



Global Matters 36

The long-term prospects of natural gas and midstream assets

May 2022

In October 2020 we published a Global Matters article, [Decarbonisation and the infrastructure investment opportunity](#), in which we discussed how investors wanting to be part of the decarbonisation investment thematic should look to infrastructure as a means of participating. While the speed of ultimate decarbonisation remains unclear, there appears to be a real opportunity for multi-decade investment as every country moves towards a cleaner environment. That article was an introduction to the decarbonisation thematic, and set a framework for follow-on pieces exploring, in more detail, the infrastructure investment solutions in aspiring to global Net Zero emissions by 2050.

In this article, Peter Aquilina (Senior Investment Analyst and Head of ESG) analyses what this goal means for natural gas demand in the long term; and discusses how 4D analyses and values oil/gas midstream assets, considering both the risk and opportunity as we move towards Net Zero.

Contents

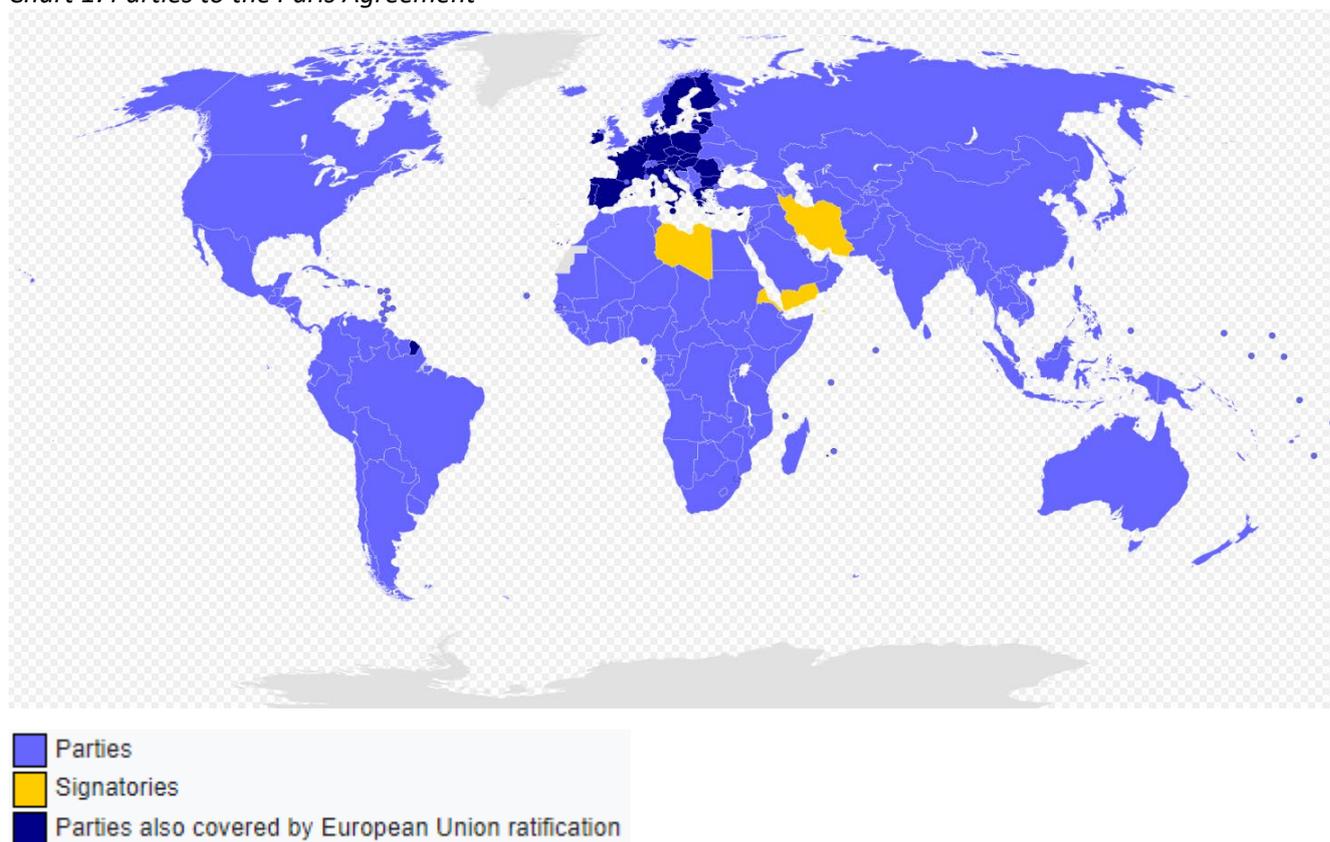
1. Paris Agreement commitments	3
2. Balancing conflicting challenges	4
3. Benefits of natural gas to energy markets.....	4
4. Long-term prospects for natural gas	5
5. What does this mean for the long-term prospects of the midstream sector?	5
6. 4D's approach to investing in midstream gas assets.....	6
7. Preferred names in the midstream sector.....	6
8. Conclusion.....	9
Appendix	10

1. Paris Agreement commitments

The headline goal of the Paris Agreement is to limit global temperature increases to well below 2°C, preferably to 1.5°C, compared to pre-industrial levels. To achieve this goal, parties to the Agreement aim to reach global peaking of greenhouse gas (GHGs) emissions as soon as possible, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of GHGs¹ in the second half of the century. Broadly speaking, signatories to the Paris Agreement are looking for Net Zero emissions by 2050.

As of November 2021, 193 states and the European Union are parties to the Paris Agreement (a further four countries are signatories, but are yet to ratify the agreement). These parties to the Paris Agreement cover approximately 98% of the world's human-made emissions – a depiction is shown below.

Chart 1: Parties to the Paris Agreement



Source: [Wikipedia](#), accessed 4 May 2022

Many countries outlined their current Net Zero plans at the recent UN Climate Change Conference (UNCCC) in Glasgow (COP26) in late 2021. Within these plans, most countries also outlined interim decarbonisation commitments for 2030. These interim targets are intended to provide a more tangible medium-term target for countries to establish detailed plans and to indicate the pace of GHG emissions reduction.

Albeit the pace of decarbonisation between now and 2050 is still unclear, there seems to be widespread political support to achieve Net Zero. This will no doubt create a strong push to decarbonise economies globally, providing opportunities and risks for investors, especially for certain infrastructure sub sectors, such as midstream oil/gas.

¹ GHG sinks refers to human-made efforts to remove carbon from the atmosphere and offset a portion of carbon emissions. This can include technologies such as carbon capture as well as nature-based solutions such as reforestation and afforestation.

The rest of this article looks at how 4D balances this opportunity with risk for this sector in particular.

2. Balancing conflicting challenges

With roughly 25% of all global emissions coming from electricity generation alone, it's clear the energy sector is central to achieving a Net Zero goal. However, this goal cannot be viewed in isolation, and energy market participants must balance carbon reduction strategies with other social obligations.

In summary, we believe there are three main targeted outcomes for energy market participants as they seek balance between energy transition, political goals, and customer satisfaction.

- 1) Power needs to be affordable to customers;
- 2) The delivery of power needs to be reliable and consistent; and
- 3) GHG emissions need to be removed or offset in the shortest time possible.

An additional consideration is to support economic growth, predominantly through employment and investment. The balancing of these factors may vary depending on the perspective of the individual or government. However, these three (or four) targets are typically prescribed by all energy market participants and stakeholders.

3. Benefits of natural gas to energy markets

Natural gas has inherent qualities which support the above targets of affordability, reliability and GHG reduction.

- **Versatility** – natural gas power generators can technically be turned on and off quickly as compared to other baseload power sources such as nuclear and coal. This makes peaking gas generators a strong complement to support renewable power generation and ensure ongoing security of supply.
- **Storable** – natural gas can be stored in underground salt caverns in large volumes for long periods of time, which also makes it a strong complement for renewables.
- **Transportable** – natural gas can be transported within existing pipeline infrastructure, or can be converted into liquid by cooling to -162 degrees Celsius and transported by ship/rail, even internationally.
- **Plentiful** – natural gas is relatively plentiful and available in many geographic locations, with the International Energy Agency (IEA) estimating that there are enough recoverable resources to last around 230 years.
- **Affordable** – according to Lazard investment² bank research, the most efficient gas fuelled power generator has an all-in cost (as measured by Least Cost of Energy (LCOE)) of between US\$44 – US\$73 / MWh, which is the lowest of fossil fuels (coal generation between US\$65 – US\$159 / MWh);
- **Cleaner** – burning natural gas results in fewer emissions of nearly all types of air pollutants than burning other fossil fuels. Natural gas generation releases about 117 pounds of CO₂ million British thermal units (MMBtu) equivalent compared with more than 200 pounds of CO₂ per MMBtu for coal, and more than 160 pounds per MMBtu for distillate fuel oil³.

The above attributes make natural gas an important transitory energy fuel in maintaining reliability and affordability for customers as the world transitions away from GHGs. It is on this basis that we expect to see significant ongoing global demand for natural gas and the assets that transport it.

² Lazard's Levelized Cost of Energy Analysis—Version 14.0, October 2020

³ [Natural gas explained](#), U.S. Energy Information Administration

4. Long-term prospects for natural gas

Forecasts of the pace of GHG emissions reduction, and demand for natural gas in the long term, can be fraught with error and/or bias. A number of stakeholder groups have commissioned their own studies and forecasts from various consultants, which may cynically have a pre-determined goal that needs to be supported by the analysis. It is impossible to determine which, if any, forecast will be correct, and it is often difficult to understand if any particular forecast has inherent bias assumed within it.

Based on the views and forecasts of independent industry agencies and energy consultants, we are confident that natural gas will have a role to play in the energy mix in the very long term. Based on our review of a number of forecasts and studies, we are of the view that:

- Achieving Net Zero emissions AND maintaining global temperature increases to 1.5°C by 2050 is becoming optimistic, if not unrealistic, due to the limited progress in setting and/or achieving national short/medium-term decarbonisation targets.
- There could be some decline in natural gas demand by 2050, although the magnitude varies widely between decarbonisation forecasts. A more aggressive, yet reputable Net Zero scenario developed by the International Energy Agency (IEA) implies a 39% reduction in volume demand compared to 2020, while others assume very little demand erosion.
- There is unlikely to be a significant reduction in natural gas demand by 2030.

A summary of scenario analysis undertaken by two industry groups in the IEA and Wood Mackenzie is included in the Appendix (points 1 and 2).

5. What does this mean for the long-term prospects of the midstream sector?

At 4D Infrastructure, we define the 'midstream' sector as the infrastructure used in the transportation, storage, extraction and refining of natural gas, natural gas liquids (NGLs) and crude oil. Midstream is the 'glue' between upstream E&P and downstream distribution.

With the transportation of oil and gas remaining the core business of midstream companies for the reasons discussed above, we see a longer ongoing demand profile for those transporting gas. However, there are also potential future opportunities for companies to re-use (and re-purpose) their assets and expertise in a Net Zero world. The expertise of midstream management teams in managing energy infrastructure is easily transferable to no/low carbon fuels. In addition, the prominent position of terminals in industrial hubs and pipeline assets in connecting demand centres provides a good basis for utilisation for low/no carbon fuels such as hydrogen, CO₂ from CCUS, renewable natural gas (RNG), and other biofuels – details of these fuel types are available in the Appendix (points 3 and 4). Examples of companies initiating pilot projects for these new projects is included in the Appendix (point 4).

Taking all of the above into consideration, we believe the core business for the midstream sector in transporting oil/gas is almost certain to be maintained through the period to 2030. Further to that, even assuming aggressive decarbonisation scenarios, there is still likely to be utilisation of select midstream assets in 2050 and beyond. Beyond this, there is the opportunity for companies to reposition their business and re-use their assets and skills for low/no carbon fuels. Midstream assets connected to oil/gas basins with economic and geographic competitive advantages, and to demand centres (domestic and international), are likely to be heavily utilised in the long term. This doesn't consider the potential for assets to be repurposed to carry low/no carbon fuels such as hydrogen, CO₂ from CCUS, renewable natural gas (RNG) and other sustainable biofuels.

6. 4D's approach to investing in midstream gas assets

We believe that midstream companies satisfy our definition of infrastructure, although their specific characteristics could put them more at risk of being stranded in the very long term (> 2050) under some aggressive Net Zero scenarios. However, even under aggressive decarbonisation scenarios, midstream companies with strategically placed assets connecting the lowest breakeven cost, natural gas basins are likely to be heavily utilised in 2050 and beyond.

Some of the due diligence and valuation considerations adopted by 4D in selecting the best midstream names in the sector and valuing them appropriately include:

- **Adopting a base case in valuation models assuming that Net Zero is achieved to some degree by 2050** (global temperature growth is maintained at or below 2°C).
- **Strong preference for midstream companies that operate in natural gas directed basins** – natural gas is often a by-product of exploration & production (E&P) companies drilling for crude oil. The decision around continued production is based on the economic value of crude, so this production is often cut when the economics for crude production are not satisfied.
- **Adopt conservative assumptions** – only incorporate growth assumptions for contractual price uplifts and associated with development projects that have been secured by management. Do not include any market growth associated with long-term forecasts.
- **Not valuing 'blue sky' opportunities** – opportunities for midstream companies to re-purpose assets for utilisation with low/no carbon fuels is only in its infancy, and although a great opportunity, it is not currently being significantly valued in our models. Examples of pilot opportunities are included in the Appendix (point 4).
- **Conservative terminal value assumptions** – acknowledging the uncertainty for growth associated with any fossil fuels beyond 2050, and its impact on earnings of midstream assets, we adopt conservative terminal value assumptions.
- **Scenario analysis** – run scenario analysis within models to determine the impact on valuations under a number of different decarbonisation trajectories.
- **Due diligence for competitive advantages** – develop a strong understanding of the competitive advantages of the various gas supply basins and which are likely to continue to be economic for E&P producers in a potential low demand, low price environment. This provides confidence in utilisation post 2030, as gas prices potentially decline in line with reduced demand.

Alternatively, we look to understand which arterial pipelines are likely to be utilised in connecting demand centres and export terminals in the long term. Interconnection of assets from the wellhead to demand centres and export terminals ensures utilisation throughout the value chain.

- **Quality assessment** – we undertake a detailed quality assessment, which incorporates an assessment of the quality and competitive advantages of company assets (point above), but also contractual defensiveness, ability to transition the business model into low/no carbon fuels, management quality, and financing position. This all provides insight into the sustainability of the business model.

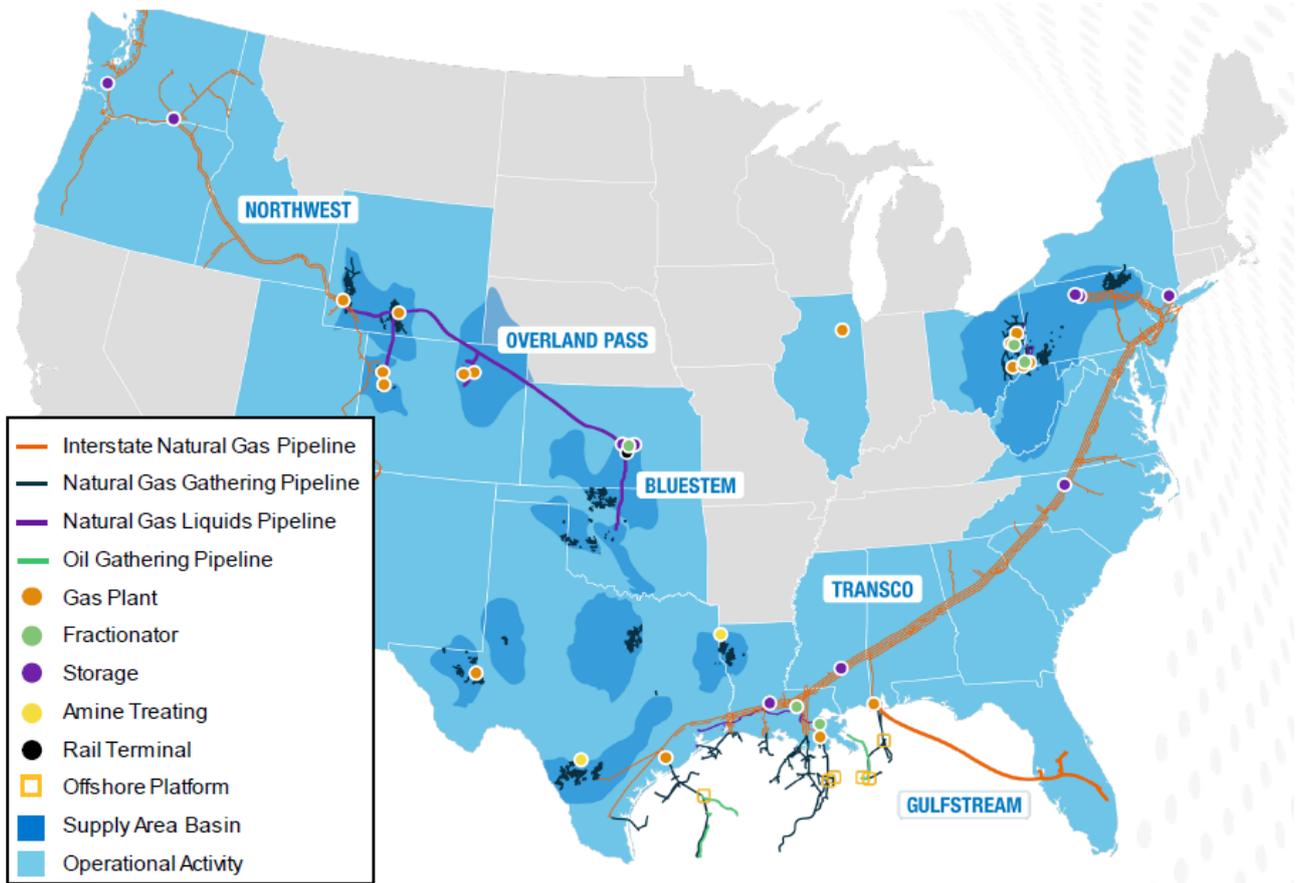
7. Preferred names in the midstream sector

Taking the above points into consideration, 4D has a preference for midstream names, such as Williams Co (WMB-US) in the US, and Snam SpA (SRG-MI) in Italy.

Williams Co

Williams is a major midstream company in the US primarily focused on transporting and processing natural gas and NGLs. The key competitive dynamic of Williams is the location and interconnectivity of its asset base, which connects some of the most economically advantaged natural gas supply regions in the world to US domestic and global markets. This asset base is depicted below.

Chart 2: Asset map for Williams Co

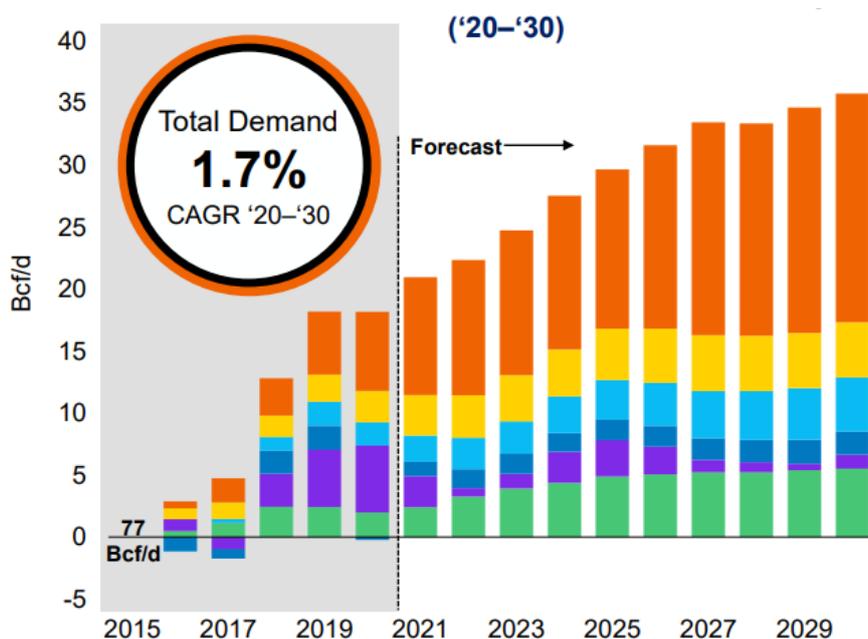


Source: Williams Co website

This broad asset footprint is expected to drive significant organic growth in the short to medium term while management are identifying investment opportunities that support the energy transition to a low carbon future – investing in renewable energy, RNG and exploring hydrogen. Management has communicated short-medium term growth in EBITDA of 5-7% driven by investments, but 4D assumes no growth thereafter, except that incorporated in contracts.

The competitive advantages of assets, interconnectivity through the value chain, combined with contractual protections provides Williams strong earnings resiliency. Operating in economically advantaged basins also means that as gas demand and price reduce post 2030 in a Net Zero scenario, the volume demand from these basins is unlikely to be impacted with less economic supply de-commissioned first. These combined traits provide strong volumes protections for Williams in a Net Zero scenario over the long term. Below is a depiction of the drivers of natural gas demand in the US to 2030 developed by Wood Mackenzie, which shows healthy growth for the next decade at least.

Chart 3: Natural gas demand drivers in the US



Source: Wood Mackenzie 1H21

The combination of opportunities for organic, strong return growth; long-term earnings protection; a strong management team; and opportunities to participate in energy transition makes Williams a high-quality investment opportunity for 4D. Incorporating conservative base case assumptions, Williams’ strong five-year IRR valuation in the mid-teens (based on a share price of USD 34) and its EV/EBITDA discount to peers makes it an attractive investment proposition for 4D.

Snam SpA

Snam is the owner of Europe’s largest gas transport and storage network, and one of the largest globally. Its transport network extends over 41,000km, including international assets and ~20bcm of storage capacity. Its main asset is the Italian gas transmission network, which is regulated given its monopoly position. The company benefits from a supportive regulator, high inflation protected regulated returns vs continental peers, minimal volume exposure and long-term visibility on investment plans.

In its most recent strategic plan, the company forecasts a 6-8% EBITDA growth rate out to 2030, with RAB growth accelerating in the latter half of the decade, from >2.5% to 2025, to >3.5% from 2025-30.

SNAM has been the most prominent advocate of hydrogen (and other green fuels such as biomethane) in Europe over the last few years. Their RAB growth acceleration in the back half of the decade (to >3.5%) is attributed to expected approved investment, related to the national Italian plan for hydrogen called ‘the Hydrogen Backbone’. Given green hydrogen’s dependency on low-cost renewable energy, SNAM benefits from its Southern European position close to North Africa, where the region’s excellent solar resource could make it one of the most competitive green hydrogen production areas for European consumption. Ultimately, the hydrogen backbone would allow low-cost green hydrogen to be transported to those areas with highest demand, such as Germany.

Amidst the recent Russia / Ukraine conflict, and subsequent RePower EU plans (to wean Europe off Russian gas), the long-term competitive positioning of SNAM’s assets has strengthened, given its ability to diversify European natural gas supply from MENA and Central Asia via its pipelines, as well as using its LNG import infrastructure.

Given our conservative approach to valuation, these additional opportunities outside of core regulated investment are generally excluded from our base case assumptions, until regulatory approval is provided or final investment decisions are undertaken. The company already has an attractive fundamental cash flow valuation, and these opportunities therefore represent potential upside to our current forecasts.

8. Conclusion

There is significant uncertainty as to whether the globe will be able to maintain global temperature increases to 'well below' 2°C in line with the Paris Agreement. Despite the communicated target of most countries, the challenges to achieving this goal are great.

Irrespective of the world's long-term carbon trajectory, most industry forecasts assume that natural gas has a role to play in the long-term global energy mix. Even assuming aggressive GHG reductions are achieved, and the globe is able to maintain temperature increases to below 2°C, natural gas volumes are still expected to be significant in the longer term. This is because 1) developing nations will still likely utilise natural gas after 2050 for energy production, and 2) natural gas will be used in combination with CCUS, carbon sinks and in the creation of blue hydrogen. Therefore, based on the continued demand for natural gas, the business model of midstream infrastructure names focused on processing and transporting natural gas is likely to be maintained. There is further potential upside from repurposing midstream assets for use with hydrogen, CCUS, RNG, biofuels and other renewable fuels, which many companies are starting to explore.

4D adopts a cautious approach to investing in midstream oil/gas companies. We undertake significant due diligence regarding the quality of companies and their competitive advantages in the processing and delivery of natural gas. We also adopt conservative base case assumptions with regard to growth and terminal values, and undertake scenario analysis to understand the breadth of potential valuation outcomes. They also must adhere to strict ESG standards and stack up against their infrastructure peers on an overall quality basis. In doing this, we believe the investment proposition of specific midstream names is attractive.

For more insights from 4D Infrastructure, visit [4dinfra.com](https://www.4dinfra.com)

The content contained in this article represents the opinions of the author/s. The author/s may hold either long or short positions in securities of various companies discussed in the article. This commentary in no way constitutes a solicitation of business or investment advice. It is intended solely as an avenue for the author/s to express their personal views on investing and for the entertainment of the reader.

This information is issued by Bennelong Funds Management Ltd (ABN 39 111 214 085, AFSL 296806) (BFML) in relation to the 4D Global Infrastructure Fund and 4D Emerging Markets Infrastructure Fund. The Funds are managed by 4D Infrastructure, a Bennelong boutique. This is general information only, and does not constitute financial, tax or legal advice or an offer or solicitation to subscribe for units in any fund of which BFML is the Trustee or Responsible Entity (Bennelong Fund). This information has been prepared without taking account of your objectives, financial situation or needs. Before acting on the information or deciding whether to acquire or hold a product, you should consider the appropriateness of the information based on your own objectives, financial situation or needs or consult a professional adviser. You should also consider the relevant Information Memorandum (IM) and or Product Disclosure Statement (PDS) which is available on the BFML website, [bennelongfunds.com](https://www.bennelongfunds.com), or by phoning 1800 895 388 (AU) or 0800 442 304 (NZ). Information about the Target Market Determinations (TMDs) for the Bennelong Funds is available on the BFML website. BFML may receive management and or performance fees from the Bennelong Funds, details of which are also set out in the current IM and or PDS. BFML and the Bennelong Funds, their affiliates and associates accept no liability for any inaccurate, incomplete or omitted information of any kind or any losses caused by using this information. All investments carry risks. There can be no assurance that any Bennelong Fund will achieve its targeted rate of return and no guarantee against loss resulting from an investment in any Bennelong Fund. Past fund performance is not indicative of future performance. Information is current as at the date of this document. 4D Infrastructure Pty Ltd (ABN 26 604 979 259) is a Corporate Authorised Representative of BFML.

Appendix

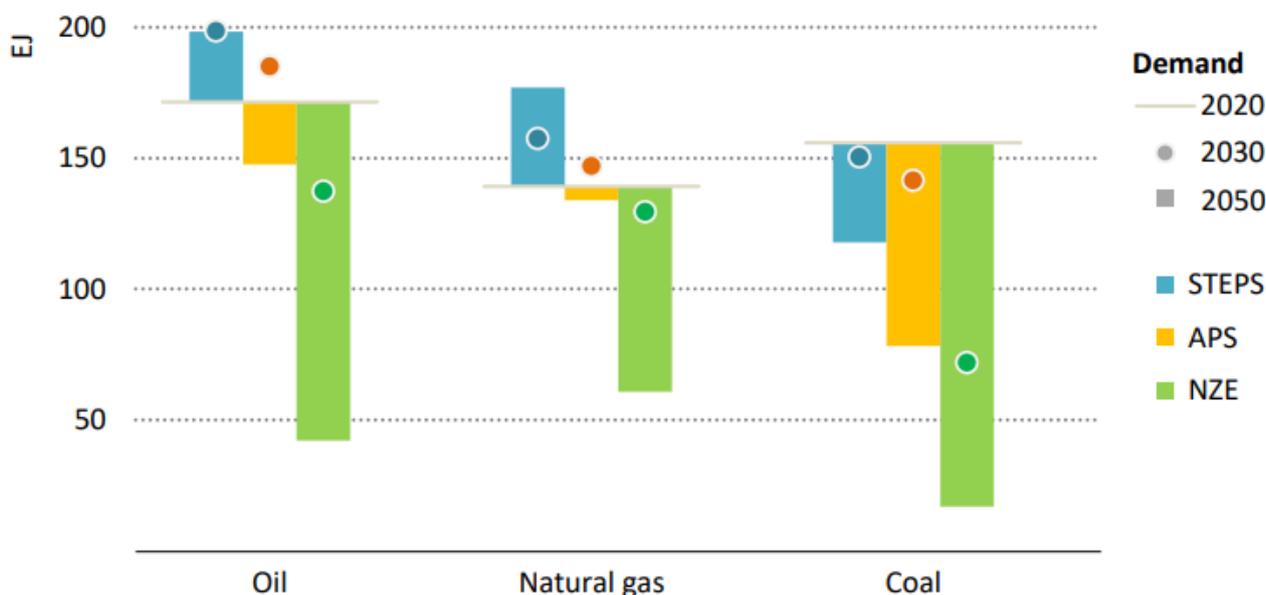
1. International Energy Agency (IEA)

In its World Energy Outlook 2021⁴, the IEA established a number of scenarios which guide the pace of CO₂ reduction (as a proxy for GHGs) and how they influence natural gas demand:

- Net Zero emissions by 2050 (NZE);
- Sustainable development scenario (SDS) facilitates a slower transition in emerging/developing nations and is aligned with all countries achieving net-zero by 2070 at the latest;
- The announced pledges scenario (APS) which models commitments made by countries towards Net Zero at the COP26 energy summit, and incorporates their 2030 interim targets; and
- The stated policies scenario (STEPS) which models the impact of initiatives and policies that national governments actually have in place now.

The forecast of CO₂ emissions varies significantly under the various scenarios and is depicted in the graph below. The prospect of delivering the NZE scenario is becoming unlikely based on 1) national interim pledges of carbon reductions to 2030 falling short and requiring a steep trajectory of reductions in the period 2030-2050; and 2) the carbon transition of developing market countries is likely to take longer as they balance it with economic development. This makes the SDS scenario the most optimistic scenario that still maintains global temperature increases to well under 2.0°C – it would sit between NZE and APS on the chart below.

Chart 4: Fossil fuel demand by scenario



Source: International Energy Agency

Note: 1 EJ is around 0.5 mb/d of oil, 29 bcm of natural gas or 34 Mtce of coal.

Of the fossil fuels above, natural gas is the focus for this article. However, it should be noted that oil demand is also pertinent as ‘associated’ natural gas is a by-product of oil production, and so the supply of oil simultaneously brings gas supply.

Even under the more optimistic SDS scenario, which envisages aggressive GHG reductions, global natural gas demand reaches 4,038 bcm in 2030 which is slightly above 2020 levels (1%), and 2,452 bcm in 2050 – a

⁴ [World Energy Outlook 2021](#)

39% reduction compared to 2020. This suggests that even in this scenario, which achieves the goals set under the Paris Agreement, there is a long-term and significant role for natural gas in the global economy.

2. Wood Mackenzie

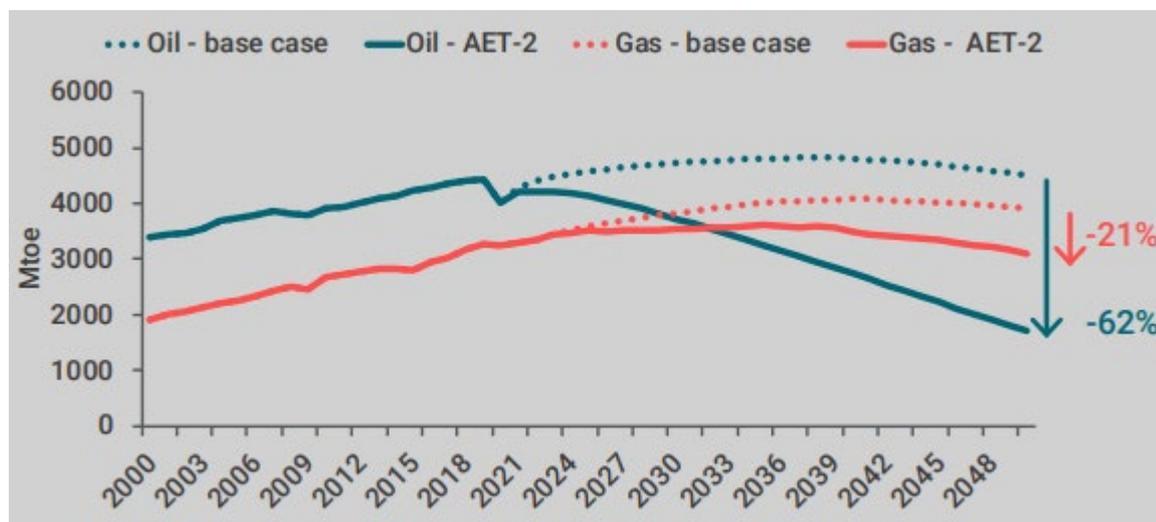
In April 2021, Wood Mackenzie developed models to forecast the demand for oil and gas under their proprietary scenarios which achieve the goals set under the Paris Agreement to varying degrees. The Accelerated Energy Transition scenarios target two global temperature increases – 1.5°C (AET-1.5) and 2.0°C (AET-2.0).

According to these scenarios, natural gas is perceived as a key transitory energy source (replacing coal generation in the short term) and is still utilised extensively in 2050 in association with CCUS and for blue hydrogen. These technologies provide opportunities for gas to be utilised extensively in a Net Zero scenario, and as a result, by 2050 there is limited gas demand decline in AET-2.0 compared to current levels, and in AET-1.5 the decline in gas demand by 2050 is only 18%. This is significantly less than the aforementioned decline in gas demand between 2020 and 2050 according to IEA's SDS of 39%. Wood Mackenzie calls the continued utilisation of natural gas the era of carbon-neutral gas.

Conversely, oil demand is expected to decline significantly by 70% in 2050 compared to 2020, as electric vehicles (EVs) and hydrogen disrupt road transportation, while recycling limits demand for feedstocks in plastics. This could limit the supply of associated natural gas as this is a by-product of oil production.

The forecast oil and gas demand under a base case scenario and the AET-2.0 as determined by Wood Mackenzie is depicted below⁵.

Chart 5: Fossil fuel demand by scenario



Source: Wood Mackenzie

This indicates that under Wood Mackenzie's base case, oil demand continues to climb slowly but plateaus in the mid-2030s, and declines slowly to 2050, while gas demand continues to increase beyond 2040 until it also plateaus but barely declines to 2050. This base case doesn't achieve the targets outlined under the Paris Agreement.

The base case scenario compares to the AET-2 scenario, which assumes that the rapid adoption of EV/hybrid light duty vehicles and electric/hydrogen heavy duty vehicles, reduces oil demand significantly – 62% below Wood Mackenzie's base case by 2050 and a similar level below current demand levels. The impact on gas demand is less significant. Gas demand in 2050 is forecast to be 21% below Wood

⁵ [Reversal of fortune: oil and gas prices in a 2-degree world](#), Wood Mackenzie

Mackenzie's base case and largely in line with today's levels. Gas is perceived to be a supporting fuel source for renewables and used in conjunction with CCUS to produce power and blue hydrogen.

3. CCUS and green hydrogen

High energy density and zero-carbon combustion make hydrogen well suited to address the 30% of current GHG emissions across sectors as diverse as aviation and shipping, industry, buildings, and heavy-duty road transport. Green hydrogen produced from water with renewable resources currently costs about US\$3.00-\$6.55/kg, according to the European Commission's July 2020 hydrogen strategy. Fossil-based hydrogen costs about US\$1.80/kg, and the commission estimated the cost of blue hydrogen, which pairs carbon capture with steam methane reformation of natural gas, at about US\$2.40/kg⁶. If green/blue hydrogen could be made for less than US\$2/kg in the European Union or US\$1/kg in parts of the US by 2030, major end uses would become economically viable.

CCUS is necessary for hard to decarbonise sectors and to remove CO₂ from the atmosphere (resulting in 'negative emissions'). Costs remain prohibitively high – typically US\$50-\$100 / tCO₂ - and CCUS consume a lot of energy. Previous CCUS projects adopted by companies such as Mississippi Power (subsidiary of Southern Company) in the US, have resulted in abandonment and billions of dollars in costs borne between shareholders and stakeholders. There remains significant difficulty in delivering these technologically advanced projects.

4. Examples of company pilot projects in low/no carbon fuels

Companies have already started exploring low/no carbon fuel opportunities include.

- **Kinder Morgan** – US midstream operator, Kinder Morgan, acquired the RNG developer, Kinitrex Energy, in Q3 2021. As part of the acquisition, Kinder gained 50% ownership in a landfill based RNG facility in Indiana and signed commercial agreements for three additional RNG facilities, with construction to begin shortly. Kinder are looking to use this platform to grow their RNG exposure.
- **Williams Company** – US midstream operator Williams' current low/no carbon projects include 15 solar projects in various stages of development with capacity of 400 MW; pipeline interconnections with seven RNG production facilities, and an MOU with Orsted to develop scalable hydrogen opportunities in Wyoming utilising a government hydrogen grant.

5. Existing GHG policies

Policies are currently in place globally which improve the economics of more mature low/no GHG emission technologies like batteries, solar/wind generation and electric vehicles (EVs) – supporting their utilisation. The increasing trend in utilisation of these technologies can go a long way to reducing GHG emissions towards 2030 targets.

A key challenge is reducing GHG emissions in difficult-to-transition areas, such as heating, industry, heavy duty vehicles, and air/ship transportation, and in ensuring reliability/resiliency of the power network (mainly through long dated power storage). The development of technologies to support decarbonisation in these sectors, at least initially, is likely to require greater policy support from governments globally. This could be in the form of government support for research & development (R&D), or incentives which support the economics for these technologies.

One policy that has been discussed in multiple countries has been the adoption of carbon pricing either through a carbon tax or cap-and-trade scheme (an emissions trading scheme (ETS)). According to a survey of Australian economists, 86% preferred implementation of carbon pricing to achieve Net Zero over other

⁶ European Commission: [A hydrogen strategy for a climate-neutral Europe](#)

policy schemes⁷. There is still a long way to go before these schemes are implemented widely enough and with targets that can effectively limit global temperature increases. As of 2021, there were 64 carbon pricing instruments in operation globally – covering only 21.5% of global GHG emissions. Of these, only about nine price CO₂ within the estimated required range of US\$40-80/tCO₂e to sufficiently disincentive emissions to meet the 2.0°C goal⁸.

6. Williams Co

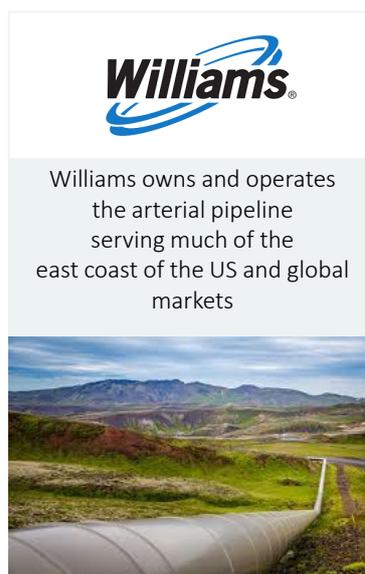
Williams Company – Strong Buy

Investment thesis

- ✓ Owns and operates a set of irreplaceable natural gas pipeline assets including Transco which serves much of the East and Southeast of the US
- ✓ Significant contractual protections against reductions to natural gas and NGL prices and volumes
- ✓ Operating in the lowest production cost gas basins in the US in the Marcellus/Utica and the Haynesville – most likely to service growing domestic and global demand
- ✓ Strong management team delivering operational performance and cost efficiency – has managed to execute on a number of attractive, value accretive transactions

Negatives/Risks

- Indirect volumetric exposure to gas prices – mitigated by Williams' presence in the lowest cost gas basins meaning producers continue drilling in low price environments
- Some smaller exposure to weaker oil directed basins such as the Wamsutter and Southeast Wyoming
- Some counterparty risk in less productive basins (although minimal)



Vertically integrated midstream natural gas company that is central to provision of gas to demand centres on the east coast of the US and global markets

⁷ The Conversation: [Economists back carbon price, say benefits of net-zero outweigh costs](#)

⁸ The World Bank: [State and Trends of Carbon Pricing 2021](#)

7. Snam SpA

SNAM – Buy

Investment thesis

- ✓ Has established itself as the regional leader in gas transportation with ~90% regulated EBITDA
- ✓ Attractive valuation with ~6% sustainable yield
- ✓ Excellent management team who have made impressive capital allocation decisions with the demerger from Italgas and recent acquisitions both in the regulated and unregulated space
- ✓ Track record of outperformance on regulatory opex and financing
- ✓ Strong balance sheet with ~1% cost of debt, comfortably below gearing limits imposed by rating agencies, which combined by strong FCF generation gives optionality for shareholder friendly capital allocation
- ✓ Has been a global leader in green hydrogen advocacy, which following recent increased policy support could provide further upside to our forecasts, whilst also making the stock more attractive towards increasingly ESG focused investors

Negatives/Risks

- LT viability of gas as a technology is questionable in the context of rapidly falling renewable costs
- Organic growth is lower when compared to other Italian peers
- Less clear catalysts for share price appreciation
- Impacted by Italian macro risks and associated market risk / volatility



One of the world's leading energy infrastructure operators and one of the largest Italian listed companies. Its main asset is the Italian Gas Transmission Network. Through its international subsidiaries, it operates in Albania, Austria China, France, Greece, UK and most recently the Middle East

