Australian Energy Week keynote by Mark Collette

Introduction

Good morning everyone.

EnergyAustralia is one of Australia's biggest energy retailers.

Our job is to look after our customers.

That means ensuring they have a reliable energy supply and pay a competitive price for energy, while we make the energy transition simple for them.

It's also our job to shield them as best we can from short-term shocks, like the current energy crisis.

Australia's current energy supply crunch is the result of heavy rains and geological issues slowing domestic coal supply, cyclically low wind and solar production, untimely generator outages, the war in Ukraine and sanctions against Russia and high prices for Australia's coal and gas.

Our customers don't want to worry about energy. They pay us to worry about it for them. We are doing everything we can to make sure our customers have the energy they need at a competitive price.

The deeper question we have been thinking about as a business is how we solve these challenges. How do we reduce our customers' exposure to these sorts of short term supply risks today, while solving for a net zero future.

It's this longer term transition I would like to focus on today.

Energy is changing. From fossil fuels to net zero. It's a global shift being managed in different ways by governments and energy companies.

In Australia, we are at the end of the beginning of the energy transition.

We have made the first significant inroads into reducing our emissions. Through trial and error we have learnt a lot about what works and what doesn't. We have picked the low hanging fruit and made the first and easiest gains.

It's a good start and Australians should be proud of what we have achieved with this beginning.

The next stages will be more challenging. We must recognise the scale of the challenge ahead and plan for it – but also recognise that we can do it.

We can deliver a net zero energy system, and, one day, a zero carbon energy system.

This morning, I'll describe what we have done, the easy part, and what comes next in the scale up and zero phases before discussing how we can best get the energy transition done.

Phase one – *the easy part*

Phase one of the energy transition was "the easy part", although it didn't always feel like that at the time.

Largely as a result of two decades of bipartisan renewables policy, Australia now sources 29 per cent of its electricity from renewables.

On a per capita basis, Australia has become one of the fastest renewable-building nations on earth.

South Australia is the world leader in managing high renewables integration with 65 per cent of the state's electricity supplied by wind and solar. Its performance is so important it is monitored separately by the global electricity industry.

For years Australia has been the world leader in rooftop solar PV. Close to one in three Australian households now have solar panels.

Deploying these renewables has created a world-class installation industry. We have been doing *a lot* of learning by doing. By driving down installation costs – large and small scale – we have made renewable energy even cheaper.

The success of renewables in Australia has been self-perpetuating. The more we built, the cheaper they got. The cheaper they got, the more we built.

Yet for all this activity to date, only 9 per cent of Australia's total energy – as opposed to the 29 per cent in electricity – is renewable. We are still heavily dependent on fossil fuels in the transport sector and other sectors. There is much more to do.

Phase two – ***scale up***

The next phase, the second phase of the energy transition, is the "scale up" phase.

This phase is more challenging. The low hanging fruit is gone.

For most of phase one, Australia added renewables to the existing grid. Incumbent coal and gas generation reduced output to make room for the renewables. The system retained the capacity to handle demand peaks from different weather conditions.

Phase two, the scale up, is fundamentally different to this in three ways: a faster customer centric system, renewables development requiring grid expansion, and the massive transition on capacity as coal phases down and out.

Demand

Let's imagine what this might look like for customers in the future.

In 2050, customers will see the electricity system starting in their homes and businesses.

Solar will be integrated into most homes and businesses. Batteries, hot water heating, EV chargers and other controllable energy devices will use the self generated power wherever possible, with the grid for the remainder.

Supply will be two way. Wholesale markets and grid operations will benefit from the services supplied from homes and businesses.

To reach this future, to build an efficient future electricity system that prioritises consumers' interests, will mean bringing the best of small and large scale energy technologies together in a way that benefits energy consumers.

This is the role energy retailers provide in our energy future. And it is starting today.

At EnergyAustralia, an example of our approach is our Solar Home Bundle product in NSW. A customer signs up to a seven year, fixed price contract at competitive rates today; we provide solar and a battery with no upfront cost and EnergyAustralia manages the wholesale and network interactions to get the most from the solar and battery in concert with what we supply from the grid. Even better, the customer owns the kit after seven years.

Simple.

Changing the mindset with customers so that energy starts on site, not with the grid, is a fundamental change.

It's where customers want our industry to go – prioritise investing in homes and businesses ahead of the utility scale renewables and flexible capacity we will still need.

Renewables

In phase two, new renewable capacity won't be able to connect to the existing grid. It's full. Paraphrasing Jaws, we're going to need a bigger grid.

Governments across the nation recognise this. The next phase of renewables development involves renewable energy zones with new grid, connected back to the major load centres.

Clearly, grid plus renewables is more expensive than renewables alone – but it's an integral part of the journey to net zero.

More transmission connecting more large scale renewables will impact the lives, amenity and economies of more regional communities than ever before. City and country folk both understand the drivers and opportunities here - the challenge is ensuring the development is done intelligently and empathetically with our regions.

We haven't built any major new transmission projects in the National Electricity Market for more than 30 years. And we're about to build a lot of them. That's a big change, and it's not hard to understand why some affected communities are pushing back.

For example, the Western Victorian Transmission Project is a 200-kilometre transmission line to strengthen the connection between Melbourne and Victoria's beautiful Grampians region to the north-west. The region is already a major renewables hub in the state. It can do more.

The new transmission line will allow more jobs and clean energy investment in the region. From inside the energy industry, the project makes complete sense to bring renewables to market. But some in the local community don't share our excitement and are opposing it. They don't see it like we do. They see a big new power line cutting through the place where they live.

As an industry we need to be better at walking in other people's shoes.

We need to understand how others see the changes we know are necessary to deliver this enormous change to our energy supply in the 21st century.

Some scenarios of our future show us growing from about 16 per cent wind and solar in 2020 – which took us about 15 years - to about 73 per cent by 2030. That's adding in three and a half times as much renewable energy in half the time.

That is big.

The solution here is governments and industry working with communities to find the most workable solutions, which may not always be the lowest theoretical cost.

Capacity

Renewables are the bulk supply of our net zero energy system. We will need flexible capacity to support them supplying customers through all weather conditions.

Renewables and flexible capacity are a bit like the Kardashians and selfies. You can't have one without the other.

In phase one, coal provided the bulk of our electrical energy while coal and gas provided the capacity to support our electricity system through all weather conditions.

In phase two, things will need to change.

As renewables ramp up, coal generators will ramp down. Coal will reduce its output and retreat to a minor share of total supply.

The step beyond ramp down is check out. The retirement of coal generators. This is happening already with EnergyAustralia's announcement on Yallourn and Origin's announcement of Eraring.

Here's where phase two gets tricky. Ramp down is good for emissions, energy security and reliability. Check out is good only if we have enough new flexible capacity checking in.

In phase one, we saw three major coal check outs over about 10 years: Wallerawang, Hazelwood and Northern. We now face over 15 check outs in less than 20 years, many possibly a lot sooner.

This is massive, a very large change, and we should not assume it will be naturally orderly.

There are too many uncertainties to assume the existing markets and structures will be fit for purpose for phase two.

I'd like to see the new flexible capacity check in before coal checks out. In the scale of the next stage of the energy transition – three and a half times more solar and wind than we have today by 2030 – a bit of insurance along the way for our customers is prudent.

You'll notice I'm saying flexible capacity not storage in phase two.

In my definitions, flexible capacity includes storage but also gas, especially with hydrogen options. That's what EnergyAustralia is doing in building the gas and hydrogen powered Tallawarra B in NSW today.

Storage is a big part of flexible capacity and all of the batteries and pumped hydro coming to market have a big role to play in our system.

This is why EnergyAustralia in investing through our offtakes with the Kidston pumped hydro, the Darlington Point and Riverina batteries and our development projects including the Wooreen battery and the Lake Lyell pumped hydro.

Just talking this though, it's pretty clear that ramp down, check out and check in all need to be coordinated with the right market and/or regulatory signals to deliver phase two effectively. I'll touch more on this a little later.

Phase three – *longer-term storage*

Getting to net zero emission by 2050 is an important goal. But it's not the ultimate goal. Net zero means we are still using small amounts of fossil fuels – mainly gas – for flexible capacity, and then offsetting these emissions.

This approach is baked into planning scenarios produced for the National Electricity Market. Our current system relies on flexible access to gas through to at least 2050.

Phase three is the step beyond net zero: The complete replacement of all fossil fuels for energy. Zero fossil fuels.

Taking net out of a sentence is easy, taking the net out of the electricity system is hard.

The reason for this is we need an electricity system that supplies customers through all weather conditions and all energy shocks, which means enormous amounts – relative to today's levels - of zero carbon, long duration storage.

Consider how we provide sufficient energy storage today: coal stockpiles, gas fields, diesel tanks, pipelines. Typically, Australia has a few months of energy storage sitting in reserve.

Sometimes this reserve seems expensive to hold, as it did when demand dropped and wholesale prices fell as at the start of the COVID-19 pandemic.

More recently, we have seen why having energy in reserve is so important for all Australians. With floods restricting coal mining, seasonally low production of wind and solar, energy embargoes on Russia creating scarcity in oil, coal and gas markets, Australia is facing an energy crunch where the shortage of available energy in reserve is playing out as a big price crunch for all customers.

As we can see today, when we hit this point, there is no quick or easy way out.

The best strategy is to plan for a zero carbon energy system that will face shocks: low wind, cloudy weeks, transmission outages - we know anything and everything happens in energy.

The missing building block we need for this zero carbon energy system is long duration, zero carbon storage. Considering today that we have months of energy storage, my gut feel is that we will need at least a few weeks of zero carbon energy storage.

A few weeks is much bigger than just about all pumped hydro – but not Snowy, Tasmania's battery of the nation, and perhaps a few hydro opportunities in Queensland. That's why these projects are so distinctive.

A few weeks is beyond the economic range of batteries today, and of any other technology we have.

So this is the immediate phase three challenge to solve today – demonstrate at scale, technologies that can provide zero carbon long duration storage. There are a few ideas in this space: green hydrogen through gas turbines, flywheels, phase change technologies, different types of batteries.

We don't have all the solutions we need today.

In phase two, the scale up, we will build what we have available today. We should also solve for what we will need in phase three.

EnergyAustralia

At EnergyAustralia we supply 2.4 million customer accounts with energy when they need it.

As a retailer, we see our role as providing customers with a simple combination of small scale technologies in the home and business, supported by grid scale energy technologies.

We are doing, not just dreaming, bringing the energy transition to life.

Already we have:

- launched Solar Home Bundle, recognising the changes demanded by customers;
- given seven years' notice on the closure of Yallourn, ample time to prepare;
- developed the 300MW Tallawarra B gas/hydrogen peaker at Lake Illawarra in NSW, the 350MW Wooreen utility scale battery in Victoria's Latrobe Valley and we are working on the 300 MW Lake Lyell project;

- underwritten the 250 megawatt Kidston pumped hydro project in north Queensland and the 90 MW Darlington Point and Riverina batteries.

We have committed more than a $1B for these developments, with more to come.

And we are thinking big for phase three already – long duration storage. We are developing pathways to increase the hydrogen used in gas peakers. We are even exploring whether we could one day replace the heat from coal with the heat from thermal storage in Mt Piper. A heat battery rather than a coal plant. We are thinking creatively and we are thinking big.

What does good look like?

To deliver Australia's net zero ambitions we need EnergyAustralia and other private players to continue at pace to drive the energy transition for the benefit of customers.

We can do this piecemeal – one project at a time with the governments and stakeholders involved – or we can deliver scale through policy.

The best answer for customers is for government and businesses to deliver the energy transition at scale. A few thoughts on what this looks like:

- On the demand side, we are heading in a good direction. Governments and regulators are providing policies and rules that incentivise and appropriately reward home and business devices. This work is encouraging, and builds on years of action through solar and energy efficiency devices schemes. It's time for businesses like EnergyAustralia to step in and grow the options available for customers. And we are.
- For renewables and grid, we are also heading in a good direction. State governments are clearly signalling renewables and grid developments through their roadmaps. The unfinished business is execution, the challenge is pace – and bringing communities along in workable approaches is the key to pace.
- On flexible capacity, there is more to do. An orderly ramp down and check out of coal and check in of new capacity needs the policy work of the Energy Security Board completed, particularly on a capacity mechanism. This may not be enough though. Australia may need a policy approach to plan coal check out dates. A steady and boring transition should be our goal, not a roller coaster ride.
- Finally, it's time to act and demonstrate some zero carbon long duration storage technologies at scale. Australia has done this sort of thing before through programs like Solar Flagships, which kickstarted technologies we needed. It's crucial for us in phase three and we can't wait too long.

Conclusion

Australia has delivered the easy part of the energy transition. We are world leaders in integrating renewables and we have energy options the rest of the world dreams of.

It's going to get tougher from here. The next part of the transition won't be easy. We can't wing it from here – we want to learn from today's energy crunch and design for a better future.

We are much more likely to deliver this transition for Australia and our customers by acknowledging the challenges each part of the industry sees, and prudently and constructively working on roadmaps and policies to address these, collectively led by governments.

After all, we are a pretty amazing bunch, Australians.

We've done a lot already in phase one. As we face into the phases of scale up and zero, we will be reshaping the way Australian energy works, unlocking an exciting net zero system for all of us.

There's much still to do and challenges still to overcome. So let's do it the way Yoda recommends: "Do, or do not. There is no try."