

**BHP Billiton CEO, Andrew Mackenzie
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Good morning everyone. And thank you for that kind introduction Dan. It is a real pleasure to be here.

BHP Billiton is commonly known as the world's largest miner. But what's less well known is that we have been in the oil and gas industry since the sixties and today we have a global upstream business headquartered here in Houston.

We are one of the largest investors in US shale, we operate two of the deepest tension-leg platforms in the Gulf of Mexico and our Australian operations give us exposure to liquefied natural gas.

Our portfolio is special; we are the only energy company that supplies oil, gas, coal and uranium as well as the metals used in renewables and energy infrastructure. Many have called for an "all of the above" approach to energy. Well, our uniquely diversified portfolio delivers that.

It gives us a powerful perspective on the influence of geology, technology and trade on supply and how demand changes when countries develop as their people secure better housing, better transport and better food.

Energy demand will grow as more people meet their basic needs

Energy is crucial at all stages of economic development but as developed economies become more efficient their demand is plateauing. So the real area of growth is in emerging economies as people first gain access to electricity and living standards improve as their countries modernise.

More than a hundred years after Edison built the first power station, a fifth of the world's population still lack access to reliable modern energy. In sub-Saharan Africa, for instance, over 700 million people still rely on burning wood or charcoal to cook and heat their homes.

Thankfully, this is changing and in the next 20 years we expect 1.7 billion people to gain access to electricity for the first time with India, South Asia and Africa making the biggest progress.

Most people in China and other developing East Asian economies are already connected to the grid and reliable energy is supporting the development of industry in those countries. With incomes rising, more people can buy consumer goods like cars and appliances, further increasing the demand for energy.

So, the growth of our industry is fundamentally tied to the alleviation of abject poverty and the successful development of emerging economies. This process is likely to increase the demand for energy by over 30 per cent in the next 20 years, with two thirds of new demand from Asia and half from China and India. Africa will see the fastest growth – off a lower base.

A diversified energy mix is inevitable

The way these regions meet their energy needs will significantly influence commodity demand, as well as the health and stability of the global economy. Every nation will choose a

different mix which balances affordability and security of supply to fulfil their demand. But over the next few decades fossil fuels will remain central to the energy mix as their affordability and the scale of our existing infrastructure make them hard to replace.

Renewables are likely to be a rapidly-growing source of energy as we strive to reduce carbon emissions, but we will only be able to rely on them when large-scale and cost effective energy storage becomes available. Nuclear can provide low carbon base load but in many countries, post-Fukushima, faces strong, public resistance which is likely to slow or even reverse its growth for some time.

As we look to 2030 we anticipate over 70 per cent of the world's energy will still be supplied by oil, gas and coal. Gas is expected to see the strongest growth through wider use in power and transportation. But the shale gas revolution is unlikely to go global quickly. And despite what many claim, we are unlikely to see gas replace coal globally at the scale and pace seen here in the US.

Cost and security of supply mean most places will favour the use of local resources to meet their energy requirements. The fastest growing Asian economies have easier access to large coal reserves than they have to cheap gas. The cost of generating electricity from gas in Asia is more than double the cost of coal. Coal will remain the region's primary source of affordable energy and the basis of its energy security.

Energy security is a matter of governance not geology

Whatever we choose, every form of energy relies on the resources we extract from the earth – whether that's oil, gas, coal or uranium, the fertilizers such as potash that support biofuel and biomass production, or the copper used in wind turbines or to connect solar panels.

We have the resources we need. As our understanding of the earth's crust improves we are getting better at securing the resources for our future. Of course in some commodities we face more complex geology, field decline or lower grades. But history shows that we will substitute, we will innovate and we will improve efficiency to overcome these challenges.

Take our experience in oil and gas. As the era of "easy oil" came to an end in the seventies, an understanding of plate tectonics emerged. In the eighties, advances in drilling allowed us to move into deeper water. In the eighties and nineties 3D seismic technology and organic geochemistry improved exploration success. Over the last decade, we combined horizontal drilling and hydraulic fracturing to commercialise shale.

As Dan has written, there have been at least 5 occasions when the world thought it would run out of oil. But in practice, continuous innovation has meant that world oil reserves have kept pace with demand and grown by around 30 billion barrels a year over the last 30 years alone.

What is true for oil and gas is also true for other commodities. Power lines, wind farms and energy efficiency devices that turn waste heat into power all rely on copper. And despite average copper grades falling from 4 per cent to 1 per cent over the last 100 years production has increased 16-fold.

So energy security is a matter of governance not geology. What is 'above ground' matters more than what is below. That is why close to 90 per cent of investment in resources is still made in more developed countries.

Open markets promote resource security

Open markets, societies and free trade, in goods, services and ideas, create the right conditions for development. Shareholders, host nations and consumers all benefit from competition between countries for investment and between companies for the privilege to invest. If this occurs in more places, supply will become more diversified and the pace of innovation will quicken.

Asia's continued development depends on its access to affordable energy and other critical resources. With half the world's population in the region and global growth depending on its progress, much is at stake.

In that context, the debate here in the US regarding energy exports is important. Some have argued that the US should not export gas and that exports will lead to much higher prices for domestic customers. They use the difference between Australian and US gas prices to substantiate their claims.

As the largest consumer of gas in Western Australia, as well as a major producer, we know that the price difference is due to the higher cost of offshore production compared to shale – not exports. An open market has enabled the development of Australia's reserves, made it one of the world's leading gas exporters and bolstered the economy.

Exports can benefit both the US and its partners. The country will gain more jobs at home, and US customers will continue to enjoy lower prices than nations that import. Although the volume of gas exported will be limited by the cost of transport, exports would help US allies diversify their supply and send a signal to the world on the importance of open markets.

The successful transition of the world's most populous nations into vibrant consumer economies both relies on – and is crucial to – geopolitical stability. US leadership can encourage the development of a global market that supports this process, improves resilience of supply and advances free trade policy around the world.

Over the long term open markets will also help countries reduce their emissions and adapt to climate change, by diversifying the supply of resources and promoting innovation to make it easier to switch fuels and become more efficient. But more action is needed.

Energy poverty and climate change must be addressed together

As an industry we need to acknowledge that, unless we control emissions, the most likely energy mix will have negative consequences for the broader environment. Predicting the detail of the future climate is complex but the geological evidence record provides compelling evidence. Substantial variation in CO₂ and other greenhouse gases results in temperature changes with potentially significant implications for life on Earth. Warming of the climate is real, human activity is the dominant cause of this warming and physical impacts are unavoidable.

The solutions we choose must address energy poverty and climate change together. Any attempt to solve one without the other is destined to fail. While the wealth gap between rich and poor countries remains as wide, we will struggle to reach a comprehensive global climate agreement and hence regional action will be key in the medium term.

The world will continue to rely on fossil fuels over the long term because their continued supply is vital to the development that will deliver huge reductions in abject poverty and improvements to all our living standards.

Our industry has a fundamental role to play and there are four things we must do:

First, we must reduce the emissions from our own operations. Second, we must mitigate and adapt to the effects of climate change to reduce societal impacts and maintain the supply of commodities. Third we must contribute our technical and market expertise to find solutions. For example, our understanding of the earth's geology will inform the development of large scale carbon storage. And finally we should encourage the development of constructive policy, including appropriate carbon pricing mechanisms, that enable the market to identify the most cost-effective methods of cutting emissions.

As Jim Yong Kim, President of the World Bank said recently, "We need to focus on the good we can do now." So efficiency should be the priority for all of us, industry and consumer alike. As it is by far the largest and lowest-cost driver of CO₂ reduction over the next two decades.

We should be confident about the future

We should be confident about the future. Growth is reliant on energy and all energy sources will be important. With innovation, good governance and open markets we can supply the resources the world needs, deliver returns to our owners, address energy poverty and improve the world's ability to solve complex global issues like climate change.

I stand in a room of people who are proud to make a difference, who know that as an industry the energy we supply can power the greatest improvement in living standards the world has ever seen.

Energy security for the planet and its people that is compatible with environmental responsibility is achievable. And that is a prize worth having.

- Check against delivery -