

# SAF 2019 Energy Market Outlook

Near Term Canadian Oil Outlook Looks Significantly Better Than Expected

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## SAF Energy Finance Introduction

SAF is an investment specialist providing innovative capital solutions to the North American resource sector

Private Equity/Credit	Commodities Marketing	Industry Research
<ol style="list-style-type: none"> <li>1 Energy + Metals &amp; Mining</li> <li>2 25 Investments</li> <li>3 Energy Fund I + II (80% Deployed): \$775mm Equity</li> <li>4 14 Investment Professionals</li> </ol>	<ol style="list-style-type: none"> <li>1 Counterparty Hedging + Risk Management</li> <li>2 Commodities Export + Storage Optimization</li> <li>3 One Logistic + Midstream Transactions Representing US\$195mm of Invested Equity</li> <li>4 Long-term Structured Products</li> </ol>	<ol style="list-style-type: none"> <li>1 Weekly <i>Energy Tidbits</i></li> <li>2 Annual Market Outlook</li> <li>3 Tailored Board Pitches</li> <li>4 Real Time Market Commentary</li> </ol>

Founded in 2014	25 Investments Executed	\$1.5 Billion Capital Allocated
\$1.4 Billion Capital Under Mgmt.	\$750 Million Near Term Pipeline	14 Investment Professionals

## SAF Energy Finance Overview

## Identifying Lasting Energy Trends and Undiscovered Tail Risks

- We anchor our research looking to the mid term with the 5 to 7 year time horizon for our typical investment
- And we analyze the market today to identify competitive opportunity windows for deployment

Sample Of Research Reports		
Date	Titles	Type
September 9, 2018	CN: Crude By Rail Must Provide “Good, If Not Better Than, The Average” Pricing	Tidbits
September 4, 2018	Hurricanes: Key Links For Hurricane Impact On Gulf Coast Oil and Gas Infrastructure And Production	Blog
September 1, 2018	Brent-WTI Diff Should Widen Earlier As Shanghai Port Leads With A 15-Mth Earlier Adoption Of IMO 2020 Lower Sulphur Limits	Blog
August 30, 2018	Ruling Against TMPL Expansion, But It Was Already #3 Behind Line 3 And Keystone XL Timing To Add 1.205 Mmb/d Capacity	Blog
August 19, 2018	Saudi Arabia et al Are Up 894,000 b/d Vs Iran Down 85,000 b/d Since May	Tidbits
August 5, 2018	China Reportedly Will Not Reduce Oil Imports From Iran	Tidbits
July 15, 2018	Did Saudi Arabia Convince The US It Can't Or Won't Replace All Iran Cut Barrels?	Tidbits
June 26, 2018	WTI Could Have Been >\$10 Higher Today If Markets Believed The US Can Reach Its Stated Objective To Cut Iran's Oil Exports To Zero	Blog
March 30, 2018	Good News For LNG FID Projects, Dutch Cabinet Says “Gas production from the Groningen field will be completely terminated”	Blog
December 5, 2017	The Only Logical Time For OPEC To Start Unwinding The Cuts Is In July To Avoid Recreating A Surplus Problem	Blog
September 20, 2017	China's Plan To Increase Natural Gas To 10% Of Its Energy Mix Is a Global Game Changer For BC LNG	Blog
September 20, 2017	Shell: “Every LNG Cargo That Could Technically Be Produced In This World Has Been Produced And Has Found A Well Paying Customer”	Blog





If you would like to read any of the pieces listed above or be part of the distribution list please send an email to [bzisin@streamasset.ca](mailto:bzisin@streamasset.ca)

## Key Takeaways

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- It's been a great 12 months for global oil and gas prices, which provide very strong cash flows for oil and gas assets connected directly or indirectly to global prices
- The strong oil and gas prices should continue as it takes time to build infrastructure to support the supply chain for any new energy transitions (ie ICE to EVs) to fully unfold
- This long term outlook provides the time and incentive for quality oil and gas assets around the world (including Canada) to move to connect to these strong global oil and gas prices
- An even stronger long term outlook for natural gas as China builds out infrastructure for its natural gas push
- A continued strong long term outlook for oil is supported by OPEC no longer having the surplus capacity to hold down prices for an extended period
- Cdn oil and gas is, to the most part, not sharing in the global price strength due to policy, seasonal or structural issues
- Trans Mountain's ruling loss has increased the policy and social risk associated with pipelines and other major energy projects
- The outlook for Cdn gas continues to be challenged. The huge Marcellus success reduces Cdn imports, more than offsets any NGTL capacity additions and accelerated the need for a lasting fix that has to come from LNG Canada. The reducing need means that a greater portion of Cdn gas, being pipeline connected, will evolve into a storage like role to the US and increasing seasonal differentials risk
- The Cdn oil outlook looks significantly better than expectations as the structural fix is way sooner than expected with potentially >700,000 bbl/d of egress around 2020 vs expectations of 375,000 bbl/d. There will continue to be normal seasonal risks when turnarounds hit Canada's primary pipeline connected export market – the US Midwest

## SAF 2017 Energy Market Outlook Scorecard

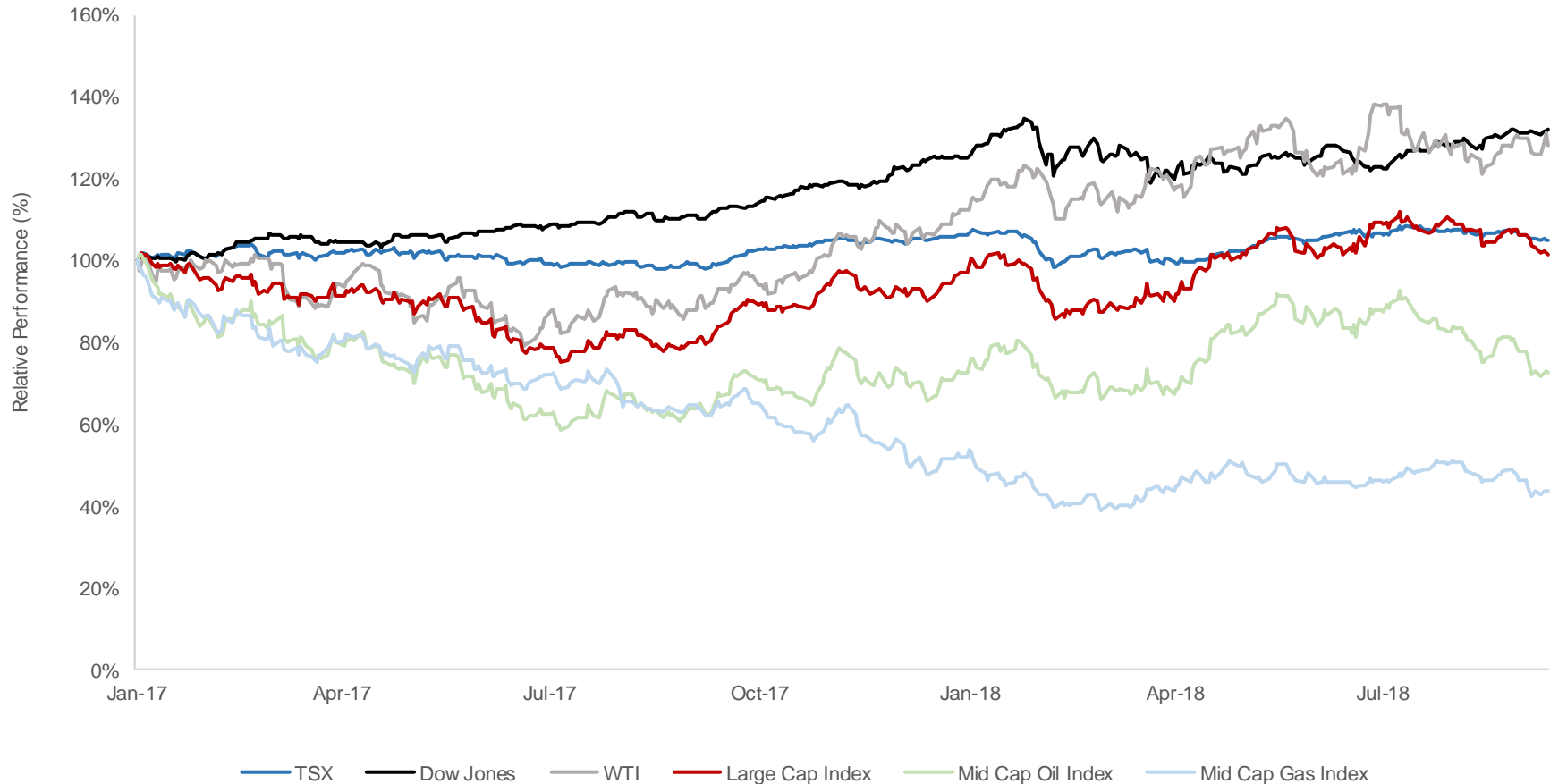
Call	Outcome
Q3 and 2017 are turning points for global oil and natural gas	
We believe WTI and Cdn oil prices should have ~20% upside relative to the strip	
Cdn natural gas prices will ultimately be dragged up with HH prices	
The new massive natural gas demand surge led by China should create an LNG undersupply in 2020/2021 and not closer to 2025 as per conventional wisdom	



There Are Fewer Investor Eyes On The Sector

## Its Been A Money Losing 12 Months For Cdn Oil and Gas Stocks

- A modest increase in investor capital allocation in Q2/18 didn't last
- Cdn oil and gas stocks continue to underperform

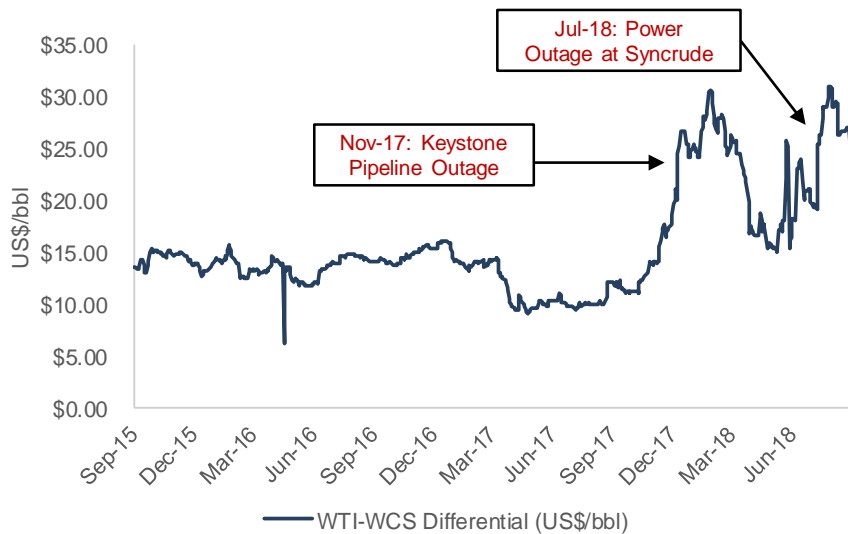


Source: Bloomberg, SAF

## Hurting Canada's Two Primary Growth Areas

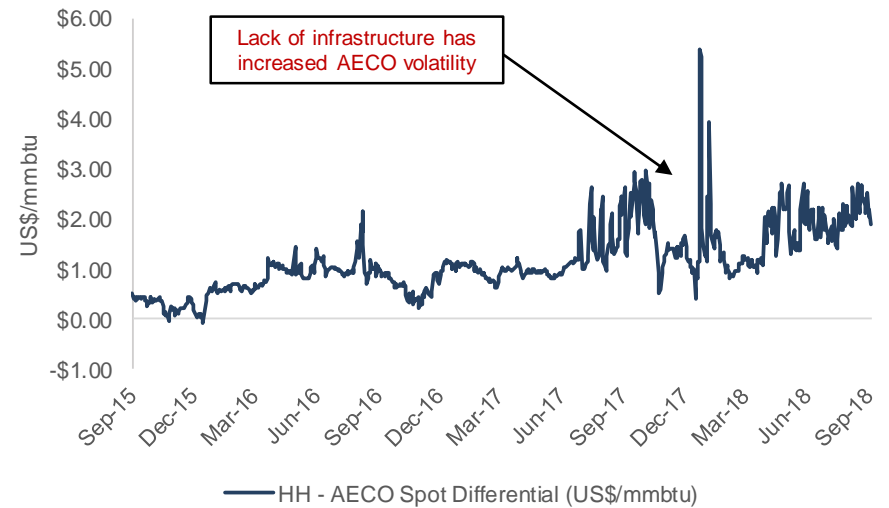
- Cdn heavy oil and natural gas make up the vast majority of Canada's key growth potential
- Expect diffs to continue to be weak (wide) and more volatile until there is a more lasting solution to lack of egress

### Cdn Heavy Oil Differential



Source: Bloomberg, SAF

### Cdn Gas Differential



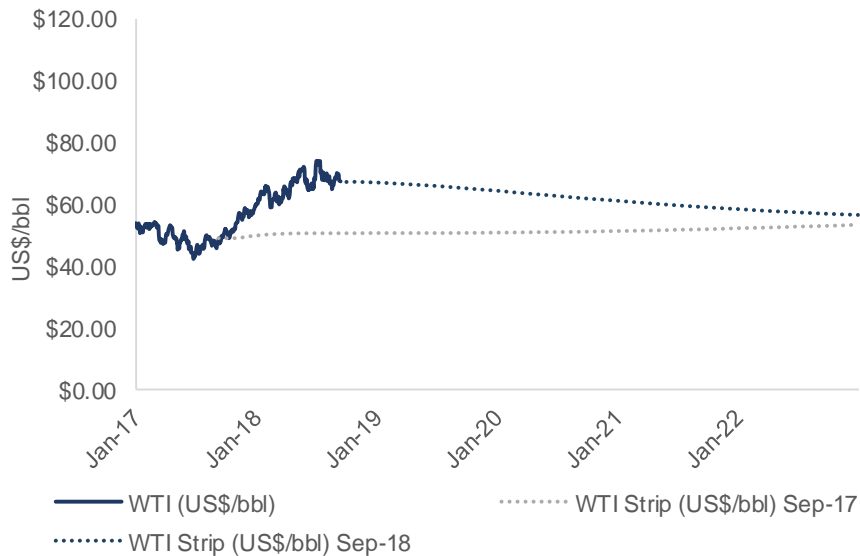
Source: Bloomberg, SAF

The Last 12 Months Have Been Excellent For Global Energy Prices

## A Year Ago, WTI Was \$50 and Japan LNG Was \$7

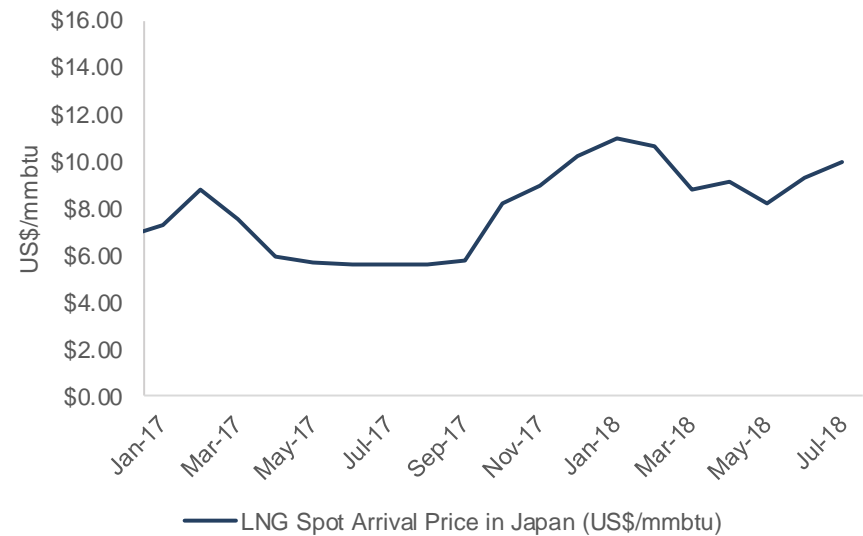
- Japan LNG prices were ~\$7 a year ago and are now \$10 with LNG markets correcting from China's demand
- WTI was \$50 a year ago and is now ~\$70

### Current vs. Last Year's WTI Forward Curve



Source: Bloomberg, SAF

### Japan LNG Prices



Source: Bloomberg, SAF

It Takes Time To Connect Changing Energy To Changing Markets

## **Energy Transitions Are Happening But Shouldn't Significantly Change Supply Chains To 2030**

- There are major energy transitions in motion that will lead to changes in the energy supply chain
  - What type of energy is required?
  - Where is the energy sourced?
  - How/where is the energy processed?
  - How does the energy get delivered?
  - How is the energy stored to provide reliability?
  - Where is the energy delivered?
  - How is the energy distributed and used by the consumer?
  
- Energy transitions are often policy driven (ie. EVs) but some are driven by changing supply source (ie. Permian associated natural gas)
  
- Examples of energy transitions:
  - EVs replacing internal combustion engine vehicles
  - Renewables replacing fossil fuels
  - Natural gas replacing coal
  - LNG growth at high rates for a decade or more
  
- Energy transitions can only happen when there is infrastructure to support the new energy supply chain from source to consumer
  
- We don't expect to see significant changes to the energy mix and energy supply chain for the next decade

## **China's Increasing Natural Gas Consumption Is Held Back By Infrastructure**

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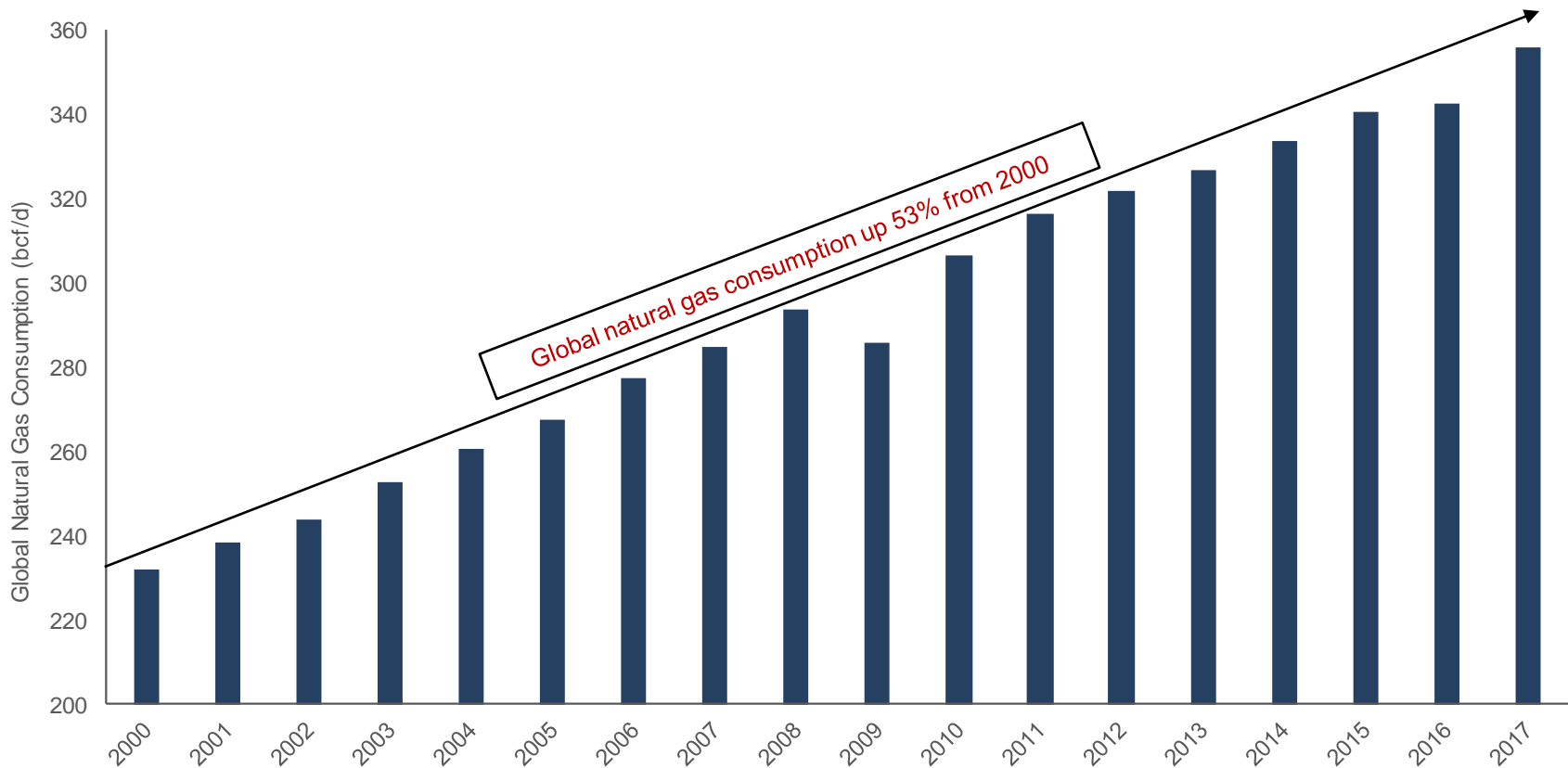
- The best example of infrastructure holding back the speed of an energy transition is China's push to increase natural gas consumption.
- This is forcing China to address infrastructure along the entire natural gas/LNG supply chain including:
  - New LNG supply source, which requires international natural gas reserves, gas processing for gas to get to pipeline specs, pipelines to a new LNG liquefaction plant
  - New natural gas pipelines from Russia
  - More LNG tankers, which are becoming short in supply
  - Regasification facilities, either FSRUs or permanent facilities
  - Gas storage so they have ability to supply peak demand periods
  - Domestic pipelines to move gas to markets
  - Local distribution pipeline systems to move to consumers
  - LNG transportation to new LNG distribution centers for supply to consumers i.e. LNG for trucking
  - End consumers having the equipment/appliances/homes to use natural gas
- As good as China's increasing natural gas consumption was in 2017 at +3.1 bcf/d YoY, its growth is being restricted due to infrastructure
- For example, China is not expected to be as tough on the coal to gas home conversions this winter to avoid insufficient gas supply last winter that led to homes with new gas furnaces but no natural gas supply



Global Long Term Gas Outlook Looks Excellent Driven By China

## Global Natural Gas Demand Has Been Accelerating Despite Need For Infrastructure Buildout

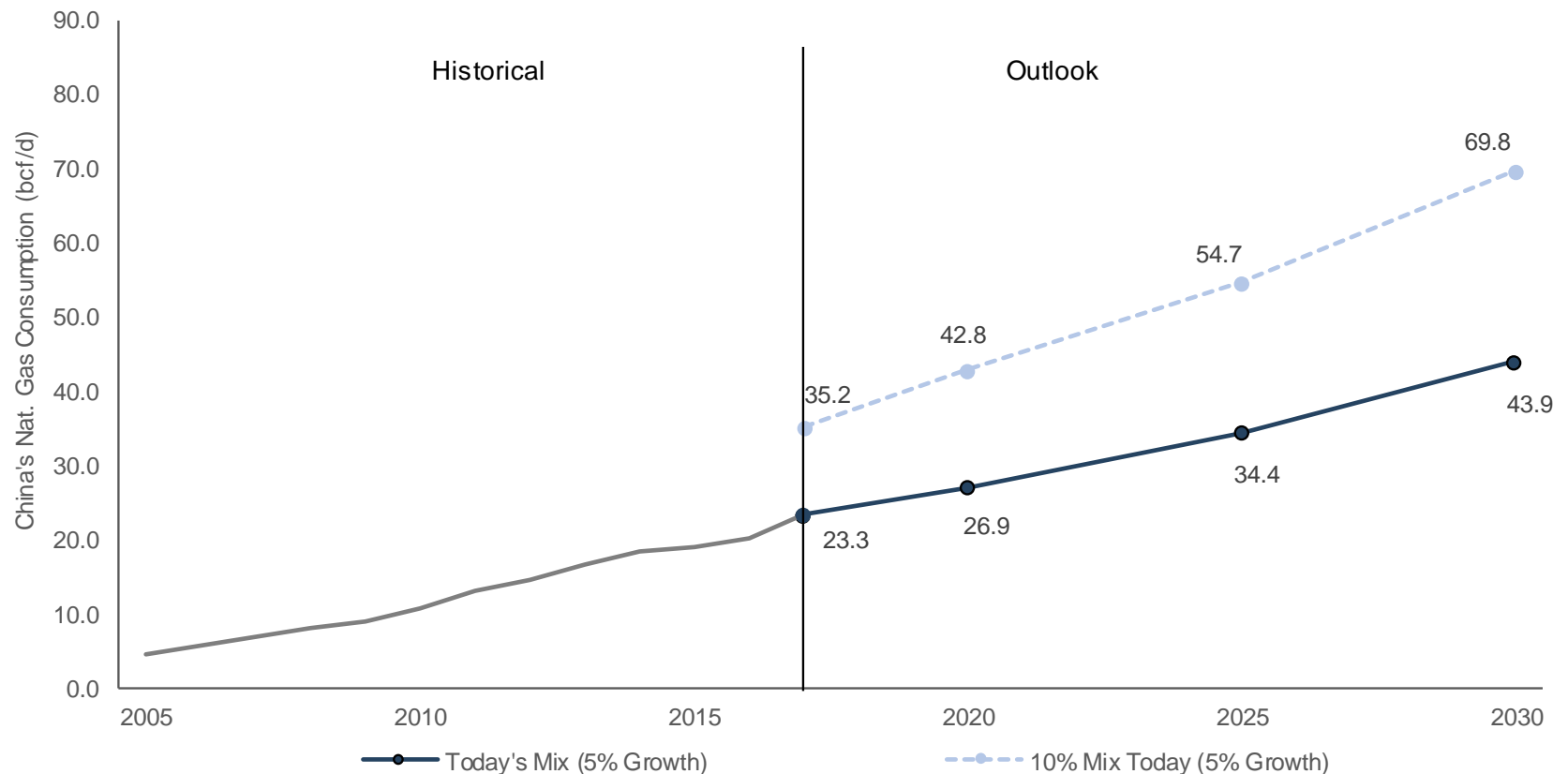
- Global natural gas consumption growth continues to accelerate, from up +6.9 bcf/d in 2015 vs 2014, to +8.8 bcf/d in 2016 vs 2015, to +10.2 bcf/d in 2017 vs 2016
- We expect larger YoY growth rates in 2018 and 2019



Source: 2018 BP Statistical Review, SAF

## China's Plan To Increase Natural Gas To 10% Of Its Energy Mix By 2020 Is A Global Game Changer

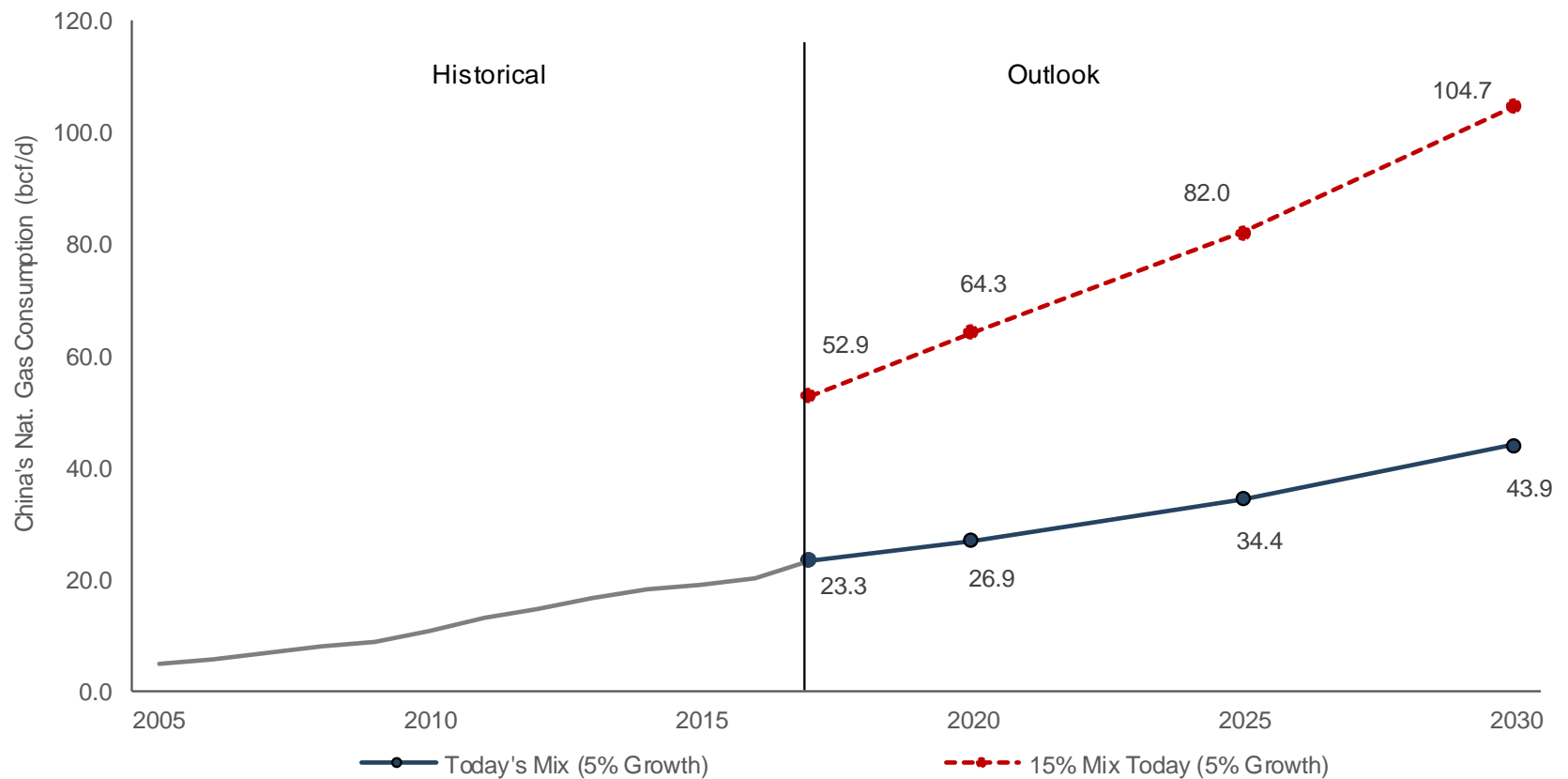
- China's natural gas consumption was up 3.1 bcf/d YoY to 23.3 bcf/d in 2017, representing 5.7% of its total energy mix
- China cannot reach its 10% target by 2020, but to do so by 2030 would see consumption increase 46.5 bcf/d or ~3.9 bcf/d per year and additional imports of approx. 3 bcf/d per year



Source: BP Amoco, SAF

## China Targets Natural Gas To Be 15% By 2030

- China's target for natural gas is to be 15% by 2030, which would require an additional 81.4 bcf/d or approx. 6.8 bcf/d per year
- Natural gas share of energy mix in 2017 was South Korea at 13.9%, Japan at 21.9%, Canada at 27.0%, and US at 28.9%

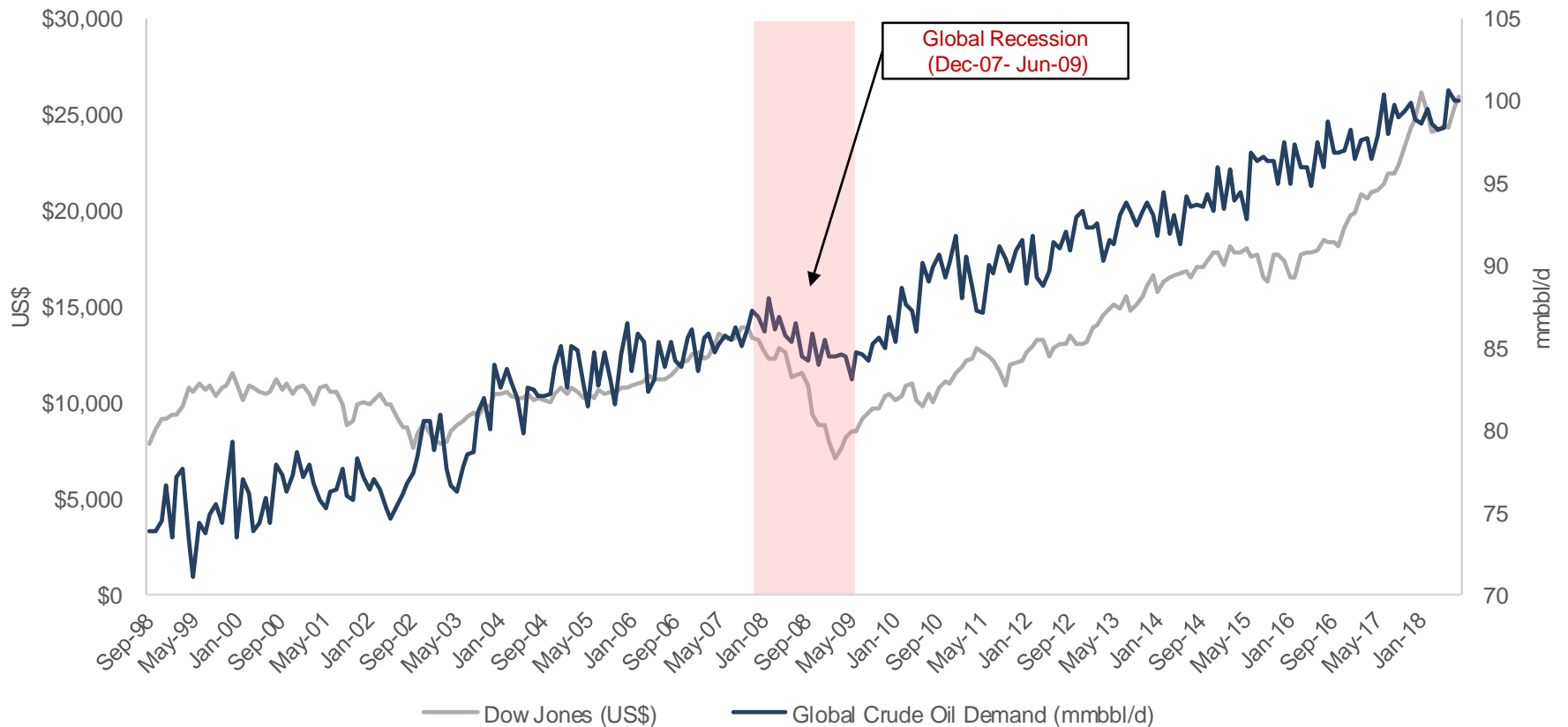


Source: BP Amoco, SAF

OPEC Not Being The Old OPEC Will Drive Long Term Oil Markets

## Oil Demand Is Relatively Resilient Absent A Global Economic Crash

- However, absent a total global economic crash similar to 2008, global oil demand growth should be >1 mmbbl/d for next several years, which is on top of the need to replace global oil declines
- We still see peak oil demand (EVs, LNG, etc.) after 2030, but global oil demand should be up another ~10 mmbbl/d to reach 110 mmbbl/d by then



Source: Bloomberg, SAF

# OPEC Is Not The Old OPEC, It Has Less Surplus Capacity

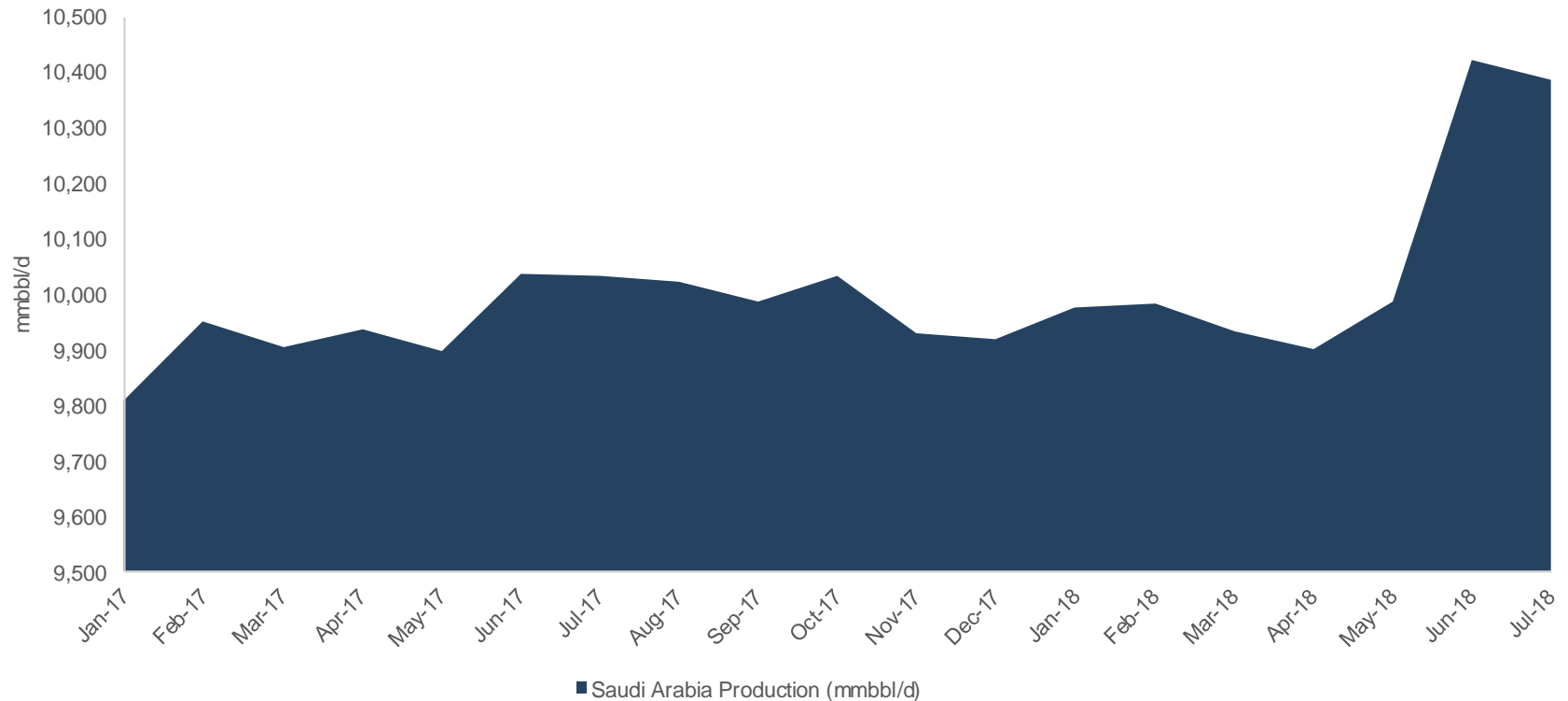
## Limited Surplus Capacity Adds Risk To Oil Spikes

mbbl/d	May	June	July	Aug	Aug Vs May
<b>Growth</b>					
Saudi Arabia	9,970	10,420	10,370	10,390	420
Iraq	4,480	4,500	4,560	4,640	160
Kuwait	2,710	2,760	2,770	2,830	120
UAE	2,870	2,890	2,960	3,040	170
<b>Total</b>	<b>20,030</b>	<b>20,570</b>	<b>20,660</b>	<b>20,900</b>	<b>870</b>
<b>Up and Down</b>					
Libya	990	690	660	970	-20
Nigeria	1,560	1,620	1,720	1,760	200
<b>Total</b>	<b>2,550</b>	<b>2,310</b>	<b>2,380</b>	<b>2,730</b>	<b>180</b>
<b>Decliners</b>					
Iran	3,810	3,780	3,740	3,500	-310
Venezuela	1,440	1,380	1,310	1,330	-110
<b>Total</b>	<b>5,250</b>	<b>5,160</b>	<b>5,050</b>	<b>4,830</b>	<b>-420</b>
<b>Others</b>					
Algeria	1,020	1,050	1,060	1,070	50
Angola	1,530	1,430	1,400	1,440	-90
Congo	330	330	330	330	0
Ecuador	520	520	520	530	10
Equatorial Guinea	120	130	120	110	-10
Gabon	180	190	180	180	0
Qatar	600	610	620	620	20
<b>Total</b>	<b>4,300</b>	<b>4,260</b>	<b>4,230</b>	<b>4,280</b>	<b>-20</b>

- OPEC is no longer a group of oil producers that each has stable oil production, spare capacity, and ability to increase/decrease oil production for an extended period
- In particular, OPEC does not have the capacity to hold down oil prices
- Limited number of growth countries have any significant surplus capacity that can be accessed quickly and maintained for an extended period
- The only significant growth countries are Saudi Arabia, Iraq, Kuwait and UAE and they have used 870,000 bbl/d of their surplus capacity
- Up and Down countries (Libya and Nigeria) have upside potential but cannot escape the ongoing domestic conflicts that hit production
- Venezuela and Iran are both countries with declining production in H2/18
- Others do not have the ability to add any significant production

## Post Trump's Call To Bring On Its 2 mmbbl/d Surplus Capacity, Saudi Has Only Added ~0.4 mmbbl/d

- The US wanted Saudi Arabia to bring on its 2 mmbbl/d surplus capacity to offset Iran's losses, but we believe Saudi Arabia likely convinced US that it could only deliver a lesser number (ie. up to ~10.8 mmbbl/d) in H2/18 to offset Iran
- We expect it could deliver another 0.4 mmbbl/d to get to or just above its prior peak of ~10.7 mmbbl/d, but the concern is that the remaining surplus capacity could take added capex and up to a year to bring on stream if needed



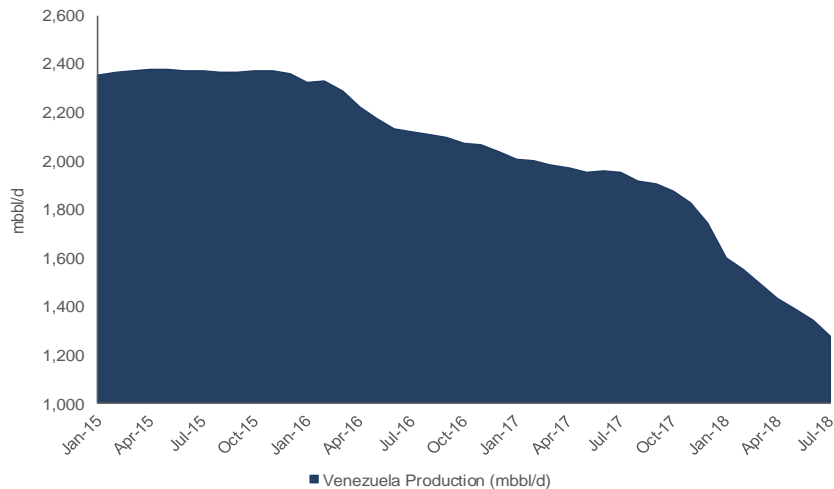
Source: OPEC, SAF



## Venezuela And Iran Oil Could Decline Another ~0.8 mmbbl/d By Year End

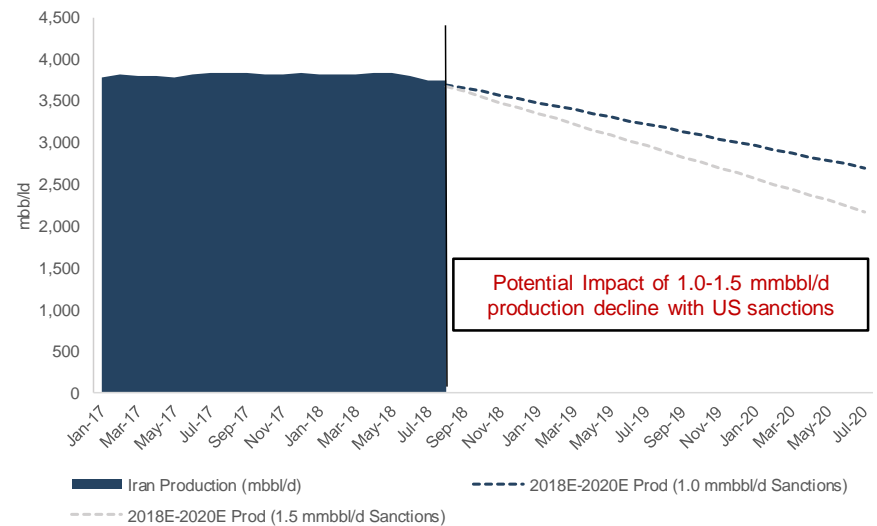
- We don't believe there is enough surplus capacity that can be brought on stream in the next few months and be sustained to offset expected near term Venezuela and Iran declines
- Venezuela was 1.235 mmbbl/d in Aug 2018 vs 1.936 mmbbl/d in Aug 2017, and expected to decline to 1 mmbbl/d by year end,
- We don't expect Iran's oil exports to go to zero, but look for Iran's oil exports to be cut ~1 mmbbl/d, which would be another 0.6 to 0.7 mmbbl/d from Aug

### Venezuelan Oil Production



Source: OPEC, SAF

### Iran Oil Production



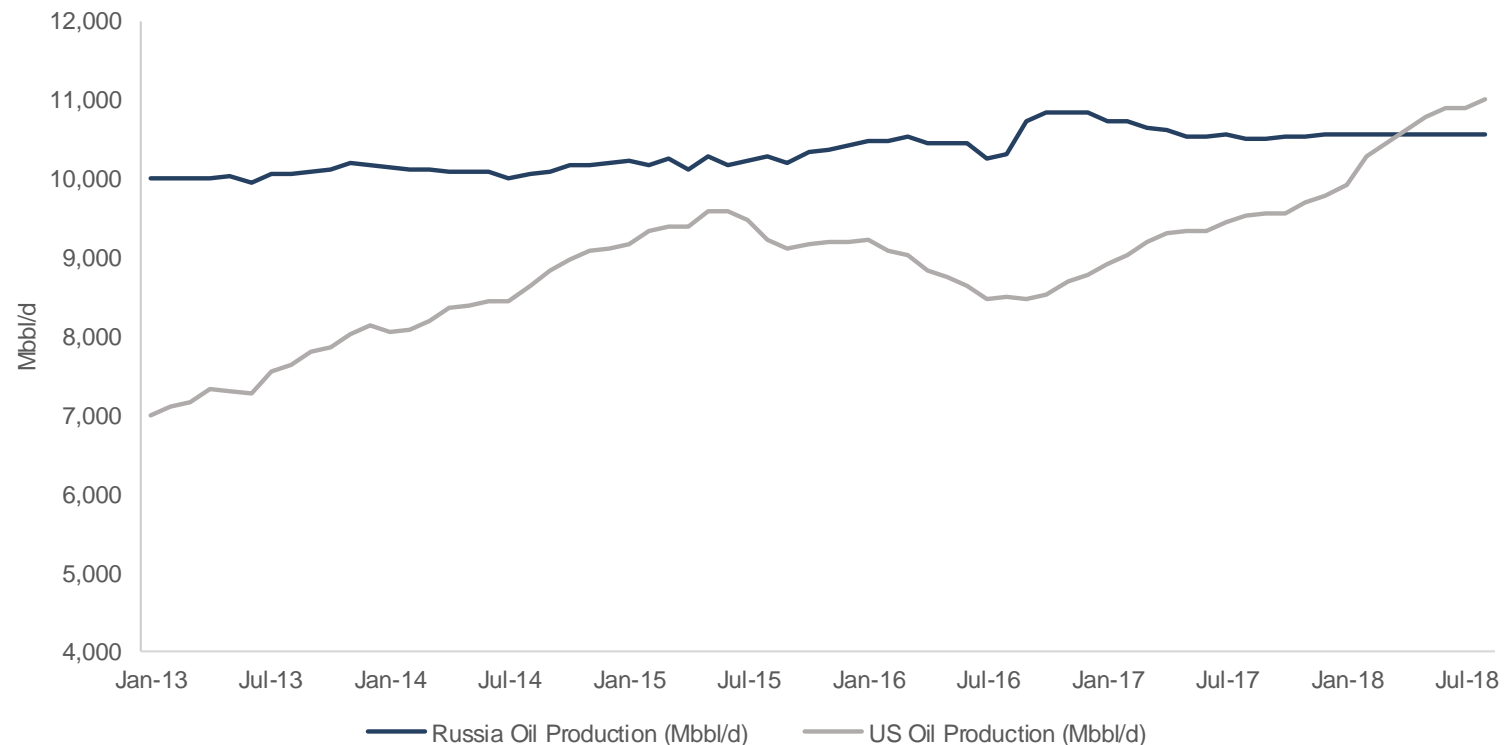
Source: OPEC, SAF

# Russia Has 300,000 bbl/d Capacity But Will Take A Year

## US Growth Will Be Strong, But Mostly Restricted Until At Least H2/19

### Russia And US Don't Have Significant Surplus Capacity To Add In H2/18

- Russia indicated they could increase oil production by 0.3 mmbbl/d, but it might take up to a year to do so ie. infers there is work to be done
- Historically, Russia oil growth potential always seems to be hit by some issue, whether it be geopolitical, sanctions, lack of international capital interest, etc
- US continues to be an excellent growth story and its rate of growth is only being held back by the need for Permian takeaway capacity
- Permian takeaway is limited until sometime in H2/19, but there are concerns that there could be delays in the new takeaway pushing the total fix until closer to year end 2019



Source: Bloomberg, SAF

## Potential Q3/19 Price Spike

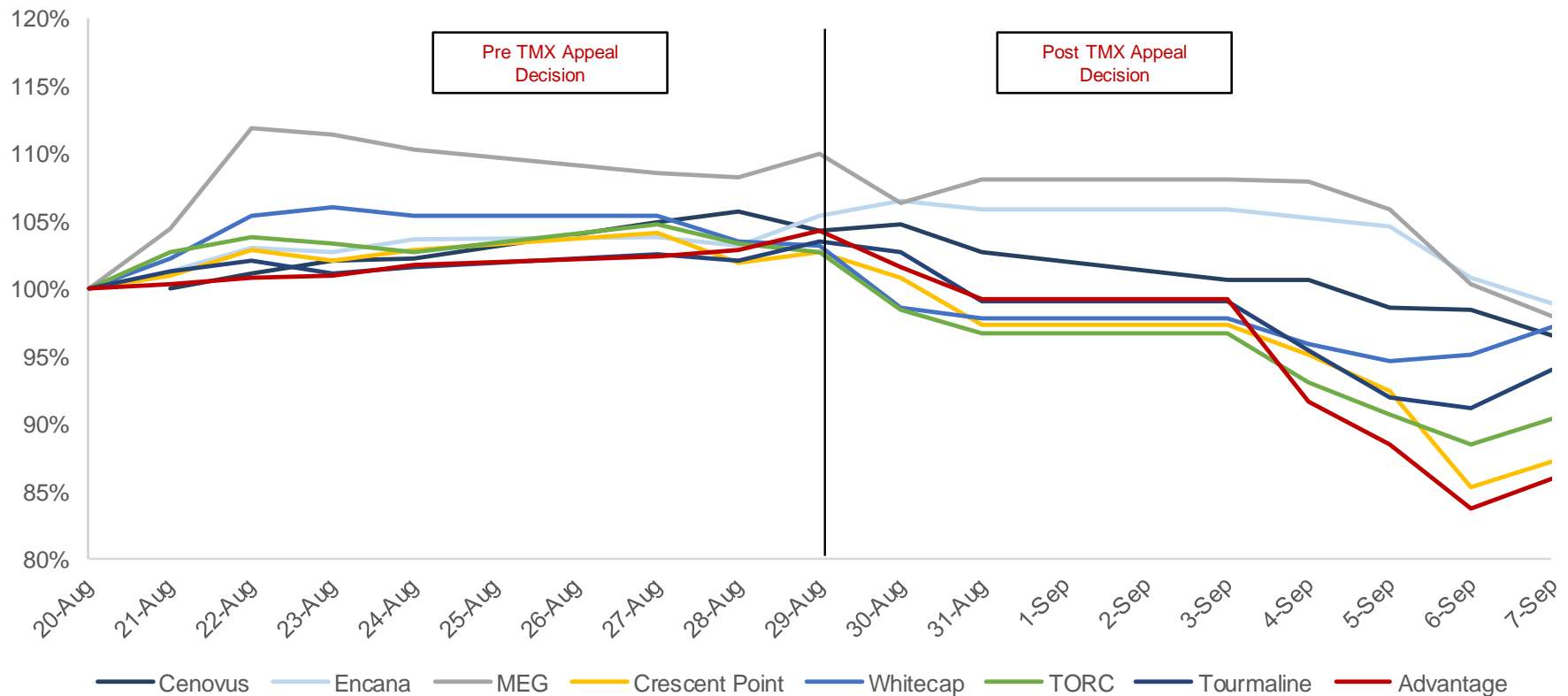
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- Global oil demand is lower seasonally every winter, which will provide a cushion this winter against the expected declines at Venezuela and Iran that could see their production reduced by ~0.8 mmbbl/d by year end 2018
- The IEA forecasts oil demand of 100.3 mmbbl/d for Q4/18, then down 1.0 mmbbl/d to 99.3 mmbbl/d in Q1/19, then up 1.2 mmbbl/d to 100.5 mmbbl/d in Q2/19, then up 0.9 mmbbl/d to 101.4 mmbbl/d in Q3/19, and then up again 0.5 mmbbl/d to 101.9 mmbbl/d in Q4/19
- Our concern is that the Iran/Venezuela declines might be overlooked/hidden until Q3/19, when demand is up 2.1 mmbbl/d from Q1/19 demand. This points to the potential for price spikes in Q3/19 (possibly Q2/19) once low winter oil demand is finished
- Assuming Permian oil takeaway is completed on time, US oil supply is forecast to be up 410,000 bbl/d in Q3/19 vs Q4/18
- Saudi Arabia likely has 0.3 to 0.4 mmbbl/d of near term capacity adds, but Russia's surplus 0.3 mmbbl/d and the balance of Saudi Arabia's surplus capacity requires time and capital to bring on stream, and they would have to get going right now to impact Q3/19 and there are no indications they are doing so
- And if there are any delays to Permian oil takeaway timing (as more are starting to fear) that impact the timing of US oil supply growth in Q3/19, the potential for price spikes up in Q3/19 (possibly late Q2/19) will be higher

## Canadian Oil & Gas Holdback From Policy, Structural And Seasonal Issues

## Capital Providers Are Re-Evaluating Risk For Major Cdn Oil And Gas Projects

- The Federal Court of Appeals ruling against a regulatory approved project has, at a minimum caused a re-evaluation of risk
- Markets immediately added perceived risk to any potential large Cdn oil and gas project execution



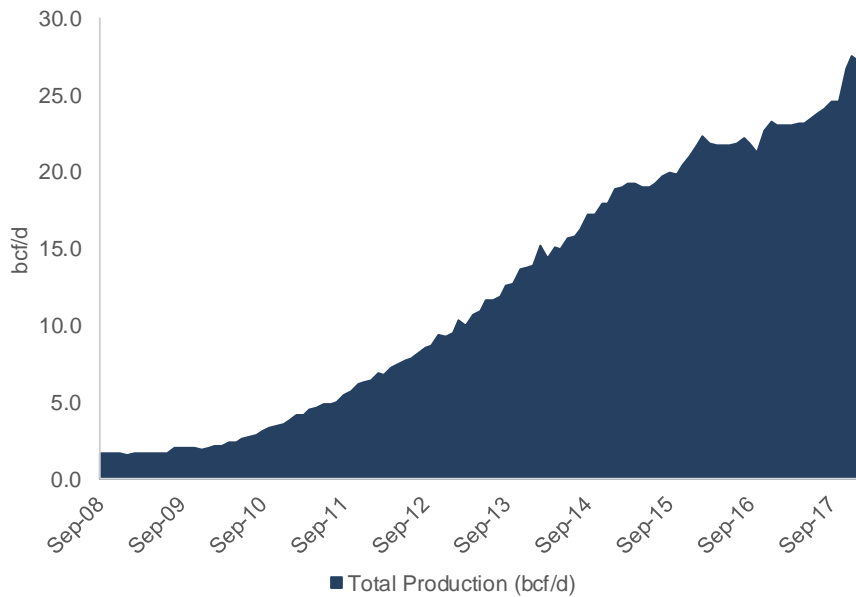
Source: Bloomberg, SAF

## Canadian Natural Gas Holdback Is Structural With Increasing Seasonal Issues

## Biggest Negative To Canada Is The Huge Marcellus Success

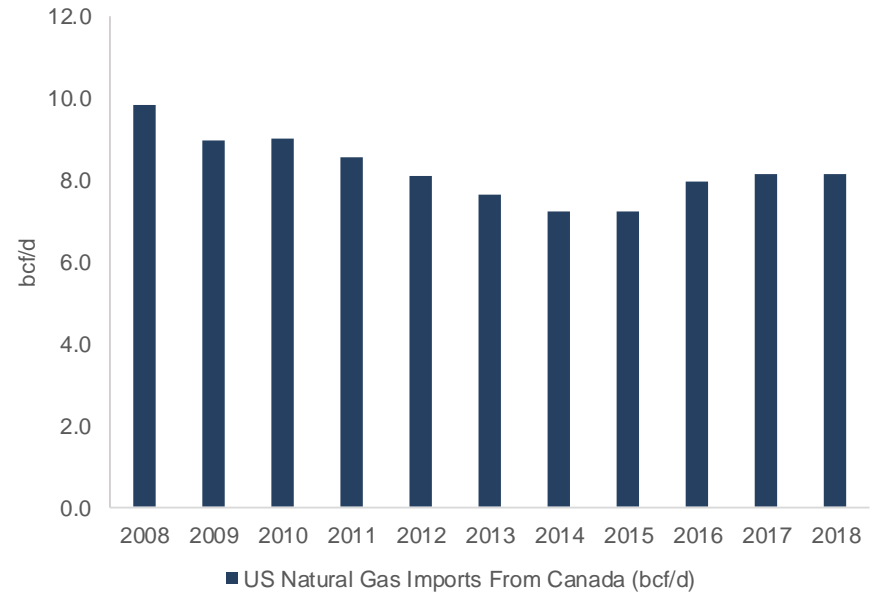
- Marcellus growth has been spectacular forcing out Cdn natural gas in US and Eastern Canada markets
- The other negative is huge Montney success means increased Cdn gas supply despite low Cdn spot prices

### Marcellus Natural Gas Production



Source: EIA , SAF

### US Natural Gas Net Imports From Canada

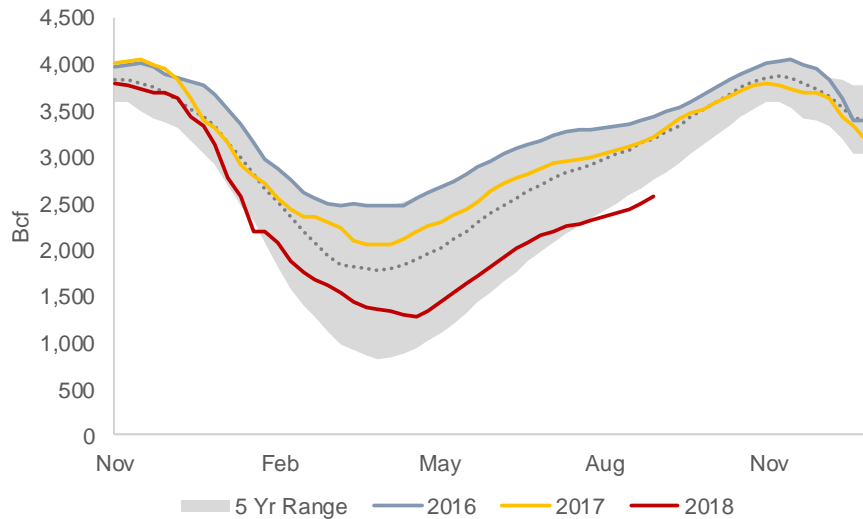


Source: EIA , SAF

## Cdn Gas Is Pipeline Connected With More Gas Evolving To A Storage Like Role For the US

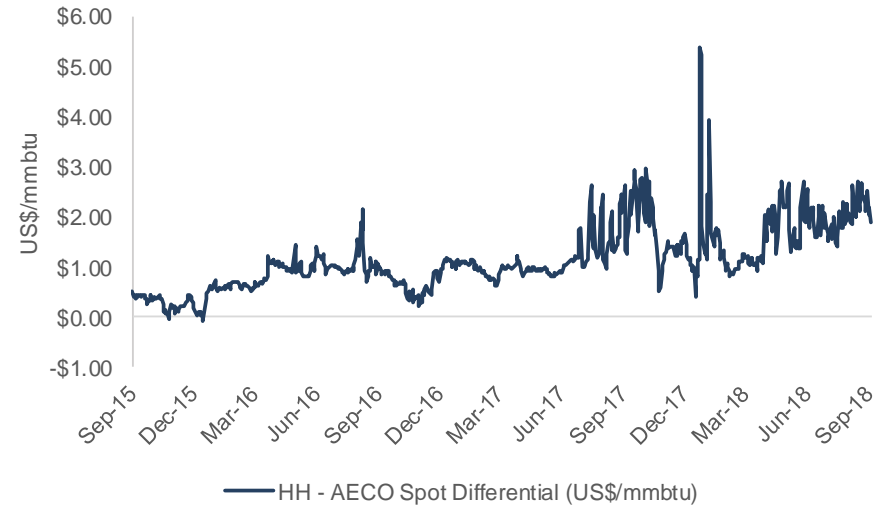
- There is increasing risk to differentials the more the US grows its natural gas reducing Cdn net import needs other than peak times
- The reducing base load means that a greater portion of Cdn gas, being pipeline connected, will evolve into a storage like role to the US , which will increase seasonal differentials risk
- The EIA forecasts US storage will be ~500 bcf lower YoY on Nov 1/18, yet Cdn differentials are widening going into the winter

### US Natural Gas Storage



Source: EIA, SAF

### Cdn Gas Differential



Source: Bloomberg, SAF



## LNG Canada FID Could Provide Visibility To Several Years Of Growth

- Phase 1 is ~1.7 bcf/d, reaching ~3.4 bcf/d post Phase 2 vs Western Canada 2017 gas production of ~18 bcf/d and prior peak 19.7 bcf/d in 2006
- We still believe LNG Canada will go FID and could do so prior to Nov 1

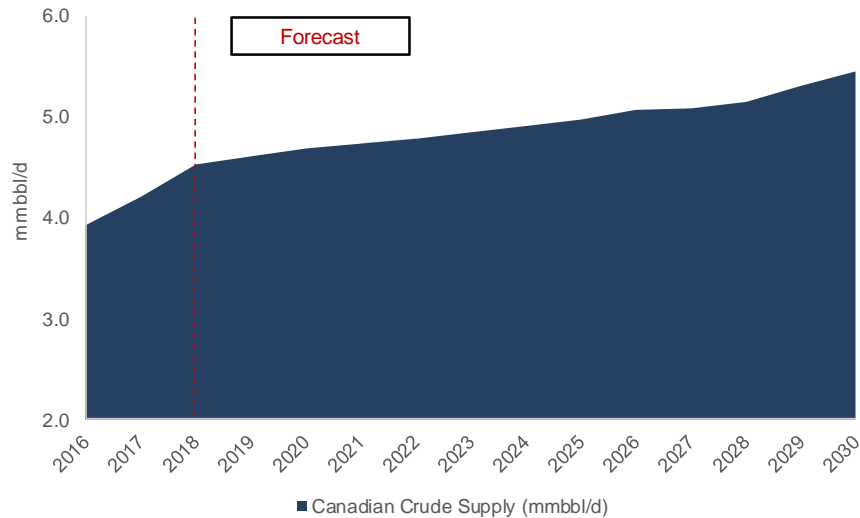


Canadian Oil Outlook Looks Significantly Better Than Expectations

## Canada's Oil Growth Story Has Been Excellent Over the Past Five Years

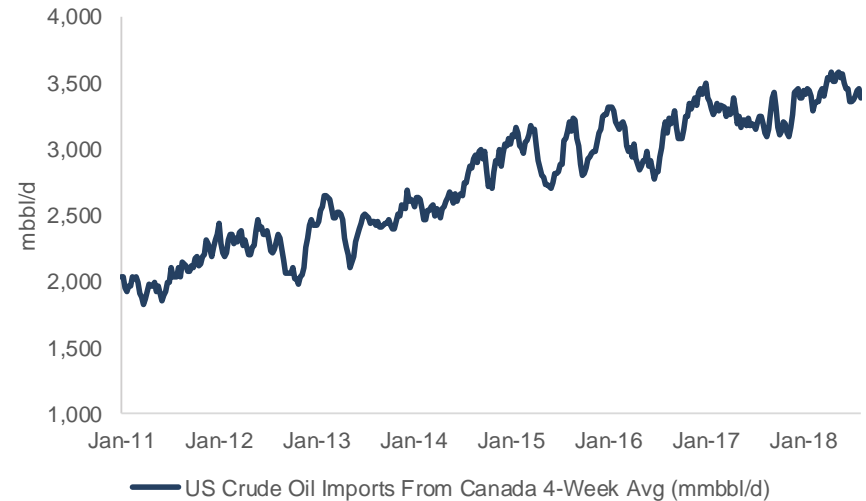
- Canada's oil exports to the US increased by 1 million bbl/d in the last 5 years
- The strong production and export growth is why egress filled up quickly

### Cdn Oil Growth



Source: CAPP, SAF

### US Oil Imports from Canada



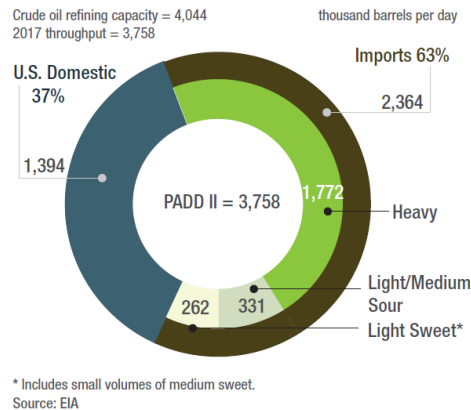
Source: EIA, SAF

## Light Oil Diffs Widened In Sept With Padd 2 Refinery Turnarounds

- Canada's primary export market is pipeline connected to PADD II (US Midwest) with up to ~2.7 million bbl/d. Differentials will get hit with PADD II refinery turnarounds, especially unplanned, as seen in Sept
- Cdn light oil and condensate have been strong for most of 2018 linking indirectly to global oil prices

## US PADD II Crude Oil Supp

**Figure 3.3 2017 PADD II Crude Oil Supply: Domestic and Imports**



Source: EIA , SAF

## Cdn Light Oil Differential



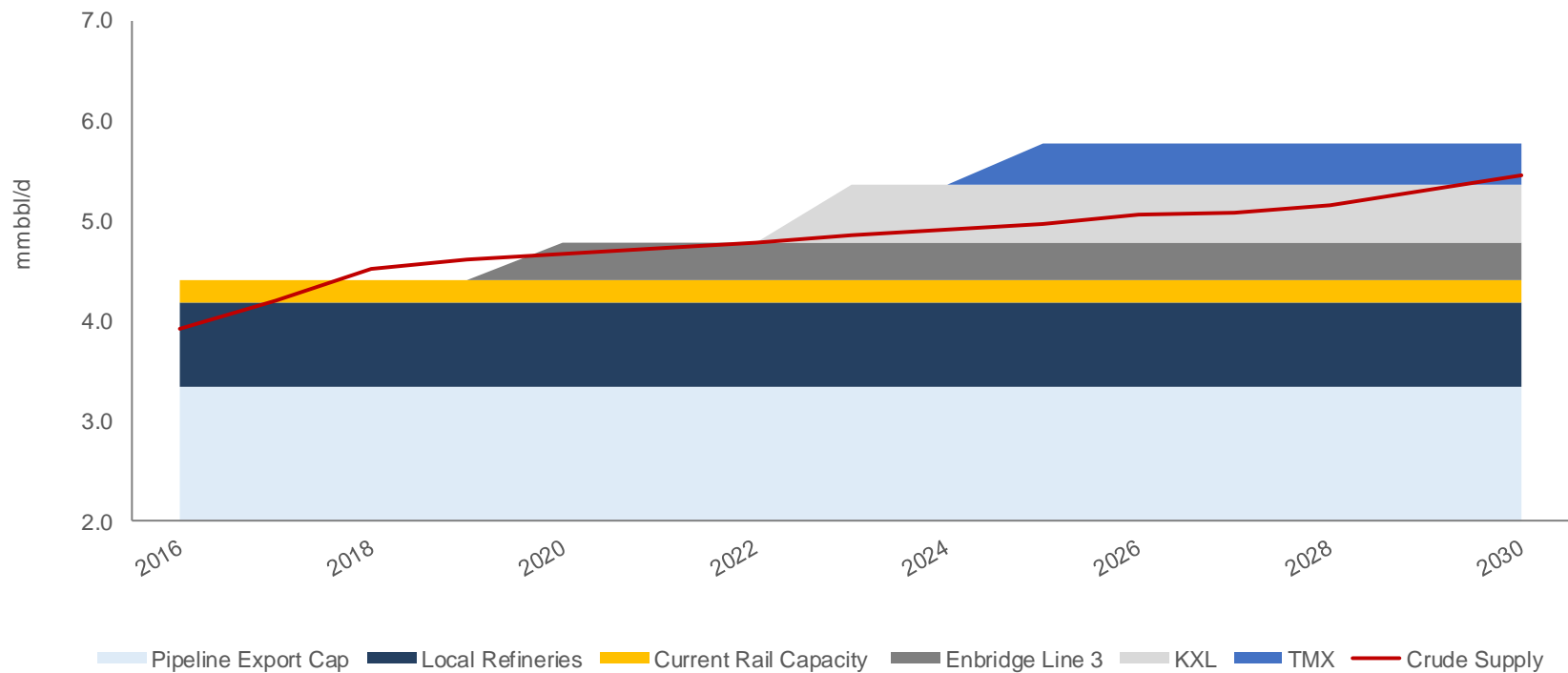
Source: Bloomberg , SAF

# Market Expects Added Oil Egress of 375,000 bbl/d in 2020

## Then Nothing Significant Until Keystone XL and Trans Mountain

### Enbridge's Line 3 Replacement To Add 375,000 bbl/d In Late 2019 Is Believed To Be The Only Near Term Relief

- Keystone XL 830,000 bbl/d is expected to be in service around 2022
- Trans Mountain 590,000 bbl/d expansion timing is uncertain, but not expected now before 2023

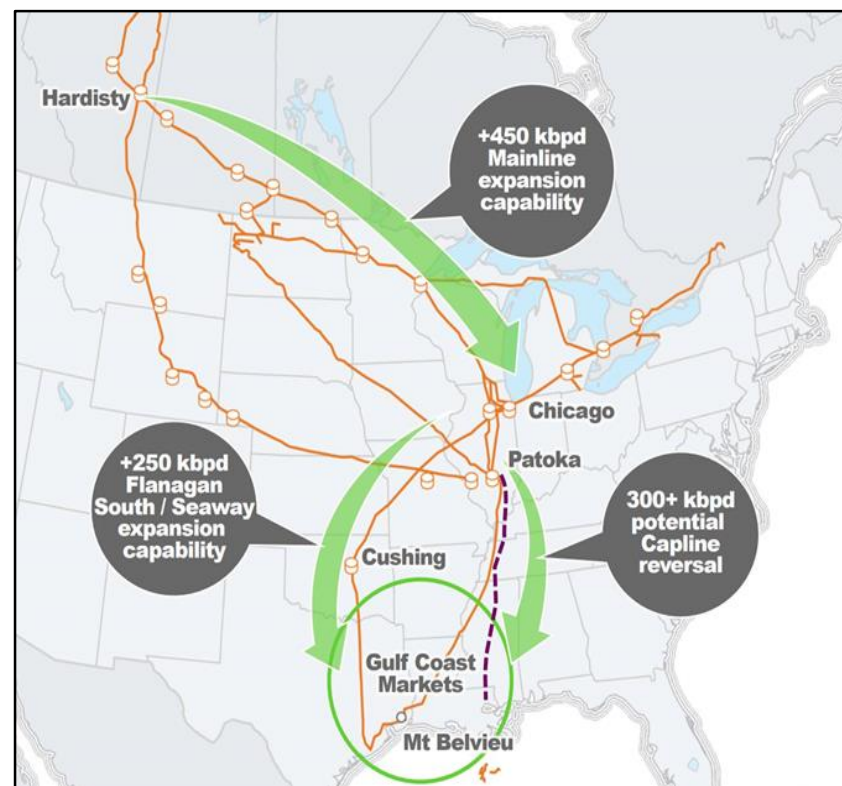


Source: CAPP, SAF

## For Some Reason, Enbridge’s “Other” Capacity Additions Projects Are Being Ignored

- Enbridge’s public disclosure of “Other” projects lists “total unsecured incremental capacity” of 450,000 bbl/d in the next few years
- Our high probability scenario (drag reducing agents, currently available Bakken Expansion Program capacity, Line 13 reversal) would add 325,000 bbl/d of incremental capacity around 2020 from these “Other” projects

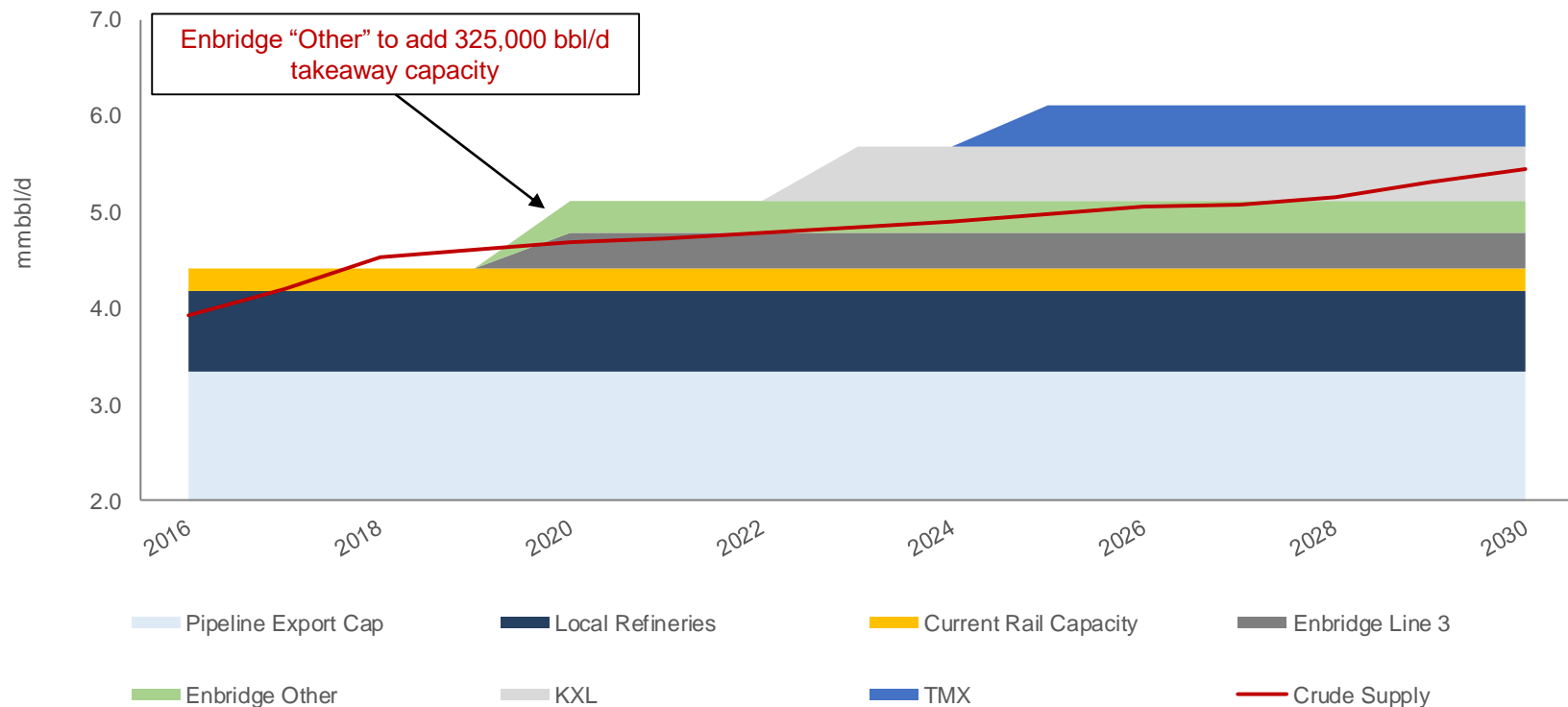
Enbridge Mainline Expansion Opportunities	
Proposed	Capacity (bbl/d)
<b>Incremental Capacity 2019</b>	
System DRA Optimization	75,000
BEP Idle*	100,000
<b>Incremental Capacity 2019+</b>	
System Station Upgrades	100,000
Line 4 Capacity Restoration	25,000
Line 13 Reversal	150,000
<b>Total Unsecured Incremental Capacity</b>	<b>450,000</b>



Source: Enbridge Investor Presentation , SAF

## We believe Canada's added oil egress could be 700,000 bbl/d In 2020, Not 375,000 bbl/d

- Enbridge Line 3 and Enbridge "Other" Projects could realistically add 700,000 bbl/d of added oil egress around 2020
- This is a game changer and why we are bullish on Cdn light oil outlook for at least the next five years



Source: Enbridge Investor Presentation, SAF

## **Additional Cdn Oil Egress Could Be 700,000 bbl/d In 2020 Vs Current Expectations Of 375,000 bbl/d**

- Global oil and natural gas prices have been very strong
- The long term outlook for prices should continue for the long term as it will take a decade or more for energy transitions such as ICE vehicles to EV to have any significant impact on energy supply chains in the next several years
- Its all about connecting to these global oil and gas prices and infrastructure is the key
- An even stronger long term outlook for natural gas has China as the driving force
- A continued strong outlook for oil is supported by OPEC no longer having the surplus capacity needed to hold down prices
- Cdn oil and gas is, to the most part, not sharing the global strength from a combination of policy, seasonal and structural issues
- Trans Mountain's ruling loss has increased the perceived risk for policy and environmental issues
- The outlook for Cdn gas continues to be challenged. The huge Marcellus success will more than offset any NGTL capacity additions and accelerated the need for a lasting fix that has to come from LNG Canada
- The Cdn oil outlook looks significantly better than expected as the structural fix is way sooner than expected. We see the potential to add 700,000 bbl/d of oil egress capacity around 2020 almost double current expectations of 375,000 bbl/d



**Contact Information:**

**Ryan Dunfield, President and Managing Principal**

P: 403 984-1942

E: [rdunfield@streamasset.ca](mailto:rdunfield@streamasset.ca)

**Dan Tsubouchi, Principal and Chief Market Strategist**

P: 587 393-0771

E: [dtsubouchi@streamasset.ca](mailto:dtsubouchi@streamasset.ca)