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In considering our Strategies for a New Reality, we first need to think about what has changed in global energy markets and what change is still to come. What are the defining features of the “New Reality”?

Within the world of oil and gas, market dynamics are always shifting and we have in recent years seen some interesting developments in both supply and demand that are shaping our business environment.

On the supply side, it’s a world where we have moved from scarcity to abundance. The advent of shale and unconventional gas has been a game-changer in the industry, bringing the oil cost curve down. For LNG, the boost in supply has been underpinned by an increase in production in Australia and the start-up of exports from the Gulf of Mexico, something that was not in anybody’s forecast 10 years ago.

The volume of LNG traded globally is increasing and the flexibility of that global LNG trade is fundamentally changing as we see market dynamics affect shipping, contract sizes and the number of countries we are dealing with.

Of course, increased supply has an impact on prices. Producers are never thrilled by lower prices, but the good news is that the availability and affordability of gas is further fueling growth in demand.

It's a world that clearly has a desire for more gas in its energy mix as countries strive to reduce emissions, not just for pollution but also for the health of their citizens and the affordability of energy.

We need to think about our place in the broader global energy mix, and acknowledge that a change is underway with the rise of renewables, opening up both challenges and opportunities.

The economic rationalists amongst us always like to say it's difficult to see how renewables come into the marketplace. But those countries that are not rich in resources but are users of energy are often motivated, whether for geopolitical or social reasons, to make or incentivize investments that may not make the grade when it comes to investment return. But it's a social investment return that goes beyond normal economics we consider as we make our investments.

I'll talk shortly about what strategies we can deploy in response to the shifts in supply and demand but, first, let's consider how we should approach the rise of renewables and the changing mix of energy globally.

It is important that there is an honest debate about the strengths and weaknesses of energy sources. It's fair to say that coal will remain a very important fuel in the energy mix but its exponential growth is slowing. It is unlikely to be a growing part of the market.

Renewables are starting from a low base but are increasingly making inroads into energy markets, particularly for power generation. We can't afford to ignore that. They are making tremendous inroads into the minds of consumers, who are making choices every day.

This competition has been building for some time, but it's only in recent years that governments have begun to make significant investments in renewables.

In my home country of Australia, we have seen rapid growth in renewables in recent years. We are a country that is blessed by an endowment natural resources, not only of hydrocarbons but also of solar and to a lesser extent hydro. We've seen this debate occurring at a state level in Australia. Our federal system doesn't allow federal control of our energy mix so decisions are made at a state level. In recent times, we've seen the rise of renewables in the power sector causing significant disruption because people have forgotten what baseload generation means and the interconnectivity of each of the systems. It's to the point where we are on the cusp of becoming the largest LNG exporter in the world and yet there are conversations about having a regasification facility installed on the east coast because we haven't got our power system right.

This variability of renewable power was highlighted by a recent report to the Australian Government by Chief Scientist Alan Finkel. He recommends a new approach is needed to mitigate this variability. His proposed solution is the introduction of a Generator Reliability Obligation that would require new generators to ensure they can provide dispatchable power as required.

These sorts of ideas present an opportunity for gas-fired power to complement renewable generation. Battery technology will continue to develop – it has some limitations - and the reality is that renewables will need to partner with another source of energy source and gas is the prime energy source for that partnership.

The rise of renewables and heightened climate concerns also underline how important it is for oil and gas producers to be part of the social debate about the future energy mix. As uncomfortable as it may sometimes be for oil and gas producers, we need to be conscious of how we develop resources in a carbon-constrained world. We need to contribute to not only the social debate but also the solution.

For governments, the temptation is to impose carbon taxes but carbon taxes are just going to be a leakage out of the system unless they are garnered and it is ensured they go into supplying reliable power. In addition to being part of the social debate, it is also incumbent upon us to demonstrate we are responsible operators and are aware of our obligations as stewards of the environment.

It's a fair assumption that renewables will account for a growing share of our energy mix. But the world's energy needs will continue to rise and the market will continue to need hydrocarbons for at least the foreseeable future.

I've already mentioned some of the recent changes in market dynamics. In light of these, we need to rethink our strategies for marketing our product and for financing future developments.

At a time of abundance, buyers take a different approach. They sit on the fence.

Traditional LNG buyers are still relevant but new, small buyers are emerging. The current availability of gas and the opening up of contracts have stimulated new demand and accessible regasification technology has allowed new countries to enter the market. Those buyers are telling us gas is the fuel of choice for them.

Floating Storage Regasification Units have been a game-changer for the industry, just as shale gas has been a game-changer in the US. Imports to countries using FSRUs are now around 30Mtpa, up from 10Mtpa in 2012. And that will continue to grow. We're seeing fixed pipelines being replaced by virtual pipelines as the shipping industry reaches critical mass with the ability to transport fuels around the world and the changes to the destination and source clauses that existed in original contracts.

We are dealing with more customers, different types of customers and customers who have different needs and expectations with respect to the length of contracts, the conditions attached to them and the pricing point. Many buyers are seeking shorter and more flexible contracts. Some want smaller LNG parcels. Spot market activity is increasing. These are all contrary to the investment thesis for long-cycle LNG projects that have payback periods typically of 15 years or more and very, very deep capital requirements upfront.

These changes force us, as producers, to be more sophisticated and flexible in our marketing approaches and our contracting. We need to help solve this problem or this opportunity will pass. Those customers require energy and if our energy is not available, they will simply go somewhere else.

As sellers, we need to consider what flexibility we need to be successful in this particular marketplace. We need to take a fundamentally different view to how we sell into the market and how we manage risk in our portfolio. Gone are the days of the big long-term pipeline contracts that were simply a cash register that ticked over with a CPI linkage.

We need to appeal to new customers for conventional uses of the product, but also proactively build markets for new uses.

Historically, LNG has had a very small footprint in transport. It's been mostly used for town gas and power generation. Future new markets could be in transport. I'm not sure what the penetration into shipping will be. I do know there's virtually zero Nitrogen and Sulphur emissions. I do know there are ports and harbours that are already taking it into their own hands to ensure emissions are reduced and LNG in particular has a place in that mix. I do know the potential market in the global shipping industry is equivalent to the total LNG supply in the world today. Even a 10 or 20% market penetration is going to fundamentally change the dynamics of the industry and provide a new market to supply.

There are also other transport applications. LNG is not an end product – it's just a form in which gas is transported - it can be moved into Compressed Natural Gas. And the numbers are compelling. If China decided it was going to convert all of its bus fleet to natural gas, it would equate to around 20 million tonnes. And of course India is already moving down that path.

At Woodside, we are working with the major mining companies in Australia – Rio Tinto, BHP and Fortescue – in creating a “Green Corridor” from Australia to China where iron ore export vessels can be fueled by LNG.

In addition to seeking out new customers and new markets, we also need to think about how we can finance the new projects that will be needed to meet the anticipated demand.

We have seen some announcements recently about new gas potentially coming into the marketplace from 2025 onwards. Rather than seeing this as a threat to the market, I would say it's a vote of confidence in the market. Very well-informed countries are making decisions about future investments and are signaling to the market that they will be there.

To meet expected LNG demand growth, we calculate that annual average FIDs of 20 Mtpa will be required from this year. This year we expect maybe zero to five, so we're already behind. A 20Mtpa investment, depending where it is in the world, can be anything from US\$30 to \$50 billion, so these are significant investments and we're already getting behind the curve. It's incumbent on buyers to come back into the marketplace and help us.

So far, I've talked about four strategies for the new reality:

- Firstly, we need to acknowledge the rise of renewables. We need to accept it, rather than deny it. The pace of change we can debate. There are, of course, limitations but those will be overcome. Humans have done that consistently over time. Things we see as limitations today will be opportunities for someone tomorrow. People will always get in and solve a problem, particularly where there's a financial incentive. Renewables will play a significant role into the future and we need to think about how we play with that.
- Secondly, we need to be more sophisticated and flexible in our contracting and marketing to deal with a more fluid market, involving multiple players.

- Thirdly, we need to appeal to new customers for conventional uses of the product, but also proactively build markets for new uses.
- Fourthly, we need to think about how we finance projects, focusing on developments that have a faster time to market. We're fast getting to a point where only the very biggest of companies can finance projects and that's not a good thing going into the future if we want to ensure we have supply.

The fifth and final strategy I would mention is interwoven with each of the preceding four. I'm referring here to the need to embrace innovation in technology and its applications.

I'm not talking just about improvements in equipment. I'm talking about innovative contemporary technologies: data analytics, cognitive computing, robotics and additive manufacturing. These are the things that will start to differentiate companies.

Finally, I would like to reflect on what has *not* changed in the so-called "New Reality" ... Global energy demand is still growing. Demographic drivers remain the most important determinant of energy demand as the global population and its energy needs continue to grow.

In all foreseeable scenarios, gas will continue to have a significant role in meeting world energy demand. The challenge for us is what does that future look like, how do we manage the uncertainties and how do we reassure buyers that the product we supply will be both reliable and affordable into the future.

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