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AGL Energy Investor Day 30 October 2019

Business Strategy

Brett Redman
Managing Director & CEO

João Segorbe
EGM Strategy & Corporate Development

Brett Redman:

Right, thank you, Chris. Good morning, everyone. Thank you for taking time out of your busy day to come and join us here today. We're really looking forward to spending the day with you talking about AGL's future.

We are living in disruptive and exciting times at AGL. What we want to show you is that we can embrace these disruptive forces to enhance our evolving business and create new value streams that go well beyond what you think about us today. Today the team's going to discuss how we're responding to risk and opportunities in the near term, while laying the foundations of what our business is going to look like in five, 10 and 20 years' time. We will discuss the strategy through the lens of our four growth pathways, connection, orchestration, trading and supply, and generation.

The agenda you can see up on the screen there. We have the following executive team members presenting today. I might ask them just to stand up as I introduce them. Firstly, João Segorbe, our EGM of Strategy and Corporate Development. Damien Nicks, who I think you all know, our CFO. Christine Corbett, our Chief Customer Officer. Simon Moorfield, our EGM of Future Business and Technology. We've also got some of our senior operational leaders here to present today. I might just introduce them as well and get them to stand up. Dominique Van Den Berg, our GM of Distributed Energy. Melinda Buchanan, our GM of Gas and Renewables Operations. Dave Moretto, our Interim GM for Portfolio Growth, who's up the back. Phaedra Deckart, our GM of Energy Supply and Origination. Finally, Simon Sarafian, our GM of Trading.

You'll have the opportunity to ask questions after each presentation. Along with the presenters and members of the investor relations and treasury team here today, the other members of the

exec who aren't presenting, but also present, are John Fitzgerald, our General Counsel and Company Secretary, Jo Fox, our EGM of People and Culture, Richard Wrightson, our EGM of Wholesale Markets, and Doug Jackson, our EGM of Group Operations. Can I say, as they're not presenting, I encourage you to ask them the difficult questions during the break.

By the end of today, I am confident that you will have a deeper understanding of AGL, both how we're adapting to the challenges in the short term and what our long-term strategy is in a changing and challenging environment. I'll now jump through to the business update, before handing across to João.

It's now been a bit over a year since I became CEO of AGL, Australia's leading integrated energy company. When I think about my first 12 months, I am proud of our performance. AGL is in a strong operating position, and we are delivering on our strategy and momentum is building. Our business is underpinned by our 3.7 million strong customer base. After more than a year of intense market activity and during a time of increasing headwinds, I'm very pleased to say that we have grown our customer base by almost 80,000 customers. I'll repeat that stat because the team knows that I love it the most. Over the last year or so, we have grown our customer base by more than 80,000 accounts in very challenging times.

Strong numbers are the foundation of our business, as they allow us to grow and meet these changing times. This will be reflected in our new brand campaign, which we're going to be launching in the coming months. I'm really excited that it will introduce our customers to our purpose of progress for life, and reflect the modern retailer that we are today. With strong customer numbers and a resilient portfolio, we also have strong cashflows, record dividends and a strong underlying profit. This carefully-managed and maintained position provides AGL with the opportunity to lead during the energy transition, using our assets of today to fund the investments that we need for the grid of tomorrow.

As AGL's largest - as Australia's, sorry, largest carbon emitter, but also the country's largest private investor in renewable energy, we have a clear path forward to lead the energy transition for Australia. Australia's future is to once again be a domestic energy superpower, this time driven by plentiful renewable energy, and AGL will be at the forefront of this change. Our strategy continues to be guided by the three strategic priorities of growth, transformation and social licence which have remain unchanged. Operationally, to delivery our strategy we need to ensure our people are safe, engaged and guided by the right leaders. I am pleased that these foundations are in place for us to improve in all of these areas.

As mentioned on the previous slide, our strategic priorities of growth, transformation and social licence are unchanged. They set us up to continue to be a strong contributor to the Australian

community by embracing the new products and services, finding innovative ways to improve the way that we do business, and keeping the community and their expectations central to everything that we do.

AGL has strong foundations, but we all know that our traditional business model is experiencing an unprecedented period of change. So how are we thinking about the external factors shaping and disrupting our market? The market disruptions that we encounter are set out in this slide. They are customer centricity in a digital world, policy uncertainty and intervention, climate risk and mitigation, and finally, technology driving major shifts in energy. Let me address each of these.

As we think about customer centricity, our retail markets are changing. Customers who used to depend exclusively on power grids now have options to generate and store electricity on site. At the same time, we are seeing product categories like energy, data and mobility converging. In this environment, AGL is constantly researching, testing and evolving our retail offering to make sure that we are anticipating what customers need and want.

It's no secret that energy policy has polarised politics in Australia for some time now. AGL has been impacted by policy intervention and uncertainty. It has been my personal priority to position our business as a constructive partner to state and federal governments. We are making much progress in this area. This is important because constructive engagement enables AGL to be a trusted partner to help some of the problems that are facing and confronting our industry. We need to ensure that we continue to engage with governments to achieve the best outcomes for our customers, while recognising the opportunity that our heritage and scale provide.

Wrapped up then with politics and policy is the issue of climate change risk and mitigation. There is intense focus with capital markets, governments and the community on how business is managing the risks and opportunities of climate change and how climate change is considered in business strategy. AGL has historically been a leader in our industry with the release of our greenhouse gas policy in 2015. As we look to the future, we are considering all potential scenarios, including modelling our business under a 1.5-degree future. You will see this reflected next year in our 2020 TCFD reporting.

The transition to renewables as a result of technology developments and emissions reduction efforts means that our portfolio of large thermal generation and variable renewables is evolving. This will accelerate. Baseload generation is not constantly required at the same levels that it once was. The market is now after dispatchable power to reflect a new supply-demand dynamic. I believe that the market is moving to embrace capacity. As such, our investments in flexible

assets, including gas firming, hydro and grid-scale batteries, will enable the transition to renewables while capturing value for AGL as the market changes.

These are the big challenges that AGL is exposed to. We need to be conscious of the industry headwinds that we are experiencing, and continue to manage our cashflow, cost base and capital allocations responsibly, which Damien will soon discuss. But let me say these headwinds and these challenges within our market are what provide us with a tremendous opportunity to invest. In that spirit, we have always been a company that has been willing to invest in growth. When I became CEO, I made it a priority to continue with that, with a strong and compelling agenda that would have tangible results and deliver for our customers. The Vocus opportunity that we explored earlier this year reflected that agenda. While we have since moved on, we remain confident that AGL can continue to evolve as a multi-product brand across energy, data and related products. In this way, we will reinvigorate our retail offering and provide a new platform and impetus for the development of our wholesale business.

We are presenting to you today a new simplified growth narrative for our four growth pathways, connection, orchestration, trading and supply, and generation. These opportunities are embedded in our ability to service the needs of our customers, and are only possible because of our strong customer base and our strong balance sheet. While we recognise the importance of continuing to invest in our core asset base, you should see these four growth pathways as foundational to the actions AGL will be undertaking in the coming months and years. In some instances this will involve larger investments, in some instances small, incremental steps. But they will all contribute to an AGL building on the capabilities of today and embracing the opportunities presented by disruption to be a leading Australian brand and service provider and create long-term value as our markets evolve. In all cases, we will continue to exhibit the discipline that you have come to expect from us.

A clear example of AGL pursuing growth as our markets evolve is the announcement that we're making today of a deal with the Maoneng Group to secure capacity on four 50-megawatt batteries in an innovative swap structure. This deal is exciting because it is signalling the accelerating financial viability of grid-scale batteries. The agreement will allow AGL access for 15 years to four large-scale batteries that Maoneng is developing in New South Wales. This includes one battery at the Sunraysia Solar Farm where AGL has signed a 100-megawatt power offtake agreement. Under the battery contract, AGL will be able to call on energy capacity from the Maoneng batteries at a fixed price, thereby locking in a cap on the cost of that volume for electricity for that period.

Globally, battery storage is doing more than just storing energy. It is enabling the energy transition and some of the system stability issues that arise when large baseload is retired.

Batteries can reliably regulate system performance, as well as provide frequency control services. In a large country like Australia, managing these infrastructure issues without having to spend in excess on transmission infrastructure will be incredibly valuable for all consumers. As the global energy revolution continues, we are staring at the dawn of the battery age.

As the energy market continues to evolve and experience significant changes, storage technology will be pivotal to providing firming capacity in the shift between baseload power and renewables. Here we see, when large-scale wind and solar generation was only a new technology and not yet cost effective, AGL saw a market opportunity. Although investments were incentivised through government subsidies, we invested early and responsibly, enabling the technology to develop and allowing our business to understand how to manage and derive value from this technology. This included the creation of the Powering Australian Renewables Fund and various PPAs. With 3 gigawatts of installed capacity of grid-scale batteries expected in Australia by 2030, we are now actively seeking more opportunities in this space.

Our agreement with Maoneng is an early marker of development, as are our pumped hydro projects currently under development. If progressed, the Kanmantoo and Bells Mountain pumped hydro projects will provide more than 500 megawatts of new storage capacity. We are also working with the New South Wales Government's Emerging Energy Program with a proposal to build a 50-megawatt battery at Broken Hill, and are exploring other sites. This ability to minimise our risk to spot price volatility, as well as provide firming capacity for renewables, is attractive for AGL. We are constantly on the lookout for responsible participants during the energy transition and we are proud to be leading the way. I am excited about future opportunities in this space.

Bloomberg New Energy Finance forecasts that $130 billion of grid-scale and $70 billion of behind-the-meter investment is required in generation and storage between now and 2050. The opportunity for AGL to grow as we adapt to these challenges and the changes in the market is incredible. With the Maoneng battery in mind, I wanted to show where we are with our current $2 billion of generation in firming investments that AGL is progressing right across the NEM. These investments are in addition to our $1.9 billion of new energy supply projects that AGL is currently constructing or completing. In capacity, you are now seeing storage and firming projects dominate the future pipeline, including Bells Mountain and Kanmantoo and the new Newcastle gas firming power station that we are continuing to progress. These developments reflect our desire to capture value from the changing energy landscape, whilst enabling the energy transition which is not just cleaner but more affordable and reliable too.

So let me wrap up. We have some excellent presentations lined up today. Before I leave you in the capable hands of João to take you through an in-depth review of our four growth pathways, I want to show you our priority areas which are unchanged for FY20. AGL's strategic and

operational goals were introduced towards the beginning of the 2019 financial year and are unchanged as we continue to use them to guide our decision making and monitor our performance. These goals have been set right across the executive team and will be reported against throughout the 2020 financial year. João and I will take questions together after his presentation. But I want to leave you with this is an exciting time as we are involved in an energy sector that is evolving, and it is our privilege to lead our business in making the most of the opportunities that the future holds. Thank you very much.

[applause]

João Segorbe:
Thank you, Brett. Good morning, everyone. Before I start talking about our four growth pathways - and this is my first time here - let me say a few words about myself. Over the past 20 years, I have been fortunate enough to work on what is my professional passion, which is energy. I've worked across four continents and across multiple economic environments, seeing this energy transition unfolding. I moved to Australia a little over four years ago and I started working with the energy sector from the day I landed. Back in 2015, I recall reading in detail what was the South Australia energy mix, the NEM overall, rooftop penetration, and thinking that this is where I wanted to be to see the transition unfolding live and ahead of everyone else in the world.

Now, I have to say that, looking back, I mean my expectation was met, if not surpassed. I worked advising many people in the energy sector, with much less impact than I had hoped in the beginning I must say, and I'm sure that many feel the same as I did. Having said that, moving into the industry came as a natural step to participate in this energy transition and be part of these exciting times that Brett described over the last few minutes. Looking from outside in, AGL seemed to me to be a company that was very truthful for what it was and very open to talk about it. Then it was for me very natural to move into this space. These last couple of months have been a terrific experience. I'm very excited about the opportunities that we have ahead of us and this is what I'm here to talk to you about.

So let me start to pick up on Brett's comments on the overall industry. These are exciting times. While the transition is complex, in a not-so-distant future we'll have a low-cost, carbon-free energy system underpinning our lives. The main question in our sector is no longer a cost-emissions-reliability trilemma. Renewables are the cheapest way to generate electricity. Reliability versus cost is now the issue. It is now a dilemma, not a trilemma. What are Australia's challenges? The challenges that Australia is experiencing are no different from what is being faced elsewhere in the world. In Spain, the energy minister is actually called Minister for the Ecology Transition. Energiewende - I mean I'm sure you've heard this word, it's a German word that became a household word everywhere - is the name for the Germany energy plan. Everyone

is going through this. The affordability versus reliability equation is a tough one to solve and no one can claim to have solved it clearly.

Australia can claim some success on this journey. We have one of the highest penetration rates of solar in the world. It is home for some of the most advanced grid-scale experiments, like South Australia's battery and AGL's virtual power plant. In other geographies, many have been debating solutions without having real problems to cope with. Here we have real problems to handle and it is likely that Australia will come out of this transition before anyone else. The abundance of nature's gifts will allow Australia to maintain its status as a global energy powerhouse.

AGL knows its role in building towards this exciting future. Our four growth pathways - connection, orchestration, trading and supply, and generation - are the outcome of our work to identify the intersection of customer and market trends and needs, opportunities, and our capabilities. We are continuously reviewing market trends and looking outside for ideas. We are confident that these four pathways are the ones that will deliver a better outcome for our customers, investors, and for Australian society in general.

Connection is our first growth pathway. A healthy customer base is what underpins all our activity across the value chain. Orchestration, the second growth pathway, reflects our belief in our role maximising the value of our customer energy assets in an increasingly decentralised system. Third, trading and supply is a continuous bet in our core capability, managing risk for our customers. Finally, generation is the evolution of our role in Australia's electricity markets, from main generator to main supplier of flexible capacity.

Let me talk a little bit about the connection pathway. Customers will dictate how change will happen. These days what customers experience when they open AGL's app on their phones is no different from, for example, what they experience when they open their telco app. They have come to expect and compare experience across multiple sectors. Our research shows that they are keen on the potential for convenience and value in the simplified relations with essential services providers. As of a couple of weeks ago, our offer addressed only 3% of household expenditure of Australians. In the future, we see opportunities to offer products and service that could represent more than three times what electricity and gas represent today.

Southern Phone acquisition is our first move into these other essential services. We are far from being the first energy supplier to offer data products to its customers. Other markets abroad have started a while ago. For example, INNERGY in Germany has a broadband offer and now has major plans for an ultrafast network in Italy, and even Shell Energy is offering broadband products in the UK. We want to build on our customer platform and deepen our relationship with our customers. We have a great customer market team in place, we built a great digital platform

and we have a trusted brand. We are in a great position to be the winner in this space. Later today, Christine will provide more detail how we will be building this multi-product vision.

Second, we want to lead the market in orchestration across multiple asset types and technologies owned by customers. Today energy assets are no longer owned by a select few utilities. Over the last few years, most of the investment in energy has been done behind the meter. If used with the needs of the system in mind, these assets can have much more value than if they are used only at the service of their owners. Capturing this value requires a complex balancing act between market needs and the physical possibilities of the equipment. This needs capabilities that are core to our business, interacting with customers and knowledge of when the market sees value in an asset. We are in the best position to unlock this new value stream for our customers. Our South Australia virtual power plant is our first step into this space.

We are also seeing the next major wave of investment in batteries. In the future, most new battery capacity in Australia will come with wheels in electric vehicles. The electrification of the car is a trend that is now embraced across the energy world. There is consensus that most of the cars sold will be electric. For the energy systems, these cars are batteries on wheels. Today the Nissan LEAF carries 40 kilowatt hours of battery capacity, while the Tesla Powerwall is actually 13.5 kilowatt hours. According to AEMO, by 2030 batteries on cars driving around in Australia will have 10 times as much capacity as the ones in Australian homes and businesses. The Norwegian ongoing experiment, where the EVs are already widely used, shows that 80% of that charging will be done at home, and home is where we deliver our services today. Rather than taking a passive approach to charging the EVs, we see the potential these batteries hold to support the integration of renewables and be part of the energy transition in Australia. Later today, Dominique will explain our plans for this space. We want to be in this market and create solutions for electric vehicles. As orchestrators, our assets will move from being physical to digital, with competitive advantage gained from intellectual property.

Our third growth pathway is trading and supply. I'm sorry we could not find a word that finishes in I-O-N to represent trading and supply. Being traders of energy is part of our DNA. As Australian energy markets are more and more interlinked globally and locally, our role managing risk for our customers is more important than ever. We are well positioned to manage this risk because we have multiple physical positions. These give us the ability to match the best source of supply for our customers' needs in each moment in time. This will allow us to deliver optimised proposals for our customers. We will continue to build a portfolio of flexible assets to enable physically-backed energy trading. We will strengthen our ability to serve gas customers by accessing domestic and international gas. We'll participate in global gas markets through our LNG terminal.

As an aside, let me comment on my surprise on the reaction of society in Australia to our LNG terminal plans. An LNG terminal in a country with domestic production and liquefaction capacity may seem strange to many, but it would be far from being the first. The complex dynamics of pipeline costs, distances, demand profiles and market prices justify situations like this. Looking at Holland, UK or the US, countries that have been traditionally gas producers well connected with pipelines, they all have gas LNG importing terminals. Our wholesale team will talk a little bit more about this later this afternoon.

Finally, we want to lead providing flexible storage across Australia. As renewable energy continues its cost-reduction trajectory, generating electricity is now a low-cost, infrastructure-like activity. The value is now shifting to flexible capacity. As Brett mentioned earlier, this is the dawning of the age of storage. As new renewable generation is deployed, more large-scale gas, batteries, storage and other capacity is needed to ensure system reliability.

AGL has been on the forefront of the key energy trends. We moved to be the largest private investor in renewables when growth in that space started to pick up. Now, more recently, we moved to installed flexible capacity. Our Barker Inlet Power Station, one of the largest investments in the NEM over the last few years, illustrates our bet in flexible capacity. Moving forward, we want to stay truthful to our tradition of delivering on the capacity we commit ourselves to build. We have a pipeline of projects we are working on and we will continue to look for opportunities to build or contract more flexible capacity. You will hear more about this with the wholesale team later today.

Just to close, I wanted to say that these four growth pathways offer multiple opportunities to grow and continue to have a positive impact in Australian society. We will expand our connection with the customer, orchestrate energy assets owned by Australian homes and businesses, trade against physical positions to manage risk, and invest in flexible capacity, thus being true to our purpose, progress for life. There are many uncertainties ahead, but I am sure of one thing, this will be a fun journey. There will be great gadgets on our homes and roads. There will be great apps on our phones. This will be exciting and great to watch. I cannot wait to see it unfolding. Five years from now, when we meet again here or somewhere similar, I am very curious to see what the very different discussion will look like. Thank you.

[applause]

Brett.

Brett Redman:
Okay. Thank you, João. Let me open up and invite questions for myself and João. Noting we've got a couple of deep-dive presentations to come, but we wanted to break up the session today a little bit and take on any initial questions that you might have.

Audience Member:
Hello, Pete Wilson, Credit Suisse. Can I just get an update on the Liddell and the New South Wales Government Taskforce to Liddell in the context of the big-stick legislation? Given that you've announced the 200 megawatts in batteries today, and earlier in the week the New South Wales and Federal Government announced that they were going to fast-track the QNI interconnector, so 400 megawatts in total, is that enough to get them off your back with Liddell, or is there more still needed?

Brett Redman:
So a couple of comments. One is, firstly, I think the Liddell taskforce government initiative is excellent. The reason why I think it is excellent is the last few years have somewhat been portrayed by all parties at a standoff lobbing rocks at each other. The taskforce is a very considered place where state and federal government and entities like us can come and have a good, quality conversation about what happens next. So I think it's a great initiative that we're engaging in heavily.

What you're seeing in some of the announcements of the past week or two, including the Maoneng announcement that we're making today, is not so much an outworking of the taskforce, more the market moving forward. I've been emphasising today, what we're now starting to see is that real momentum building in the world of storage. Storage, as I've talked about in past occasions, is the great enabler for renewable energy. As storage costs come down, more renewables will work within the system, and we move towards that future where we can more confidently predict the world I think of 2050 than the world of next year. But as we confidently move towards that future of cheap and reliable renewable energy firmed up, storage is starting to lead the way.

So the taskforce itself, look, the only comment I'd make is, from memory, when AEMO put out their recent ESOO they talked about, under the same definition they used a year or so ago that created a lot of the initial discussion, that was showing a gap in the New South Wales market and their forecast, that gap had disappeared on using their same definition. AEMO has then proposed a tougher definition. On their tougher definition they talked about a potential gap I think after Liddell closed - and that was after the extension through the '22, '23 year - of about 300 megawatts. That 300 megawatts, as far as I can tell, didn't take into account the announcements that we're talking about here and some other announcements coming through. So at one level,

by AEMO's definition, the market is in a better place and getting to a better place. But it's not to say that there's not real and valid worries there at state and federal levels, and that we're continuing to engage with them on what the right long-term solution for the market is.

Audience Member:
Maybe one for - can I do another one?

Brett Redman:
Quick.

Audience Member:
I don't know if it's quick, but the moving to adjacencies telco is a good example. Maybe one for João. Like as good as customer centricity and convergence sounds, the clear and present reality in telco is mobile ARPUs going down, broadband margins are being squeezed by NBN. So how do you actually overcome the clear and present reality, which is it's a very difficult industry?

Brett Redman:
So I guess I'd make two framing comments. I'll let João add as well, but two framing comments. One is, the more that you believe the future is uncertain or different products and services will evolve, different competitors will come into our market and seek to disintermediate or interrupt what we're doing, the more having a big, strong, healthy, vibrant customer base becomes more important. That's why I'm really pleased to see that our customer base is growing. That, I might add, is not because we're slashing price, it's because we're investing in systems and services. So having a big, strong, complex customer base is your best fortress, if you like, as you go into that future. So it's worthy from that point of view.

The other comment I'd make - because as we talk about different things, like now Southern Phone, I'm constantly sort of grilled around what's the margins that you're making and the profitability in that part of the business. We're thinking about this over the long haul. As you move into any sector or as you expand into any new product lines, it is arguable that the best time to do it is at the bottom of the cycle when margins are toughest and perhaps prices reflect that. Rather than moving in at the top of the cycle where I'd be standing here going, yes, there's good current profitability perhaps per customer, but then you'd be querying just how much did I have to pay to do it. So I think we're taking a very measured approach to it. I recognise that things like broadband services are at the bottom of the cycle, if you like, in terms of customer profitability, but I still think that makes it a good time to ease into the sector sensibly and with discipline. Because now is the time to build that big, strong customer base to set us up for that long-term future. So that in the future you'll hear us talking about finding products for our customers, not hunting for customers for our products. That's where I want to be.

João Segorbe:

I'll just add one - sorry. Sorry, now it's working.

Brett Redman:

It's on.

João Segorbe:

I'll just add one small thing. To your point of being a complex market, who better than us to cope with complexity in the market and the customer front? Who in the market would be better prepared than ourselves to handle that?

Audience Member:

Morning, Brett. James Byrne from Citigroup. Now, when we last caught up at the sell side briefing after your result, you stated that you were cresting the wave from an earnings perspective. I think your disclosure's actually been very good at acknowledging some of the headwinds. What I really wanted to get out of today though was a better understanding of how you think about the long game and the transition, which you've done very well this morning, but how you pair that up from a strategic and a capital-allocation perspective when you acknowledge some of those headwinds. Are you comfortable that, you know, that earnings trajectory is probably going to be not favourable over the short to medium term, but you're happy to look through that and position yourself for the transition? So if you can help me marry up that short-term, long-term gain, that'd be really helpful, thank you.

Brett Redman:

So Damien, in the next presentation, is going to talk at some length on this topic. So what I won't do is steal all of his thunder, but what I will say is we've never shied away from the hard conversations. So when we talk about our outlook in this current year, let me acknowledge that the guidance range - you know, midpoint in the guidance range is about a 20% reduction in profit. So we're not shying away from we're coming off a pretty high high, and things are retracting in some of our core commodity markets right now. But what we do is we look to the long term. When I first started talking about the market opportunity, I used to use the Finkel report of $400 billion investment needed. The team won't let me refer to that anymore, so now I have to refer to the Bloomberg $200 million - $200 billion, sorry. But however you cut it, it's a multi-hundred-billion-dollar industry opportunity.

Where an industry has a multi-hundred-billion-dollar opportunity and you're talking to a player that represents about 20% of both the generation, wholesale and retail market within that industry, I think there's very few companies that can talk with confidence of having many hundreds of billions of dollars in their market and a sizeable market share and a great place to

start with around that investment. It is partly why, you know, I can talk with more confidence about the year 2050, 2040, maybe 2030. I struggle more about the year 2020, 2021 because of that turbulence as we go into that future. We may well see turbulence buffet us over the next few years as we move forward. You will see us, though, exhibit capital discipline. The old-school industrial CFO in me will stand on my track record for discipline as we think about where to make those investments and where to expose the company.

You've seen examples of that even in the last 12 months as I've been CFO. We have leant into great acquisitions like Perth Energy over in WA, as the name suggests, Southern Phone just recently, off-balance-sheet the Maoneng transition. We are being thoughtful about where we put your dollars. Even as [inaudible] up for or walked up to some very large opportunities, and when we've found that they haven't met our investment discipline we've stepped back again. So I think it's about managing through the tricky times with operational discipline and investment discipline, and setting yourself up for that tremendous longer-term opportunity. AGL's playing the long game.

I think we might be over here with Ian and then we'll head up the back.

Audience Member:
Ian Myles, Macquarie. Two questions. Firstly, a position on hydrogen, you haven't mentioned anywhere in your strategy about hydrogen as an energy future.

Brett Redman:
I really like hydrogen. Probably the reason it's no popping up here is it's not looking material, at least in the next few years. We're running one of I think the few - it might be the only big one - hydrogen trial out of our Loy Yang plant down in Victoria, working with a number of Japanese partners about can we make a conversion of brown coal to hydrogen work. VIC government and federal government's involved in that one as well. Hydrogen's one I definitely want to believe. I think it has a real potential to be part of the portfolio for the future. I think what's important is we don't get trapped into thinking about a future where it's only one thing, you know it's all hydrogen or it's all battery or it's all pumped hydro or whatever. I think it has a role to play in the future. Less sure about how it's going to unfold. So what we're doing is we're putting initial seed money in, if you like, in the test-and-learn phase and absolutely standing ready to be with it if it takes off.

Audience Member:
[0:42:25] on the negative side, the smelters' operators have sort of alluded to potential closures. How does that work through AGL and the positions in the market and what the implications might be for you?

Brett Redman:
If smelter closure occurs - and it's a big if. Smelter companies, in my experience, are always talking about closing. It's not being disrespectful. They live in a hard industry. But in my experience dealing with them over many, many years, I've never had a year where they weren't about to close, but I do believe that they are closer to the edge than ever before. The pricing they receive from AGL is very sharp. You know, I'm commercially or legally constrained from talking about it, but it is very sharp, consistent with what happens with smelters all around the world. It's good baseload into the system, but it's not necessarily where you make enormous amounts of your profit from, but it does load up your book. We've been there, both inheriting contracts from the acquisitions that we've done, and been there - I think it was about three years ago when the VIC government asked for help to work with the smelters back then, or with the Alcoa Smelter back then, to really try to put together a package that kept that smelter at Portland going.

We're engaged in multiple discussions right now. We are intensely engaged in discussion with our customers, our biggest customers at Portland and Tomago. We deeply care, and I deeply care, about maintaining jobs and industry in Australia. So all things being equal, whether we make a dime out of it or not, you know, we will work as a good corporate citizen to do everything we can to keep those smelters going. If they were to come out of the system - and it's a big if - what I think you'll see over the longer haul is typical supply-demand economics. Less demand should lower price, but I think the markets are already starting to factor a possibility of that in, in future years, albeit it will create more volatility in the market as you get rid some of that stability that comes from very big, stable baseload. We are prepared for whatever future emerges. We think about it. We're continuing to invest in this business and support all of our customers, but we are very engaged with the smelters to do what we can there.

Well, I think we're up there.

Audience Member:
Thanks. Mark Samter from MST. I might pinch two questions as well, if I can. The first one, you talk about the need to be a physical-backed energy trader. I think an import terminal is sensible. You think an import terminal is sensible. It doesn't meant politics always works the way we think it should. Are you still wedded to the [0:45:06 - old guys'] strategy that you won't go upstream? There's obviously publicly the most important gas supply in Victoria's up for sale. I'd argue it's pretty dangerous for you if that fell into the wrong hands. What is the policy now?

Brett Redman:
Look, no radical change. So, you know, the policies of AGL are the policies of AGL. We constantly test them, if you like. We constantly debate what's there. So I'll own the strategy of the past. I was CFO for six years, you know, as much as the strategy of today as CEO. I won't,

again, steal the thunder of the team to come later on because they'll hate me for taking all their best material. But what I will say is Crib Point, I'm a believer in that project. I believe it's a good project. It still has to pass FID, it has to clear its approvals and the like. We'll wait to formally sort of decide what we want to do when we hit FID. But let me say, I personally think it's a good project for our customers and, therefore by extension, a good project for us to do in terms of sourcing supply for our customers.

On a separate note, you know, would we get back into upstream? Look, we continue to explore all options in a never-ending sense. It doesn't mean that we will do anything and everything, but we're always open to different business models of the future at the right value and at the right price. Our current preference would be more to be an equity investor, if you like, in a project. Not just specifically talking about this one, but an equity provider rather than an operator is probably our preferred stance. But, you know, AGL's not afraid to get its hands dirty if need be. So let me say we would never be bloody minded about that decision if there was compelling value. But on balance - you know, I'm happy, for example, when we went into big generation we became an expert in running big coal-fired stations, which we weren't before. We could always move back into a more upstream direct role, but it's not our preferred posture. We're happier to be an investor, if you like, and an offtaker and support projects with our PPAs.

Audience Member:
Thank you. Just a question then around the 7% of other essential services. Down at the bottom it's got an asterisk about that includes automotive fuel. I was trying to google it and I couldn't find the number, but I presume the average household spends as much, if not more, on automotive fuel as it does on telcos. How wide is your target on that 7% of other essential services?

Brett Redman:
So, look, what I don't want to do is create the hares running, if you like, that AGL's about to radically go off in another direction. We're not. So what we're saying I guess is, when you think about all forms of energy in Australia, all forms of final energy in Australia, transport fuels are a big component of the total energy mix. I think from memory about 60% of energy in Australia is transport type fuels, and 40% are more traditional, from our point of view, electricity and gas. In that sense, what you're seeing is oil companies coming into our space as they're starting to think about where their energy is going. Their energy is heading towards electricity. Happy days, that's where we are, they're coming to us. So when we start to think about the share of wallet, we're starting to think about share of wallet that includes household spend on fuel. Because the fuel of the future will be - not might be, but will be - electricity either directly into your battery and your car, or maybe through hydrogen coming via a different angle. So we're starting to think about our market opportunity in that sense.

Audience Member:

Thank you.

Brett Redman:

So we might - we've probably got time for a couple more.

Unidentified Female:

I think this will be our last question.

Brett Redman:

We'll go to Rob here. We might go for another minute or two and really stress the team out.

Audience Member:

Okay, yeah, Rob from Morgan Stanley. Just a question about the chart on slide 9. I guess I note that the battery cost there has a different Y-axis. This is a very big-picture question and I know these aren't your numbers either, but just wondering are those kind of costs consistent with what you're seeing, what you've signed with Maoneng, and is there like a tipping point in those relative prices that you're kind of thinking about?

Brett Redman:

What I would say and what we're trying to introduce - maybe if we can just stick slide 9 up quickly while I'm talking. It's in your books in front of you. The point that I'm trying to make here is I see the evolution - or we see the evolution of battery very similar to the evolution of wind and solar. So 15-ish years ago, wind was kind of expensive and funky and new. AGL was there building wind farms in South Australia back then. Costs came down over time, driven by technology and volume. Ten years ago - and I think batteries today are where solar is - or solar was 10 years ago. Solar was kind of a funky technology that only the techies, the rich, the greenies would put on their roof. But through a combination of volume, cost reduction and government incentive, solar has really taken off. You look at - we talk now actively about the impact on solar and our market. Whereas 10 years ago only some real out-there kind of analyst sort of thinking might have started to pick it up.

Batteries is heading in the same direction. So without getting too hung up on the cost curve - we've just used Bloomberg's - what I would say is technology starts slowly then suddenly accelerates. The dawn of the battery age - and bear with me with a little bit of illustration there - but I do believe that storage is now coming into its own and we're starting to see it crack through. We're doing it with the virtual power plant at a household level over in South Australia. We've launched our new household offer about four or five months ago now, where if you've got a battery we'll pay you $180 upfront and $100 a year to share your battery. There's the shared economy starting to emerge. You know, a la Uber and Airbnb, your battery's going to go under

that same shared economy. So household batteries are really starting to work and government subsidies are starting to come in. That change and take-up of solar panels on rooftops was heavily correlated with political, as much as economic, motivation for government to subsidize into people's homes take-up of solar. I think batteries are starting to go the same way in households.

Finally, we're now starting with the Maoneng deal, which I really wanted to quote lots of numbers and I got crash tackled by the legal team and the commercial team and told I had to stay quiet, but the Maoneng deal is a good first example of what is something genuinely commercial starting to emerge in the market. It's an excellent deal from my point of view. I am happy about what it represents. It's not without risk and it's a good trade-off of risk and return with the partner there, but it's the beginning of that change. I think in a year's time, two years' time, three years' time, exactly where we'll be on this curve, you know, that'll start to move around. But you're seeing now, finally, that acceleration in the storage just beginning to pop up. The next big thing we'll be talking about is pumped hydro.

So I'm going to get into a lot of trouble if I take more questions. So James is telling me that I have to hand to Damien, not take another question. Okay, look, thank you very much for your time. There'll be opportunities for questions after each of the sections coming up and I'm certainly around during the breaks. Let me hand across to our CFO, Damien Nicks.

[applause]

AGL Energy Investor Day 2019

Finance Update

Damien Nicks
CFO

Damien Nicks:
Thank you, Brett, and thanks João, and good morning everyone. It's great to be here at my first investor day as CFO. Certainly, after you've heard from both Brett and João, it's an exciting period that we're entering. As you've heard from Brett and João, AGL is really well placed to lead this transition and we have the balance sheet to support that transition. So today I'm going to take you through a little bit of discussion on our balance sheet, the cost focus, but also where we see the business going.

So before I begin, let me confirm that AGL's FY20 guidance is unchanged from the comments we provided at the full-year result and at the AGM. Underlying profit after tax is expected to be between $780 million and $860 million. Everything else on this slide is exactly as you saw it at the results. So if you're trying to read between all the lines, they are exactly the same. The major impacts for FY20, being the Loy Yang 2 outage and the depreciation and amortisation, remain unchanged. I'll provide an update on Loy Yang 2 shortly. We continue to manage and monitor the other headwinds closely. As always, our guidance is subject to normal trading conditions and policy and regulatory uncertainty.

So today there are three key points I want to get across over the course of this session. First, operating cost trends in recent years have been linked to strong profit growth, to market activity and value-linked plant investment. AGL's cost base will continue to evolve over time as the asset base transforms through our scheduled plant retirements, increased digitisation and in our growth pathways. Second, and linked to point one, as some of these factors start to stabilise, we will reap the benefits of recent investments. I do see opportunities to build on cost reductions we delivered in FY19 and drive further sustainable year-on-year reductions. As part of that, we continue to perform deep analysis of the cost trends to inform our cost management strategy, and I will share some of that with you today. Finally, the outlook and AGL's cashflow and balance sheet remains robust in the face of the headwinds. This will continue to be a key strength as we execute our growth pathways and strategy.

So let me quickly provide an update on the repair work on Loy Yang Unit 2. Any questions of detail will pass to Doug afterwards. But the outage maintenance is tracking on plan, for return to service on the 16th of December in time for the peak summer period. General Electric are performing a full stator and rotar rewind. This was the best option to provide long-term reliability following the electrical short we experienced in May. In parallel to this, we are completing major work on the boiler and the turbines that we've brought forward from FY21. There'll be minimal impact on our Loy Yang CapEx schedule as, in effect, we have brought forward the work on Unit 2 and swapped out the work that was going to happen on Unit 3 to the following year. Any insurance proceeds are subject to finalisation in conjunction with the return-to-service day, and any proceeds are likely to be received in the FY21 year. With our insurance premiums going forward, these will continue to rise as our assets age and as insurer capacity for coal assets continues to reduce. Our team at Loy Yang are doing a fantastic job in ensuring this major piece of work will bring the plant back and delivered on time.

If we now turn to the next slide - I think it's up, thank you - we've made a solid operational start in both group operations and customer markets. You'll hear more about the customer metrics in Christine's presentation shortly, but I'm delighted, as Brett is, that customer numbers are

increasing and churn is falling. Both Bayswater and Liddell have been generating well, offsetting the impact of the Loy Yang outage as you can see from this data. This is a positive sign that increased operating and capital expenditure at the sites in recent years is bearing fruit. Of course, it is still early in the year, and with aging plant summer performance will be a key. You will note, for those who are watching some of the NEM activity, we do have two Bayswater units out on unplanned this week. So we're working to bring those units back. They'll be short outages, but we will bring forward the summer readiness work that we're doing, that was planned for December, we'll now do in this week.

Now, moving to our financials. Let me start by reflecting on the year just ended in the context of recent trends. Over the last five years, we've delivered a 65% increase in underlying profit after tax, with only a 14% increase in operating costs. In '19, we were able to deliver a modest reduction in those costs at the same time as we increased operating investment in our plant and delivered the customer affordability initiatives. The benefits of the increase in plant investment is the reduction in routine maintenance problems that is enabling the strong running that I've just discussed. At the same time, variable factors linked to margin growth, not least market activity, are starting to stabilise. So coupled with the benefits of digital adoption and following a recent systems investment, this sets us up well to deliver continual incremental improvement. Over the next few slides, I'll dive into these into a little bit more detail.

What we've put together here is a detail of both our cost of sales and our operating costs from our income statement, and split them out in the categories we used within the portfolio margin reporting. We believe this is the most insightful way of viewing AGL's financials, as it goes beyond segmental reporting and breaks down the key drivers of revenue and cost across our business. The numbers used here are consistent with what we have previously published and we've provided a reconciliation of these in the appendices. On this slide, you can see that, in the top section, the majority of these costs are largely volume driven or pass through and influenced by market conditions over which we have little or no control. These are not the costs that I'd like to focus on today. Also, I'd point that Phaedra will discuss, later in her session, a discussion around strategy on gas and coal sourcing.

Highlighted in blue are the costs I will focus on, as this is where we'll have the most opportunity to drive sustainable efficiencies. Generation fuel and running costs, PPA costs and customer markets OpEx are complex and include both market and volume-driven components. So I'll dive a little deeper into these three. Just working down the chart a little bit further, you'll see natural gas. These costs will be tracking towards zero as our last upstream gas assets exit the fleet over the next few years. Our other-operations OpEx has remained flat, and this predominantly represents the costs of the Moranbah JV and some of our wholesale and operations costs. The

other significant cost at the bottom there is corporate OpEx, which has been reported under centrally managed expenses. Excluding inflation, these costs have been broadly flat over the last few years and we'll continue to drive that forward. However, I do see digitisation and improvement in our processes, specifically through investment in our ERP system, as driving efficiencies. These savings will need, however, to offset increased insurance costs and regulatory compliance costs, which have been elevated and will remain so in the short term.

Over the next couple of slides we're showing a more detailed breakdown of different cost types by site. We're currently looking at the best way to provide this information as part of our periodic reporting going forward. You can see, on this slide here, we're breaking down our generation fuel costs into the cost to generate electricity, being the cost of gas, black coal, which is market driven, whereas our brown coal costs are the cost to extract coal from our mine at Loy Yang. While higher fuel costs can be a challenge, for a company with AGL's deep trading capability they are also an opportunity. Our gas import strategy is a great example of this. Of course, Torrens eventually being replaced with new, efficient plant, such as the Barker Inlet Power Station, we should see more efficient use of gas as a fuel over time.

Brown costs, as I've said, reflect the cost to extract coal from our mine at Loy Yang. This is how Loy Yang is one of the cheapest assets to run in the NEM. These costs have been broadly flat over recent years as we've driven efficiency, and we expect them to remain broadly steady in the short to medium term. The cost of black coal, however, has consistently risen. Indeed, we've highlighted coal cost escalation and the rolling off of cheap legacy contracts as the headwinds in the short term. Nevertheless, we shouldn't forget the enduring cost advantage Macquarie generation has because of its location and access to coal. With the retirement of Liddell, our black coal costs will decrease as legacy contracts will make up the larger portion of our total consumption. Phaedra, again, will discuss further in the wholesale segment more about the coal costs. The legacy coal contracts, however, won't last forever, as we've previously discussed, and we are continuing to work on solutions for our coal into the future.

So turning to our running costs, these are the costs at our operational plants and are made up mostly of labour, maintenance and materials, costs over which we have the most control. I have spoken, over the last 12 months, of our deliberate decision to increase spend at our plants to drive value, to mitigate risk and optimise performance. This is what you can see through some of the numbers when you look at each plant for FY19. Nevertheless, the running of our plants is an area we'll have opportunities to drive sustainable cost efficiencies over time, and, longer-term, costs will decrease at Macquarie when Liddell is retired. Our gas plants will also reduce as Torrens retires, as we head towards a portfolio with more gas peakers and other forms of capacity. These plants are more efficient on an operational cost level. Separately on this slide,

you can see our PPA cost has steadily increased over time. This is due to the signing of new PPAs, including through [inaudible - path], which means higher volumes purchased. Newer PPAs, however, are cheaper and shorter than older PPAs and we expect this trend to continue. As such, on a per-megawatt basis we expect them to reduce.

If we now look at customer markets, there is a particular focus in this area continuing to drive sustainable year-on-year cost reductions, after the small gains of FY19, through leveraging our CXT investment and increasing digital adoption. After a period of intense market activity, the signs are positive that customer switching behaviour is normalising and churn is falling. Again, Christine will go into this in a little bit more detail in her session, but the signs are certainly positive in that front.

So what does that mean? This will have a flow-on effect to a number of our variable costs within customer markets, including reducing call centre volumes and channel costs as the number of acquisitions and retentions decreases. Our investment in digital transformation through CXT has also helped drive down costs. Again, that's most apparent through reducing call volumes through digitisation, but also allowing the team to respond rapidly to the regulatory changes which have been particularly intense over the last few years. Campaigns and advertising costs include a number of variable costs, and are linked to increasing market activity and customer account growth. As we continue to migrate to lower digital cost channels and optimise loyalty and marketing spend, we'll again drive further cost efficiencies. I'd also like to point out that while net bad debt expense is generally a variable cost linked to revenue, it was higher in FY19 as a result of customer-affordability measures we delivered. This will be a saving in FY20. Looking forward, net bad debt expense represents a significant cost category of our business, and opportunity exists for us to strengthen revenue collection through leveraging data and analytics for targeted intervention.

If we briefly move onto CapEx and depreciation, you can see on this slide that sustaining CapEx is broadly flat. Loy Yang maintains a consistent spend cycle as it continues its mid-life refitting. The key item here is Macquarie decreases as we approach FY22, as Liddell approaches its end of life. As I've mentioned previously, we remain highly committed to investing in our fleet to maintain reliability and performance, but with an absolute focus on value. Briefly to depreciation, we already announced this at the full-year, there's $100 million step-up in depreciation year-on-year and this represents our recent significant investment in both plant and systems. The medium-term outlook is a small increase into FY21 as the Barker Inlet Power station comes online for a full period. All else being equal, the trend then flattens out, although it should be noted that this is based on the current asset base and doesn't include any major growth we may

undertake or have not yet approved. Longer-term depreciation will continue to reduce when our thermal assets retire.

This slide may look familiar as we've presented a version of it before. It highlights our asset base as you see it today, and the structure in which we see it evolving. The bars show our current asset base split by asset type, and shows renewable PPAs as an asset even though not all of these are on our balance sheet. AGL's asset base is weighted towards thermal generation assets, PPAs and customer investments. These have underpinned our consistent cash generation and will continue to do so for the short to medium term. The light-blue wave conceptually shows what we expect our future asset base will look like and really holds together when we think about our growth pathways. As we pursue investments through our growth pathways, and as our thermal fleet retires the shape of the light-blue wave is weighted further downstream. It will require some redeployment of wealth generated by existing businesses into, as we've heard today, storage assets, flexible generation assets and assets that support the convergence of data and energy. As always, these investments will be guided with a discipline that our - by our capital allocation principles.

So today I've spoken mostly about our focus on costs as we enter a period of increasing headwinds, but I want to emphasise the ability of AGL's core business to generate cashflows, which remains consistently strong. As you can see on this chart, excluding margin calls, AGL has consistently delivered a cash conversion rate of around about 100% of EBIT to EBITDA. We exclude margin calls as these are generally impacted by forward electricity prices and they will reverse in future periods. You should expect that this cash conversion rate will continue into FY20, with the usual half-on-half split of higher cash in the second half of the year. The expected reduction in underlying profit after tax will not be reflected in our cashflow outlook to the same degree, as the D&A increase represents $100 million non-cash impact. I see our operating cashflow as an enduring strength of AGL as we head into a more uncertain period, and it's my intention to focus and maintain rigour and discipline of cashflow management. It is through these continued strong cashflows that we'll be able to invest in our growth pathways, continue to invest in our core business, and provide optionality in relation to capital management.

On this slide, we have distilled what was our capital allocation principles into four principles. First, run the existing business for optimal performance and value, and that is absolutely what we're doing today. The cost and the cash discipline is a key component of the day-to-day running of the business, including the spend on sustaining CapEx. Second, it's to maintain a strong dividend and dividend policy. We are committed to our Baa2 credit rating and dividend policy ratio of 75% of underlying profit after tax. A strong balance sheet should also be sustainable. Last month we issued our first sustainability-linked loan, which was the first line of its kind by an energy

company in Asia Pacific. Similar to our greenhouse gas policy, this loan demonstrates AGL's commitment to managing carbon risk as it transitions away from coal over the coming decades. Third, is to invest in growth pathways to deliver future value and prosperity with the usual discipline and our hurdle rate. Finally, to manage excess liquidity to maximise shareholder return, as is currently with the buyback we have underway which you'll note is currently tracking at about 23% of the overall target. So as you can see, our capital allocation principles have not changed. The discipline they provide in guiding our decisions and executing our strategy is more important than ever in this evolving environment.

Now, to wrap up, after preparing our FY19 annual report with references to the principles of integrated reporting, we're now improving this reporting to increase our disclosure and enhance our internal reporting. The granularity we've provided on our cost base today gives you an idea as to the improvements to the rest of the OFR, particularly the portfolio margin reporting which we intend to implement going forward. That is, more detailed, more relevant reporting that links more closely to our business value drivers both internally and externally. It's also fair to say that there's been substantial interest among AGL's shareholders in relation to AGL's disclosures regarding the management of climate-related risks. AGL has a long history of being transparent when it comes to disclosure around the greenhouse gas emissions profile and our management of carbon risk. We were - or we are, should I say, one of the first companies to disclose carbon risk in accordance with the taskforce on climate-related financial disclosure. We've publicly committed, as part of the FY19 annual report, to broaden our scenario analysis during FY20 to incorporate at least one scenario aligned with a reasonable pathway which limits warming to 1.5 degrees above pre-industrial levels.

So you've heard me talk today about our operational performance, which the first quarter is tracking well and we're really pleased the way that business is tracking. You've heard me talk about our cost focus and the market trends and our robust cashflows, placing AGL in a strong position as the market goes through significant change. I look forward to continuing to evolve our reporting and hope that the changes we are making allow many of you to better understand our business.

We'll now take questions, after which we'll then have 30 minutes for morning tea to enjoy the lovely view here. You'll note that we didn't get a ship in for the day, so it makes it even better. So thank you very much and we'll now take questions.

[applause]

Audience Member:
G'day, Damien, Rob from Morgan Stanley again. This is the question with notice, I suppose. So slide 23, which shows the higher production rates at Bayswater and Liddell, it looks like there's about half a terawatt more been produced in the quarter versus PCP. At those run-rates, is that estimate of the Loy Yang Unit 2 outage still on track to be that 80 to 100 of NPAT? Or could you, you know, get to the lower end of it? Or just can you give us some colour on that front?

Damien Nicks:
Yeah, sure, Rob. So, look, as we've restated today, our guidance is unchanged. A quarter doesn't make a year. You know, we're a quarter in and, unfortunately, a couple of days ago we had a couple of Bayswater units come off, as an example. We're really pleased with the operational performance, the way it is tracking, but we've got a few milestones in front of us. One being the Loy Yang return to service on the 16th of December and then, secondly, the summer peak performance. That is key to performance of the year. So in any year we look at the whole year. We don't look at an individual quarter when we think about the overall guidance of the organisation.

Audience Member:
Yeah, no worries and wish you well with all of that. Just the next quick question. If I look at slide 26 - and thank you for the extra kind of fuel-cost breakdown there and I will be measuring those charts with my phone later on.

Damien Nicks:
I'm sure you'll get your ruler out.

Audience Member:
So it looks like, in FY19, you spent about $653 million on black coal. Is that net of the pass through under the smelter contract?

Damien Nicks:
No, that's the total...

Audience Member:
That's the total.

Damien Nicks:
...fuel costs. It's when we get to the half you'll see some more disclosure about breaking that out a little bit further. I know you've been asking for that, but that is directionally where we're heading in our reporting, to give some more granularity without giving too much away from a commercial perspective.

Audience Member:

Yeah, of course. Okay, many thanks.

Damien Nicks:

Over the back.

Audience Member:

Damien, [0:23:09].

Damien Nicks:

I think that was on.

Audience Member:

On, okay. Pete Wilson, Credit Suisse. Just the slide where you show the assets allocated to different segments, the large amount of assets still in that customer segment, given the huge decline in the profits in that consumer segment, if we ignore the inexplicable change in the transfer price at the most recent results, there's been a big decline in profitability. Is there any sense that you might follow Energy Australia's lead in writing down some of those assets, either goodwill or those investments in systems?

Damien Nicks:

Yeah, so when you look at that bucket - you're talking about that bucket on the far right-hand side I think you're talking about. So that's made up of, you're right, goodwill. It's got investment in our systems more recently. You may recall when we acquired our customers a number of years back, we acquired them a lot more cheaply than probably Energy Australia and some of the others did. So our cost of goodwill is certainly lower on a cost-per-customer basis. So today our financial performance and our results would not suggest any issues there.

Audience Member:

Just a quick question on the legacy coal contracts that you draw out. Liddell comes off, price goes down, or greater weighting to the legacy contracts.

[crosstalk 0:24:31]

Damien Nicks:

...quite hear you. Say it again.

Audience Member:

There's a greater weighting to the legacy contracts. Can you tell us when you now expect they'll roll off? Given the longer-term nature, is there an opportunity potentially to lock in further long-term coal prices that might be better than...

Damien Nicks:

So, look, I won't steal Phaedra's thunder, but many of the legacy coal contracts roll out 2027 I think it is. The Wilpinjong contract when we acquired the Macquarie generation site, we are currently looking at a whole range of options there as to how we look at recontracting that coal supply, both in the short term and the longer term. Again, I'll let Phaedra talk in a little bit more detail when she gets to her section, but absolutely looking at it at the moment. But remembering too, the Macquarie site is a great location, it gives us great access to coal and great access to a variety of coal. So that is something that's well in the mix when we think about our contracting of coal into the future. Ian.

Audience Member:

Yeah, look, we think about that battery investment and I look at your chart of where you're putting assets, how much do you see is going to be on-balance-sheet versus off-balance-sheet using third parties? I guess the follow up to that is, given the shift and the problems in the grid and probably a few other solar farms and equivalent, thinking about probably batteries and the like, what's the strategic risk that a lot of those PPAs are converting themselves into being sort of like more baseload-ish and they're creating their own flexibility?

Damien Nicks:

Yeah, so the one we're talking about - are you talking about the Maoneng battery that we've announced today? So that is effectively off-balance-sheet, so it's not using our balance sheet. From an accounting point of view, it will come onto our balance sheet under the lease accounting standards. When you think about that battery and those type of batteries, we're continuing to look at a whole range of options when we think about batteries. I think we've got - is it [0:26:35 - Min], you're talking about batteries this morning? Or is it - who, sorry? So Simon will be talking in a bit more detail on batteries. But when we think about the batteries, whether they're on-balance sheet or off-balance-sheet - and apologies, Simon - we're looking at a range of options there. Because there are different ways to think about how we set up our balance sheet, both now and into the future. Currently, with where the pricing of battery is, it's more of an off-balance-sheet that we're focusing on, but going forward we'll continue to see whether some of that makes sense to bring back onto our balance sheet.

Audience Member:

James from RBC. I just had a question on the capital allocation and your target capital structure. So you talk about you have a lot of - you have excess liquidity in the balance sheet. Then I know there's a share buyback, but even after the share buyback there's still like a lot of headroom above what you need to maintain that Baa2 credit rating. So just understanding how to think about that. Is there like a target capital structure that you're going to aim for because you still

have a lot of excess liquidity there? Although there is that - I know you talk about the $2 billion kind of CapEx pipeline, but a lot of that is longer dated and then some of those are going to be off-balance-sheet as well. So it doesn't seem like that you need to retain that much liquidity. Or is there something that - or do you need to retain it for some reason?

Damien Nicks:

Yeah, look, so the way to think about that, we absolutely work through those allocation principles when we think about, you know, how we're going to allocate that capital out. So what you saw today, the growth pathways in front of us potentially provide an opportunity to deploy some of that capital. We won't deploy that capital unless it's meeting our hurdle rates. Where you see in this year whereby we have entered into a buyback, each year we'll continue to look at what is in front of us, running the business well, investing in our core business, and then looking at what the dividend structure looks like. Then, finally, we'll look at what - you know, whether - you then go back and look at a buyback as a last form of capital management. So it is the last thing we do in terms of the dividends and the capital management, but it is something that, when we think about the broader balance sheet, it - sorry, I've lost my train of thought there. It is the last thing we'll think about doing and each year we'll continue to reassess that.

Audience Member:

Then just one quick follow up, if I could. Just on the dividends, you'd struck off underlying profit after tax, but you talk about the real strength is AGL's operating cashflow. I'm just wondering how appropriate is that striking it off, like profit after tax? Like in the last couple of years, the depreciation's really gone up like in the last - from FY 19 to '20, and then also even FY18 to '19 I think there were some like depreciation changes and hydro assets increasing depreciation there. So those non-cash items are really pushing down NPAT and the dividend. Like would it more appropriate at some stage to move to an operating cashflow measure or something?

Damien Nicks:

Look, our dividend policy has been in place for a number of years now and it continues to be a really good policy in terms of returning dividends back to our shareholders. You've seen that increase over the last five years. In any capital management, we look at what the structure is and how we would return dividends to our shareholders, but today we consider that policy being the most appropriate as we look forward to the growth pathways in front of us.

Audience Member:

I'm just wondering if you could talk a bit about the hurdle rates that you're setting for new investments in say batteries and other things? Also, what level of return that you require from investment in adjacent markets?

Damien Nicks:

So our hurdle rate is unchanged. Our hurdle rate is 12% post-tax-nominal and remains unchanged. We see that hurdle rate as being absolutely appropriate in today's market. We're looking at assets that are not one- to two-year assets. They are many, many years in duration, so 10 to 15 to 20 year assets. The hurdle rate, we've never had a project not get up because of the hurdle rate. Any good project, if it stacks up, will get up. We continue to consider risk when we think about the hurdle rate. If there's those assets [0:31:15 - we're entering it] with greater risk, that will increase the hurdle rate when we think about those assets. But today, on a broad basis, we think of 12% post-tax-nominal as our hurdle rate that we're targeting for all of our investments.

AGL Energy Investor Day 2019

Customer update: driving connection and orchestration

Christine Corbett
Chief Customer Officer, Participant

Dominique Van Den Berg
GM Distributed Energy, Participant

Simon Moorfield
EGM Future Business & Technology, Participant

Christine Corbett:

Well, good morning everyone. For those people that I haven't met personally, my name is Christine Corbett. I'm the Chief Customer Officer here at AGL, and I started on 1 July. So, a couple of days short of the fourth month anniversary. So, anything you want to know about electricity, energy, gas prices, you just ask, because I've got four months' knowledge to share with you.

Some of you may know I was at Australia Post for a large part of my career. In fact over 25 years. So, I really have got a big understanding, developed over a period of time, of consumers and consumer trends, but importantly, how do you really understand the needs and expectations of millions of customers, and how do you build products and services at scale to meet those needs. It's sort of that kind of background and knowledge and history that we'll sort of be

leveraging, especially with the growth pathway that we'll share with you today, which is really ab out AGL becoming that multi-product retailer.

So, let me introduce a couple of members of the team. So, this is going to cover the growth pathway of connection and orchestration. This morning it will be both Dom and Simon will share the stage with me a little later on to really look at how do we win in the connected customer space, how do we win with scale mass customers, but develop and target that offer to give them what they need when they need it.

So, look, there's a couple of key messages I want you to leave here today with, and there will be a lot of background and a lot of material that I'll cover, and certainly we'll have the Q&A immediately following this session. But if I was to say what are the three things that have particularly happened from a customer space and how well positioned is AGL, the first I would say is we've just come through obviously a period that has been somewhat tumultuous, a period of unprecedented regulatory change, and what has been fantastic and certainly should give you confidence, has given the team confidence, is that on 1 July AGL was certainly ready and trading and meeting those customer needs in a market that really wasn't quite sure what to expect. So, we were ready and we were delivering.

The second thing I really actually want to cover off is why – and Brett has actually mentioned this earlier – but why winning this connected customer is so important. Brett spoke about it is becoming the dawn of the battery era and the battery age, but we are in the customer era. So, for us to have 3.7 million customer accounts, and that number is growing, that gives us a position of strength. For us to know that with so many customers, with so many devices, with so much data being available and the ability to connect, something that is really quite complex, the masses of data that's being generated in this country and around the globe, the mass expectation that people have for service levels to rise, and the expectation that consumers are expecting companies to know and understand them when they want to be understood – and someone has to deal with all that complexity – AGL is really well placed to deal with complexity, and to try and make the complex simple. I should say, to try and make that as simple as possible within the regulatory environment, which is actually really complex. But we can do that really well.

I think the last key message that really holds us in really good stead, and it is a fantastic time for a newcomer to join AGL, is you've certainly heard over the last couple of years about our investment in CXT and our digital transformation. Now, that investment was a multi-year investment. That investment cannot happen overnight. But we've now got those foundations that are now ready for us to amplify and to simplify the experience that customers want, which is why we are so excited to be able to sort of say we do think we can win in the connected customer space, both for consumers, which is residential and our SMEs, as well as in the C&I space.

The thing I think that is happening with customers – and you all know this – but we often have measured ourselves historically against other energy retailers and energy suppliers. That's not how now consumers are measuring us. Their service standards are being measured by the best of the best, and we need to hold ourselves to that account. I was just actually talking to Ian at the break, and what we're starting to see in the market, that as those levels of discounts are compressing, coming against a new reference price, what we're actually starting to see is a dampening of market activity. If price is not going to be as big a lever – and it won't be. When figures and discounts, headline figures are being quoted in the tens, in the elevens, in the 12 percent, how big an incentive is that for consumers to switch, to when they thought they were getting 35 and 38 and 40? What that really means is as that sort of pressure is compressing, service is actually the new lever of advantage. You'll certainly see at AGL that is really where we're doubling down with respect to service and certainty, and they're the two things that we're hearing our customers say that they want.

So, what we'll be covering today is two growth pathways, and we're covering two because one leads into the other. So, when we speak about connection – and Joao spoke about this – it is actually us establishing a foundation for a multi-product offering. Now, what does that really mean? It means that historically AGL obviously has sold electricity and we've sold gas, so we're sort of a dual fuel player, and we know customers who are with us for dual fuel churn less. From an AGL perspective, 34 percent less, if you actually buy one fuel versus two from us. We know then – and we've started to do the research, and others in the industry are doing the research as well – is that now the propensity for customers to say what is a new essential service? What is something that you don't want to worry about, you don't want to think about, you expect it to be there? It is actually the easiest entry point and the most natural entry point is data. But the capabilities we're actually building up under that initial entry point for us under winning the connected customer, those same capabilities that will be able to be leveraged, is when we have things like batteries and we are able to orchestrate at scale.

So, that is the capability, for us to be able to surface up to our contact centre staff, for us to be able to surface up in digital channels, the ability for customers to choose multiple products, to see, view and have transparency of that simply, and then to be able to assess and understand what value they are deriving for ease of access, but also in having those potential product elements put together.

So, for us, we really look at into the future and where do we see ourselves. We see that whether our customers are moving, connecting, generating, distributing, sharing or simply using, at AGL we will earn our customers' trust by delivering great value services that are easy to use, with the support that our customers need when they need it. So, the convergence of simple and

convenient solutions in the home to simple and convenient solutions that start then increasing with the uptake of solar, with the uptake of batteries, with the uptake of electric vehicles, is really something that we are very excited about in this growth pathway.

So, let me actually just sort of pause for a moment, and then sort of go back to why we are confident that this is the right strategy for us, and why we can stand here today and say it is wonderful to be able to not just talk about a strategy, but give you some demonstrable proof points – and that is certainly the announcement in recent weeks – of our intent to acquire Southern Phone Company. Southern Phone Company, it is a small company, but it gives us the real ability to not just talk, but to do. It gives us the ability to get into market with real customers, and to test and to trial and to experiment and to learn what do customers want of these new essential services, and how do we actually bundle and put things together.

But if we look at it across both, from a residential and a commercial sort of trend, what we start to sort of see here – and the first point I think is really it's big, it's scale, it's only going to get bigger in terms of the number of devices – but the number of devices, the number of smart products, the number of things that consumers can now do on those devices is really the trend that we're looking at. We see – and we actually surveyed 2,000 customers, so it's not everyone in Australia, but it certainly is statistically valid – that when we went out to respondents about their propensity to say what do you think in terms of energy and data, we actually had 63 percent say likely or very likely to be interested in an offer in that way, as long as it actually provides value and simplicity to them.

We also know that behind price, customer service is the second highest reason for negative sentiment and churn. So, getting that service experience right is critical for us. We also know – and Dom will cover some of this information in a little while – that with falling battery costs, as we've already shown, and the payback for residential solar shortening, we can actually see that if we build this multi-product capability now, we do it with something like data that people can use today. As the increased penetration of solar, batteries, storage and EV takes place, the ability to be able to get, give, share and orchestrate value, it means we have been there from the beginning.

Similarly I would actually sort of say that a lot of these trends are very similar when we look across to our commercial and industrial customers. We know from a C&I perspective that our customers are moving from really just looking at energy as a commodity. They're wanting and expecting today more innovative products and services. They're looking at different PPAs. But increasingly we know customers are looking at their own generation, and how can they be self-sufficient, but that also them to say what other kind of value pools are being created as we move to a world of more complex and more integrated sort of energy solutions. So, we start to

look at some of those trends, and again it just reinforces for us and validates for us that this sense of connected customer for consumers and for C&I makes sense.

You also would have seen obviously in recent months our acquisition of Perth Energy. That obviously gives us a really nice strong base for us to develop in the west, and also be able to sort of test and trial again some of the new solutions that our customers are looking for. But it also gives us the ability to both firm supply and underpin more generation and investment that we've already covered here this morning.

So, they're the trends and the background to why we think our connected customer strategy makes sense. But it is a very intense industry from a regulatory perspective that we are operating in. You've got copies of all these slides. I won't go into all of this in detail, but certainly the introduction of the DMO and the VDO has driven volatility in the lead up to that regulatory change. Obviously it's been focused around issues that are important to customers with respect to affordability, and making sure that from a government and a regulatory perspective, that retailers are really putting customers' interests at the centre of what they do.

What is really quite surprising though when you look at that list and you see all of the regulations changes that have happened and are looking at happening over the coming year, interestingly – we have recently gone out again to a portion of our customer base – only 20 percent of customers even actually understand or are aware that there has been regulatory change. So, I think sometimes we all get caught up in it, and it's certainly not to under-estimate the level of effort that many people in this room really needed to undergo to be compliant by 1 July, but again, a lot of customers certainly expect things but don't necessarily understand, or even to be honest care, when those changes occur.

So, what have we been doing? Look, really I think for us, you could really put it under four key themes. Those four key themes are around advocating, protecting, simplifying and transforming. Really, we have seen and really taken these last six to 12 months as an opportunity for us to better support and deliver for our customers. So, when we look from an advocacy perspective, certainly AGL is a signatory to the energy charter, and many of you would have seen hopefully that we've recently lodged our first report. We have also appointed a new customer advocate in the customer markets team, and that customer advocate started two months ago. We needed to make sure, and we were really very proud to make sure, that we were ready for the changes on 1 July with no business disruption.

The second was around protecting the most vulnerable customers, and Damien has already gone into detail this morning, and you already know from our year end results, about the $50 million affordability package, but also the launch for us of both our electricity and gas safety net

guarantees for our standing offer customers. When you look at that, that's sort of roughly 300,000 customers that were able to sort of benefit from those guarantees being put in place.

With respect to simplify – and it would be fair to say that we have started to simplify – our technology platform gives us that foundation, but absolutely there is more work for us to do in this space. Part of our role, and certainly part of our role we see in customer markets, is how can we take the complexity of regulation, and how can we make sure we comply but make it really simple and easy for our customers to understand.

So, one of the things that we have done, and we are immensely proud of, is the launch of our essentials offer. Now, I think at the half year we would have actually said to you that we were around sort of 250,000 customers had signed up as at FY19. We are now at 500,000 customers who are on our essentials program. So, what does that actually sort of really mean? Well, it actually comes back to the point we said before. The day of the super high discounts or varying sort of base rates has ended, and now offer a stable sort of reference rate. Looking and chasing discounts absolutely appeals to particular segments of the market, but not all. So, what customers want is certainty, and they actually want value. So, for us to be able to sort of have an essentials fixed offer seems to really resonate with that customer base. So, when we look at where we were and where we are, our predictions in terms of customers moving on to this product set, almost every week we're having to sort of reforecast in a really positive way, which is fantastic, because we're able to then give our customers a product that they want.

The last is around the area of transformation. Again, for us we now have a technology platform in place that has delivered us new digital functionality, it's delivered us new call centre functionality, it's simplified our back office, and it's allowed us to streamline a lot of those customer interactions and marketing support so that we're now ready to be able to say, we're set up to say, we will and we can succeed being a multi-product retailer. Whereas I think three years ago, we may have struggled, because we didn't have that sort of base.

So, let me actually then just show you then what does this mean in terms of the metrics, and then to sort of put the rubber to the road, it sounds good. How are your customers responding? So, the first I would say is we're showing some really strong market performance. Although market churn is still high, it's around sort of that 22 percent, our churn rate is back to FY17 levels. So, that is actually good for us. We're still keeping that churn spread to market. But what that actually sort of means is that customers are stopping to as much shop on price, shop on certainty, shop on value. Again, what we are starting to see is obviously a lot of the tier 1/2 and even 3 retailers. You'll see in the marketplace, for those who are interested in watching ads, you'll see that generally market activity has been pretty quiet. There's not been a lot of above the line market

activity. All retailers are still sort of trying to grapple with what is that new offer, when for so many years it's been a price led offer that really has hit customers between the eyes.

What we then have also though seen, and Brett has actually sort of alluded to, is customer growth is still really important to us. We are making sure that when we focus – and we've now got quite granular in both our level of segmentation, but also the geographical segments that we really want to target – to look at increasing our share. So, again, if you look at where some of our success has been in recent times, we've had success in WA, we've had actually some success in our small business customers, and we actually know now almost by postcode where we want to direct our marketing activity. That's actually been able to sort of yield in some of those results.

The other thing that has also been able to help drive I think both customer numbers, but also NPS. I come back to saying if the second most important thing outside a price is customer service, we need to be good at customer service. Pleasingly, it's great to see that NPS has got the right trajectory moving forward, but it's actually not great that it's still in the negative. It's not great that as an industry and as a sector that customers still don't trust the sector. But it is good to say that momentum is improving. One of the drivers of trust we know is service. I mean for a lot of our customers it's a low involvement category. Success for some of our customers is they never have to contact us and they never have to hear from us. But when they need to, whether that be an outage issue, whether that be a billing issue, whether that be a move house issue, they want issues to be resolved and to be resolved quickly.

So, again, what we think has actually both driven – not we think – we know what has actually driven both of these numbers is we've had already 15 percent in our first quarter, 15 percent lower customer complaints, than the same quarter last year. From an Ombudsman perspective – and we do really care about our Ombudsman complaints – they're down 22 percent when you look quarter on quarter.

Some of the other things that are actually sort of driving that is we also know one of the key sources when people look at their bills – one of the key issues for them is for us the introduction of having self-meter reads has been a real positive initiative for our customers, versus an estimated read. Because it's that disconnect between what an estimated read is and what a final bill is that actually causes customer angst and frustration. We're also starting to look at the rollout of progressively more smart meters. So, we know we've got that in Victoria, but what we're starting to see now from a company perspective, as well as a customer perspective, there's a lot of tangible benefits with smart meter rollouts. Part of that from a customer is bill quality. Part of that is obviously bill accuracy, because you don't have those estimated reads. But the other thing is we're actually sort of finding because people then have more confidence in the bill, we're actually finding a huge propensity to switch to monthly billing, which is actually fantastic from a

cashflow perspective, and we're also seeing that with smart meters as well, because of the confidence in the accuracy of the bill versus the previous estimated meter read, that on average customers are paying 2.9 days earlier for those that actually have a smart meter.

So, they're sort of some of the actual trends and the important metrics that we're seeing stare at us in the marketplace.

Now, one of the other things that has actually occurred as a result of subdued market activity is we're seeing generally that obviously retailers are settling into this new market environment. As I mentioned, marketing messages are becoming sort of probably higher level than actually targeted sort of price specific. There's a lot more below the line marketing activity sort of occurring. But what's happening as the level of switches just in the market is declining, what we are seeing – and look, it's simple maths really – but we're actually sort of seeing that that movers segment is increasingly important to us. You can see now that movers make up 56 percent of the switching market. Now, again when you start to sort of look at the graph there in the middle, it shows that renters are the largest part of that movers market, and the rental market generally in Australia over the last 12 months has been relatively flat, but obviously the owner market has actually sort of declined with obviously a softening of some property market conditions. But getting that move right, our customers, any mover, wants it to be simple and hassle free.

Certainly AGL has responded with actually re-looking at our moving customer base and actually being in market with a movers guarantee. That's actually sort of something that a lot of the other players haven't done. I say that, because once you've got something out there in the marketplace, it is actually easy to emulate, but it's actually sort of nice to be able to have the confidence behind the service that we offer, that we can actually put a guarantee in place.

The other thing that I would just say quite briefly, is obviously when we go to market in this sort of new environment, the importance of segmentation is going to be more important than ever. From an AGL perspective, we really look at segmentation sort of three different ways. But again, moving forward with the technology base that we've now got, that really granular level of segmentation is going to be far more important and far more effective for us. So, we look at it from a demographic basis. For us in particular, that's actually whether you own or rent. It's actually the size of your home. It's actually the stage of your life, and it's also your level of household income. So, for us, those kind of demographic factors, they drive consumption, they drive the channel of entry, they drive actually the penetration of solar use, they drive your move frequency, and ultimately all of that is actually how we go to look at our customers in terms of which customers to target when.

The second sort of key area is really when we start to look at it form an attitudinal perspective. This is really how engaged are you in the category of energy, how conscious are you of your energy usage, and do you want to sort of draw insights from that. For us, that drives price sensitivity, it drives brand awareness, it drives loyalty. It actually drives us to be able to understand what particular features of what particular packages appeal to what particular profiles of customers.

The last – and this has obviously been something that just in the last couple of years, and in particular the last sort of six to 12 months we've started to look more at – is really started to look sort of from a digital perspective. What is your level of digital ability, what is your level of digital confidence, and indeed, what is your level of willingness to engage with us through digital channels. Those sorts of profiles allow us to understand drivers in terms of how you want to be serviced, what is your payment channel, and how we actually go about acquiring and retaining sort of new customers.

So, when we sort of start to look at what all of this has actually led around to – some of the basics that we know – trust does need to be rebuilt, and you'll see, and I'll leave you to sort of read at your leisure, that some of the issues that we're seeing here is that we know customers are worried about affordability. They feel that additional regulation is important, but they don't really actually know what they've got. But they absolutely want and expect energy companies to get the basics right. We know then in the middle that customers are attracted to a multi-product holding if it delivers them value, if it provides them convenience, and if it actually creates some flexibility for them.

So, what is our strategy in customer markets, which aligns obviously with what is AGL's strategy under growth transformation and social licence. So, for us, it comes back to what both Joao and Brett said in the beginning, is that to have a healthy customer base, it really matters. So, we need to make sure that we play where big matters, and we can actually do things at scale that benefit mainstream Australia. So, for us, we want to make sure that we win the connected customer, that we want to be famous for great service, and that we actually regain and earn trust. These sort of three strategies here are equally important in our consumer and our C&I customer base, and you'll see there, and certainly you'll hear as the year progresses and at our half year results, some of the tangible initiatives that we'll be driving under each of these sort of strategy pillars.

So, let me maybe sort of start to conclude on our Southern Phone acquisition, the reason for us of why we believe this is a great entry point for us in the connected customer space. So, again it's obviously an intent to acquire. The offer is out there at the moment. It's been accepted by their board, and it's currently sort of in the process of the owners, which are sort of 35 councils. We're in discussions with them at the moment, and if I have all my fingers and toes crossed, we

really hope to conclude that very shortly. See, no date. Just very shortly. But again, we are actually buying a company that has 100,000 customers. So, for us, when we say we want to test and trial and learn about what does it mean that customers want in data, we're doing it with real customers that are actually really sticky, with people who have actually got a depth of telco industry experience. So, for us, it really is a great meeting of the mind.

When we start to look at what have we got versus what are buying, for us through CXT, what we have actually got is some digital self-service channels. We've got an e-commerce platform. We've got a digital sales experience. We can automate our marketing offers. We've now got capability and functionality with respect to next best action, so that we can make it easier for our call centre operators to be able to offer a multiple product holding to our customer base. We now start understanding and we have CX measurements. We've got one touch payments and SMS platforms. We've got a customer identity solution, and we've got APIs. That's all the stuff that that investment has actually sort of brought.

But what we're going to be acquiring with Southern Phones as part of the acquisition is obviously a telco specific tech stack with their CRM and billing systems, their network assets, we're going to have the supplier agreements that are in place, backhaul agreements that are actually in place, and obviously telco customer tech support capability. So, there's things that we don't have that we need to learn, and we're buying people who have already got that capability.

Then there's what are we building? So, what do we need to build with multi-product? So, we need to be able to build the ability for our agents to configure price and quote across multiple product lines. We need the ability for our call centre operators to be able to both sell and service across multiple product lines. We need to be able to simplify, have a really simplified product catalogue and architecture, and we need to make sure we give visibility for customers on what their electricity bill is, what their gas bill is and what their data bill is. They're the things that we will be building with our multi-product offering over the next 12 months.

So, if we start to sort of go why this, why now, part of the why this, why now, is we know that this is a large addressable market. It has got a good strategic fit. Our research shows that there is a propensity for customers to want to engage with an energy company in this space. But importantly, the why now is it is a very unique time in Australia's history with the rollout of NBN and the commoditisation of data. The rollout of NBN creates a natural market churn event, and we know in the energy market that churn and capturing churn is really important. So, if we can actually now capture churn – and you can see there that there is going to be over the next three years, 2.9 churn events that allows us to steer into and play into that market – it allows us to play where big matters, it allows us to bring simplicity to complex issues that customers are not

always necessarily engaged in, and it allows us to be able to enter into an area that is more than just pure energy.

So, with that, thank you very much. Let me now invite both Dom and Simon to the stage. Thank you.

Dominique Van Den Berg:

Good morning. I'm Dominique Van Den Berg, GM for Distributed Energy. Right now I think I have the best job at AGL. Prior to joining AGL, I was with BG Group, an international oil and gas company headquartered in the UK. I was with them for 15 years, worked and lived in Kazakhstan, United Kingdom, South and East Asia and in Australia, across the energy chain, from upstream energy, onshore/offshore, unconventional and conventional.

Shell bought BG in 2015, and I joined Shell and led the energy transition team in Australia. I joined AGL 18 months ago, and like Joao, I joined AGL because I believed, and I still believe, that more than any other company in Australia, AGL can have the most impactful and meaningful role in this energy transition.

So, we're talking here about orchestration of behind the meter assets, virtual powerplants. Alongside California, Hawaii and Germany, Australia is blazing a trail in the world of virtual powerplants. AGL is at the centre of this nascent market, and we see strong market fundamentals that are going to support the growth.

Brett spoke of this earlier. The story starts with solar. In 2010, one in 100 households had solar. Today one in four households have solar on their rooftop. There's more rooftop solar in Australia than all of the United States, and we've seen the impact, the significant impact on the NIM of this high solar penetration. We all know the story. No one anticipated the growth trajectory in solar.

This uptake in solar, combined with government subsidies, is driving the uptake of residential batteries, and similar to solar, Australia is at the forefront of this phenomenon. But where it gets interesting, is that these batteries, especially those in the subsidy schemes, must be orchestrated, effectively forming a virtual power plant. This is where AGL can win. My colleagues will talk later in hostile markets about how we do this in detail, but we have the tools and the knowhow to manage large scale assets, and we do this every day, and we can do the same for behind the meter assets.

The graph on the left shows the AEMO fast change scenario, anticipating that by 2030 we'll have 650,000 batteries in the homes. That's one in 17 households. A more aggressive scenario – take the AEMO hard case – predicts that by 2030 we'll have one in four. That is almost exactly the

same growth trajectory we saw in solar over the last ten years repeated for residential batteries over the next ten years.

So, that's the home battery. What about the mobile battery? We anticipate electric vehicles to be a significant part of our virtual powerplant, with perhaps even stronger market fundamentals supporting the uptake of EVs. Several things are anticipated to happen in the next few years. There will be a broader range of models, even in Australia. Range concerns will be far less prevalent with fast charging infrastructure going in today, mainly supported by motoring groups and by government subsidies. But most important, we'll hit price parity at the dealer, where the cost of an electric vehicle will be the same as the cost of an internal combustion engine. At that point we expect exponential growth in EV sales.

In the scenario here, energy is – mid-range scenario – shows that by 2030 more than half of all new sales will be electric vehicles. That's 2.6 million vehicles. It's 15 percent of the customer passenger fleet. The principles of orchestration for the home battery, it's exactly the same principles of orchestration for the mobile battery. Of course, when, how, where we charge is far more complex. But combine the residential battery and the electric vehicle potential, make some bold assumptions about all vehicles having vehicle to grid capability by 2030, and we're looking at more than 7,000 megawatts in the system. That's significant storage. That's 28 open cycle gas turbines. In many respects, we need to manage these assets in exactly the same way that we manage the gas peakers.

So, AGL is effectively the trader in the middle. On the one side we've got customer assets with latent capacity, and on the other side we've got market dynamics. What we do well is manage the risk and manage the uncertainty to create value, and as Christine said, we want to do this at scale. So, we have an aspiration to be Australia's largest multi-asset virtual powerplant.

To this end, we were the first retailer to launch a VPP trial in South Australia where we've now installed more than 1,000 batteries, and it's still a very nascent market, but following the success of this trial, we've launched a battery offer in market where we incentivise customers to buy and enrol their batteries in our virtual powerplant, and we plan to evolve this customer offering as we go.

We've learnt, and we continue to learn, a huge amount. I'll give you two examples that for me really resonated. Using our advanced analytic platform, we can identify if customers' batteries have an operational issue, or if the customers' battery was not installed properly. We know if something's wrong, which might not actually be apparent to the customer, might not even be apparent to the battery vendor installer themselves. If it's not operating as it should, we can help customers to rectify it by providing them a baseline performance of what they should expect.

The second is we're the first retailer in the world to orchestrate multi-asset vendor batteries through cloud technology. Why is that important? It means that we're building the capability to seamlessly place these range of assets into the different value pools. So, this technology, these market leading insights, combined with our trading capability gives AGL a distinct competitive advantage. What does this mean for the customer? What's the benefit of a virtual powerplant to the owner of a residential battery or the owner of an electric vehicle? A virtual powerplant is a shared economy business. Think Uber, think Airbnb, where the value of that asset is worth so much more when it's shared.

A customer without solar or a battery has this kind of consumption pattern. The customer then installs solar, and immediately benefits from solar servicing their own needs during the middle of the day, and then exporting that excess solar which is beyond the household requirements. The customer then installs a battery, and rather than exporting that excess solar, they use the battery later in the day to further reduce their net load.

Now, the impact a battery makes to a customer's bill varies massively customer to customer. It depends on their solar, inverter size, tariff structure. But let's just assume that the average savings of a battery is around $500. Without orchestration, that is the only value pool a customer can access from that battery. But for the first time in a long time, the industry is finding new sources of value, and is able to share that value back with customers.

Here we show how the battery can take advantage of a higher price in the wholesale market, and immediately respond to that price spike. Because of all the trading and risk management capability we have in AGL, we know if it's better to place that battery into the wholesale market, to place it into FKS or in new value pools as they start to emerge. In sharing that value back with the customer, instead of the customer just saving $500 on their battery, our offer in market today credits that customer $280 in the first year. That's the shared economy of a virtual powerplant.

Rolled out at scale, we transform the way we engage with customers, with a significant portion of our customers. We're adding value to the customer assets, we're providing market leading insights which the customers will want to experience, and this new level of engagement builds trust and the trust further strengthens our brand.

Now, I'll hand over to Simon to paint a picture of what the future might look like and what we have built and continue to build in supporting this future.

[Start video playback]

Narrator:

What might the future look like? We want to transform how Australians produce, use and share energy and other services. So, when moving house, connecting a new service is just a tap away. So, businesses can make smart, cost-effective decisions about their energy use in real time. So, electric vehicles are available and ready to go, helping us get from A to B and power our homes. And so, when the electricity grid is experiencing high demand, supporting the community is rewarded.

We're working towards a smart future where needs are met before they're realised, a future that all Australians can benefit from. AGL. Progress for life.

[End video playback]

Simon Moorfield:

Hi everyone. My name's Simon Moorfield. I'm the EGM for Future Business and Technology. You may recall I've been at AGL for just over three years, previously as the CIO. Prior to joining AGL, I've held a number of senior technology CIO positions at CBA and GE for about 12 years, and recently my role has been expanded to look after Future Business and Technology. In that role I look after our digital COE, we're building a data and analytics COE, and a new area which we're calling Future Business, which will focus on emerging products and services and technologies that will enable our core business to scale and grow, i.e. through customer markets.

At AGL we've been very focused on building a digital and technology platform for our future, and as you heard from Christine, are really starting to see some of the benefits of that with our growth in customer numbers and improvement in our NPS.

Today I'd like to leave you with three things. The first is that our CXT investments that we've made over the past three years have given us a world class platform for growth. Secondly, we're integrating Australia's largest operating VPP and orchestration capability into that CXT platform, and we're going to build that for growth as well, and that build is underway.

Lastly, we're going to use the same cloud-based technology platforms to rapidly grow and enter into a broadband market.

So, hopefully from the first slide you remember the last animation or the last future scenario, where a man has left his EV at home, it's a warm day, and we've simply credited him with $20. It's a very simple, frictionless experience for our customer. Such a scenario is actually a lot closer than you might think, and AGL has made some very well-placed investments to set us up for that potential future.

So, you'll see here actually achieving that very simple, frictionless experience is actually very complex, and there's lots of different services you'll see on this slide that need to all come together in a moment to provide that experience. Our CXT investments have provided the foundations to realise such an experience. Let me explain some of these products and services that are on this particular slide that will give us that great experience.

So, first, our new app has the ability to provide notifications and chat, which is the first time we've actually been able to really engage with the customer. If you think historically, we'd have to wait for them to call us, or we could do a cold call or send them a letter that they may not even respond to. We now have the ability through machine learning – and you heard Dom speak about that briefly – but we can actually identify which of our customers have a battery today, and solar, and we're able to then identify whether they are a suitable customer to participate in such a program.

We have energy insights capability, again that we built through our CXT transformation, that enable us, without installing anything new, where you have a smart meter in your home, able to identify how you're using energy consumption by a device and provide that information back to the customer to choose how better to use their energy internally. But then we can also identify the type of program that we'd like to offer them.

We can bring in third party data, such as weather information from the weather bureau. We can use today's weather, tomorrow's weather, the next day's weather, to help us decide whether the offer at this moment in time is ready to provide to that customer with an electric vehicle. We've also spent the last four to five years learning and building our virtual power station in South Australia. That's developed the capability to orchestrate customers' energy, residential batteries, and to provide the ability to participate and trade that energy into the market today.

So, if you're going to do that, you also need to credit the money to the customer's account. So, we've been able to do that through our CXT transformation, one of our signature moments, which is called our self-service meter read. So, you can actively go through your mobile app or your website, read your meter, find out exactly how much you are required to pay, and pay at that time. So, we've had to make significant changes in our SAP and digital platforms to enable that.

So, all of these services I've gone through are going to be required to come together in just a few milliseconds through advanced analytics and through a very clean, simple user experience. Remember, all this is required just to provide that one $20 experience to that customer. But I can assure you, through the investments we've made in the past three years through our CXT program, we are very well positioned to lead in this complex future.

So, just to orient you with this slide, if you start from left to right, it comes from where we came from to how CXTs helped us and where we are going to, and what the potential value might be. Only three years ago we were largely a contact centre business. Now, sure, we had a website, but it was very limited in traffic. We had a mobile app, but we had about 15,000 users or customers on the app. We had a really solid SAP billing and pricing capability, but with the CXT program, we've now transformed that customer experience. We now have a far more simple, engaging website. We have native iOS and Android apps. We've used that same capability to develop Amazon and Google voice skills, and our digital experiences are typically averaging an NPS of around positive 40.

These new improved channels are cloud-based, and allow us the ability to scale beyond electricity and gas to unlock new business lines, such as our orchestration of solar and batteries, and extend then to broadband, mobiles and beyond. In the centre of the page you'll see where some of our key improvements through the CXT have come from. We have twice as many customers now on e-bills. We have three times – in fact the most recent number is four times – the number of customers through digital sales than what we had prior to the beginning of the program, and our My Account, which is our servicing platform, our online servicing platform, we now have four times more regular users through our My Account. Interestingly, our mobile app has increased by 15 times the number of users.

So, to deliver all this capability, we have to build a core system or a factory of change and capability within our organisation. To give you a sense of that, to deliver improvements to our customer experience, we do that 20 times more frequently now than what we did three years ago. Our change cycle has reduced significantly. To give you an example again, a key component or cost of change or time to change is testing. We've reduced our testing cycles by ten times through automation techniques. We've dramatically improved the quality of our data in our SAP platform to provide insights, and we've set up SAP for the digital future.

On the far right of the page you'll see our next focus of capability, and as you've heard from Dom, battery orchestration is a platform all about shared value. Like any new platform business, the digital experience is going to be absolutely critical. If you can imagine, in one simple app you'll not only have the ability to check how your battery or your EV is performing – there may be some single providers who can do that, maybe Tesla, but not to mention any – you can create value through your solar, you can view bills, you can pay when it's convenient, you can realise value from your battery at any time, you can monitor your broadband and mobile usage, and you can actually chat to somebody when you need assistance. That's just the start of where we're heading. So, an end to end digital experience that is multi-product enabled.

In our new data analytics COE, we're rapidly building new advanced capabilities, helping us take cost out of our business, but also identifying new areas for growth. AGL is very well positioned to lead in this new shared economy world, where together with our customers, we're sharing value with the energy market, and the investments we've laid into our CXT on our customer experience, to lead the world in the connected customer.

Just to close, I firmly believe that our CXT investments have given us a world class platform for growth. We are integrating Australia's largest VPP into our CXT platform to scale that. Lastly, as I said earlier, these cloud-based services are going to be extended to rapidly grow into our entry for broadband.

So, thank you. I'd like to ask Christine to help moderate the Q&A.

Christine Corbett:

Now, we could probably talk about customers' connections and orchestration all day. So, we are here over lunch, so please feel free to come up and ask us any questions individually. But we've got a few moments now if anyone would like to raise a question.

Audience Member:

Thanks Christine. So, slide 60 – and I applaud you for the vision here, but there's a lot of stuff on there, and I appreciate that CXT gives you the platform to be able to hopefully execute on capturing a lot of the value you see in all of those different avenues. What I want to understand is what's the scale of investment required over the near term from what you can see from those opportunities right now, just to give us an understanding on that Capex profile please?

Christine Corbett:

So, if I look at – and let me maybe talk specifically into our broadband entry – when we look at the scale of the Capex, it is very moderate to be blunt. We are actually sort of building from a multi-product perspective. We are actually building, as I said, a catalogue, a simplified product architecture, configure price quote, and if I look at the scale of the investment with CXT – and you all know we've sort of had a $300 million investment – we're more looking at the tens of millions rather than the hundreds of millions for the investment in our broadband entry.

Audience Member:

Got it. That's helpful. Thank you. Secondly, which ties into some of the balance sheet questions earlier, you've mentioned a few times this morning growth at scale. Southern Phone Company is a much smaller scale than your Vocus, so how do I think about you wanting to test this telco

market now rather than this big bang acquisition like Vocus would have been, and therefore once you've gotten your learnings – maybe it's premature to ask this question – but how does then that translate into using the dry powder you have on your balance sheet and perhaps acquiring further through that horizontal?

Christine Corbett:

So, look, the strategy stays the same, whether it be with Vocus or Southern Phone. The strategy was to win the connected customer, and that's what we're doing. When we go out and we look at what are real opportunities right at the moment, in this space they are somewhat limited. So, for us, with Vocus not being able to come to fruition, we deliberately took a stand to sort of say we want to be able to translate a strategy into action, and we want to do something tangible in this financial year. The best way for us to do that is to translate strategy with live customers.

So, it's not a huge company, but it's 100,000 customers that are really quite sticky. It's 100,000 customers that we actually see have got a fantastic NPS. They actually have, and they still show it's got a skew to an older demographic, and again, some of those demographic profiles obviously correlate really nicely with AGL. But for us, the core difference was really being able to say let us get in, get under the covers of a real live operating telco and understand, and that will then – this is not a company that will scale to the edge of Vocus. It will mean – and we will start to continue to actively look in the marketplace, as we always do and should for other acquisition that may come along. But it allows us to really have a two pronged strategy, or inorganically grow and actually get in with some customers that matter, as we actually develop organic multi-product capability on top that's important, that will be reusable. Because what we're starting to sort of see now is rather than just have a data and telco play, our play is a bigger pool, and that play is in that, but it's in actually the value pools that Dom covered as well. So, reusable capability that our customers are telling us they want, with an entry point that is manageable for us in this financial year, we think is the right way to go.

Audience Member:

Hi. Pete Wilson, Credit Risk. Christine, with our experience, I'd be interested in your thoughts on NPS as a measure of I guess how good a retailer is. The reason I ask I guess is that I think most of the Telcos are in the 30s for NPS, and you're negative five, and the energy space doesn't fair well. How do you look at that, and is it a reliable comparison?

Christine Corbett:

Look, it's not a perfect measure. I think though from an industry perspective and what is readily understood by people at large, by boards, by the wider community, I think it has got good traction

from that perspective. So, people understand nine and ten is great, one to six poor, and I'm ambivalent in the middle. So, I think it is good from that. I think though when you start to look at NPS, I think what's unfortunate with it is sometimes different companies use it in different ways. So, when we report NPS, it's at a strategic level, and it is really as much as what is a brand reputation index as well as the service experience. So, that's at the strategic level. We then start to look at it as well at that more end to end perspective. So, for us, it's what's that moving experience like. Then there's transactional NPS, and you've heard Simon quote the figures, that we're in the 40s in terms of customers who interact with us on that individual transaction.

So, I think at the strategic level, it's as good a measure that is out there at the moment that the average person can understand and have a sense of involvement in. We obviously measure things like RepTrak and the like, but the average customer doesn't necessarily have a direct say in that. So, it allows customers to be involved in the measure, but to really drive and to mirror an aligned performance – we do – but I do think you need to track it at three levels to really get a sense of how companies are performing.

Audience Member:

Are there any other metrics that you track or that you could point to that may show we're a good energy retailer or we're a good retailer full stop? What other metrics if not NPS would you call out?

Christine Corbett:

So, service performance I would actually call out. So, one of the things that you'll see, coming from our customer market in this financial year, is us to sort of amplify some of those service commitments and to be able to stand behind them. So, we have service commitments to customers now. We don't just necessarily tell everyone. So, I think measurement against service is actually really important. I do think NPS at the three levels is actually really important. I do think customer growth is really important. In some ways I think if we are attracting more customers than we're losing, I genuinely think that's the ultimate sign of success.

Audience Member:

Your EV strategy looks really interesting, and it sounds really plausible. Then I think about covering Transurban, and they tell me about driverless cars and people aren't going to own cars, so they're not going to be in the household. So, I'm just really intrigued. How have you thought about those implications in the strategy which you sort of talk about?

Dominique Van Den Berg:

Thanks Ian. I think what you're alluding to is the shared mobility half of the electric vehicle being the other half of the story. We see the driverless component and how the shared mobility model moves from you and I owning a car to then moving to ride share, car share subscription, leasing, as a very genuine trend that's going to happen. I think the stats are by 2030, less than one in three of us will actually own our own cars. So, electric vehicles will accelerate that transition, because the cost structure of electric vehicles is so much cheaper for those high utilisation models. Autonomous vehicles will do exactly the same. They will just accelerate that through.

So, we see it as two halves. We see electric vehicles as pushing this through and allowing the connection between the energy industry and the transport industry, but how and where and when we charge will change as that shared mobility story comes up, probably towards the back of the next decade.

Christine Corbett:

Look, I'm conscious of time. So, we've just got another session happening now, so let me actually invite – please come and approach for questions, because I know I just saw a few hands then when I said we were at time. So, please feel free to come up to Simon, Dom and myself at the lunch break. We'd be more than happy to answer.

So, can I invite my next colleagues now to the stage? We're now covering the next growth path that we actually sort of mentioned, which is really looking at a general portfolio update and looking at our optionality in generation trading and supply. Thank you very much.

AGL Investor Day 2019

Portfolio Update

Brett Redman
Managing Director & CEO
Participant

Melinda Buchanan
GM Gas & Renewables Operations
Participant

David Moretto
Interim GM Portfolio Growth
Participant

Phaedra Deckart
GM Energy Supply & Origination
Participant

Simon Sarafian
GM Trading
Participant

Melinda Buchanan:
Thanks, Christine. You heard earlier that Dom said that she had the best job at AGL, but in fact I have the best job. Which is chairing this session, leading you into lunch, and allowing you to ask all of those wholesale questions, that Brett and Damien dodged earlier in the day, of our wholesale colleagues here with me today.

My name's Melinda Buchanan. I met many of you and had the pleasure of presenting last year at the knowledge course and at the Loy Yang site visit. At that time, and until quite recently, I was the General Manager of Physical Markets within the wholesale team, and here today are my former colleagues. I say former because, as I said, until quite recently I was in that role. I'm now the General Manager for Gas and Renewables Operations. As the name suggests, that means that I run the teams that operate gas generation, gas production and renewables assets within the group operations portfolio. But I am here today, in my capacity with my fellow musketeers from wholesale, to talk you through the third and fourth growth pathways that were alluded to earlier today.

So Dave, Phaedra and Simon will take you through what it means to build optionality and flexibility in our wholesale portfolio. Dave will start out with the why, why is it important that we build this flexibility, and give some concrete examples of what that means in our portfolio right

here, right now. Phaedra will then move on to talk about optionality and flexibility in our upstream supply, transportation and storage. You can ask her all those coal questions that you wanted to before. Finally, Simon will round out with a discussion of putting all those parts together with a live example of how that might be traded in the portfolio of the future.

So sticking together the information you've already gathered on our growing customer base, and how that customer base is moving into effectively our traditional upstream generation and storage play with EVs and home batteries, we're now stitching that portfolio into the much larger portfolio of our generation and gas businesses. That, without mis-spoiling the story too much more, leads me to introduce David Moretto, our Interim GM of Portfolio Growth. Thanks, Dave.

[applause]

David Moretto:
Thank you, Melinda. I'm not really sure we're to start with all of that. I understand we're now the musketeers. I'm really worried that I'm the Porthos of the musketeers. We've heard two claims of people having the best roles at AGL. I'm going to spend the next just couple of minutes disputing those claims. I very clearly have got the best gig overall.

Before I start, I wanted to give you an idea about who I am and how I fit into the wholesale part of AGL. Sixteen years ago, early 2003, I started my career working in the LPG part of an Australian utility as a fresh graduate analyst. I remember one of my first tasks was to build a valuation model of that entire business, from upstream shipping, through to the retail sales part. I remember being excited at putting to use all of the corporate finance concepts I had studied as part of university that would help with such a task. I learned a couple of things about myself in that process. Firstly, that I really loved being an analyst. Finding out what makes a business tick, figuring out how much things are worth and what you could do to make things better really got me going. Secondly, I discovered I was fascinated by energy, all aspects of it. How it's made, how to get it from where it's produced to where it needs to go, how much it costs, how much you could sell it for, how to manage the risk of those bits in between and, most importantly, what it was used for. I was fascinated by all things that our customers at the time did with energy, and remember trying to understand the choices that they had made when it came to using energy overall. It was great to discover these things early.

Since then I've been lucky enough to work in all parts of the energy supply chain. In projects and businesses from upstream petroleum exploration, appraisal and development, through to power station development and energy markets, in a range of analytical, corporate finance and commercial roles across Australia, Asia, US and Europe. Which has led me to where I am today, as I said, the best gig at AGL.

Just over three years ago I moved down to Melbourne to join AGL, and now lead a group of roughly 30 energy professionals and analysts whose purpose it is to help wholesale and AGL figure out how things work and what they mean. Together with our colleagues in wholesale and the wider AGL business, we develop analysis, insights and strategies that help us figure out what we should do, how the markets in which we operate tick, what might happen this year, next year and over the next 20 years, what do those things mean for AGL's portfolio today, what are the types of risks and opportunities that we are facing, and what we could and should do about it. How much energy demand there will be in the market overall and for our portfolio today, tomorrow and over the long term. We also develop and price products and services for our customers that provide them with the energy to run their businesses. Finally, we try to figure out what the AGL portfolio of the future needs to look like, how does it need to work and what strategy is going to get us there.

Which leads me to today. Today I'm going to take you through some of the trends that are defining the wholesale and generation markets in which we operate. When I'm talking about wholesale markets today, I'm really talking about the various energy markets in which we participate. So think of things like gas, goal, green certificates, oil, diesel, that sort of thing. Then I'm going to work through the characteristics of our current portfolio, the key conditions to which we are responding, and what we are doing to shape our future portfolio. Finally, I'll take you through three quick examples of how we are evolving our portfolio to meet AGL's requirements for the future.

Taking a step back, thinking about where we've come from, from an energy market point of view, helps to figure out where we're going. Thinking about the gas market as an example, roughly 20 years ago, in 1999, the gas market was pretty straightforward. It was driven by the supply and demand fundamentals of the east coast market. There were two key suppliers, the Bass Strait and the Cooper Basin. Production was growing. Contracts were long term and fixed price. Investments in upstream were driven predominantly by liquids production. Gas prices were all well less than $3 per gigajoule. Pipeline contracts were long term and vanilla. This was an easy system to model, although secondary price discovery could be very difficult. We had one traded gas market, the declared wholesale gas market in Victoria. Gas was very much a local affair.

Then, in 2015, with the start of the first LNG train, the dynamics of the past changed. All of a sudden, Australia was participating in a global market, competing for supply with other countries like China, Japan, Malaysia and Korea. Things became more complex. Gas was priced not based on the cost required to underwrite development, but based on the value of it in the hands of others. Because of the nature and history of the LNG market, we were able to describe the value of gas relative to oil and spot LNG. This international linkage provided the first vestiges of a

forward-priced outlook for gas, and the beginnings of being able to manage the price risk of gas financially, with some trading activity in the ASX-listed gas futures. We've seen the link between gas and electricity strengthen through this period, as well as with intermediate and peaking capacity taking their cues from prompt gas pricing. We've seen the nature of the two historical major suppliers change as well. In the Cooper Basin, all of the current development activity is just fighting the decline in the system. In the Bass Strait, we've seen a move to enhanced production to keep gas productions at current levels.

So from an AGL point of view, how have we responded? We've proposed an LNG import terminal in Victoria. At the same time, we've built a diversified gas storage position across Queensland, New South Wales and Victoria to help with the opportunities that are coming. Phaedra will touch on some of those opportunities in just a moment. We've also turned our attention to the financial gas contracts aspect of this market. We think there will be a move to standardised gas contracts that will continue to help manage the price risk of this system. This move to financial gas will strengthen the interchangeability of energy on the east coast. Simon will take you through some of that interchangeability in a moment as well.

For the future, we're developing our simulation capabilities so we can predict the price and use of gas with better precision over a range of timeframes, taking into account market developments, electricity requirements and the weather to help with the trade-off decisions that we make every day. We're also building our capability [0:09:47 - and past the flow] in the financial gas market. We've seen some pretty exciting products start to trade in the over-the-counter market, like financial gas caps and financial put and call options. We've very keen to support the standardisation of these types of products and, in turn, help develop products for our customers to help them manage their gas requirements.

From an electricity market perspective, we've seen an interesting journey as well. Think back to 1999 again, the start of the NEM that we're all in today. The supply side was dominated by government-owned coal generation. Demand was growing as a wave of new housing stock was coming into the market, with the associated appliances as well as air conditioning penetration. Whilst business cases were sometimes difficult due to the supply overhang in the system, there were a number of gas-fired generators built across the east coast in each state. Fuel was procured on long-term contracts, and it was mainly those long-term contracts that dictated the price of electricity.

Since that time, we've had the enormous introduction of renewables into the system. Introducing the zero marginal cost generation of the system, both in front and behind the meter, has markedly changed the nature of both the demand and supply characteristics of the electricity market. At the same time, we've seen the fuel supply for the thermal generators become

increasingly linked to international markets, like the gas market I mentioned earlier as well, as well as the coal and diesel markets. We've now reached something close to 20% of our electricity supply coming from renewables.

How has AGL responded to these changing requirements? In the first instance, AGL has developed a Barker Inlet Power Station in South Australia, the first of what we think will be a new breed of fast-start gas generation on the east coast that will help support the deeper transition to renewables across the system. We've also participated in our first physical battery in SA, the ESCRI battery with ElectraNet. I'll speak more on Barker and batteries later. We've developed a strategy for our portfolio that will help transition it to the future. This strategy includes taking advantage of brownfield opportunities in the existing fleet to make it more flexible and efficient, as well as developing new greenfield opportunities, both physical and commercial, across battery, gas peaking and pump storage technologies.

With that overview, let me provide some more detail. Our strategy has been designed to respond to, and benefit from, market changes. As our wholesale markets mature, we're seeing that increased local domestic prices are being influenced and set by events in international markets and global commodity prices. The old cost-plus contracts I mentioned earlier are being replaced with contracts reflecting [0:12:32 - marginal] or next-best alternative pricing overall. More than ever we're seeing the convergence of the gas, coal, electricity markets, presenting opportunities for integrated portfolios like AGL. Market thermal coal prices in New South Wales are being set by the Newcastle thermal price Indices. East coast gas contracts are being benchmarked to oil. Gas spot prices are being influenced by spot LNG developments.

Speaking of gas, on the east coast we're seeing opportunities for more than 300 PJs of further supply by 2030. We expect this will be met by a combination of increased exploration, appraisal and development in the south, combined with LNG diversions from Queensland and LNG imports on the east coast. We're increasingly seeing innovation in the types of indices that our customers and counterparties are willing and able to benchmark transactions against, including JKM, JCC and Brent for gas, and NEWC Index for coal. In the future we expect further benchmarks to emerge in Australia, including US, European and Asian indices for energy. We also expect Australia itself to provide additional benchmarks for other markets.

There's an increasing sustainability focus across the globe and in Australian markets, and AGL has, and continues to use, carbon price analysis to inform our strategic planning and maintenance decisions. From a general market perspective, renewables are now the cheapest form of new-build energy. The 2020 LRET target has been met. Coupled with the 14 gigawatts of baseload generation capacity expected to retire across the NEM by 2040, it presents a significant challenge and opportunity for the system, changing the nature and the types of assets and

services required. This change will be met by a combination of grid-scale generation, including storage of all types, and fast-start flexible capacity, as well as distributed assets including storage. Australia has and will continue to see the rise of distributed energy. By way of example, behind-the-meter storage growth of over 30% over the last 12 months to around 280 megawatts of installed capacity. The markets in which we operate have been categorised by increasing [0:14:59] change and policy uncertainty. Increased investment will come from stability and clarity and ensure the right balance can be struck for our customers.

Onto our portfolio. Our current portfolio has been, and still is, very successful in today's market. It's diversified by geography, with assets and contracts across Queensland, New South Wales, VIC, SA and, pleasingly now, WA as well. It's also diversified by technology and fuel source, with low-cost baseload generation complemented with a range of firming gas capacity, as well as renewables. We also have access to significant amounts of energy storage, including gas reservoir, LNG, hydro and coal stockpiles. This diversification across geography and technology, coupled with our storage position, provides numerous channels to value and a strong ability to manage risk.

With market conditions changing, with the need to provide increasing amounts of ancillary services such as frequency and voltage support as well as fast ramping capability, support the continuing development of renewables whilst baseload in the system is retiring. Based on the market and generation trends we've just spoken about, AGL is building, investing, development and contracting the next wave of opportunities in generation, storage and energy, to position its portfolio for continued success in the future. These opportunities span brownfield investments in our existing plants to increase the operating envelope or reduce the amount of fuel required. They also include new greenfield investments in fast-start flexible generation. AGL is the only company in the NEM with new fast-start scheduled capacity under construction. Our pipeline also includes storage, both utility-scale lithium batteries, behind-the-meter virtual power stations and pump hydro.

Now I'd like to take you through three examples of our future portfolio opportunities and what is driving them. We're going to talk about the opportunities that come from the change in system demand requirements. Then we're going to discuss the ramping opportunities in the system. Then, finally, we're going to talk about some of the ways our existing fleet provides us brownfield investment opportunities.

Changes in the system demand requirements. Historically, the NEM's [0:17:26 - been priced followed] a native demand profile, prices lowest overnight and peaking as the sun's set in the evening. With the high penetration of low marginal cost generation, both in front of and behind the meter, the lowest prices are increasingly shifting to the middle of the day. We're seeing the

duration and magnitude of the difference between the highest and lowest prices increase across all states. These change in price profiles present a number of opportunities and signals for our portfolio. When prices are low in the middle of the day, we can charge batteries, pump water, turn down generation or [0:18:02 - sit short to the pool]. Then as the sun sets and the market requires fast flexible response, we can do the opposite. AGL is assessing a range of opportunities in this market, including lithium battery opportunities in Queensland, New South Wales, VIC and SA, in addition to the Maoneng battery transaction announced earlier on today.

From a fast-ramping point of view, the large amounts of renewable penetration across the market present significant opportunities for wholesale portfolios. To illustrate these type of opportunities, you can see here a chart of South Australia. This is a reasonably normal day of what we see. You can see the blue line there, that's the demand of the system, and the light blue is the supply from renewables. Because a lot of the wind in SA is very correlated, not uncommon to see a change flow through in the afternoon. In this particular case, a requirement for 1500 megawatts of ramping capacity required and increased generation for the rest of the day. Assets like the Barker Inlet Power Station, which is currently commissioning in South Australia, has been developed with this type of duty in mind. It's capable of fast-start and stop, and will help efficiently balance the type of changes that we had in SA on a day like this. This type of asset is a great complement to our existing portfolio. It will help us avoid uneconomic running at the Torrens Island Power Station, freeing up gas for other parts of our portfolio. If there's additional interconnection constructed, there's also an opportunity for this type of asset to provide flexibility and services in other states as well.

Finally, from me, I wanted to briefly give an example of the types of brownfield investment opportunities that we have available in our portfolio. On the left-hand side, you can see the trend of lower minimum requirements in the middle of the day that we have seen and expect to continue to see. This widening gap between minimum and maximum demand requirements throughout the day presents an opportunity for our existing baseload fleet. Take Bayswater here in New South Wales as an example. We've already announced the four by 25-megawatt capacity upgrade that will be progressively completed through to FY23. The first 25 megawatts increase will be online later this year. We're also working through opportunities to reduce our minimum stable generation levels at each of the units, so that we can flex down further when prices are low in the middle of the day. Increasing the difference between our maximum and minimum generation levels gives us the flexibility to respond to changing price and demand signals, and ensures the most efficient use of fuel, and reduces emissions from our plant as well.

Now I'd like to hand over to Phaedra Deckart, who will speak about building optionality in our portfolio fuel sourcing.

[applause]

Phaedra Deckart:
Thanks, David. David's given you a great overview of the trends we're seeing in the trading and supply and generation market. I'm going to talk to you about how we're responding to these market dynamics, and shaping our energy supply portfolio not just for today, not just for what we need next year, but for tomorrow, how we're thinking about the fluctuation in all of those different market dynamics and how we build a flexible portfolio with a number of different options and levers that we can pull at different points in time. Because we're moving away from that fixed, locked-in portfolio that we've had in the past, really related to long-term, low commodity prices we had in the book, to a more flexible way of thinking about it. Moving away from a really locked-down portfolio, to how do we make sure that we're only buying what we need in the portfolio to meet our customer demand, and how do we make sure that we are flexible as we see the market dynamics changing. We know that they are changing rapidly. If anyone's got a crystal ball and can tell us exactly when they're going to change, please come and see me after.

So, first, I'm going to introduce myself. I'm Phaedra Deckart. Some of you know me from a few years ago when I announced Crib Point and talked to you about LNG imports. I also lead the energy supply and origination team. So what does that mean? We look after all the buy, sell of structured commodities for the wholesale markets portfolio. That's coal, gas, renewables. We did the Maoneng deal and it's really great to announce that today. There were many people working into the night last night to get that signed so we could announce that this morning, so well done, team. We also look after our long-term electricity supply contracts, particularly the smelter contracts. So if you've got some tricky questions or maybe not so tricky questions for me later, we can talk about that too.

So I think there's a lot of exciting and interesting things we're doing in the portfolio. AGL is thinking about how do we build a portfolio that's flexible and is dynamic. We've been talking a lot today about the intermediate generation we're building in the portfolio, largescale batteries, gas storage, gas peaking, and other capacity like BIPS and our Newcastle peaker and pumped hydro opportunities we're looking at.

Our focus is satisfying our customer demand through flexibility. So we're building out our transportation and geographic diversity through, for example, gas is no longer bought in large fixed chunks. We now have a portfolio of flexible gas supply storage and optimised pipeline capacity. In terms of coal, we're optimising, for example, our rail logistics to ensure better and faster handling, and we've actually improved our train discharge rate by 15%. We're positioning AGL continually with different generation to add into the energy supply mix. So the Maoneng battery, which I think is a really elegant product for our portfolio, it's a flexible financial derivative

transaction for up to - for four 50-megawatt batteries. So it's going - what we're doing is underpinning the investment in another 200 megawatts of generation into the New South Wales market. That's just to name a few of the things we're doing.

The other thing, and the way we're thinking about the portfolio, is electricity is allowing us to transform all of the fuels to each other - gas to electricity, coal to electricity, water to electricity - and we're leveraging our trading capability to interplay between the commodities. We're also thinking about how do we time shift energy through storage, through energy sourcing and through that diverse energy supply mix. Simon's going to talk a little bit further about that later and give you a worked example of how that's going to do that.

So why are we doing all this? Well, long-term electricity contracting is top of mind for us. We're well underway with a number of discussions with large industrial users, and well advanced with long-term contracting solutions to help underpin the portfolio. Of note, Visy has recently entered into a long-term agreement with AGL in New South Wales. The other thing we're doing, in the way we're thinking about our contracting, is we're working hand-in-glove with our business sales team in retail to provide a seamless service to our customers and products that customers can respond to. For example, we don't just buy energy, we also sell it. In response to our C&I customer feedback, AGL's developing a number of energy procurement products to meet market demand. We developed the powered-up moduler purchasing, or PUMP, product to enable C&I customers to progressively purchase their energy in small blocks of electricity over time. So we're talking a lot about, you know, digitisation of the customer experience in retail, but we're also talking about how do we respond to our large industrial customers, how do we respond to that business segment in developing products and being more innovative in the way we supply our energy to our customers. So what I want you to take away from this is the market's changing and we're changing with it. We're moving from a set-and-forget portfolio, to a dynamic portfolio of short-, mid- and long-term electricity and gas opportunities. We're trying to develop an ability to interplay each of those commodities in our trading book.

So how are we thinking about gas? Well, I feel like I've been talking about this chart for a very long time, in terms of there is an energy supply shortage coming in this market. What this chart tells you - and this is based on the most recent AMEO GSOO, or gas statement of opportunities, data - is that beyond 2022, 2023 we have a looming supply gap. We see this as an opportunity for us to develop new gas supply for our portfolio so that we can deliver into that opportunity. The other key takeaway from this point is that without a new discovery or new development announced of existing resource in the Australian market, there is a shortfall. You absolutely do need a new source of supply in the market. So we've been focusing on this for some time. We

announced Crib Point and we are continuing to work through that. We can see that Crib Point, by 2030, can meet 50% of the market demand in this area.

But we haven't just been focusing on LNG imports. We've also been thinking about how do we develop a more optimised portfolio. We've moved away from a straight Aussie-dollar-per-gigajoule price in our portfolio, purchasing only shaped gas, to a portfolio that now we buy on a load factor of one. So that we can utilise our significant storage assets, our contracted position in Iona, and our owner positions in Silver Springs Newcastle Gas Storage Facility, and eventually Crib Point which will also be another form of storage and capacity in the market.

The other thing we do is we've developed a number of different indices. Simon will talk to you a little bit more about how we're trading those indices. So we don't just buy Aussie now. We buy Brent, JCC, and now we've done some initial trades on a JKM basis. So we are expanding our ability to manage our price risk through management of these different commodities.

We've also led the development of the gas addendum to the ISDA, to enable the liquidity [0:29:40 - in] making a financial markets for gas. We continue to grow the traded hubs across Wallumbilla, the STTM and the VIC hub. We think it's really important, particularly as such a big player in the market, that we are out there making markets for gas and creating liquidity to help lower prices for customers. This year we've traded 4.4 petajoules on the spot market, compared to in 2015 it was less than a petajoule. So it is a real big movement away from those legacy fixed contracts to a more traded market where there is more liquidity. It's really a fit-for-purpose portfolio.

So the other things we've been doing in the upstream, we are always in the market for gas. We supported Cooper Energy Sole Project by being one of their foundation buyers for that asset, and it comes to market this year. So, you know, we continue to talk to all producers across the market about ways we can work with them. Either looking at - and Brett talked about this earlier - whether we'll participate in equity in an asset. Also looking at how we can provide a long-term gas supply agreement to help underpin the financial viability of those projects.

You've all heard this year that we have been actively buying gas for our portfolio beyond 2020. So we announced deals with BHP, and separately with Exon, to satisfy parts of our demand requirements into the next decade. We're continuing to add different tranches of supply into the portfolio to ensure that we meet our customer demand. We've actively talking to large industrial customers about their gas-supply needs. We will buy and add to our portfolio as and when we see the need in the market to do that. So for calendar '19 our portfolio is balanced. We've got 165 petajoules of gas in the portfolio. For 2021 and 2022, we're still an active buyer. We'll continue to look at the best way to buy, whether it's on a sort of mid-term or a spot basis as we're seeing a little bit more liquidity come into the market.

So I'll now turn a little bit to LNG imports, what's happening. We are in the process of completing the EES, or the Environmental Effects Statement, process. We expect that all of the documentation for that EES will be completed this year. That will then go on public display, and through the process there'll be a public hearing, and then it will be with the Minister for a decision next year. It's on track and we're expecting an FID sometime next year.

We are continuing to see the business case is stacking up. It is a very competitive global LNG market out there. We are inundated with opportunities for supply from the global LNG market. If you are tracking or looking at what those prices are looking at, it continues to be an oversupplied market and there's significant excess supply globally in the market. So it's a very different circumstance we've got across the east coast, where supply is limited, and it's definitely a seller's market.

So Crib Point is also going to allow us to create more liquidity in the east coast gas market. We think that once it's built and it's up and running, it'll provide additional storage, security of supply, flexibility and liquidity into the east coast market. We expect you'll see a lot more trading across the VIC hub as there is a lot more gas available in the market. That's good for the market, but it's also good for customers because overall it will lower prices in the market. So the story here is an exciting one. We've got flexible supply, new sources of supply, we're making markets, and we're looking at how we utilise our storage and capacity across the east coast gas market to be an innovative and market leader in this area.

So now to coal. There are three things I want to draw out here. Similar to the way we've been thinking about gas, the first is about supply and the choice of supply. The second is around delivery, getting the lowest-cost coal in the door. The third is about utilisation of storage to provide competition and to provide energy to our assets in the Hunter Valley.

We're setting up coal supply so we can generate when the market needs it without coal-supply constraints, and that's really important. If we think about pre-acquisition of these assets, we were operating off of 100% legacy contracts. As these roll off, we need to find new, innovative ways to minimise our exposure to increasing fuel prices. We've done this by splitting our future requirements. Roughly 10% to 20% comes from short-term coal, and 20% to 30% mid-term coal, and the remainder from our legacy contracts. We're actively buying more coal to increase capacity and increase the amount of coal we have in storage, or what we call the stockpile.

The other thing we've done is we've innovated by hedging out some of that exposure. David touched on that earlier on, in terms of hedging via the Newcastle Coal Index, and that's what this chart shows you. It shows a lot of volatility over the last few years and hedging has allowed us to smooth out that exposure. We are actually one of the most active energy companies trading with

index-linked, and we were the first to hedge and trade the new index. So it really is, again, the same story. It's a transition from fixed, long-term contracts on a dollar-per-gigajoule basis by rail, to a blend of conveyor coal and rail coal. We're making sure that we're optimising assets that are at end-of-life. For example, we took Mt Arthur coal from BHP right up until the point the conveyor was decommissioned, and that really has enabled us to build out the stockpile.

We're focused on getting additional conveyor coal from Ravensworth for contract year 2020. It comes on the old M Series conveyor. It's about 11 kilometres of conveyors. We did some investment back in 2017 on that conveyor system, and we're now able to harvest that investment by utilising that through this Ravensworth purchase. So 10% of our coal is still via overland conveyor. That gives us an ability to, you know, manage the risk and exposure of if there is an unplanned rail outage, if there are issues on the rail system outside of our control, we still have conveyor coal coming into the plant.

We're also a large owner of infrastructure and land, particularly with the Antiene Rail Unloader, and work is being done on how we look at expanding on the value this brings into the portfolio. So in addition to the flexible way we're now contracting coal through a continual focus on multiple short-term suppliers, we're also looking at how we harvest our legacy contract and make sure that we build out the coal stockpile to enable us to generate absolutely when the market needs it.

So really, I want to leave you with this. This is about how do we contract the portfolio for today and meet our customers' needs, but how do we plan a flexible portfolio for tomorrow as things change in the market and we need to change with them. We no longer want a set-and-forget portfolio. We want something that we can be flexible, optimise and trade around, to manage both our volume risk and our price risk, to ultimately deliver the best value for our customers.

So I'm going to hand over to Simon now. He's going to take you through an example of how, when we set up the book in this way, we trade around it in practice. Thanks.

[applause]

Simon Sarafian:
Thanks, Phaedra. Hello to everyone, both online and in the room. I'm Simon Sarafian, General Manager, Trading, at AGL. I'm responsible for the trading group, who actively manage all of AGL's commodity exposures that arise from sourcing the energy that we supply to our customers. A little bit about me. I've worked at AGL for 15 years, with the majority of that time focused in and around wholesale markets. I've led the physical and the financial trading team, and also the C&I sales team in customer markets.

I'm here to talk to you, unsurprisingly, about trading, how we manage complexity to create value, and how what you've heard here comes together as a portfolio. As David and Phaedra have articulated, there are a number of important trends in the domestic energy markets, and AGL's future portfolio is deliberately positioned to respond to and create value from those trends. Phaedra also talked about the diversity of AGL's portfolio and how it enables trading and risk management. We have a large and geographically-diverse customer base. We have a technologically-diverse fleet, fuelled by many different commodities, to generate electricity or even to store it. We have the ability to move energy between regions with pipeline capacity and transmission lines. This inter-connectedness of customers, of fuels and of assets is what underpins significant value through optionality.

Optionality, at its core, is the ability to make choices in generating electricity, choice of which fuel to use depending on its relative value in the market, choice to transport commodities and take advantage of differences in locational pricing, or choice to store commodities and use them in later periods where they'll become more valuable. For AGL's portfolio, that optionality, that choice, combined with our proprietary market insights, enables us to trade and capture value in many different ways. Leveraging the highly-skilled, broad wholesale team from David's group, who run complex optimisation models and countless simulations to continuously provide insights as to how we can better position our portfolio, to the trading team and Phaedra's commercial team with experience in dealing in a variety of markets, electricity, domestic and international gas, oil, green and even weather. So the approach we take to trading is to continuously optimise our portfolio to supply our customers and generate incremental value at each step. Value can mean financial value, buying low and selling high. Or it could be risk management value. That is, reducing the variability in our earnings due to market volatility. But fundamentally, trading is about constantly seeking to optimise how we source the energy that we supply to our customers.

So onto it. I'm going to step through a few scenarios. In each scenario I'm going to talk about some of the choices in our portfolio available to us to create value. Some of these scenarios are proactive in capturing opportunities that we're observing in the markets, and some of them are reactive, so responding to portfolio or market events. I'd also add that trading is inherently complex. So these examples are simplified, really just intended to demonstrate to you some of the concepts that you've heard today. AGL's portfolio is very large, so the value that we can generate, we can create at scale through trading, is also large. Finally, before I get started, I want you to keep in mind some of the themes that you've heard from Dom, from David and Phaedra and others. We're seeing a number of different commodity indices, allowing us to quantify the value of our decisions as we frequently switch between commodities to best supply our customers. We're seeing a greater role of storage in our portfolio, including the orchestration

capability that we're developing. It's no longer just a case of needing baseload supply to match customer demand, but of having a flexible portfolio to respond to an increasingly dynamic market.

Our case study starts off with AGL securing a sales contract to supply a C&I customer with electricity, at the prevailing market price of $70 a megawatt hour. Importantly, we're in the forward period here. That's the period prior to the contract starting and the customer consuming AGL's electricity. You can see the various forward markets there on the left. These relate to the same period of time that the customers will be consuming our energy. So we have electricity, as I mentioned, at $70 a megawatt hour. We have Newcastle Coal, black coal, at $95 a tonne. We have the Victorian Gas Futures trading currently at $8 a gigajoule. We have JKM, which is the price of LNG cargoes being delivered into Asia, trading at $10 a gigajoule. Now, I can see you writing these numbers down. That's fine. This is a hypothetical case study and I'll try to make it as real as possible.

So we now have choices to supply the customer. We could hedge the exposure generated from our customer sale by purchasing the corresponding volume of electricity on the forward market at $70. Or we could use a combination of our power stations to generate the electricity. In doing this, we're saying we'll generate some - there we go - baseload from Bayswater and some peaks from our fast-start generators in Barker and Newcastle. So, remember, I'm talking about the portfolio of the future. But to do this, we need to ensure we have the fuel available to generate. So we purchase $8 a gigajoule gas from Victoria and intend to transport that, as you can see, from the Victorian market out to our power stations in SA and New South Wales. Now, importantly, this is the future, and what I've shown there in the light blue, that line connecting Barker Inlet to our customer in New South Wales, represents the proposed SA to New South Wales energy interconnector, which is fantastic in our ability to get our energy from South Australia to manage customer demand in New South Wales. Note to those doing the mental arithmetic, if you're considering the commerciality of buying $8 gas to supply a $70 megawatt-hour electricity, remember that this is, for example, an annual contract, an annual price of $70 a megawatt hour. In reality, the spot price will vary many, many times over that year, and there'll be many periods well above $70 a megawatt hour that will make it justified to burn $8 gas. What I've described here is a typical electricity-for-gas spread trade.

Now, market prices are constantly varying. Here we see a situation where the forward electricity price has come down a little, to $67 a gigajoule, and we are faced with another choice. We could continue the supply strategy I just mentioned on the previous slide. Or we can choose to hedge out our customers' energy and lock in a small profit. That's what we'll do. You can see here, we buy electricity on the forward market at $67 and we - on the stylised deal tracker there, you can see that there's a $3 a megawatt hour profit emerging from the difference between where we sold

and where we bought back. Now, the market could have gone up. In that case, our previous supply strategy would have been valid. In purchasing the electricity as I've shown now, the gas that we previously bought with the intention to send to Barker and Newcastle can now be sent back. Essentially it didn't go in the first place and it would be stored in our gas storage instead.

Moving on, we know that increasingly AGL is investing in grid-scale batteries and in developing our orchestration capability of behind-the-meter storage to build a battery portfolio. That means that we'll have the additional choice to use electricity storage capacity to supply our customers with energy. Here we see an opportunity. The gas price has lifted to $11 a gigajoule, in anticipation perhaps of a cold winter coming. So we allocate some of the battery storage capacity to supply our commitment to the C&I customer during peak periods. In doing so, we can sell the gas, the same gas that you recall we've now put in storage, and generate a $2 gigajoule margin in the process. We've also switched our supply strategy again, from meeting peaks with grid-scale gas generation to meeting peaks with our battery portfolio, and at each step we've generated some incremental value. So a quick recap. We sold electricity to our customer and then we bought it back from the derivative market at a small profit when the market came down. We also bought gas, stored it because we bought the electricity, and then sold the gas back out at a profit. Our customer will still be supplied as agreed, and we've been able to bank small value along the way. Importantly, our risk position hasn't materially changed with this activity.

We now move into the period where our customer's contract has begun and the customer's consuming AGL's electricity. You can see there the prices are now displayed on the left in the spot section, rather than the forward, indicating we're now in the current period rather than in advance. We are now trying to optimise our portfolio as a whole. So here we encounter a short period where there's a lot of wind generation, which puts downward pressure on prices, with the electricity price coming out, in this example, at $40 a megawatt hour. At these prices, our flexible generation portfolio gives us the choice to back down our fleet to minimum generation, thereby storing our commodities. Water would stay in the dam. Gas would stay in storage. Coal - and you'll recall David talked about projects at our coal fleet, including Bayswater, to reduce minimum generation levels - minimum generation levels would allow us to store coal onto the stockpile. So AGL would, in effect, sit short, buying cheap electricity off the pool and save its fuel for higher priced periods. Now, the margin that we've shown here, of roughly $30 a megawatt hour, is just the difference between what we're able to buy short at the pool at $40, to the average day at $70.

We're now in summer and a heatwave hits the eastern states. Customer demand skyrockets and both gas and electricity prices go with it. This is where the true value of AGL's portfolio of flexible generation shines. In the previous period we were able to back off generation when there was excess and buy the excess off the pool. But we don't have to be exposed to the pool when prices

are high. At $150 a megawatt hour, we'd dispatch all our generation and our battery capacity. Thus, the water, gas, coal and electricity we stored in the previous example is now used to supply our customers. Now, there isn't a traditional profit to be displayed here. The value here is more in risk management value. To be able to sit short in some periods, and to be able to cover the position when the prices lift.

Now, finally, an extended heatwave would see gas storages deplete in the market, which would keep gas prices elevated for some time until those storage levels could recover. In the example here, I've shown VIC Gas has lifted to $15 a gigajoule. But with Crib Point in our portfolio, we could purchase a spot cargo of LNG from Asia, at the JKM price here at $10 a gigajoule, and inject this into the domestic market because it's economic and good to do so, resupplying the storages and capturing a profit in the process. An LNG cargo into Crib Point at this time would also improve the east coast energy security through such an event.

So what I've shown here is that our supply strategy has actually changed five times, twice before our customer even began consuming our energy, and three more times to rebalance the portfolio to prevailing market conditions. Importantly, at each step we've created some incremental value without substantially changing our risk position. So my final point is this, that we do this at scale every day. We manage complexity, and it's about finessing every day of the year, not just the peak demand days. So those indicative margins that I did show, of $3 a megawatt hour and $2 a gigajoule, attach to our portfolio of over terawatt hours of generation and over 160 petajoules of gas per annum, and that's the value that trading and optionality bring to AGL's future portfolio. Thanks.

[applause]

Melinda Buchanan
Very good. So Simon said that we did these things five times across the course of a multi-year program there, but actually we do these things five times before breakfast in reality. So, look, without taking up too much Q&A time here, you've kind of seen, across the various time horizons, how we can deliver flexibility in our - across geography, technology, fuel sources and through the supply chain. So I'll open the floor to questions, before we hand back to Brett to close.

Audience Member:
Just sort of a broader question. Is the value of the generation which you're getting, is that just going to be constantly coming down as the markets start to change? You know, trading is interesting. That, you know, if you think about batteries, and you've shown pictures of the middle of the day where you'll be buying energy and then you'll be arbitraging, when you think about combining a battery with a solar plant, and think at the end point of what the economic return will

be, what sort of pricing are you seeing at this point in the cycle that is a sustainable long-term price in these markets?

Melinda Buchanan:
So I think the heart of that question is what is a long-term outlook for electricity and combinations of solar and battery. Dave, do you want to take the long-term electricity outlook?

David Moretto:
Sure. Look, a really good question. Thinking about batteries and combined with solar, you know, we're still a long way away from having a plant that's interesting and able to really provide great services in the type of markets that we're talking about. The sort of durations that are needed just aren't there with a battery overall. In the shorter term, the opportunities of co-locating batteries are going to be far more with wind and fast-start generation, or making slower-start generation into fast-start generation. We're getting very close now to that actually being an interesting proposition end to end. I think we'd expect in the next, let's call it, two or three years we should see battery costs come down to make that a viable proposition. To co-locate with solar and make that a competing plant with some of our existing baseload in the system overall is going to take a change in battery technology away from the sort of half an hour, or one hour, one and a half hour batteries that we're seeing today. You're going to need a step change to be able to give the duration to meet the sort of ramps I was talking about before, or, you know, provide some of the demand overnight.

Maybe just one final point. I mean a really fascinating trend that I did mention, when I spoke before, has just been the divergence between the lower prices during the day and the higher prices as well. Queensland, in particular, is one to spend some time looking at. As that duck curve bites deeper and deeper, the requirements that are coming into the system to be able to meet demand quite quickly are really pushing the spreads wider and wider.

Simon Sarafian:
Can I add there that I think diversity of fuel for generation, so batteries which obviously charge off electricity but also flexible generation running off gas, so the diversity of fuel there is actually really important, because the interplay will be more and more important as there's more changes in demand up and down with increased penetration of renewables.

Audience Member:
I think this question's mainly for Phaedra and just following on my question to Brett earlier. When we look at the changing competitive landscape, I mean Shell are moving more and more into your playground. They're the biggest global LNG trader in the world, it's hard to compete again then. Logic to me says Origin take a footprint in an import terminal, and Shell, by definition, have

to have some kind of gas footprint in Victoria. You guys and Origin spent decades in the upstream when there was no benefit to vertical integration. Isn't this market we're heading into the exact time when you do need that vertical integration? So isn't your job a thousand times easier, Phaedra, with a physical upstream position?

Phaedra Deckart:
I don't think my job's ever really easy...

Audience Member:
Easier.

Phaedra Deckart:
...when we think about the energy market. But I would just take you back to the chart around gas supply and the impending gas supply shortage. So, yes, we can look at upstream opportunities and we can look at taking equity, but ultimately we need to find a new source of supply. So Australia has an abundance of resource, but not an abundance of reserve, and we haven't seen any major new developments announced in the last few years. So when we think about a new supply source, Crib Point is front and centre in how we're thinking about that. But we think about lots of things all the time. So we are looking at whether upstream is the right fit for us. You know, there are obviously some big opportunities out there across very different and diverse assets, but fundamentally they have to deliver gas into that supply gap. You know, we can participate in a depleting resource, but really the market needs a new source of supply.

Audience Member:
Can I just really quickly maybe answer that - ask a question from the opposite perspective? Because obviously I agree with you, that shortage is coming, but it's a transition as it grows. Let's say you are competing against Shell and Origin, what would any compelling logic be why you wouldn't want an upstream position? What's the benefit of not having one?

Phaedra Deckart:
Well, if I can buy gas from the market for the same price, and that gives me the same optionality and flexibility as participating in the upstream without the risk and the subsurface risk of drilling for that resource, then I would say that that is a compelling reason not to do it. But, obviously, on a case-by-case basis, when we look at all of these different assets, we think about what the return is on those assets and how they might deliver into the portfolio. But fundamentally, when we think about it, we think about what will it actually deliver to our portfolio that we can't get from just purchasing it.

Audience Member:
Thank you.

Melinda Buchanan:
Rob, down the front.

Audience Member:
G'day. Thanks, guys, and I did notice who didn't claim to have the best job at AGL. I'm sure you all seem really engaged though. So, look, I just want to ask a couple of questions about risk management. I guess the scenarios, Simon, that you put up there, you ended up in the money, but there are scenarios where you end up out of the money and there are other companies out there who have, on occasion, got caught short on a Sunday in Queensland and it kind of hurts every couple of years. Can you give us a sense of the kind of scenarios that you try to avoid, for one? Then, secondly, can you give us an overview of the kind of systems and overview and segregation of duties and things that you have to avoid, kind of like rogue trader type risks and things like that?

Melinda Buchanan:
In fact, Simon is the perfect person to answer that question because he's also responsible for our systems uplift within wholesale.

Simon Sarafian:
So, look, to talk about trading, recall the words that we've used, in that we're a physically-backed trader. So we're always taking positions off physical assets and not outright speculative positions. Now, in terms of the risk management practice that we undertake, all of the commodities that we trade have risk limits. So let me step back. So what we take is our overall view of our position with all of our commodity exposures. So aggregating all of our contracts together, the buyers and the sellers, and we view the portfolio holistically. Then there are risk limits set, more so in the near term, to ensure that we don't expose the portfolio to any unnecessarily large swings in P&L. Those risk limits are automated, they are communicated daily, weekly, all the way up to board. Within those risk limits, we allow the efficient trading to generate value.

In terms of separation of duties, yes, we have separate front, middle, back offices. We take our compliance, with all of the regulations, extremely seriously. We have a strong culture of compliance. AGL has a number of years - you know, you mentioned the Sunday in Queensland, I think I remember what you're talking about with that party, but AGL has a number of years experience operating in this market. We've been in the NEM since its inception, we've been in gas for a long period of time, and we've been able to develop our systems greatly. I am passionate about our systems and the ability to report on what our exposures are, as are my colleagues here. We're undertaking some investment, in being able to generate some more insights and be able to see our positions at a more granular level than we have in the past, which is very exciting.

Audience Member:
Thank you. Maybe I'll just put a question to the panel. So if press is to be believed - and maybe I'll get your thoughts on this - but the press is suggesting that the Federal Government might actually pull the trigger on their underwriting program later this year, to underwrite some new gas and pumped hydro, a deliberate attempt to bring in a bit more supply from outside of the big three. So I'm just wondering, if and when we get that announcement, how we should interpret it? You know, how you're thinking about the impact on price and, you know, how it impacts contracts signed, like the Maoneng contract?

Melinda Buchanan:
Dave, would you like to take that?

David Moretto:
Yeah, look, a really good question. In terms of how to take that sort of announcement, I mean it's really hard to sit here and figure out exactly, you know, where those announcements get positioned and what happens overall. In terms of new assets coming into the market, I mean you can see now, from a pricing point of view, there's actually some signals coming in saying, you know, in certain regions we need new assets in this market overall. You know, clearly, we're hearing those signals ourselves, as previously demonstrated with the transaction announced today, as well as our other investments across the NEM. You know, we always welcome new participants coming into the market. You know, more competition, more transparency, the better for everybody. I guess part of the point of today was to draw out the benefits that we do have. We're not trying to make these business cases for new assets stack up on, you know, a one-dimensional standalone investment. You know, we've got the benefits, like Simon pointed out before, of being able to optimise between all of our different assets around the place. Yeah, that'd be where we're sort of at.

Audience Member:
I wanted to ask about how you thought about arbitrage opportunities when it comes to the economics of storage. So you have more entrants in storage, you have more sophistication in the market such as behind-the-meter virtual power plants, demand response, potentially capacity markets which could further compress volatility in wholesale electricity. Firstly, how do you think about that volatility going forward? But, secondly, how can you ensure that investors in this room are going to see a return on the capital that you deploy in storage if those arbitrage gaps close over sort of a five, 10-year horizon?

David Moretto:
That's a really excellent question. You know, when we're thinking about these types of investments, I mean we've got the same sort of concerns and discussions around the duration of

the energy arbitrage component of them. You know, similar sorts of observations. If we saw a couple of thousand megs of batteries come in, in the next couple of years, there wouldn't be an energy arbitrage opportunity anymore, there'd be a baseload requirement to charge all of those batteries from our coal-fired generation. A couple of words of comfort. You know, we are looking beyond just the one dimension of energy arbitrage when we're looking at these investments. We're looking at the value of the flexibility and capacity that they present. A large component of battery investments at the moment is FCAS and that's going to stay a trend as we go forward.

Whilst there's going to be significant new investment in batteries, and there's clearly a first-mover advantage in getting into that and getting as much of the value from the investments as early as possible, a benefit that a company like AGL has got, as we see this transition work its way through over the next five, 10, 15 years, that duration is going to hold up I think more than we expect. You know, there'll be some big waves of change coming through that system and we'll be able to use these assets to flip between capacity, energy arbitrage, FCAS, and whatever else it is that's around the corner that's going to help this system remain stable and reliable.

Melinda Buchanan:
I think to that end, Dom had also referred to those further valuables that could be created in the future. So network services in general. Separate from thinking about batteries as purely a buy-low, sell-high energy arbitrage opportunity, it's what other services do they provide to the grid. To that end, see the discussion about FCAS and other ancillary services that we had last year.

Audience Member:
Just one question. On the scenario you put up there earlier, it seemed to rely on a lot of flexibility of gas supply through south east Australia. Has your guidance that you've given us so far factored in a step up at all in how much capacity you need to be contracted on pipelines? You mentioned they were sort of long-term contracts that you had. Is there any guidance you can give on sort of a weighted duration of contract that you have for capacity on pipes?

Melinda Buchanan:
I guess it's capacity of pipelines and the amount that's been contracted there, as well as capacity in gas storage. Phaedra, do you want to...

Phaedra Deckart:
I'm not quite sure I fully heard the question. So perhaps you can hold the mic a bit closer and have another go.

Audience Member:
Sorry, I don't like to come on too loud. I was just interested, the scenario sort of pointed to a lot of requirement for increasing flexibility in pipeline capacity through South Australia - or south east

Australia. I was wondering, does the guidance you've given so far factor in any step ups in the cost for pipeline capacity? Or can you talk about whether you're expecting that to be rising over the next sort of three to five years?

Phaedra Deckart:

So the guidance does include the capacity we need in pipelines and storage, and the existing storage that we've already invested in, so that's consistent. The way we have been thinking about it over the last few years is, you know, we're not buying as much transportation capacity as we had in the past. There's obviously a capacity trader market coming in to allow for pipeline carriage and utilisation of excess capacity. We've taken positions on storage through development of our own assets, as well as taking a long-term contracted position on Iona. So this is now about harvesting those storage opportunities in the portfolio and thinking about how do we best contract to utilise that storage.

You know, we knew some years ago that you wouldn't be able to get capacity from your producers in the same way we had contracted in the past. So we started to develop the portfolio that allowed us to provide our own capacity through those storage facilities. We, in effect, now can buy gas at a relatively flat rate because we have our own storage that allows us to shape our gas and deliver particularly into the winter peak. But we're also seeing storage utilized during the summer peaks as gas-fired power generation balances out the market as well.

Simon Sarafian:

Thanks, Phaedra. Just to build on what Phaedra just said, we also have the capability to fire Barker Inlet on diesel. That diesel gives us an alternative fuel in which we can use the optionality of having gas pipelines or generated diesel as required.

Audience Member:

You made a mention that you're a physically-backed portfolio when you trade. Can you give us maybe a bit more colour on how you manage the risk of turbine failure? Which, you know, Loy Yang is a great example. But, you know, as your fleet's getting old [1:10:03] works harder to keep it going, those risks are growing, and how you think about setting the portfolio?

Melinda Buchanan:

Simon.

Simon Sarafian:

So I'm probably not the best to talk about the physical aspects of it, the engineering and how we manage it, but I do know, obviously, we undertake regular outages on all our fleet as appropriate. We take some readiness outages in advance of summer, which we're currently undertaking. We consider the risks of our broader portfolio. So not only do we manage, as you mentioned, turbine

failure risk, but we also manage the obvious risk of really hot weather and have variability in our customer demands. So when we set up our portfolio, for example, in summer, we consider all these risks, and model and simulate what the probabilities of them are, and then hedge to an appropriate level.

So I'll give you an example. We know that at a certain level our customers will certainly use a certain amount of energy. Then there's a probability above that, depending on the weather, that they may use an additional amount. Then we layer in hedges - for example, weather derivatives - to be able to manage to those risks. So we do view it altogether, combined with all of the risks, and hedge appropriately with layered insurance products.

Melinda Buchanan:
So when it reaches the day, as it were, Simon's laid in various hedges, and then it moves to the physical markets team to choose what to dispatch and when. Most certainly there will be occasions on which we are running every last skerrick in the portfolio, most certainly in January this year when there was load shedding events in Victoria. So nevertheless, the physical outcomes and the financial cashflows that result from the kind of derivative portfolio that Simon's set up don't necessarily align. So if you look at that physical output and go, well, okay, we're short here, then the cashflows through other financial instruments come into play as well. The other - you know, when I say every last skerrick in the portfolio, that can be thinking about customer products for curtailment, that can be thinking about working with Dom's battery team on the VPP. We're talking small now, but when we think about on a big day how we're bringing the fleet together, they're as much a part of the portfolio as our C&I customer curtailment contracts and derivative portfolio as well.

I think that rounds us out. Thanks to my wholesale colleagues for this session, but I will hand back to Brett to close the day.

[applause]

Brett Redman:
Well, thank you to our wholesale team, and thank you to everybody for your time and attention this afternoon or this morning. I want to leave you with I guess an overarching view of the future, which is one where Australia will return to being an energy superpower domestically again. Last century we enjoyed that enviable position off the back of thermal fuels or thermal generation, fossil fuels. Gas and coal powered the economy of yesterday. As I think about, and as we think about, the future for Australia though, we will return to that big, cheap energy position off the back of renewables. We think we'll get there by the middle of the century, and maybe a lot

sooner. We're positioning ourselves for that big change and that big transition, even as we're operating proudly the coal-fired generation of the past.

The set up that you've seen for our business is that we have a foundation for success. Our assets are a great set that reflects the market. Our people are engaged and focused on what we're doing. As we position ourselves for our future, we think about the growth to come through the four growth pathways that we've talked about today. They begin with the customer. To us that customer focus is not just words. It's about what are we doing and what are our actions. It's about building a big connected customer base that's our fortress, if you like, as we go into that future where many things might happen. But over and over again you might have heard me say I want a big, strong customer base, and then we find products for our customers rather than customers for our products. That's what we're building out as we go into that future. That customer base enables the other parts of our growth pathways, whether they're the orchestration, the trading and supply and the generation opportunities that we've talked about today.

Just as we're customer focused and we think about our role in the community, we remain focused on our responsibility to provide a good, strong return for our shareholders. We think about that through the dividends that we're providing, through the capital returns that we're making, and through the investment discipline that I hope you see us doing on an everyday basis as we think about the different investments that we're making. I appreciate the support of our shareholders. I invite you to continue with us on this journey, as we think about where Australia is heading and where AGL is leading the way.

Thank you very much for your time and attention. We're serving lunch out on the deck there, but feel free to bring it back inside where it might be a little bit more conducive climate-wise. Thank you very much for your time. All the team will be hanging around to answer any of your questions that we can over lunch. Thank you very much.

[applause]

[End of Transcript]