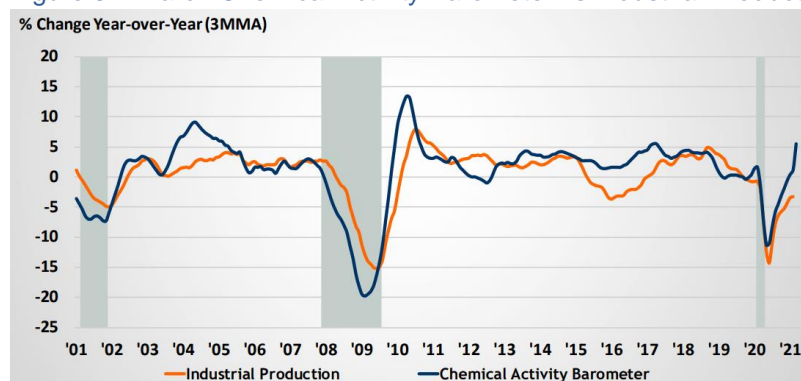
sector continued to recover in March, but the momentum of both supply and demand weakened. Overseas demand largely improved. The sector remained under employment pressure. Manufacturing enterprises were still confident that the economy will continue to recover and that the pandemic will be brought under control, with the gauge for future output expectations exceeding the long-term average. We should pay attention to inflation in future as the gauges for input and output prices have been rising for several months. The growing inflationary pressure limits the room for future policies and is not a good thing for sustaining an economic recovery in the post-epidemic period.” Our Supplemental Documents package includes the Caixin release.

Oil – ACC Chemical Activity Barometer increases for eleventh consecutive month

One of the continuing consistent positive indicator for the US economy is US manufacturing and industrial activity. It continues to remain positive. We always look at an excellent forward indicator on this from the monthly American Chemistry Council’s March “Chemical Activity Barometer” (CAB) [\[LINK\]](#) for the indicators on industrial and manufacturing in the US. The CAB has had a pretty good track record as a leading indicator of a recession in the US economy with an average lead time of 8 months as a prior indicator, but lead time ranging from 2 to 14 months. The March reading points to a continued recovery, with the CAB increasing now for the last eleven consecutive months. The March CAB “rose 1.2% in March on a three-month moving average (3MMA) basis following a 1.0% increase in February. On a year-over-year (Y/Y) basis, the barometer rose 5.5% in March. The unadjusted data show a 1.2% gain in March following a 0.9% gain in February. The diffusion index rebounded to 82% in March, well above the long-term average of 58%. The diffusion index marks the number of positive contributors relative to the total number of indicators monitored. The CAB reading for February was revised upward by 0.18 points and the reading for January was revised downward by 0.57 points.”

ACC Chemical Activity Barometer

Figure 32: March Chemical Activity Barometer vs Industrial Production



Source: American Chemistry Council

Oil & Natural Gas – Lots in Biden’s infrastructure plan

As usual, anyone who underestimates Biden’s goal to make big lasting changes to the US is going to be disappointed. His “American Jobs Plan” or infrastructure plan was another example of a big big plan. (i) We were surprised that almost everyone didn’t comment on it until his press conference on Wed afternoon, when the 28-pg plan was posted very early Wed morning. (ii) We aren’t going thru all the details in this memo, rather plan to write more extensively on key points in separate blogs. (iii) Said multiple times his “100 percent carbon-free electricity by 2035”. This is a game changer and we reiterate that we do not think this is attainable. However, the point is that Biden will put the US on this road and even if he is only

Biden’s infrastructure plan

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25% successful, it will materially change the energy mix. Our July 28, 2020 blog "*Biden To Put US On 'Irreversible Path to Achieve Net-Zero Emissions, Economy-Wide' Is a Major Negative To US Natural Gas in 2020s*" was based on this zero carbon electricity by 2035. (iv) There is a huge overriding push to every dollar having a climate change angle. The inference here is huge, it means any infrastructure and this is not just bridges, infrastructure is broadly defined. But use the California wildfire situation and think about the cost or time if they were to decide to and try to bury every new transmission line thru an area that is increasingly subject to wildfires. PG&E does voluntary power blackouts *for wildfire risks around certain power lines. That is one small example. The plan says "Every dollar spent on rebuilding our infrastructure during the Biden administration will be used to prevent, reduce, and withstand the impacts of the climate crisis. Additionally, the President is calling for \$50 billion in dedicated investments to improve infrastructure resilience:"* (v) Noticeable by its absence are any real items on improving grid resilience especially in the face of increase power demand. He notes he wants a "*renewed electric grid*" "*reenergize America's power infrastructure*" and "*modernizing power generation*". They did mention grid resilience once saying "*President Biden's plan increases resilience in the most essential services, including the electric grid; food systems; urban infrastructure; community health and hospitals; and our roads, rail, and other transportation assets*". (vi) "*more resilient electric transmission system*". Resilient was the wrong adjective as nothing on building resilience to items like wildfires noted earlier. Rather this was about incentivizing the buildout of at least 20 gigawatts of high-voltage capacity power lines " Note that he looks to be using existing road/rail rights-of-ways to "support creating financing" tools for this. (vii) Modernizing power generation. This is not modernizing or building grid resilience. Rather the plan says "*President Biden is proposing a ten-year extension and phase down of an expanded direct-pay investment tax credit and production tax credit for clean energy generation and storage*". Note modernization is the buzz word for pushing to clean energy. I.e. use fed govt purchasing power to buy 24/7 clean power. (viii) Did highlight repairing roads. Its hard to determine how much extra boost this year to the paving season. Compared to last year, it has to be up but that was a Covid year. Last week, Buttigieg said no increase in road tax or no new mileage tax. But Biden is will fund via this plan. Its not clear how much is allocated to repairing roads. We will need details because its hard to tell how much of the \$115b in this category for road repair. The only separate item noted was \$20b to improve road safety including items like to "fund state and local Vision zero plans" Our overall concern on this \$115b (and for the plan overall) is that a dollar will not go as far. (ix) There are many other items for future writing like why we see this as a huge boost for rail companies, US shipping companies, mini nukes, home building, etc. Our Supplemental Documents package includes the Biden American Jobs Plan Fact Sheet and our July 28, 2020 blog.

Biden's s outline of higher corporate taxes

Biden's Fact Sheet also included his key corporate tax increases and did not go into all of the details on how he will tax higher income Americans. (i) Increase minimum tax on corporations to 28% from 21%. (ii) Calculate the 21% minimum tax "*on a country-by-country basis so it hits profits in tax havens. It will also eliminate the rule that allows U.S. companies to pay zero taxes on the first 10 percent of return when they locate investments in foreign countries.*" (iii) "*Prevent U.S. Corporations from inverting or claiming tax havens as their residence.*" (iv) "*Deny Companies Expense Deductions for Offshoring Jobs and Credit Expenses for Onshoring.*" This is one we want to see details as it could be followed by other countries i.e. Canada. On the surface, it seemed like this could hit items like offshore call centers, or even items like investment dealers having offshore India research, or even editing/publishing. Plan says "*President Biden's reform proposal will also make sure that companies*

can no longer write off expenses that come from offshoring jobs. This is a matter of fairness. U.S. taxpayers shouldn't subsidize companies shipping jobs abroad. Instead, President Biden is also proposing to provide a tax credit to support onshoring jobs.” (v) “Eliminate a Loophole for Intellectual Property that Encourages Offshoring Jobs and Invest in Effective R&D Incentives.” (vi) Enact A Minimum Tax on Large Corporations’ Book Income. This was interesting and we hadn’t heard this before. It sounds like the corporation pays the greater of a 15% min tax on book income or a 21% min tax on income tax filing income. (vii) We will need to see the details on how the oil and gas taxation rolls out. Its hard to see it being good when he talks about eliminating the loopholes the fossil fuels industry, not the oil and gas sector. As we noted in the DOI federal lands review, making sure to use the term fossil fuels is only to set up the negative messaging just like making sure they use tar sands instead of oil sands. There is one careful word “also” put in that doesn’t directly call fossil fuels as polluters, but the thoughts are clearly linked. “Eliminate Tax Preferences for Fossil Fuels and Make Sure Polluting Industries Pay for Environmental Clean Up. The current tax code includes billions of dollars in subsidies, loopholes, and special foreign tax credits for the fossil fuel industry. As part of the President’s commitment to put the country on a path to net-zero emissions by 2050, his tax reform proposal will eliminate all these special preferences. The President is also proposing to restore payments from polluters into the Superfund Trust Fund so that polluting industries help fairly cover the cost of cleanups.”

Oil & Natural Gas – “Affordable and reliable” energy didn’t make it into Biden’s plan

We probably wouldn’t have highlighted Energy Secretary Granholm’s tweet if we hadn’t reviewed Biden’s 28-pg American Jobs Plan. Granholm tweeted [LINK](#) “I had a productive call with Saudi Energy Minister Abdulaziz bin Salman al-Saud today. We reaffirmed the importance of international cooperation to ensure affordable and reliable sources of energy for consumers. 1/”. But we had read and analyzed Biden’s plan and its why tweeted [LINK](#) “Unfortunately, this traditional priority “to ensure affordable and reliable” energy concept doesn’t appear in @POTUS 28-pg American Jobs Plan. Reminds why #EnergyTransition will happen, but take longer, be bumpy road and cost more.” It’s always been the priority for reliable and affordable energy but the only reference in Biden’s 28-pgs to reliable and affordable is to broadband. There is no mention or hint that a priority in Biden’s \$2.2 trillion infrastructure plan is, as Granholm said she reaffirmed the importance to Abdulaziz, “to ensure affordable and reliable sources of energy for consumers”. We hadn’t really thought this priority was missing from the Biden plan until we saw the Granholm tweet. It could have been easily included just like having reliable and affordable broadband, but it wasn’t. We have always been in the camp that the energy transition is going to happen, but that it will take longer, be a bumpy road and cost more than the aspirations. The absence of reliable and affordable energy from the Biden plan is a loud statement and reminder that energy costs are going to be much higher and that isn’t the message politicians are giving consumers because consumers are voters. And as we saw in Ontario, really high electricity prices will lead to a big election loss.

“affordable and reliable” energy is missing

Oil & Natural Gas – Suez Canal quickly cleared up backlog of >400 ships

Yesterday morning, we tweeted [LINK](#) on the reports that the Osama Rabie (Chairman of the Suez Canal Authority) said that 85 ships were expected to pass thru the canal on Saturday and that will include the last 61 ships out of the 422 that were queued up in the backlog from the Ever Given container ship blockage. Our tweet was “Pretty impressive clear up of the backlog. Call it >80 ships/day vs ~53 ships/day in 2019/20. #OOTT.” Now that the blockage

Suez Canal backlog now cleared up

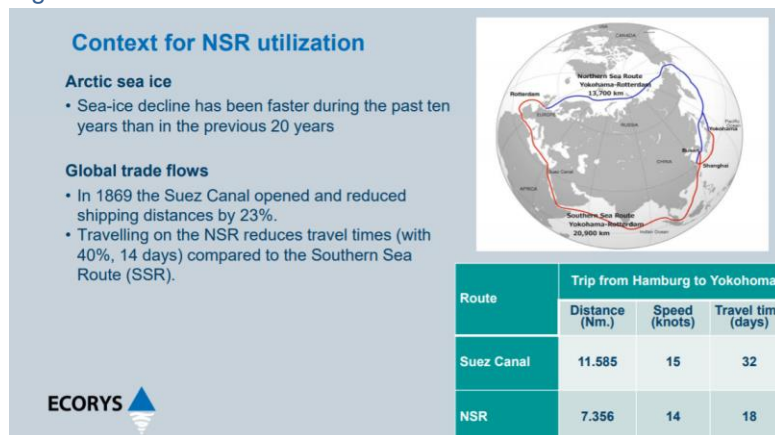
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is over, we will just recap a few of the key oil and gas themes from our tweets and prior memo.

Russia’s Northern Sea Route shortens shipping time by 14 days

We were surprised it took so long for Russia to remind of their shipping routes advantage relative to the Suez Canal. We didn’t see any Russia reports on this until Tues/Wed. Rather, last Sunday, we tweeted [\[LINK\]](#) “#SuezCanal #Evergreen should see more shipping via Russia Northern Sea Route. Holdback is seasonal limitations but getting longer with warmer north. Huge savings, can shorten by >4,000 km and 14 days vs Suez Canal. #OOTT” Time is money and this is a huge savings in time and cost even if there could be added insurance costs in the northern route. We have to believe that the Suez Canal stoppage has got shippers thinking more about the utilization of Russia’s Northern Sea Route. We noted in our Jan 24, 2021 Energy Tidbits that Russia will be attempting the earliest ever LNG shipment to Asia through the Northern Sea Route in May, as the transit season is getting longer for the NSR. The NSR is a much shorter route from Europe to Asia than through the Suez, with a trip from Hamburg to Yokohama taking 14 days less using the NSR and is ~4,000 Nm shorter. Below is a good graphic from the ECORYS discussion paper at the International Transport Forum. [\[LINK\]](#)

Figure 33: Suez Canal vs. Northern Sea Route



Source: International Transport Forum, ECORYS

EIA’s Suez Canal and SUMED Pipeline reference document

The best go-to reference document is the EIA’s July 23, 2019 brief “The Suez Canal and SUMED Pipeline are critical chokepoints for oil and natural gas trade” [\[LINK\]](#). It has a number of excellent data points. It notes the both the northbound and southbound flows of crude, petroleum products and LNG thru the Suez Canal. Everyone focuses on crude oil from the Middle East to Europe. But the EIA also reminds Asia imports petroleum products from European refineries via the Suez Canal. The two different graphs not seen elsewhere are the EIA showing county of origin and destination for northbound and southbound traffic thru the Suez Canal. There are more charts than posted below. Our Supplemental Documents package includes the EIA July 23, 2019 blog.

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Figure 34: Northbound crude oil and petroleum product volumes by country

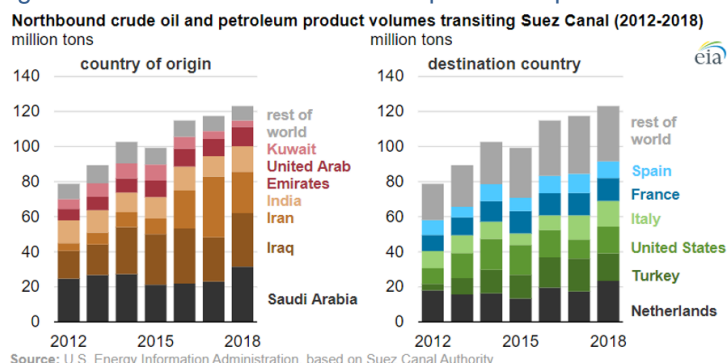
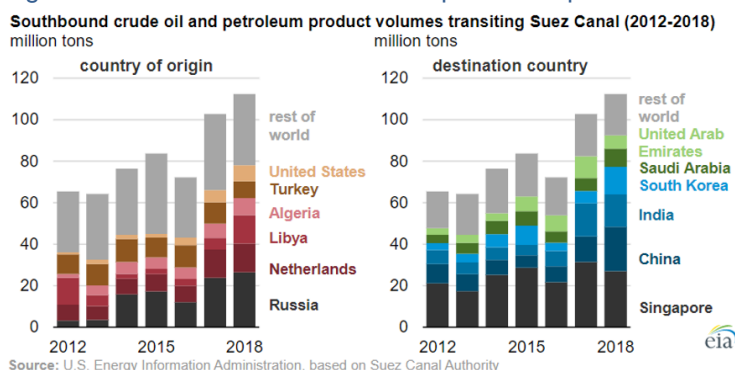


Figure 35: Southbound crude oil and petroleum product volumes by country



Energy Transition – Surprised conservation/efficiency wasn’t a bigger Biden priority

One of the surprises to us in the Biden infrastructure plan was that there wasn’t a huge priority placed on energy conservation and efficiency of energy use. Note in mentioning conservation here, we are also including improving efficiency of energy use. It was there for buildings and homes, but we have always wondered if there would be a separate category push on energy conservation as a priority in all energy uses. Its one thing we don’t see in the push for a renewable energy world, how much emissions could be reduced by energy conservation. We have always believed it’s a big number and one that isn’t a politically touchy subject. But it probably doesn’t get the attention as it isn’t a great headline item. But we thought Biden might elevate it as a priority because Biden is lived thru the period where the US priority was on energy conservation and it worked. Biden became a US Senator in 1973, just in time for the Arab Oil Embargo in Oct 1973 that changed the world of energy and led to the election of Jimmy Carter in 1976. Interestingly, Biden’s Wikipedia page features a picture of Biden and Carter in the section on Biden’s senate career. The reality is that if Biden wants to make a huge dent in emissions, he should have a priority on conservation and efficiency as a key focus area. Again this is another thing that jumps out at us from not being in Biden’s plan – this priority on conservation as an area, because we remember Jimmy’s Carter’s first major address after taking office in 1977. His famous sitting by the fireplace wearing a cardigan speech to the nation. [LINK](#) Carter says “our program will emphasize conservation. The amount of energy being wasted, which could be saved is greater than the total energy we are importing from foreign countries”. For those who also saw the speech then, it’s worth a second listen.

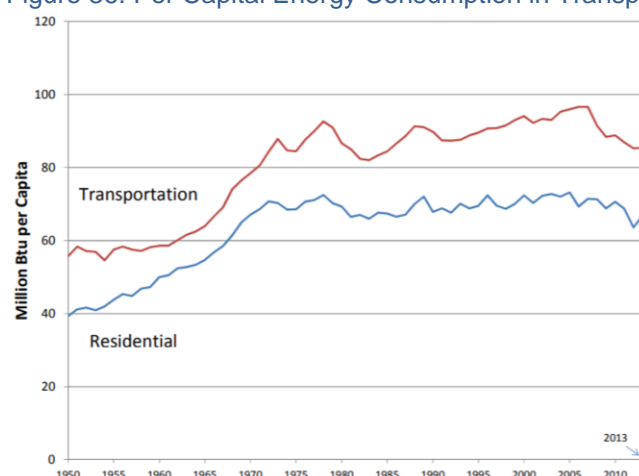
What about energy conservation priority?

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It worked, conservation led to big reductions in energy consumption

The push on energy conservation worked as it led to less energy consumption per capita. Carter won the Nov 2016 election and took office in Jan 2017. Carter's big push was on energy efficiency and conservation, and its also forgotten that he was the one who led to big expansion in coal and in the first substantial tax incentives for shale oil that set the stage for US shale/tight oil and gas growth in the last decade. To be fair, Nixon also started some energy conservation such as implementing a national high speed limit of 55 mph whereas prior to that there wasn't a national standard, but most states were 70 or 75 mph. But the point is that it worked. And we would expect lower consumption would have led to lower emissions. Biden lived thru this as a senator, which is why we are surprised that it wasn't a bigger priority in itself.

Figure 36: Per Capita Energy Consumption in Transportation & Residential Sectors



Source: Congressional Research Service

Energy Transition – Better ICE vehicle efficiency material reduce ICE emissions

We are highlighting this Business Standard because it notes an overlooked tool that could materially reduce emissions from ICE vehicles – improved fuel efficiency standards. On Friday, there was an excellent India's Business Standard report "*BS READS: Why EVs can be only slightly cleaner than petrol cars in India*" [\[LINK\]](#). Its excellent because it gives numbers to an overlooked theme for the energy transition – efficiency improvements in ICE vehicles would be huge. Hopefully the climate change side doesn't say BS means anything other than Business Standard. (i) Full cycle emissions. The story focus is on the point that the full cycle emissions of EVs vs ICE vehicles is dependent on the fuel source for the electricity to power EVs and that, at least for now until the energy mix has significantly shifted, the emissions advantage for EVs is not as great as portrayed. BS writes "*While the gasoline vehicle emits 253g of carbon dioxide per km, an electric vehicle in India would emit 235 gm of carbon dioxide — only a 7 per cent CO2 saving. In terms of lifetime emissions, an electric vehicle would emit 52.9 tonnes of carbon dioxide, compared with 57 tonnes that would be emitted by an electric vehicle.*" (ii) Fuel efficiency improvements can materially reduce emissions. Earlier we noted our surprise that energy conservation and improving efficiency of energy use weren't a higher priority for the Biden infrastructure plan. BS gave a great example of how improved efficiency of ICE vehicles would be material to emissions. Perhaps its the type of item that doesn't fit the narrative of moving to items dealing with the

ICE vehicle efficiency improvements would be huge

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future, or generational change or a technology step change. Rather, this would be old school approach from the 70's for material improvements in fuel efficiency that most believe is attainable. BS wrote *"If the fuel efficiency of a gasoline vehicle rises to 15 km per litre, it would emit only 227 gm of CO2 and would be more efficient than an electric one. And, if the fuel efficiency rises to 19km per litre, which is the case with most sub-compact cars — these are in a majority in India — the petrol car would turn 23 per cent more efficient than an electric car."* Our Supplemental Documents package includes the Business Standard report.

Full cycle EV emissions depend on the fuel source for electricity

Our Nov 15, 2020 Energy Tidbits highlighted the Nov 13, 2020 Japan Times story *"Japan's reliance on fossil fuels diminishes EV advantages"* [LINK](#) and then tweet [LINK](#) *"#EVs market % is only going up & buyers want to reduce their emissions footprint. Wonder if buyers are told on a full cycle basis, higher carbon emissions for EVs vs ICE cars until drive 111k km in Japan & 76k km in Europe? California 32% renewables so likely same as EUR #OOTT."* The Japan Times story noted the full cycle carbon emissions of EVs vs ICE vehicles and found that it takes a lot of kms to be driven before the full cycle carbon emissions of EVs is less than ICE vehicles. Japan Times wrote *"Models in Japan were found to emit more carbon dioxide than gasoline engine vehicles until their driving distance reaches 111,511 kilometers, and then exceed gasoline vehicles again once their driving distance exceeds 160,000 km because their batteries need to be replaced, Inaba said. EVs in the EU, however, emit less carbon dioxide than gasoline engine cars once they have run 76,545 km regardless of battery replacement owing to the larger dependence on electricity generated by renewable energy, he said. In 2019, electricity generated by wind, water and solar power combined accounted for 30% of the total in the EU, according to the 27-nation bloc."* Our Supplemental Documents package includes the Japan Times story.

Energy Transition – California's natural gas home ban won't reduce gas demand now

x

The reality of the energy transition is that it will take longer, be bumpy and cost more than the aspirations. The reality to the naysayers is that its happening and that governments are more determined than ever to put their countries on, as Biden calls it, an irreversible path. The other reality for both sides is that getting rid of fossil fuels will take longer than expected. There is a massive infrastructure that has to be set up to support the energy transition. Earlier this morning, The Hill posted an opinion piece *"Banning natural gas in homes will increase the consumption of natural gas"* [LINK](#) on how many California cities are moving to ban natural gas from home heating and that, until there is a huge reduction in natural gas for electricity, this ban will result in increased natural gas demand. Its hard to argue with the simplicity of the argument. *"Heating homes with natural gas is straightforward and efficient. The gas is piped into the house and then burned in a furnace with efficiency exceeding 90 percent in modern models. This means that 90 percent of the energy contained in the natural gas ends as useful heat for the home's residents. However, that use — as all fossil fuels — produces carbon dioxide emissions. An electric heater can be just as efficient and produces no emissions. But what about the electricity used to run it? When natural gas is being burned in a power plant, only about 45 percent of the energy contained in it will be converted into electricity. As that electricity is transported and distributed, additional 6 to 10 percent is lost; and the amount of electrical energy delivered to a house is typically just one-third of the energy contained in the natural gas fuel. Consequently, the overall efficiency of a gas heater is almost three times as high than that of its all-electric counterpart"*. Our Supplemental Documents package includes The Hill opinion piece.

Capital Markets – World Bank’s new Climate Change Action Plan

No surprise that the World Bank announced its new Climate Change Action plan [\[LINK\]](#). (i) We say no surprise as our expectation is for a wave of new stepped up climate change plans to be announced ahead of COP-26 Glasgow in Nov. The expectation was for this to be happening now and not waiting until closer to COP-26. Expect more to come especially from countries invited to Biden’s April 22/23 climate summit. (ii) The World Bank is increasing their climate finance allocation to “35% of World Bank Group financing will have climate co-benefits, on average, over the next five years; and 50% of World Bank – IBRD and IDA – climate financing will support adaptation and resilience. This represents a big step up from the 26% achieved on average in FY16-20 and an even bigger step up in dollar terms as the Bank Group’s total financing has also expanded.” (iii) We can’t believe it was imprecise writing, because it feels like the World Bank has let themselves the opening to be either only for a 2C increase or for a 1.5C increase. The World Bank said it is “Aligning our financing flows with the goals of the Paris Agreement: The Bank Group is committed to aligning financing flows with the objectives of the Paris Agreement.” They use “goals” and “objectives”. We have only seen a common view on Paris that the signees were legally obligated to keep temperatures rise to 2C vs pre-industrial levels but would try to do better at 1.5c. The actual Paris Agreement [\[LINK\]](#) includes: “Article 2. 1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by: (a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;” “Article 4. 1. In order to achieve the long-term temperature goal set out in Article 2, Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty”. So is the World bank aligning with the obligation to limit to 2C increase, or is it aligning to the aspiration, not the obligation level of 1.5C increase, or just trying to be able to say either or? (iv) We have to believe one of their increased capital allocation areas is wind and solar. Partly because there should be lots of wind and solar in developing countries, but also because it would be lower risk as the wind/solar cost/benefits are now well understood. World bank writes “Supporting a Just Transition out of Coal: We will significantly increase our support for the transition away from coal in client countries that request assistance. Importantly, we will seek to mobilize the further large-scale resources to support this. One example is the jobs and skills transition for people working in the coal sector. Another is helping countries replace coal with affordable, reliable and cleaner alternatives as they expand electricity access.” Our Supplemental Documents package includes the World Bank release.

**World Bank’s
climate action
plan**

Capital Markets – Calgary real estate sharing in the North American boom

Last week’s (March 28, 2021) Energy Tidbits highlighted the US National Association of Realtors report [\[LINK\]](#) that noted the continued strength in US housing market with the median sales price rose to \$313,000, +15.8 YoY, and all regions posted double-digit price gains. On Friday, the Calgary Real Estate Board released its March housing sale [\[LINK\]](#) and it was another good month for Calgary real estate. Even though Calgary has been hit hard over the past few years for the changing view for the future of oil and natural gas, Calgary in 2021 is sharing from the same overall North American trends with strong price driven by low

**A strong
Calgary home
sales market**

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interest rates and continues low inventory. And its not just good stats compared to last year's peak of Covid impact, it's the best March data for over a decade. CREB reported "*The initial impact of COVID-19 on the housing market began last March. One year later, it is not a surprise that March sales in 2021 were higher than in 2020. However, at 2,903 sales, this was the highest March total since 2007.*" "*Inventory levels pushed above 5,400 units, but citywide months of supply fell below two months. This reflects the lowest months of supply for March since 2014 and these tight conditions have contributed to price gains. In March, the benchmark price trended up over last month to \$441,900, over six per cent higher than last year's levels. The price gains have moved the market closer to recovery, but prices remain over five per cent lower than 2014 highs.*"

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**

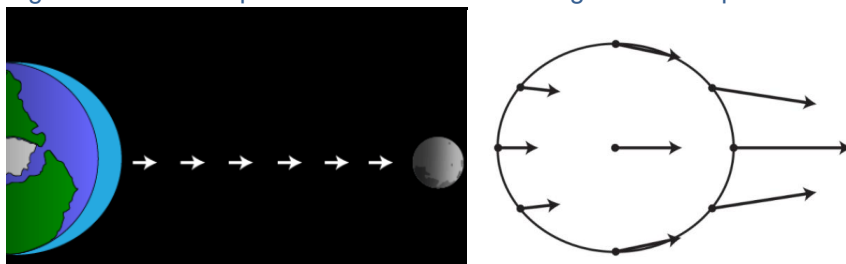
Misc Facts and Figures.

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

Super Moon was a key factor to get Ever Given unstuck

One of the reasons for helping getting the Ever Given unstuck when it did was the Super Moon. A Super Moon is when the Moon is closest to the Earth and, as such, it appears way larger than normal. And because its closer, it amplifies the normal impact the Moon has on tides ie. high tide was higher than normal. SciJinks describes this [\[LINK\]](#) "*High tides and low tides are caused by the Moon. The Moon's gravitational pull generates something called the tidal force. The tidal force causes Earth—and its water—to bulge out on the side closest to the Moon and the side farthest from the Moon. These bulges of water are high tides. As the Earth rotates, your region of Earth passes through both of these bulges each day. When you're in one of the bulges, you experience a high tide. When you're not in one of the bulges, you experience a low tide. This cycle of two high tides and two low tides occurs most days on most of the coastlines of the world.*"

Figure 37 Arrows represent the force of Moon's gravitational pull on Earth



Source:SciJinks

Who could forget Carter saying set thermostats at 65 in day and 55 at night

One of the lines from Carter's fireside chat that stayed the longest was his comment on saving natural gas by turning the thermostat down. Everyone remember his recommendations, but the point is that a simple conservation could have saved half the natural gas shortage. Carter said "We will ask private companies to sacrifice, just as private citizens must do. All of us must learn to waste less energy. Simply by keeping out thermostats for instance at 65 degrees in daytime and 55 degrees at night, we can save half the current shortage of natural gas"

Should Atlanta Braves be the favorite to win the 2021 World Series?

Atlanta is in the sports news this week with MLB taking away the All-Star game in response to the new Georgia voting rules. But it won't take away from the Vegas sports books mostly putting Atlanta at the 5th best chance to win the 2021 World Series. The US Census Bureau posted a blog "Baseball is Back! All 30 MLB Teams Play on Opening Day" [\[LINK\]](#) in honor of opening day on April 1. The blog included a map of all 30 teams compared by metro area population. Everyone always talks about the challenge for small market teams to be World Series champ. We roughly divided the 30 teams in small market (<4 mm metro population), mid market (4-7 mm metro population), and large market (>7 mm metro population). Over the past 20 years, the champions were divided 3 in small, 11 in mid, and 6 in large markets. Most of the pre opening day betting odds had the favorites in order LA Dodgers (13.2 mm), NY Yankees (19.2 mm), Chicago White Sox (9.5 mm), San Diego Padres (3.3 mm), and Atlanta Braves (6.0 mm). Our Supplemental Documents package includes the US Census Bureau blog.

The days of an 8-8 NFL season are now over

The NFL just approved a move to a 17 game season starting this year. We recognize that one more regular season game can only help on the revenues, but we have to admit we will miss the days when teams can finish with 8 wins and 8 losses. A season that isn't bad or isn't good, just an 8-8 season. It also means that we lose the chance for an 8-8 team to win the Super Bowl. It doesn't mean there can't be a losing record team potentially win the Super Bowl. This year, Washington Football Team won the NFC East with a 7-9 record. But for now, the New York Giants with a 9-7 regular season record have the worst regular season winning percentage when they won Super Bowl XLVI over the 13-3 New England Patriots.