NORTH AMERICAN OIL AND GAS PRICE FORECAST TO 2030

JULY 2021

INTRODUCTION

The Incorrys Enterprise Subscription Service provides subscribers with timely insight, opinions, advice and outlooks with regards to Oil, NGL, and Natural Gas fundamentals. Subscribers rely on Incorrys forward insight to better understand issues impacting energy markets in making strategic plans and pivotal decisions.

The following is Incorrys July 2021 monthly report, *North American Oil and Gas Price Forecast to 2030*. This analysis will review overall fundamentals and associated price forecast for:

- Oil price Hubs: West Texas Intermediate (WTI) and Western Canada Select (WCS)
- Natural Gas Hubs: Henry Hub and AECO-NIT

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SUMMARY

- Uncertainty in 2020 commodity markets saw Henry Hub pricing fall largely due Covid's impact leading to lower-than-expected LNG exports with exports falling to 3.1 Bcf/d in September 2020 from 8.0 Bcf/d in January 2020. Lower than expected commodity prices led to underinvestment and large drops in rig counts.
- 2021 has seen LNG exports recover and grow however, natural gas rig counts have been slow to recover with producers prioritizing Covid induced debt repayment to incremental CAPEX deployment.
- Heading into 2023, Incorrys expects supply to begin to recover and normalized weather to result in a more balanced market at lower Henry Hub pricing.
- Potential for increased market volatility to be imported from Asian and European natural gas markets as the North American storage markets are utilized by growing LNG exports.

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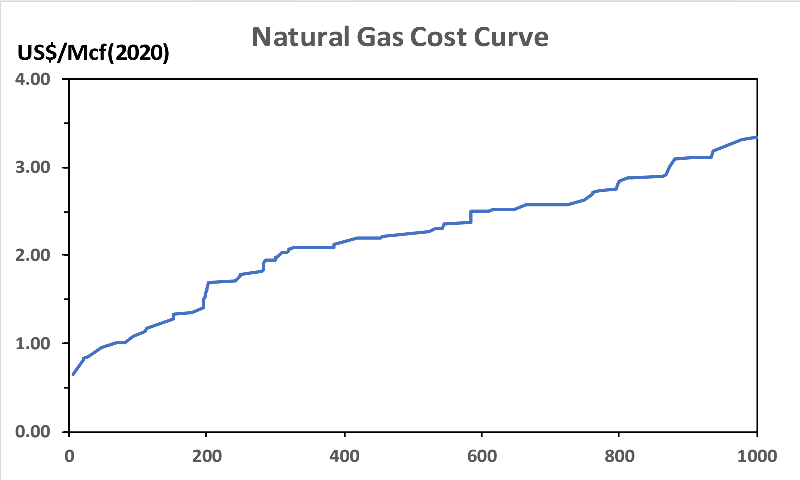
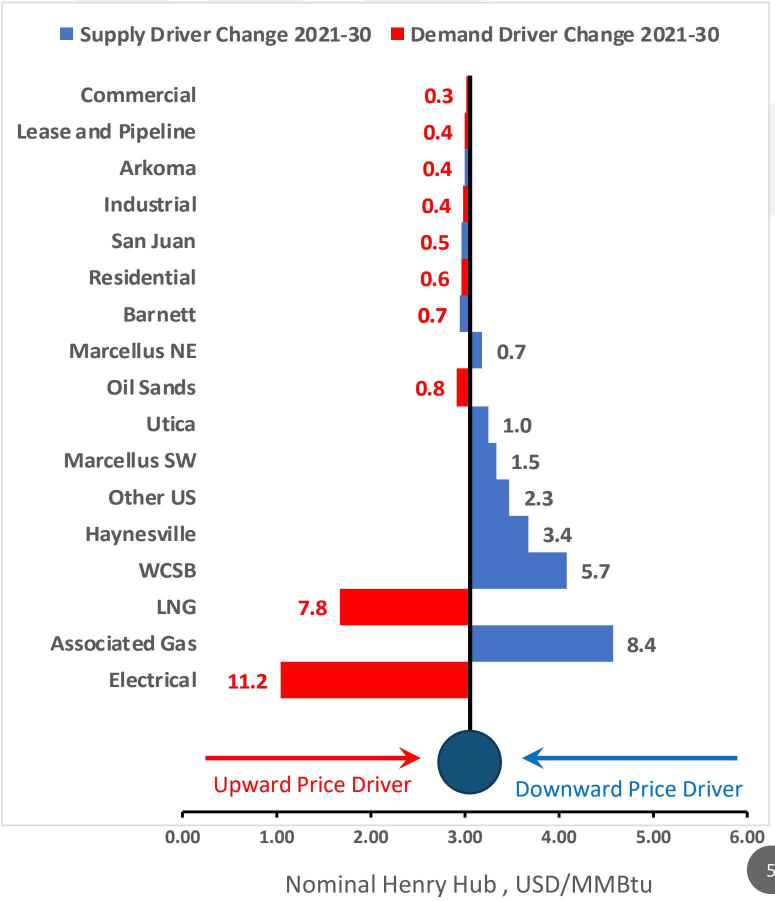
NORTH AMERICA PRICE FORECAST METHODOLOGY

- Lower cost supply is generally developed and produced first. High-cost supplies is sequenced in as lower-cost resources are depleted.
- Gas costs are ascertained by analysis and development of a understanding of:
  - Well Initial Productivities (IPs)
  - Estimated Ultimate Resources (EURs)
  - Composition variation of resource within plays – Oil, NGL, and natural gas content
- Detailed polygonal mapping is produced with well densities assumptions providing drilling inventories at various cost levels.
- This provides a resource cost curve for North America.



HENRY HUB NATURAL GAS INFLUENCES

- Incorrys believes Henry Hub natural gas prices will vary between USD 2.80 and 3.85/MMBtu during the 2021-2030 time period.
- Change in supply and demand fundamental drivers are shown on the chart during the 2021-30 time period.
- All things being equal, increasing demand or decreasing supply will have an upward influence on price and decreasing demand or increasing supply will have an downward influence on price.
- Top factors influencing pricing over 2021-2030:
  - Natural gas required for Electrical sector and LNG exports.
  - Production growth from Associated Gas basins (primarily Permian and Bakken), Western Canada supply basin (Montney) and Haynesville Shale.



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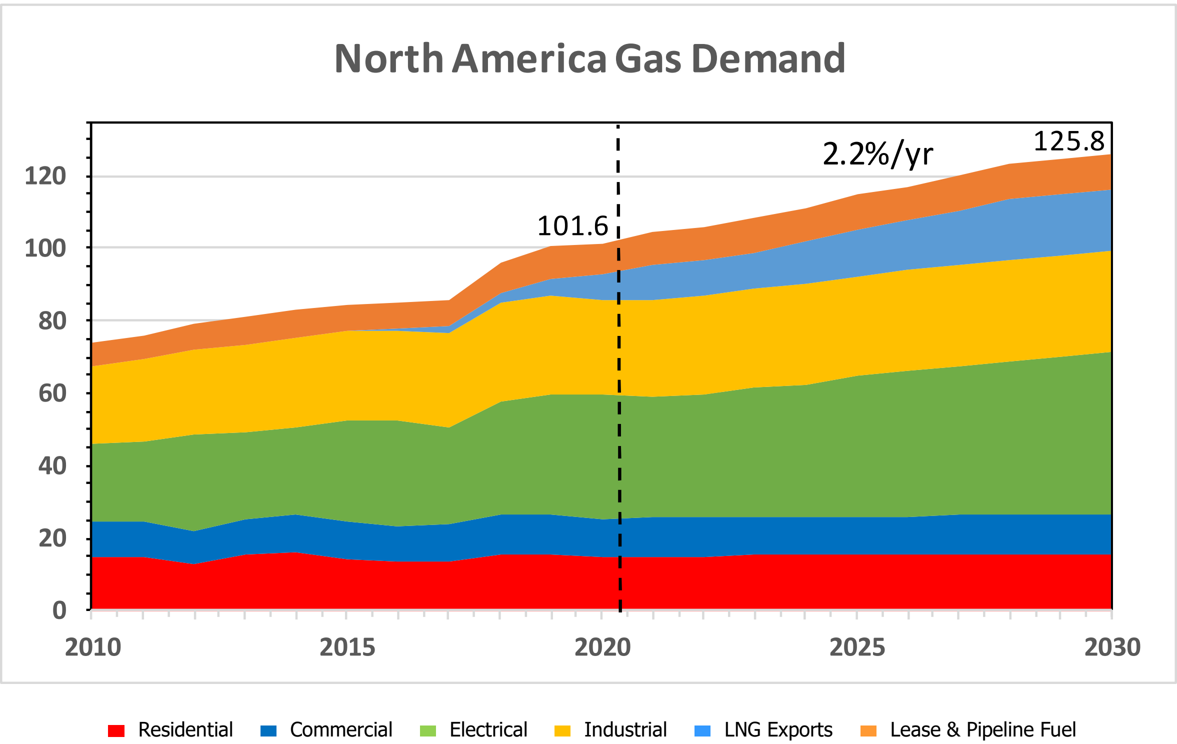
NORTH AMERICAN GAS DEMAND TO 2030



Natural Gas Demand Drivers

- LNG Exports are the largest growth driver for North American gas Demand. Build out continues in the Gulf Coast with an additional 5.3 Bcf/d of capacity by 2030 and completion of the LNG Canada four train 3.4 Bcf/d project moves exports to 16.2 Bcf/d by 2030
- Continued retirement/closing of Coal-fired power drives Gas-fired demand growth at 3.4%/year during the forecast and Renewable sources at 5.5%/year.
- US overall power emissions are reduced to 42% below 2005 levels.
- Electric Vehicles (33MM by 2030) are expected to drive overall power demand growth of 0.3%/year.

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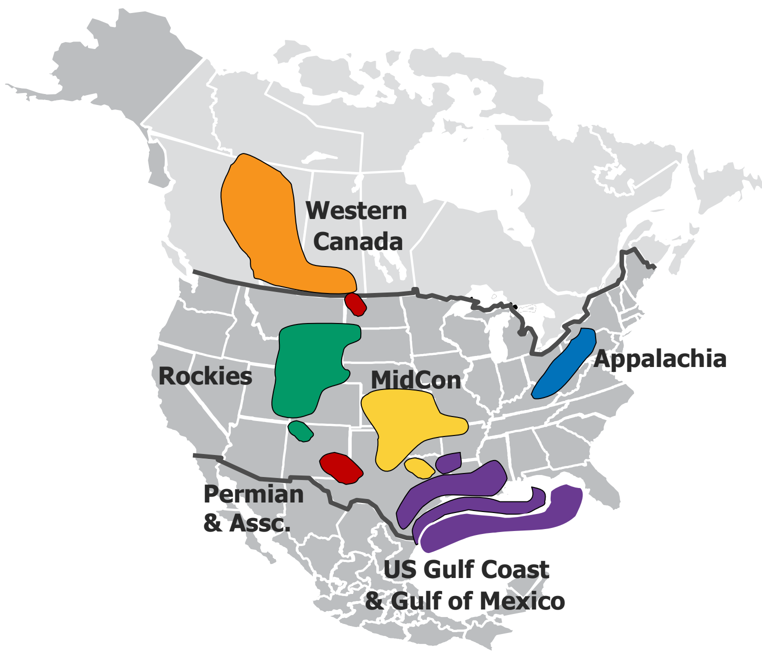
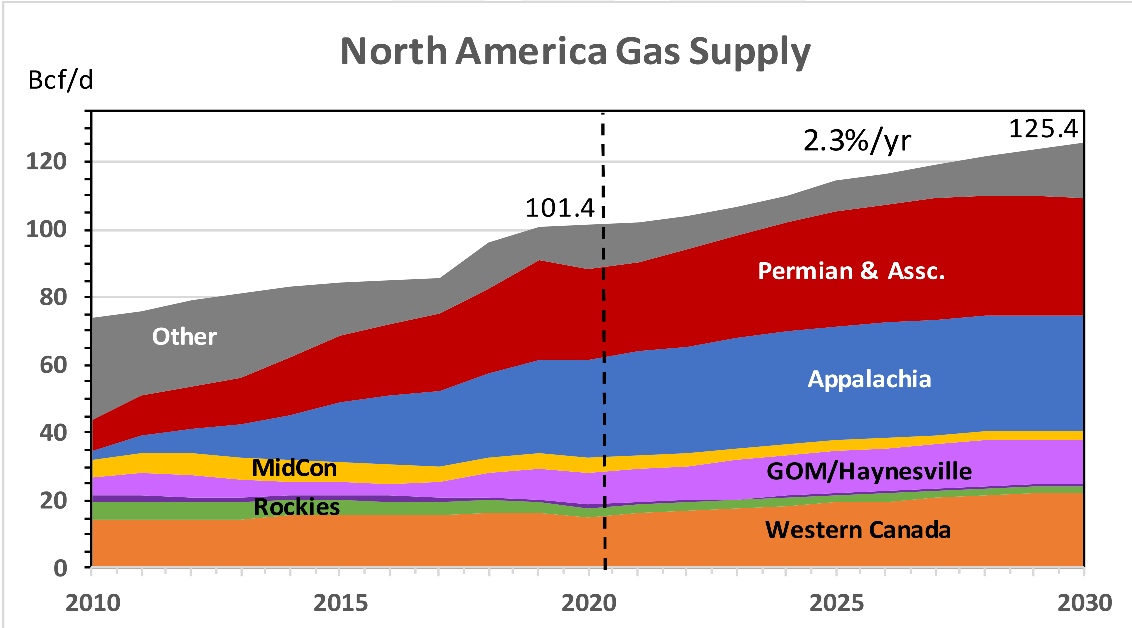
NORTH AMERICAN GAS PRODUCTION TO 2030





Natural Gas Supply Drivers

- Appalachia and Associated total share of North American production is expected to reach 55% in 2030, up 20% from share in 2010.
- Driven by LNG export capacity growth, Western Canada and Haynesville are both expected to be the fastest growing basins over the next decade at 3.4%/year.

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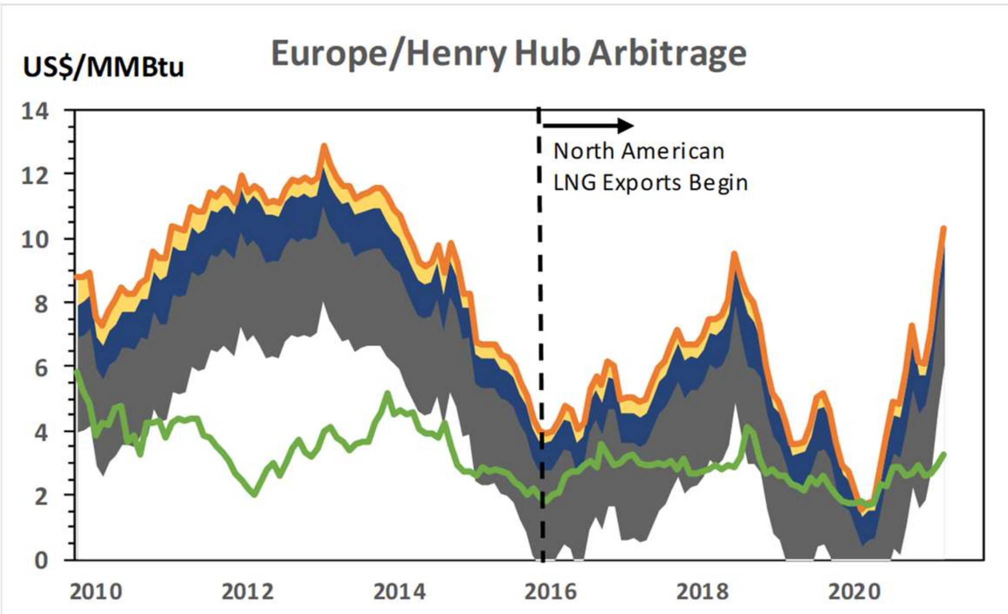
WORLDWIDE LNG IMPACTING HENRY HUB



Variable Cost: 15% of Henry Hub; Maritime Ship + Regas

Sunk Cost: $3 Liquefaction Toll

HenryHub

European (TTF)

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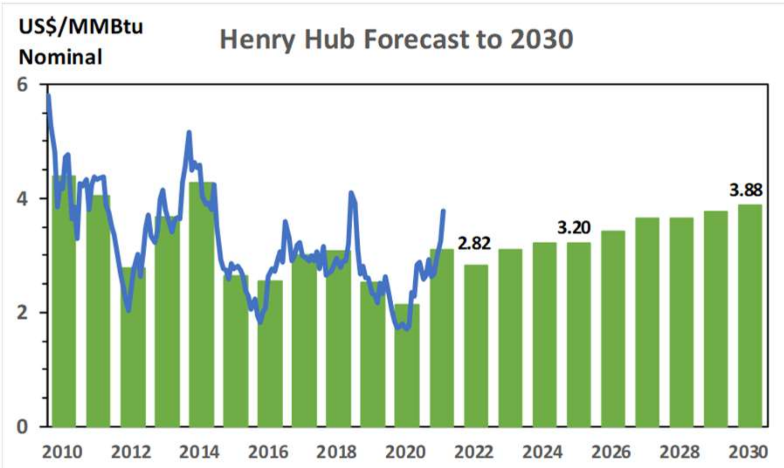
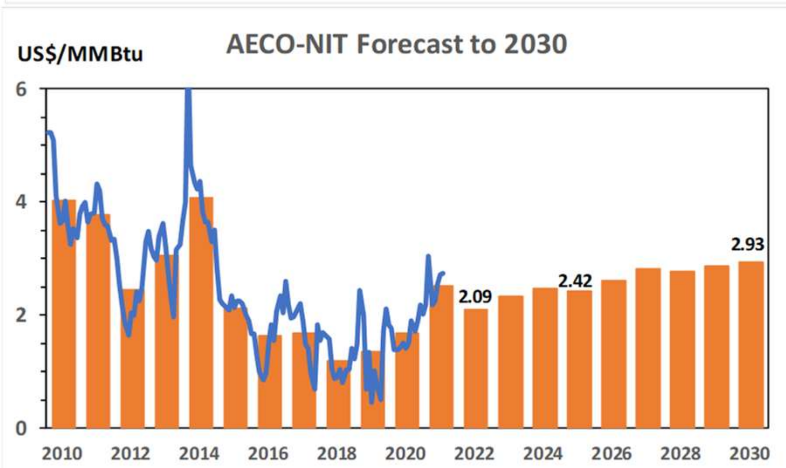
LNG Export Demand Drivers

- Figure shows European (TTF) versus Henry Hub pricing over the past decade. In the first half of the decade European pricing was well in excess of North American pricing, even considering cost of Liquefaction and shipping – this drove the development of liquefaction capacity with Sabine Pass starting exports in 2016.
- Most worldwide liquefaction projects do not have alternative markets for gas production. North America is a large integrated market with well functioning price and storage hubs providing the ability to balance supply and demand from overseas markets.
- Since 2016, the European-Henry Hub pricing spreads have been wide enough to cover Variable costs (15% of Henry Hub liquefaction plant gate charge, maritime shipping, and regasification charge) with the exception of summer 2019 and Covid impacted 2020.
- Spreads have recently widened enough to fully cover the costs to Europe (variable plus the sunk cost - take-or-pay liquefaction toll).
- Incorrys expects 9.5 Bcf/d of LNG Exports in 2021, up 3 Bcf/d from 2020 levels. As this grows to 17 Bcf/d in 2030, swings in overseas supply and demand will increase volatility at Henry Hub.

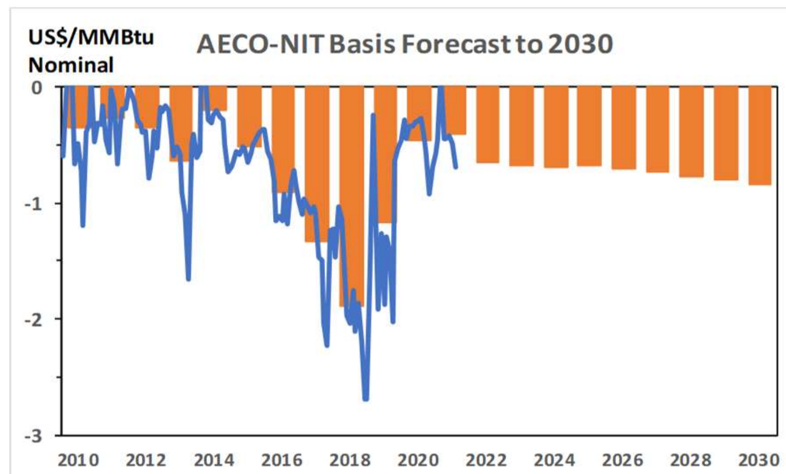
HENRY HUB PRICE AND AECO-NIT BASIS





AECO-NIT Basis Drivers

- Recovery in 2022 from: low 2020 Covid pricing and low 2020/21 CAPEX spending; brings increased Western Canadian production - *widening basis*.
- Canada LNG start-up in 2025 brings increased LNG exports off Canada's west coast - *stabilizes basis*.
- Increasing Canadian Carbon pricing throughout the forecast is a driver for *widening basis*.



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MAJOR FORECAST ASSUMPTIONS

WEATHER AND GAS DEMAND

- Residential and Commercial (Core) sectors are gas price inelastic.
- Core demand is more correlated with thermal variance. Incorrys forecasts are normalized for heating degree days (HDD) based on ten year historical average.
- Electrical power generation is strongly influenced by gross domestic product (GDP) growth.
- Industrial demand is elastic, correlated to natural gas pricing. Industrial sector demand benefits from lower gas prices and erodes with higher prices.

- The June 2021 Federal Reserve Minutes project a long run inflation of 2.0%/year. Canadian monetary policy has an inflation control target range of 1-3% for consumer price index. Incorrys has used a 2.2% inflation rate to escalate 2021 dollars.
- GDP provides a measure of economic output. From 2010-2019 (2020 has been omitted due to COVID) yearly GDP has averaged 2.3% in the US and 2.2% in Canada. Incorrys has assumed real GDP growth of 2.2%/year.

INFLATION AND GDP

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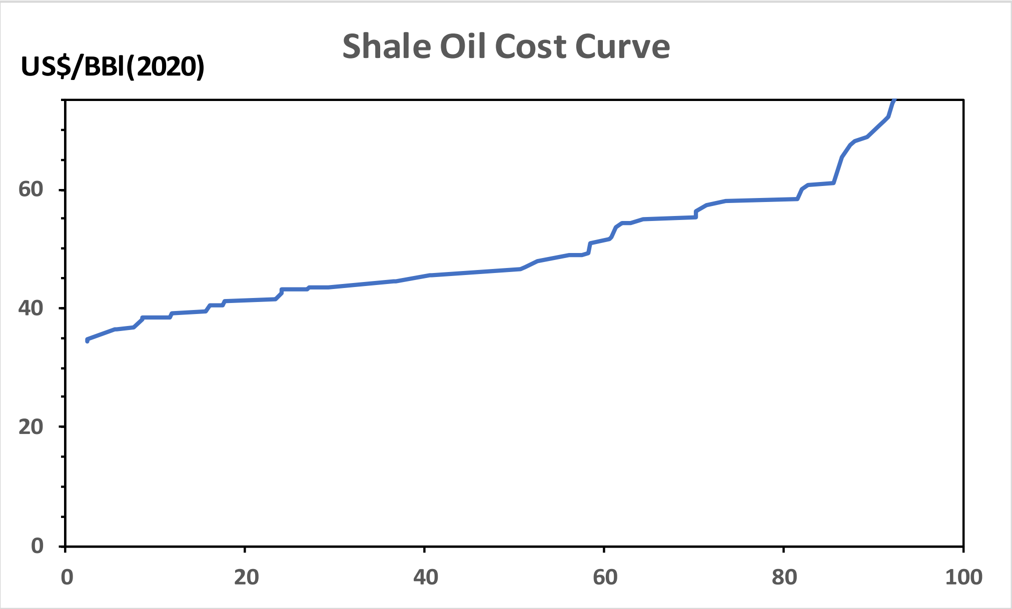
WTI FORECAST ASSUMPTIONS



- Incorrys has utilized similar full-cycle natural gas methodology to construct a shale oil cost curve of the largest North American plays (Permian (Spraberry, Wolfcamp), Bakken, and Eagle Ford.
- About 64 Billion Bbls of yet to be developed unconventional shale oil resources are available with a full-cycle cost less than US$55/Bbl. Long-term, prices in excess of US$55/Bbl (real 2020) will spur drilling and production growth, tempering oil price upside.
- Excess debt due to COVID induced oil price crash has limited the current priority of producers to reinvest and grow production in the near term.
- Incorrys expects reduction of balance sheet debt to trump growth investment until post 2022, allowing near term oil prices in excess of US$55/Bbl.
- Growth investment requires more than increasing rig count.
    - Development in pipeline infrastructure for both incremental oil and associated natural gas volumes, utilities, water handling are all required and take time to bring into service.

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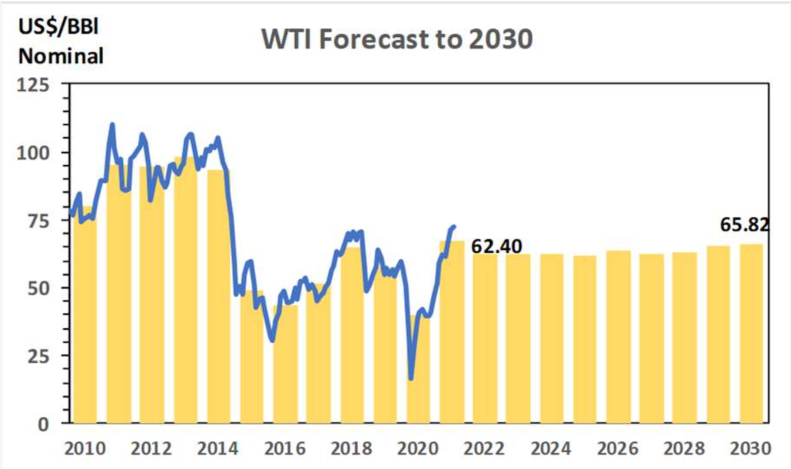
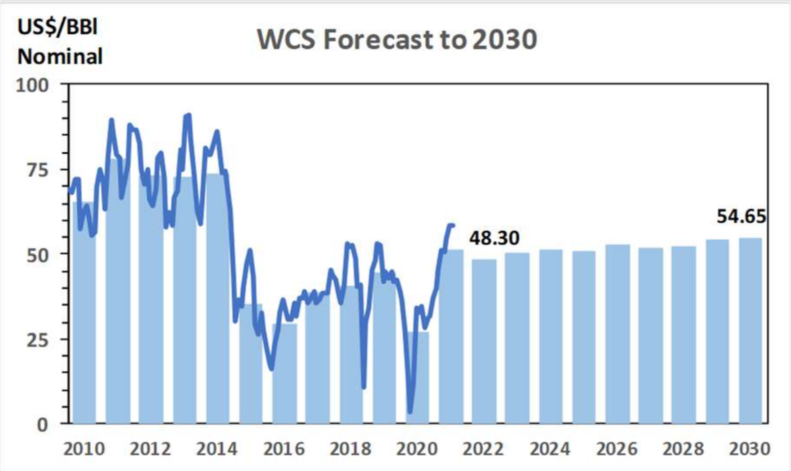
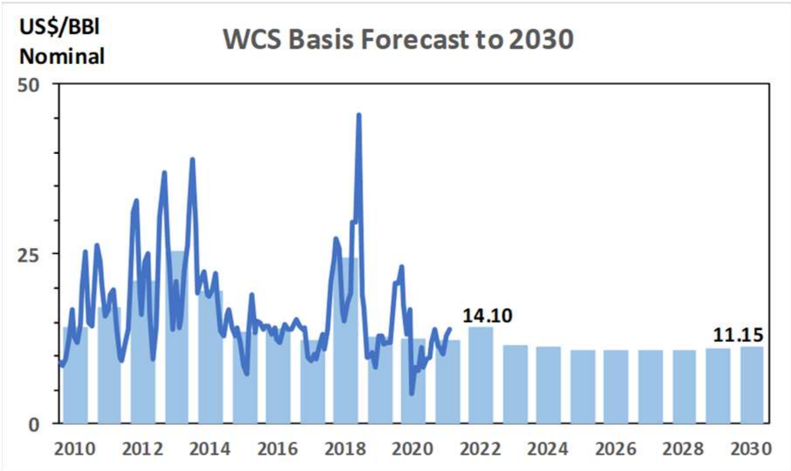
WTI OIL PRICE AND WCS BASIS





WCS Basis Drivers

- Recovering Oilsands production is offset by Enbridge flows which are expected to increase in Q4 2021 as Line 3 comes into service.
- TransMountain Expansion completion in December 2022 diverts rail and Enbridge Midwest directed flows toward valuable West Coast/Asian markets.
- With incremental new pipe completed in 2022, rail shipments are no longer economic with basis narrowing.



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THANK YOU !

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