

State of Alaska

Alaska's Competitive Position

February 2022

Overview

Global

- Oil Supply and Demand
- Gas Supply and Demand
- Energy Transition Implications

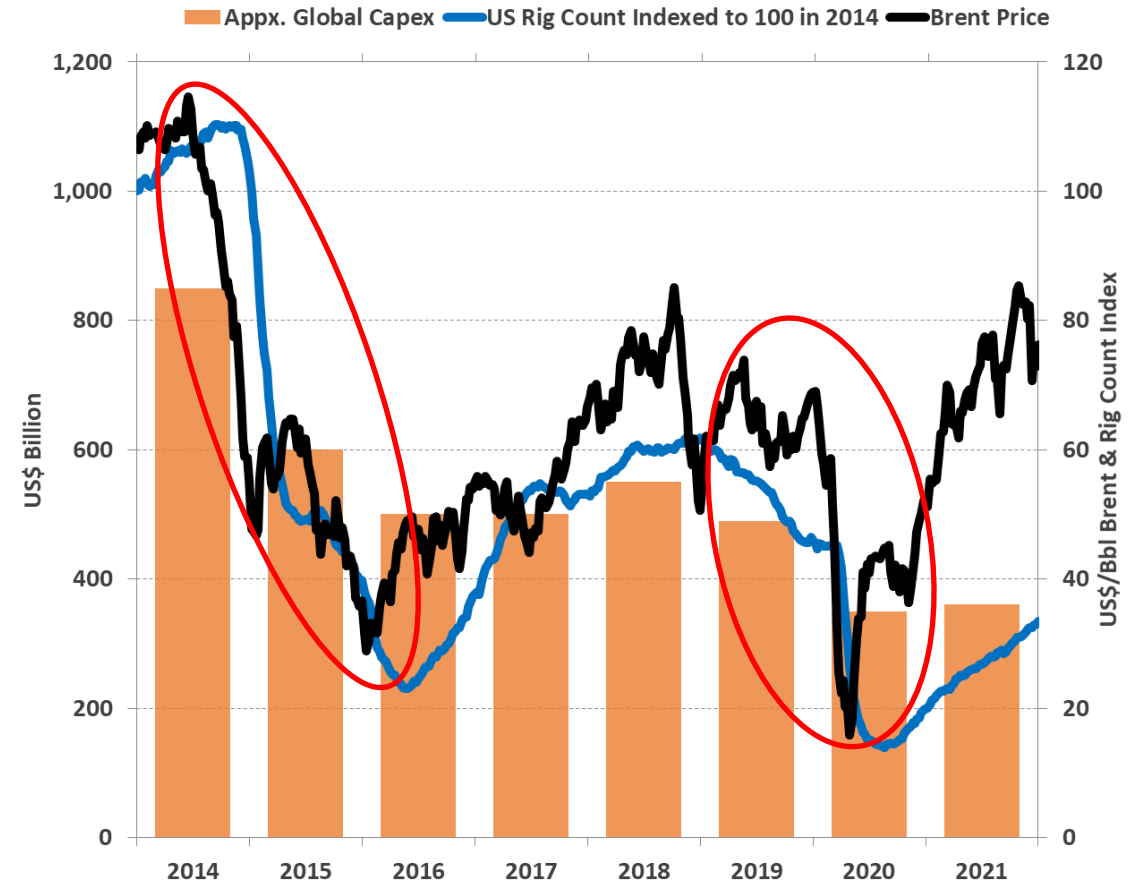
What does this mean for Alaska?

- Oil Industry and Outlook
- Natural Gas Opportunity

What is Alaska's competitive position going forward?

Volatility, Disruption & Supply in the Oil & Gas Industry

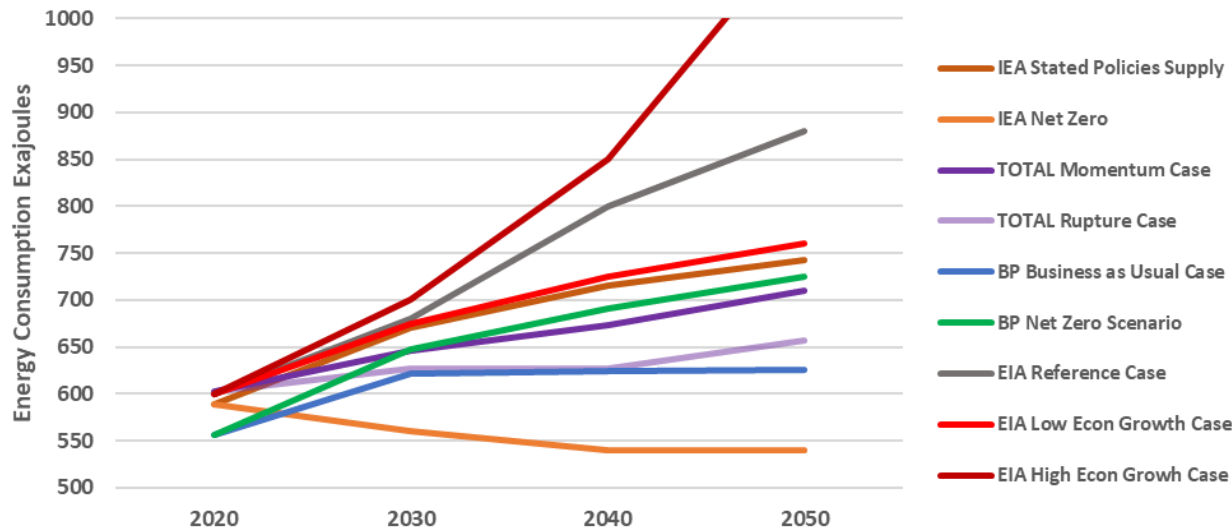
- The oil & gas industry has been battered by deeply disruptive events in recent years leading to volatility.
 - Oil price collapse of 2014-2016 and Covid-19.
 - Deep cost cutting, project delays and cancellations will have long term supply implications.
 - The impact of energy transition on the energy mix and related shift in the long-term prospects of the industry.
 - Most recently dramatic price increases as the global economy emerges from Covid-19 against a backdrop of geopolitical concerns in Eastern Europe and the Middle East.
- Oil and gas companies have generally performed poorly and investors have demanded better capital discipline, improved financial performance and action on climate change.



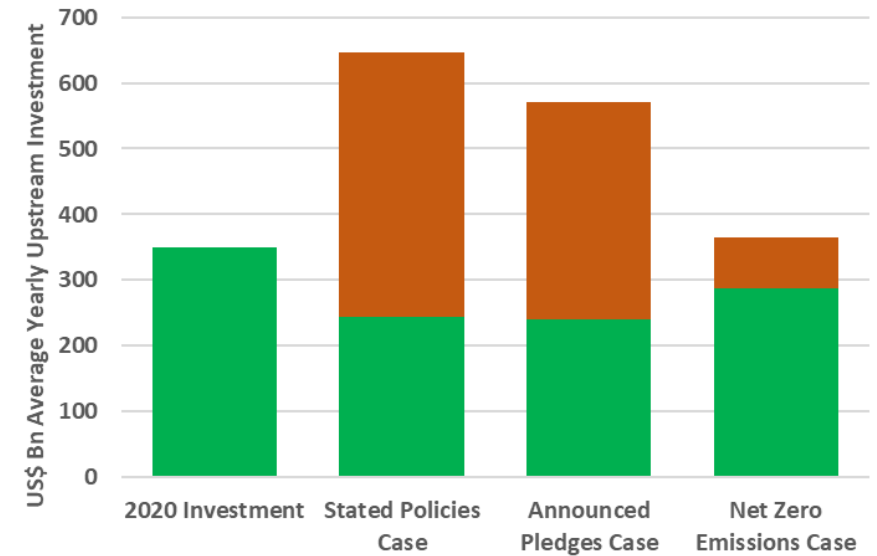
Energy Demand Outlook

- World energy demand is expected to grow but many different scenarios are being discussed with key differentiators being:
 - Costs of energy supply particularly fossil fuels vs renewables/low carbon.
 - The nature of governmental and private initiatives to decarbonise.
 - The pace of change.
- Under all scenarios significant investment is needed to meet demand and offset existing oil & gas decline.

Energy Demand Outlooks

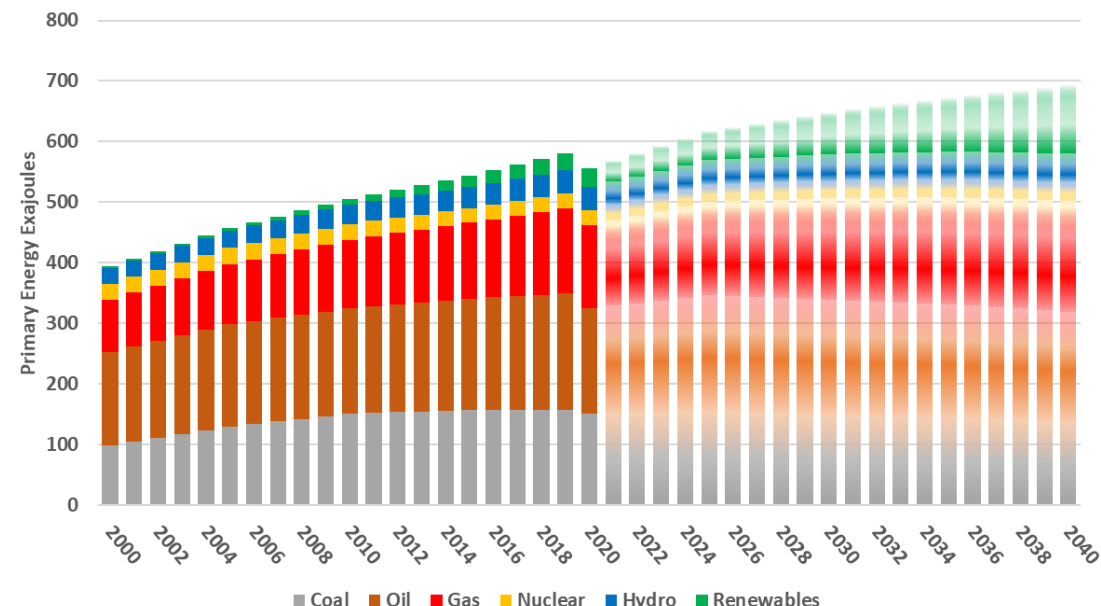


IEA Cases Required Upstream Investment through 2030



Source: IEA World Energy Outlook 2021

World Energy Demand

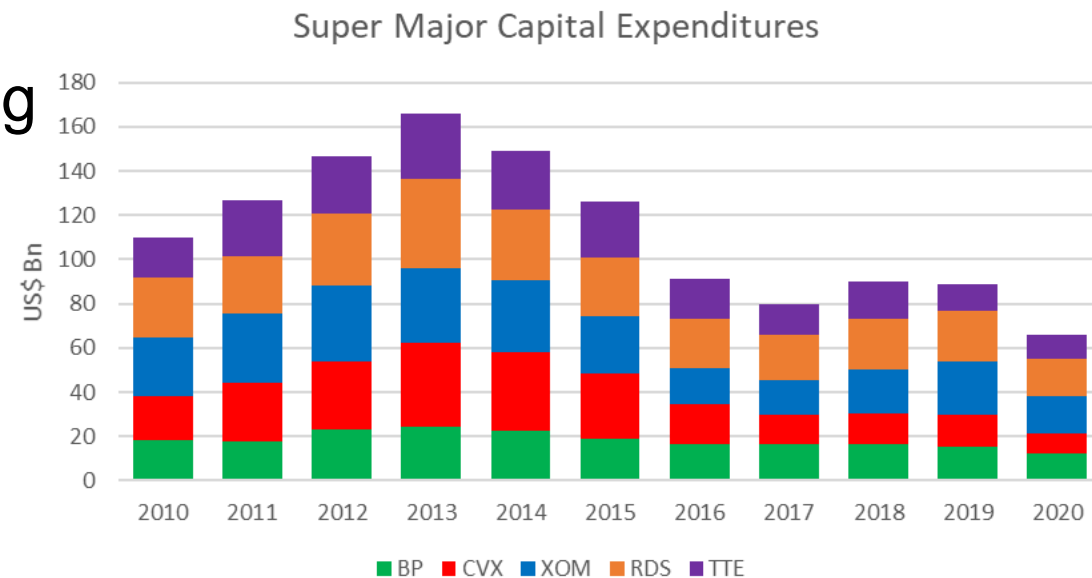


Energy Transition

- The global energy mix is decarbonizing and the pace of change is accelerating.
 - COP26 UN Climate Change Conference more than 140 nations committed to eliminate 90% of GHG emissions.
 - 2050 Net Zero GHG Targets: US net zero no later than 2050 with a 50-52% reduction from 2005 levels by 2030.
 - 2030 Methane Reduction Target: Over 100 countries commit to reduce methane emissions by 30% by 2030.
- Investment dollars will flow disproportionately into clean energy.
 - The Bipartisan Infrastructure Deal includes US\$6.5 Bn for national network of EV chargers and US\$65 Bn in clean energy transmission and electric grid in support of a 100% pollution-free power sector by 2035.
 - International finance: 25 countries, including the US, and 5 financial institutions pledged to end new international finance for unabated fossil fuel energy by the end of 2022.
- Hydrocarbon producers with the highest cost and the highest carbon emission intensity products will be the first to be impacted.

Competition for Investment Dollars and Capital Markets

- Over last decade international oil companies have moved from emphasizing growth to focusing on capital discipline and shareholder value.
 - Super-Majors have initiated extensive divestment initiatives and focused more heavily on “core” regions or projects.
 - Capital has become reallocated to Share-Buyback programs and carbon related opportunities.
- When large companies divest there is an opportunity for smaller companies but funding is a challenge:
 - Banks and investors are reconsidering exposure to oil & gas.
 - Project disruption as smaller companies struggle to finance their interests.



Response to Changes in Market Conditions

- In response to changes in market conditions, it is common for proactive governments to reassess existing fiscal terms and to consider incentives to ensure continued exploration and development in the domestic energy sector.
- How have the compared jurisdictions responded?
 - Most have allowed for tax reductions or other fiscal concessions since 2015.



In June 2020, the Norwegian parliament enacted temporary changes to the Petroleum Tax Act – “in an effort to mitigate underinvestment in the Norwegian shelf stemming from market conditions and uncertainty”



**“In order to protect jobs and investment in the North Sea...”
The UK implemented multiple tax reductions and simplifications in 2015 and 2016**



**Alberta reviewed royalties in 2016 in an effort to simplify and encourage investment.
Other changes were effected as well in less hydrocarbon developed jurisdictions such as Newfoundland & Labrador.**



Royalty Rates for shallow water Gulf of Mexico leases were reduced in order to encourage new developments.

- Numerous other contract based adjustments have been implemented and considered globally for asset specific contracts through renegotiations, new marginal field allowances and improved terms for newly issued contracts.

Alaska Oil

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Alaska Oil Outlook

Strengths

1. Significant discovered resources
2. High-potential exploration
3. Good operators, investors and service companies

Weaknesses

1. Challenging and high cost operating environment relative to other opportunities
2. Regulatory and fiscal stability challenges
3. Difficulty of converting commercial discoveries into successful developments

Opportunities

1. Price recovery could enable material new developments of discovered resources
2. Carbon capture and usage could provide advantages in carbon conscious world

Threats

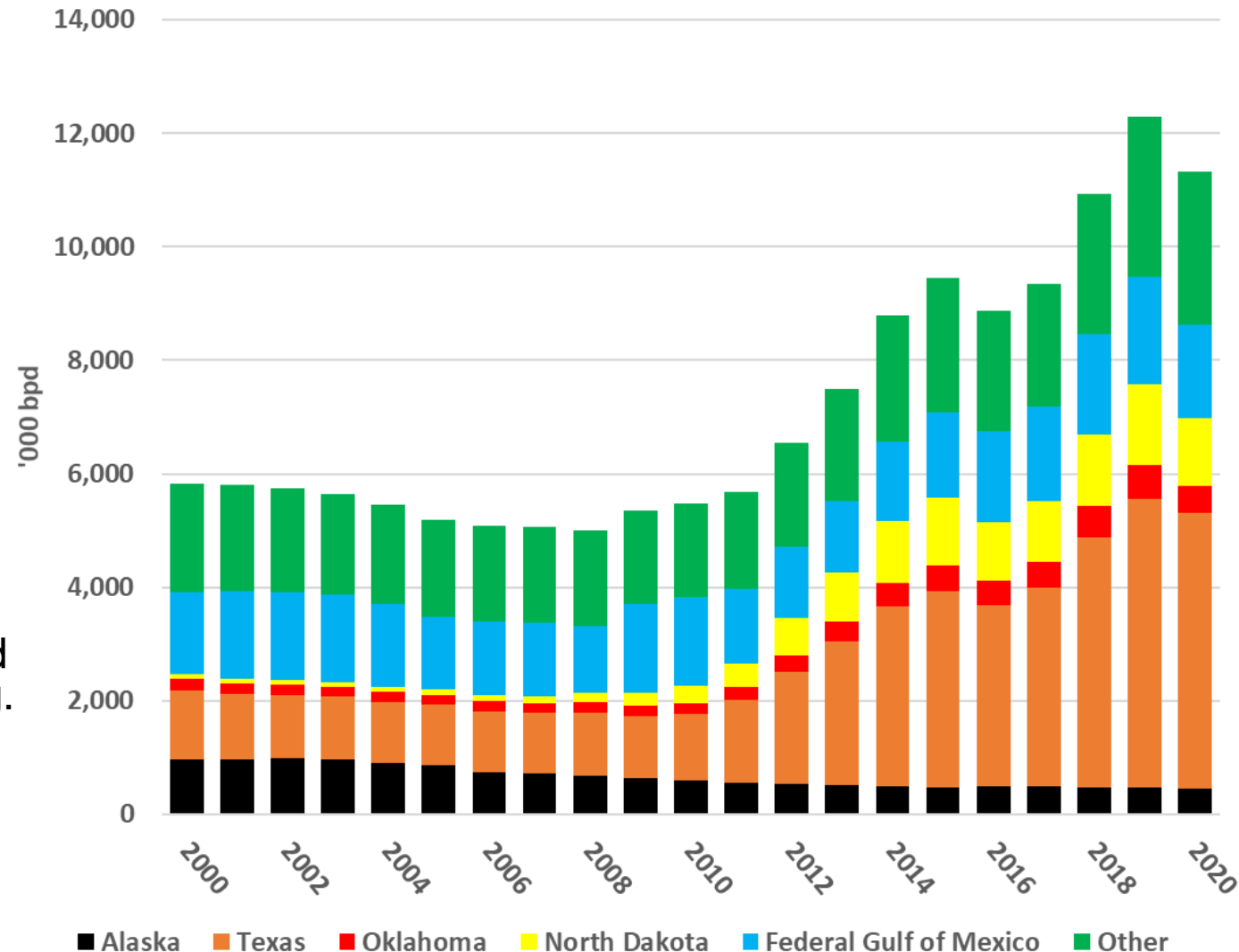
1. Continued volatility undercutting the case for large, long-term investments
2. Decelerating demand due to changes in the energy mix and energy efficiency
3. Competition with lower carbon and lower cost producers

		Lower 48	GOM	Canada	Norway	UK	Alaska
1	Perceived Resource Potential	●	●	●	●	●	●
2	Operating, Cost & Permitting Environment	●	●	●	●	●	●
3	Existing Infrastructure	●	●	●	●	●	●
4	Service Sector and Labor Availability	●	●	●	●	●	●
5	Access to Capital	●	●	●	●	●	●
6	Tax & Regulatory Stability	●	●	●	●	●	●

Alaska and the Lower 48 Developments

- Alaska's biggest competitor is Lower 48 conventional and unconventional oil.
 - Targeting the same US focused companies.
 - Often active in both Alaska and Lower 48.
 - Similar legal/fiscal environment.
- Unconventional can be high cost but the investment proposition is different.
 - Understanding of unconventional wells and proximity to market reduce development risks.
 - Limited pre-production development cost.
 - Deep pool of participating companies (large to small) and financing options.
 - Developed and capable service industry and optimized infrastructure/hydrocarbon trading.
 - Ultimately, differentiator is risk difference inherent in drilling more US\$10 MM wells that could be selling crude in a matter of months vs. US\$8 Bn of investment with 20 year horizon like Willow.

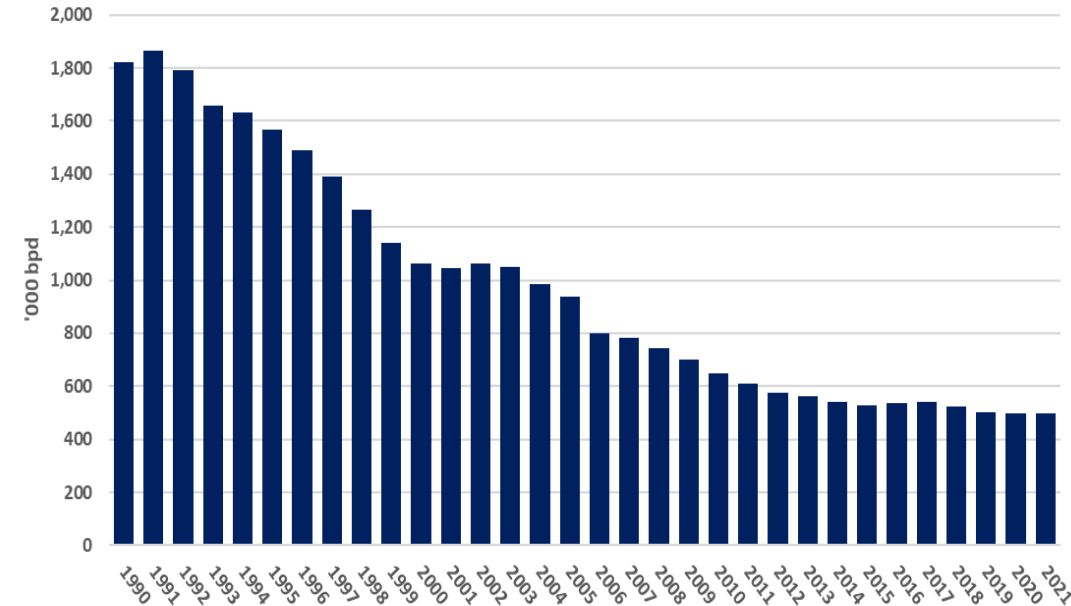
US Crude Oil Production



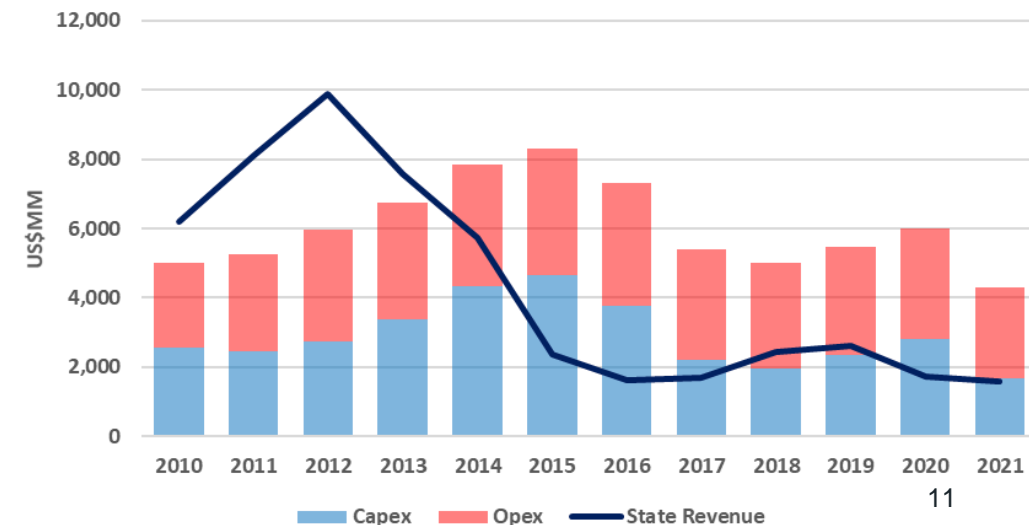
Oil Development, Production and State Revenues

- Prolific but rapidly maturing basin.
 - Dramatically impacting state revenues.
- Despite exploration success, new developments are not replacing production declines.
 - Relatively high cost environment.
 - Permitting and regulatory challenges have delayed major activities and heightened perceptions of associated risk.
 - Tax stability may be considered a risk.
 - Fierce competition for O&G investment dollars.

Alaska Crude Oil Production



Alaska Revenue and Upstream Costs

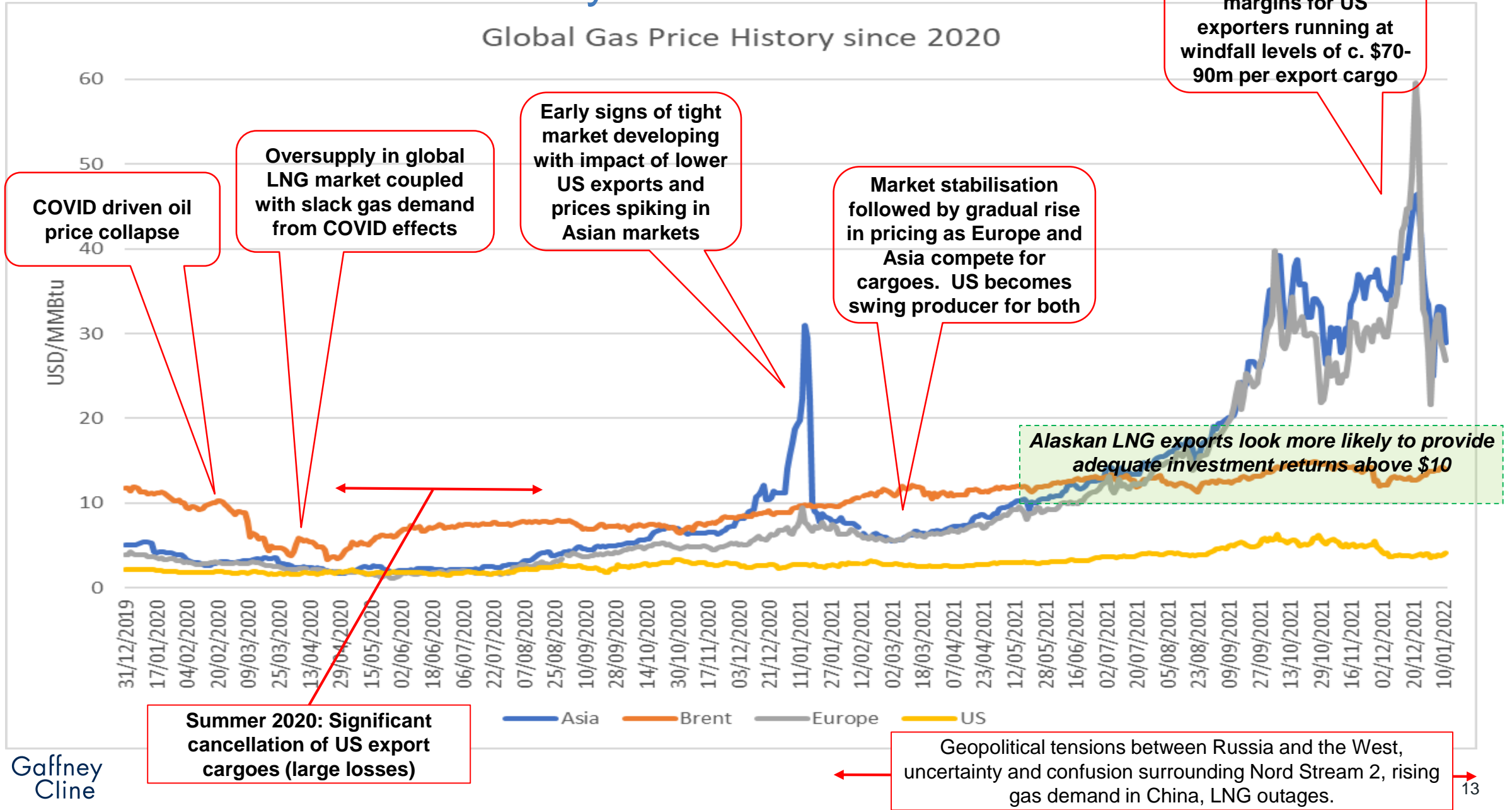


Alaska Gas

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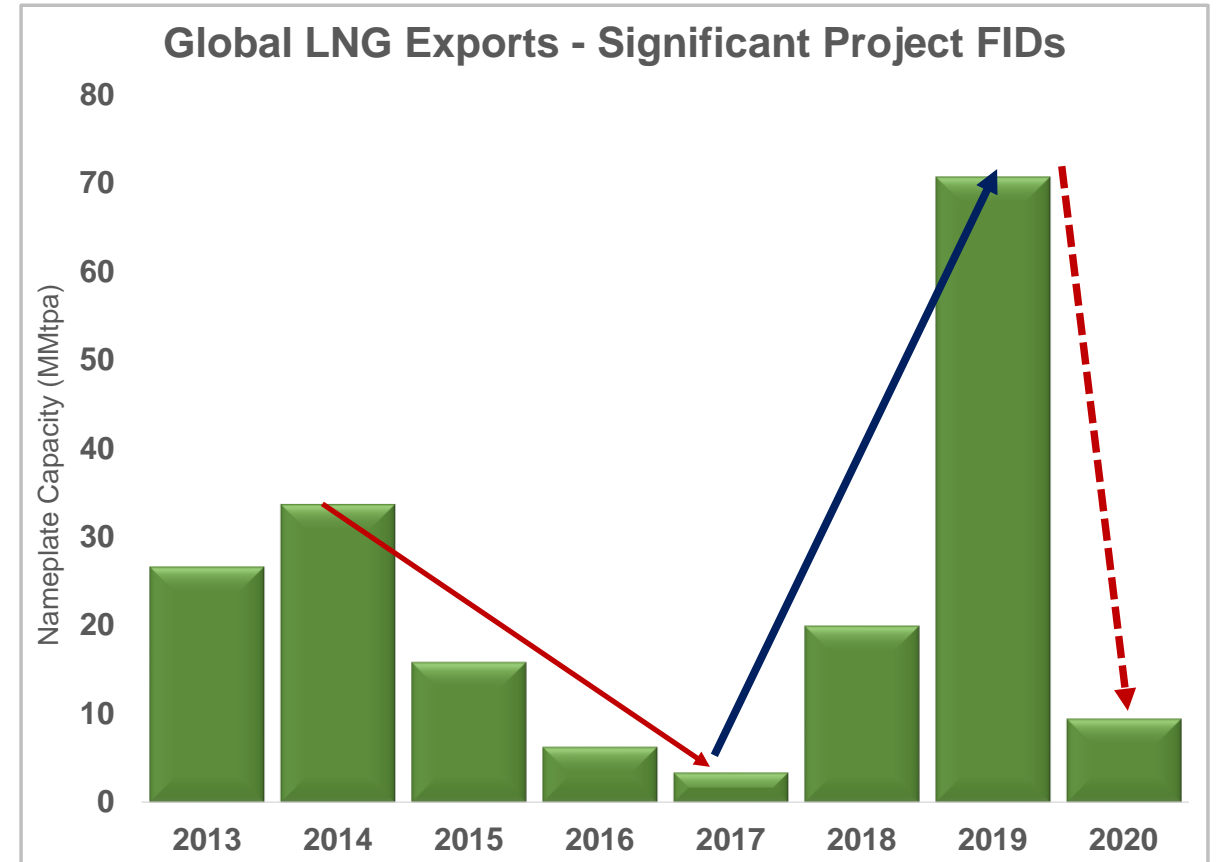
Natural Gas Price Volatility 2020-2022

Global Gas Price History since 2020



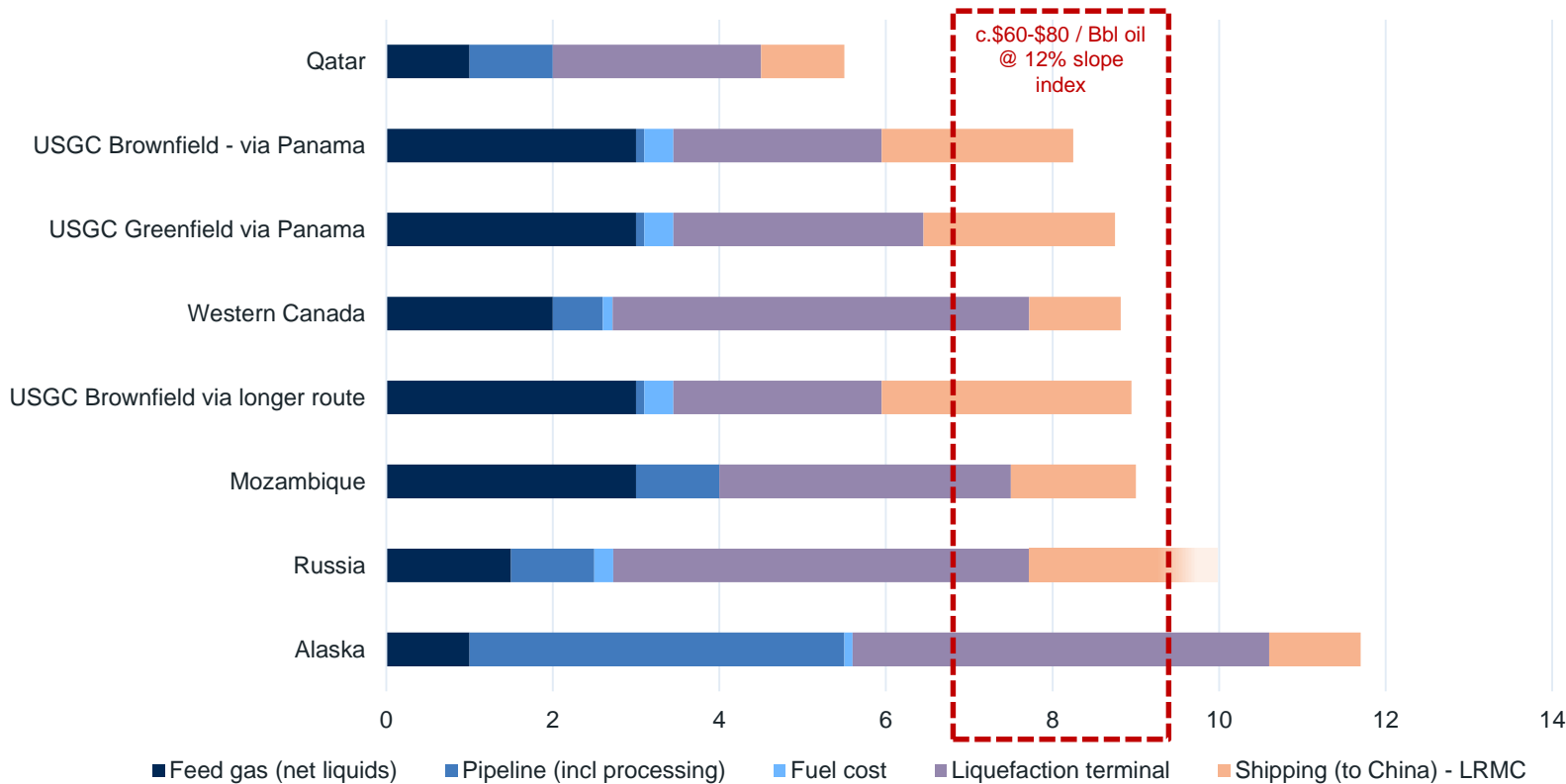
Global Market Context – LNG Developer Perspective

- **A new window of opportunity is potentially present for Alaska but significant challenges must be faced.**
 - Given the energy transition, this **could be the last chance to monetise** the substantial gas resources **in a traditional manner.**
 - AK LNG will require very large capital investments and the State will need to weigh the risks carefully.
- Industry and sources of finance have been materially impacted by the volatility of the last 2 years:
 - European concerns over Russia supply exacerbating volatility.



High level guideline project economics compared to other global sources of LNG – breakeven analysis to China (central case)

Estimates of delivered LNG to China (\$/MMBtu)



- Alaska is competitive from a feed gas and freight cost perspective.
- However, main challenges to the project arise from high processing, pipeline and liquefaction costs.
 - Driving down costs in these 3 elements of the value chain will drastically improve competitiveness.
 - Unless they are addressed, Alaska will continue to rank as a high cost producer unlikely to be profitable at expected long run pricing levels.

Alaska LNG

Strengths

1. Substantial low cost resources
2. Low upstream technical risk
3. Proximity to Asian demand markets
4. Climate assists with lower liquefaction cost

Weaknesses

1. Substantial infrastructure build required in challenging environment
2. IOCs have withdrawn support, funding and expertise from the projects
3. Competitiveness relative to other sources

Opportunities

1. Capex control and reductions improve economics
2. Carbon intensity reductions
3. Alternative structuring and funding options

Threats

1. Directly competing adjacent project (Can)
2. Competition from USGC, Qatar, Russia etc.
3. Emergence of new shale based exporters
4. Energy transition

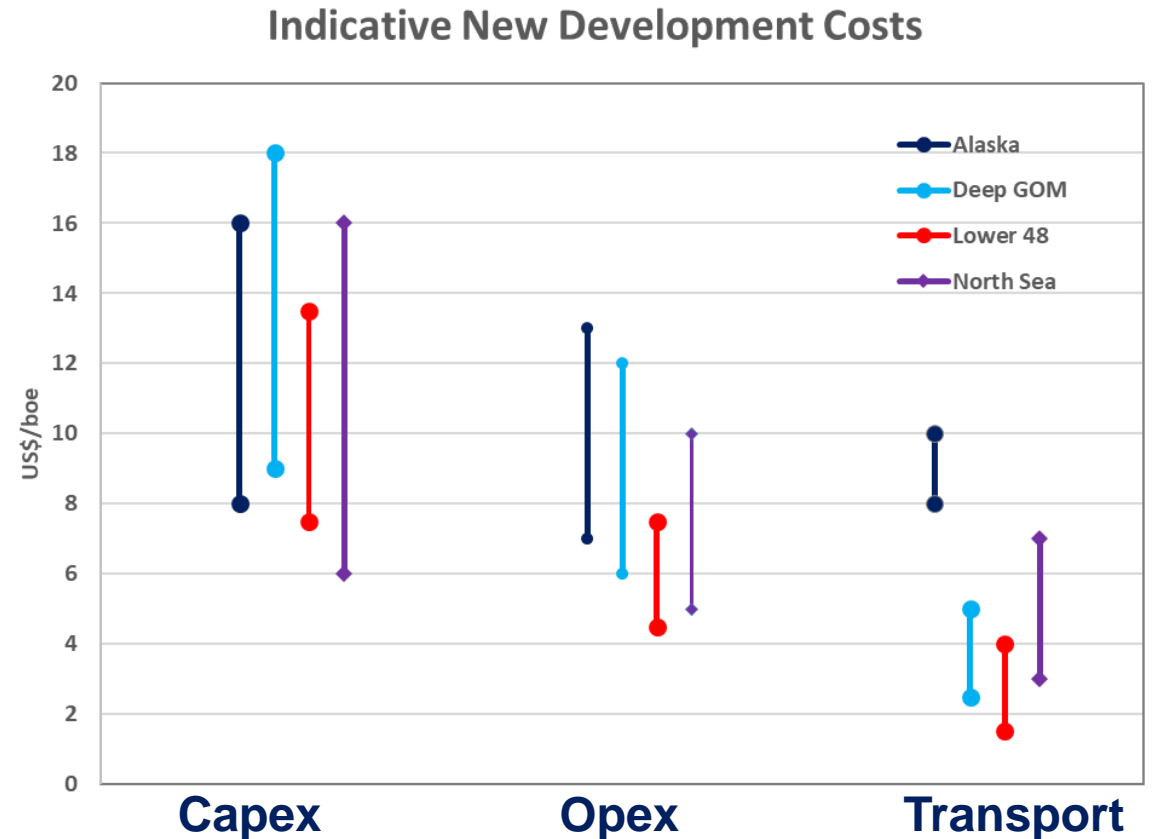
	Lower 48	Canada	Australia	Russia	Africa	Alaska
Resource Potential	●	●	●	●	●	●
Technical ease of gas production	●	●	●	●	●	●
Regulatory/ Fiscal/ Environment	●	●	●	●	●	●
Existing Infrastructure	●	●	●	●	●	●
Availability of skilled labour	●	●	●	●	●	●
Service sector availability	●	●	●	●	●	●
Geopolitical Stability	●	●	●	●	●	●
Cost Environment	●	●	●	●	●	●

Alaska's Competitive Factors

OPEX/CAPEX Comparison

- Alaska is a relatively high cost environment:
 - Most development statements and data suggests US\$8-15/Bbl of development costs, which is comparable to other high cost developments (ongoing unconventional developments & deepwater).
 - Operating costs are dependent on existing facilities, remoteness, weather and accessibility but broadly observed to be between US\$7-12/Bbl.
 - Significant transport costs of US\$8-\$10/Bbl, which is higher than most other upstream opportunities.
 - Unit costs further challenged due to gas and NGL monetization limitations.

Higher end but in line with competing jurisdictions but substantially higher than low cost OPEC producers

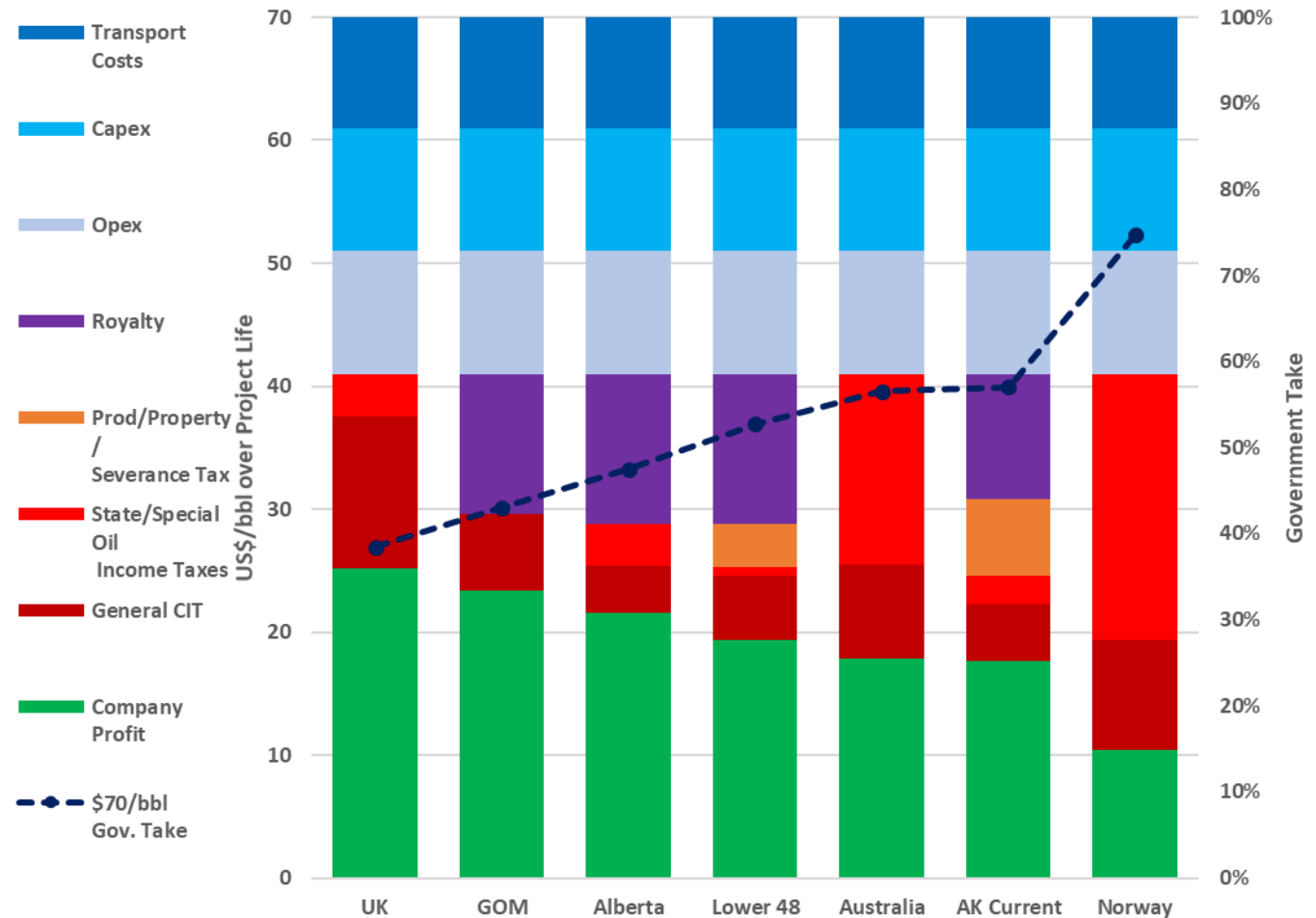


Development costs comparable to investment required in deep-water or ongoing unconventional developments but high transport/marketing costs compared to other mature basins

Fiscal Comparison

- Chart illustrates general \$/bbl cash breakdown and tax burden for select jurisdictions over an oil & gas development's life cycle
 - Assumes characteristics with new development in Alaska, including constant cost environment
 - In reality each jurisdiction will have numerous unique characteristics (development timeframe, cost environment, infrastructure/market proximity etc.)
- Alaska has relatively high government take compared to select jurisdictions
- Worth noting that some fiscal elements are considered more burdensome than others
 - Non-Income based taxes, such as royalty, carry elevated risk to investors because of timing and it is not responsive to development/operating costs
- Many other competing jurisdictions, particularly non-western, implement asset level contracts
 - Popular for oil and gas dependent governments
 - Allows for fiscal terms specific to assets and reflecting current economic conditions
 - Often contains various risk mitigations including fiscal stabilization

Life Cycle Indicative Value per Barrel Breakdown at \$70/bbl

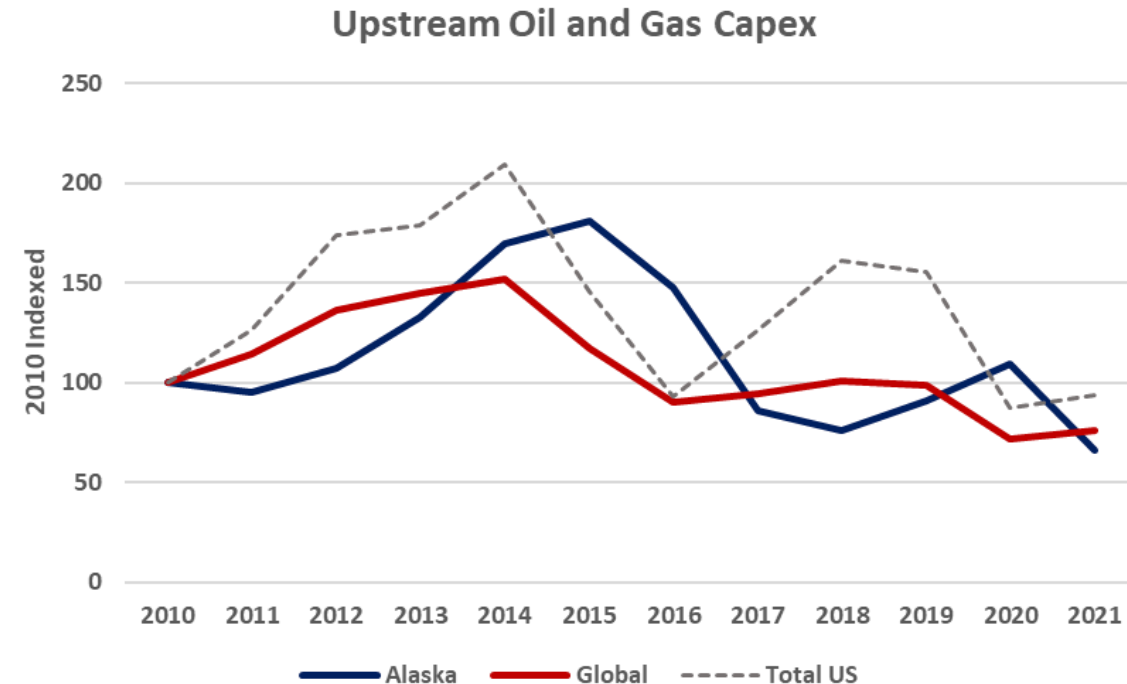


Notes:

1. Government Take illustrates general indicative breakdown and could vary depending on specific assumptions and asset characteristics
2. Lower 48 can vary materially by State and Landowner Royalty

Alaska Competitiveness Globally

- Alaska's upstream investment has fared reasonably in line with global trends:
 - Some major Alaska operators, such as Conoco and Hillcorp, have clearly increased Alaska exposure as a percentage of total capital budgets in recent years.
 - Exploration has been healthy in last 10-12 years.
- A key challenge for Alaska and the companies will be maturing discoveries into developments.
- The projects take years to progress to the investment decision and years from that decision to reach production.
- Alaska is entering a critical phase that will be decisive in long-term production trends.



Sources: Alaska Department Revenue, public sources and GC analysis

Alaska Oil Moving Forward

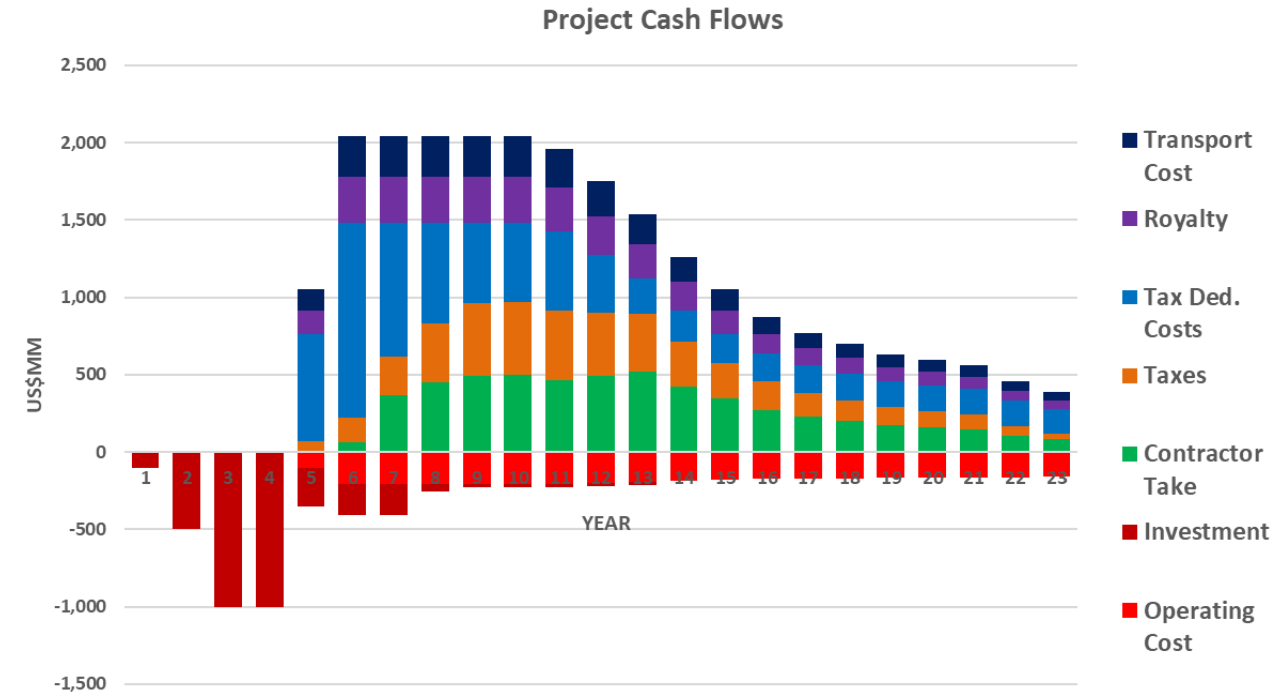
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Alaska Development Scenarios

- There is strong potential for major new developments, as well as smaller incremental developments built around existing or new infrastructure hubs.
- To understand the potential contribution of new investments to Alaska state revenues and to gauge the downside risk if new investments are curtailed, indicative profiles have been developed representative of Alaska new investment opportunities:
 - A significant new development justifying a new infrastructure hub, similar to the Pikka or Willow developments.
 - A smaller incremental development tying into an existing infrastructure or infrastructure associated with a new development.
- The evaluation summarizes the estimated ‘investor return’ and generated ‘state revenue’ under the current and proposed tax changes as well as under a variety of sensitivities.

Pikka Scale Development

- Material new developments could create new infrastructure hubs with numerous benefits
 - Development generates material new state revenue, US\$6-7 Billion over 20 years.
 - Enables numerous additional incremental developments (in this example Pikka Phase 2 and Quokka) detailed on following slide.
 - Potentially extend TAPS infrastructure life.
- However, developments are more challenging due to:
 - Significant development risks, capital and time during the development period.
 - Up to 20-year time horizon to realize expected economic returns means perceptions of market, fiscal and regulatory risk heightened.

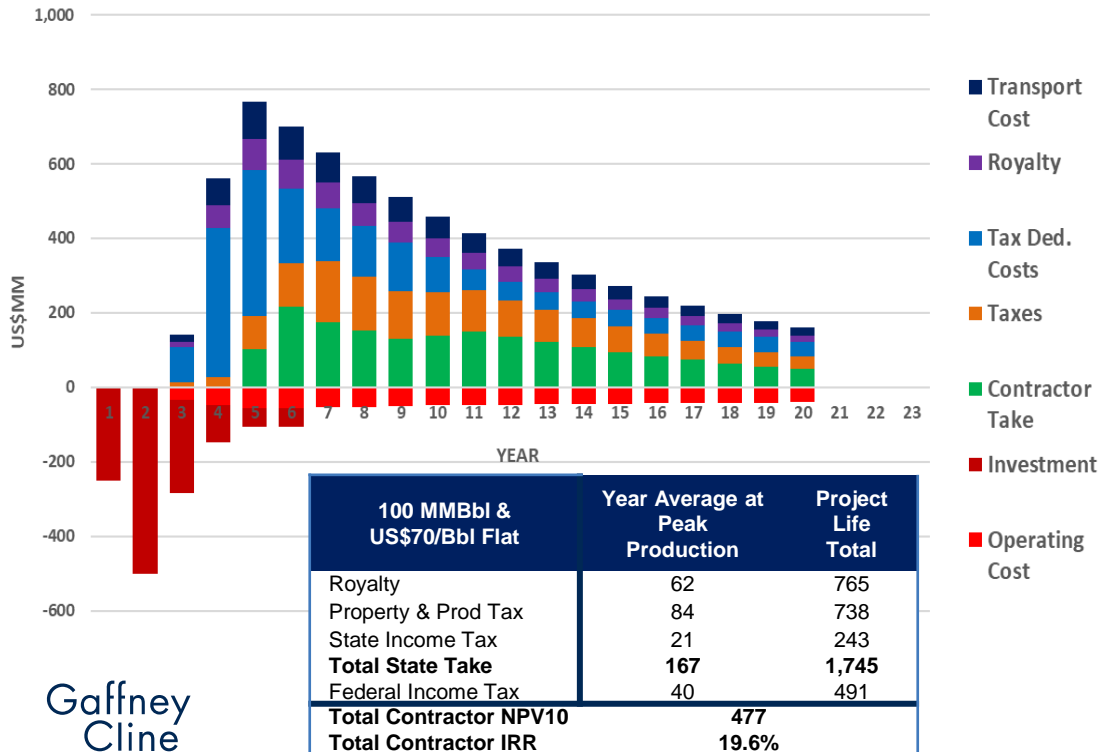


340 MMBbl Development \$70/bbl Flat assumption	Current Tax System	
	Year Average at Peak Production	Project Life Total
Royalty	297	3,457
Property Tax	50	482
Prod. Tax	107	1,706
State Income Tax	67	728
Total State Take	520	6,373
Federal Income Tax	122	1,474
Total Contractor NPV10	1,392	
Total Contractor Rate of Return	20.0%	

Incremental Developments

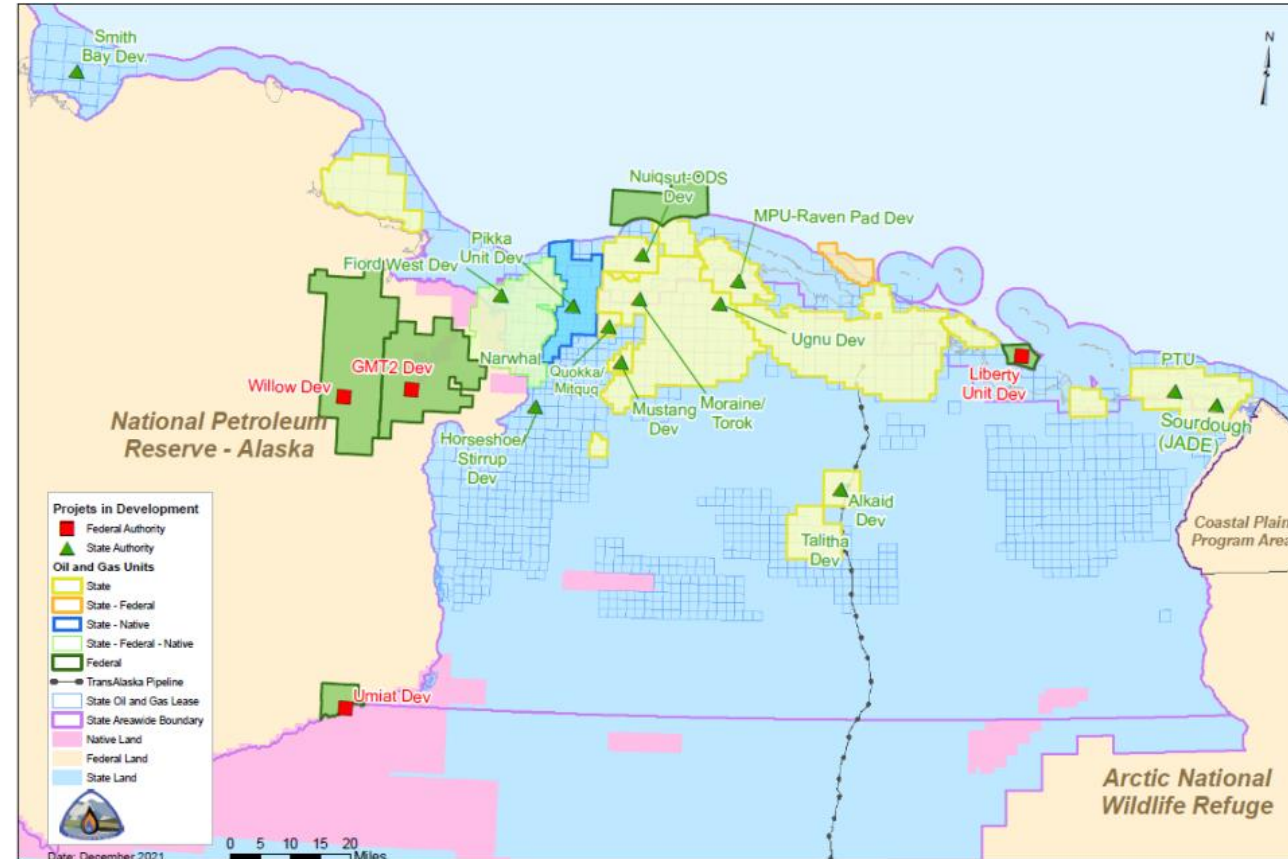
- Incremental developments tie into existing infrastructure and benefit from shorter development periods.
- The returns on the assumed incremental development are attractive under current prices.
- Each development of this size could add over US\$150 MM+ per year in peak years and US\$1.5 Bn of total state revenue.

Indicative Incremental Development Project Cash Flows



There exists significant discovered resources with the potential for incremental developments utilizing existing infrastructure

- GMT 2, Fiord West, Nuna, Narwhal, Harpoon, Horseshoe/Stirrup, Quokka, Alkaid, Umiat + Merlins, Liberty



Source: Alaska Department of Natural Resources

Concluding Remarks

- Alaska oil & gas faces many challenges going forward but it remains an attractive oil & gas province.
- New developments are required to offset the historic downward trend in production and revenues.
 - Without new developments there is also a risk of reaching TAPS minimum production threshold
 - New developments will generate jobs and economic activity throughout value chain
- New developments will be costly and challenging and operators, investors and lenders need **regulatory visibility** and **fiscal stability** to support financial decisions for these long-term projects.
- Giant projects are unlikely but new material developments with numerous smaller tie-backs to infrastructure hubs offer a path to reversing the decline.
- The global competition for new investment is fierce and maintaining an attractive fiscal, regulatory and administrative environment will be key.



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Tax Change Implications

Upside

- Capturing additional rents from existing production with low risk of discouraging activity.
- Capturing additional rents from new developments but with higher risk (see downside)
- Securing State revenues to support public initiatives, including investment in energy transition.

Downside

- Discouraging new developments, resulting in lower long term State Revenue and lower economic activity.
- Discouraging investments that could prolong the life of mature fields.
- Compromising TAPS viability if production decline continues due to lack of investment.
- Discouraging new exploration which may prevent the discovery of major new hydrocarbon resources.