Growth in transition

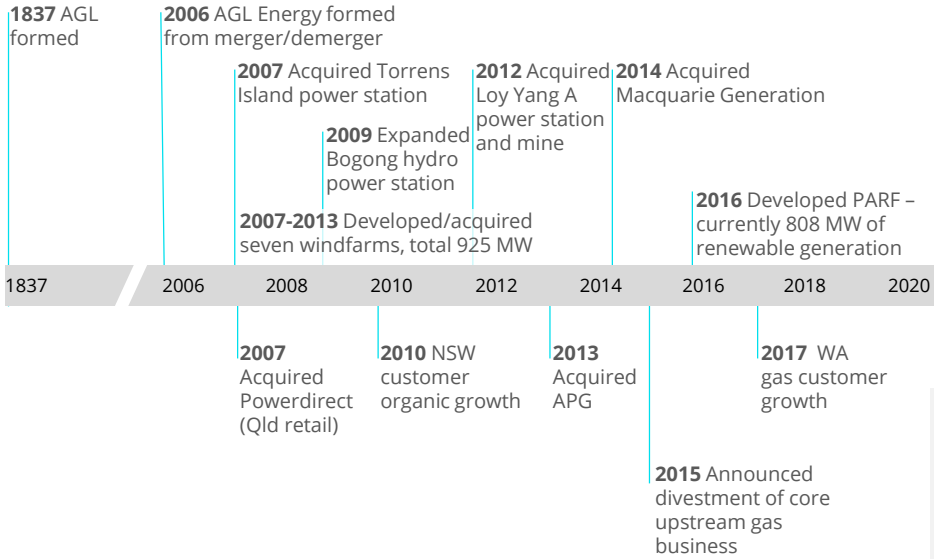
AGL's growth as the Australian energy market transitions

Brett Redman, Managing Director & CEO
AGL Energy Limited

2019 Macquarie Australia Conference

The energy industry in transition presents challenges and opportunities

AGL's historic value creation



Current challenges

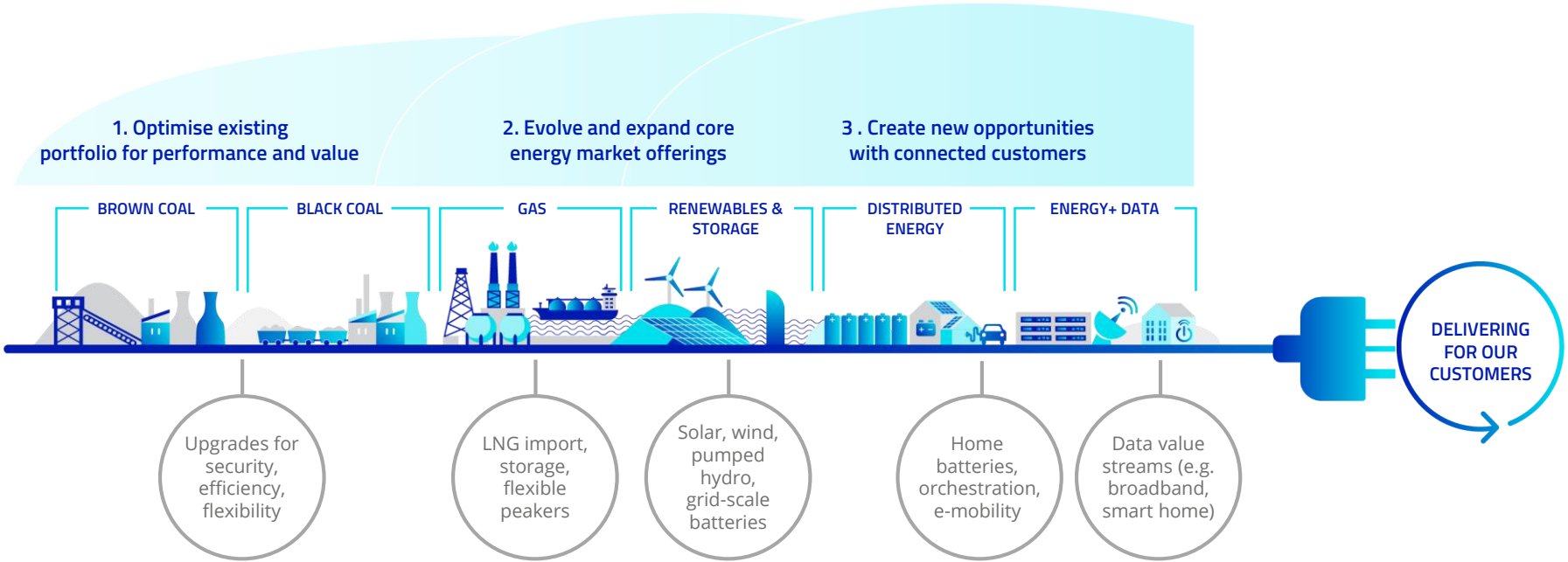
- Government policy and market design uncertainty
- Rising community expectations of large companies
- Aging fleet and the need to decarbonise
- Evolving customer needs

… but with it comes opportunities

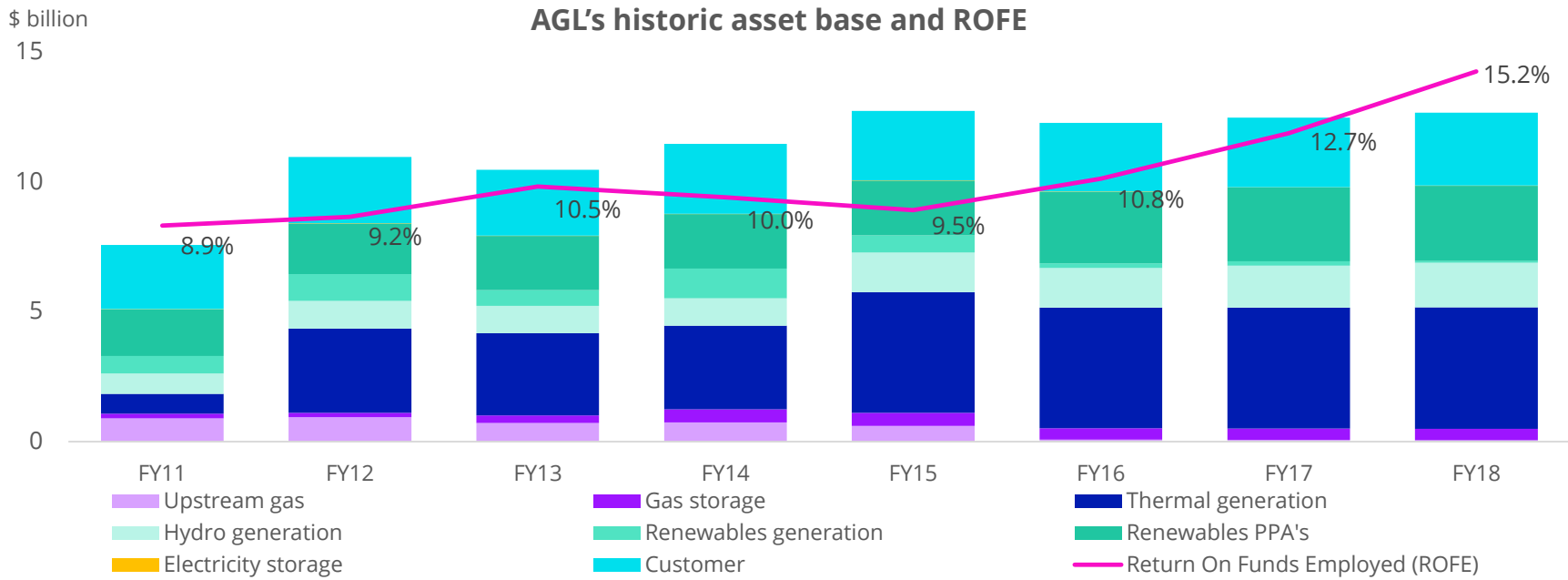
- $130 billion grid-scale and $70 billion 'Behind the Meter' investment required through to 2050[1]
- Improvements in technology for new generation and customer service

1. Bloomberg New Energy Finance

Our refreshed growth agenda



Asset base supports financial performance

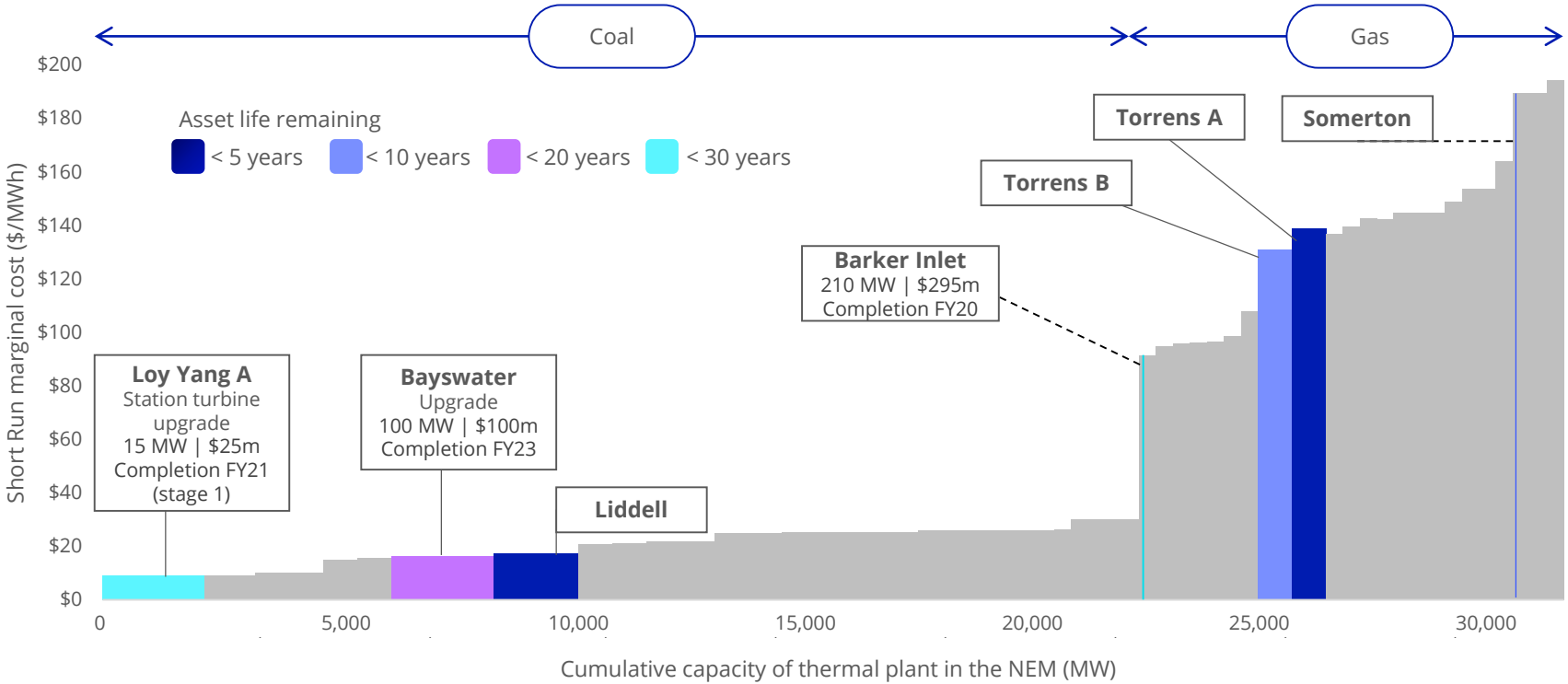


Note: Renewables PPAs calculated as net present value of expected future payments; not included on balance sheet
Return On Funds Employed is calculated as Underlying EBIT divided by the average of monthly funds employed and removes the impact of derivatives and tax balances

Evolving asset base: focused on future downstream growth opportunities

Note: Renewables PPAs calculated as net present value of expected future payments; not included on balance sheet

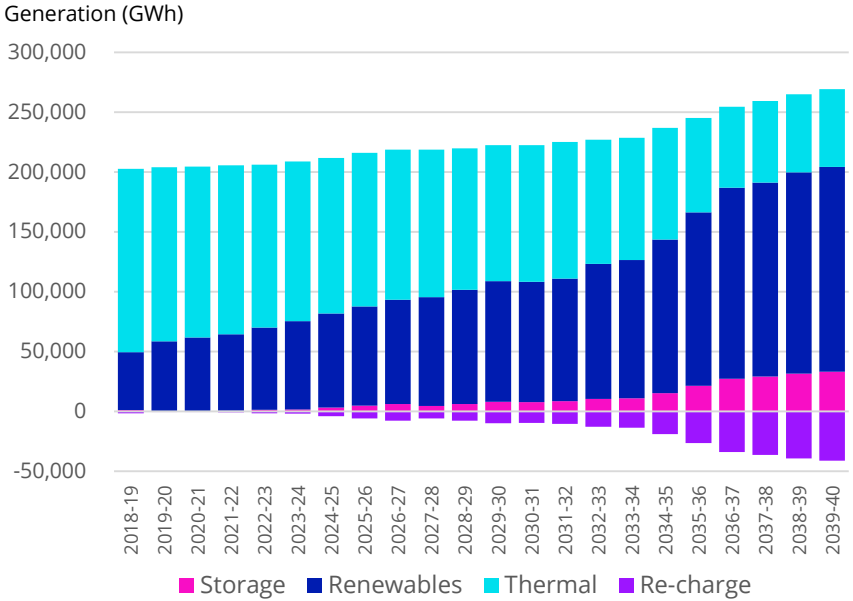
Investing in the resilience of our major thermal assets – key to system stability and security



Source: AEMO Integrated System Plan 2018 Assumption Workbook heat rate, VOM and coal costs. Diesel generators excluded

Transitioning from energy to capacity assets – enabling development of renewable assets

Forecast NEM energy generation mix



Source: AEMO Integrated System Plan 2018

Themes shaping the energy industry

Thermal asset retirement

- Providing system reliability, which is not reflected in an 'energy only' market price

Renewables displacing energy generated by thermals

- Decreasing technology costs

More volatile market needs flexibility and storage capacity

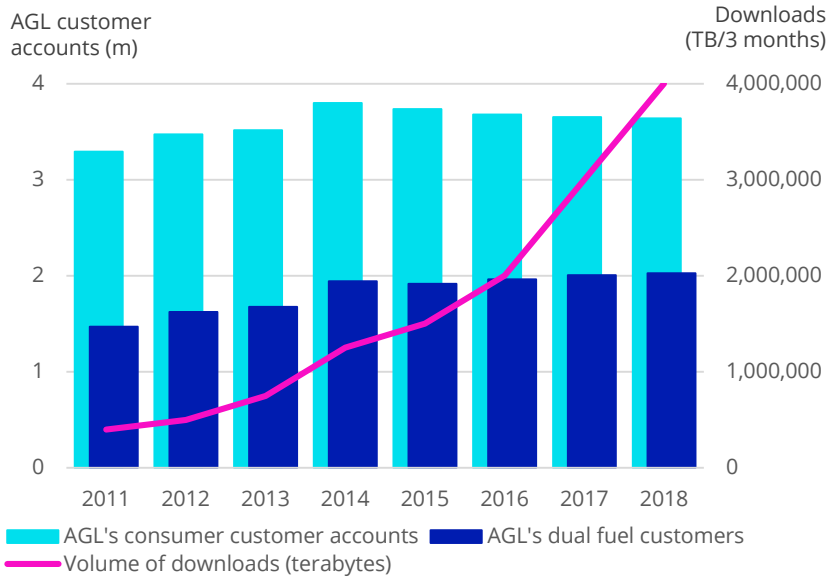
- Opportunity for peaking capacity and storage assets

Successful transition dependent on government policy

- Clear market signals to encourage investment, and ensure right balance between system supply reliability and cost to customer

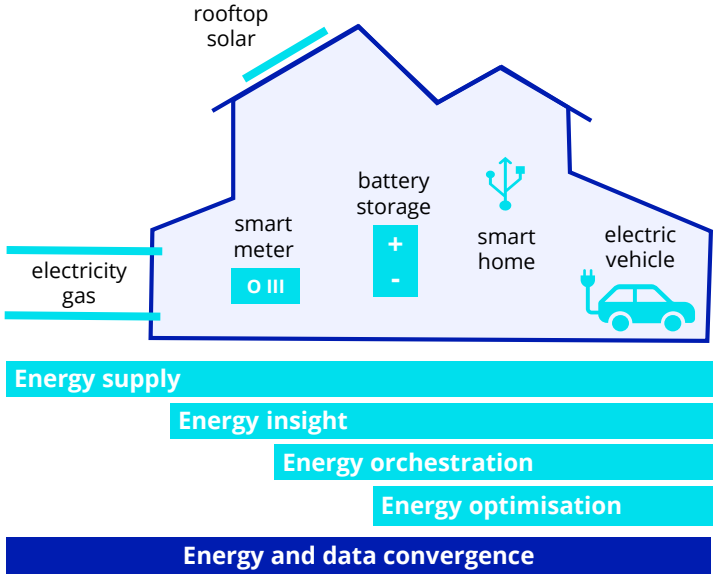
Creating new opportunities with connected customers

AGL customers and data download activity[1]



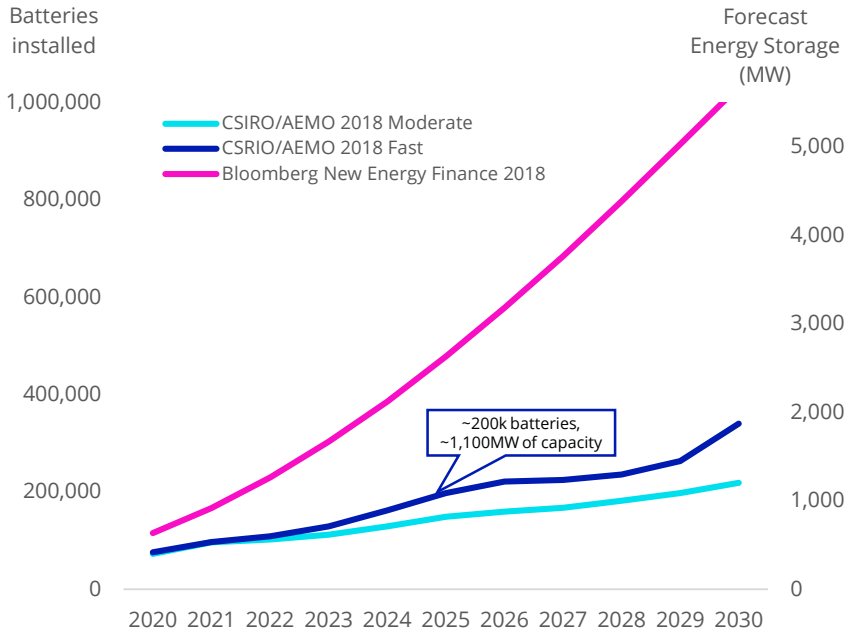
1. Household data download activity for 3 months: Source ABS

Evolving customer needs



Residential battery storage set for strong growth

Residential battery installations

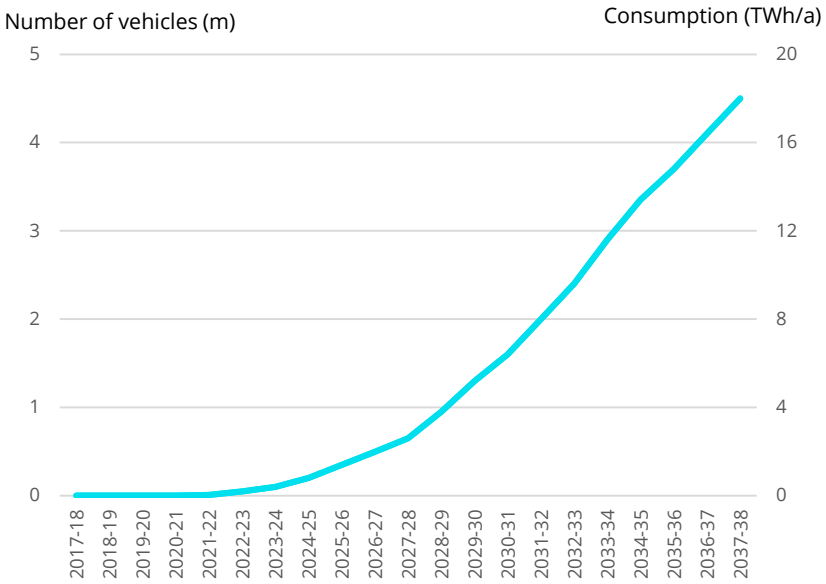


Progressing plans for residential batteries

- CSIRO/AEMO forecast up to ~200,000 residential batteries will be installed by 2025 (representing a total installed capacity of ~1,100MW)
- Residential uptake due to focus of subsidy and benefit of time-shifted solar
- Residential storage also benefits network infrastructure, reducing solar exports
- Further development of technology capability and ability to access multiple value pools (customer, wholesale and network) is required
- AGL capability to deliver residential battery solutions to be in place at 1 July 2019
- AGL will ramp up offering alongside government schemes to capture out-size market-share
- Apply learnings from Australia's largest operating retail-led virtual power plant in Adelaide

Electrification of vehicles converges mobility with other utility services: consumers and the environment benefit

Residential electric vehicle forecast



Source: AEMO Electricity Statement of Opportunities 2018 – Neutral scenario

Consumer, environmental annual benefits

Petrol [1,4]
2,500 L
$3,300
6.1 CO_2e

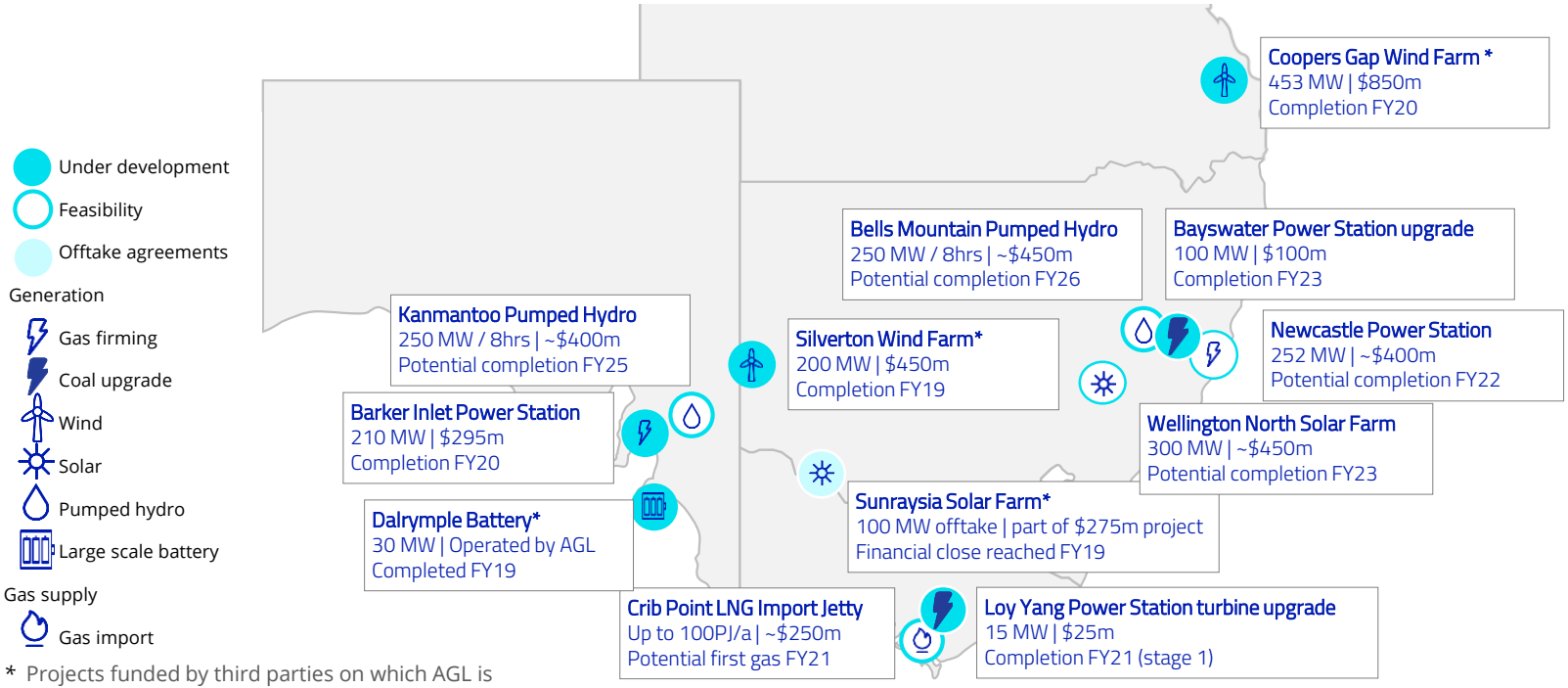
Consumer saves
$2,000

Carbon emission reduction
40%

Electricity equivalent [2,3,4]
4.3 MWh
~$1,300
~3.6 CO_2e

1. Assumes 1.8 passenger cars per dwelling travelling 13,220km per car @ 10.6L/100km (ABS, 2016) @ $1.30 per litre.
2. Assumes 0.18 kWh/km (Energia, 2018).
3. Calculated using the national average retail price from AEMC 2018 electricity retail price trends, no discounts.
4. Calculated using Scope 1 and 3 emissions for petrol vehicles (post 2004) and Australian electricity full fuel cycle emissions factor (all emissions associated with providing electricity to consumers, including upstream fuel source, downstream transmission and distribution losses, and fuel combustion in power stations) from National Greenhouse Accounts Factors 2018.

Social licence to operate is fundamental to our growth strategy



* Projects funded by third parties on which AGL is operator and/or offtaker (including PARF)

FY19 guidance range unchanged; market challenges remain for FY20

Underlying Profit after tax expected to be $970 million to $1,070 million

- Tracking towards mid-point of guidance range
- Strong portfolio performance offsetting impact of increased operating expenditure, coal plant outages
- Second half impacted by:
  - Lower gas volumes due to seasonality and lower Large Business customer volumes
  - Continued Consumer margin compression due to lower priced products and Victoria price change impact
  - Higher input fuel costs
- Subject to normal trading conditions and policy and regulatory uncertainty

Market headwinds going into FY20:

- LREC prices have reduced materially and are expected to fall further during FY20
- Wholesale prices for electricity forecast to be lower on average than FY19
- Higher coal and gas costs as legacy contracts continue to mature
- Expected partial re-regulation of retail electricity prices via DMO and VDO

Questions

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- Statutory Profit is prepared in accordance with the Corporations Act 2001 and Australian Accounting Standards, which comply with International Financial Reporting Standards.
- Underlying Profit is Statutory Profit adjusted for significant items and changes in fair value of financial instruments.
- Underlying Profit is presented with reference to the Australian Securities & Investments Commission's Regulatory Guide 230 "Disclosing non-IFRS financial information" issued in December 2011. AGL's policy for reporting Underlying Profit is consistent with this guidance. The Directors have had the consistency of the application of the policy reviewed by the external auditor of AGL Energy Limited.
- Amounts presented as Statutory Profit and Underlying Profit are those amounts attributable to owners of AGL Energy Limited.

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Growth in transition: AGL's growth as the Australian energy market transitions

Brett Redman, Managing Director & CEO, AGL Energy Limited

Speaker notes for presentation to 2019 Macquarie Australia Conference, 30 April 2019

[SLIDE 1]

Good afternoon everyone, thank you for joining me for this presentation.

Thank you also to Macquarie for putting on an excellent conference as always.

For those I haven't met, let me introduce myself.

My name is Brett Redman and I am the managing director and CEO of AGL Energy Limited.

Since becoming CEO in August last year, we have set out to reset AGL's strategic priorities as growth, transformation and social license.

Today I want to talk to you about our refreshed growth agenda. At AGL we see the ongoing transition of Australia's energy market as a growth opportunity. We are well placed to succeed because of the strength of our core business, our financial position and our record of successful investment.

[SLIDE 2]

We all know about the short-term challenges facing the energy industry. These include:

- Government policy uncertainty;
- Rising community expectations of large companies, especially essential services providers
- An aging fleet and the need to de-carbonise; and
- Ever-evolving customer needs

But while these challenges exist, we see the opportunities for AGL as being greater.

It is forecast (by Bloomberg New Energy Finance) that 130-billion-dollars of grid-scale and 70-billion-dollars of "Behind the Meter" investment is required in generation and storage to 2050 in the NEM.

A company with AGL's heritage and investment record should see this as an opportunity.

Let me give you some context as to how AGL has gotten to where we are today.

We are a 180 year-old company. Over recent months as we have refreshed our growth agenda, we have taken inspiration from that heritage. In particular we have reviewed the past 12 or so years since the merger/demerger.

Between 2006 until 2011, we built our integrated energy business with investments in upstream gas, electricity generation and retail.

Between 2011 and 2015, we undertook significant expansion in baseload generation and retail while divesting our upstream gas positions.

Since 2015 our generating assets have performed strongly amid rising market prices for electricity.

Through this period, and indeed through all of AGL's history, it has been a readiness to invest in the market as it evolves that has ultimately delivered for our shareholders.

[SLIDE 3]

You may be familiar with this slide from its introduction at our half year results in February. It provides a good visual overview on how we are thinking about growth at AGL in three areas:

The first is optimizing our existing portfolio for performance and value. We remain committed to transitioning our portfolio away from coal to new, cleaner and affordable sources of generation and storage, consistent with the direction of community expectations and government policy.

But our thermal assets will be essential to this country's energy security for decades to come as the system transitions to renewables. Therefore we need to continue to invest to ensure they are secure, reliable and flexible to support more intermittent renewable energy in the NEM.

The second area for growth is evolving and expanding our core energy market offerings. This includes our investment in firming capacity such as gas peakers, pumped hydro and batteries, and flexibility in the gas market through LNG importing.

The third area for growth is creating new opportunities with a connected customer. Central to this is the ongoing expansion of the way customers think about energy, especially as energy and data value streams converge. This includes opportunities in distributed energy, such as home energy storage, asset orchestration and e-mobility as well as data itself.

Today's presentation will speak to all three of these areas.

[SLIDE 4]

The next slide provides a visual representation of AGL's asset base over time. It supports what I mentioned previously; that AGL's recent financial performance has come about because of the big capital allocation decisions we have gotten right.

This graph shows how our asset base has changed over time and highlights where we have made big investment decisions, particularly between 2011 and 2015. (Note that we have also included Power Purchase Agreements, PPAs, for renewable energy, which are technically off balance sheet.) As you can clearly see from the dark blue bars, this period involved significant expansion in baseload thermal generation; namely through the acquisitions of Loy Yang A and AGL Macquarie. This transformed us from a predominantly financially hedged business to a physically hedged business.

In that same time period we scaled back our upstream gas assets and continued to build our retail business through organic growth and the Australian Power and Gas company acquisition. We achieved moderate returns against this significant balance sheet expansion in the short-term.

However since FY16 these decisions have positioned us to capture significant value as the market price of electricity rose.

Thermal generation has underpinned our strength today and will continue to be extremely important to AGL for years to come.

It should also be noted that throughout the entire period AGL has led the market in supporting investment in renewables, both directly and through PPAs.

We believe our current asset base positions us particularly well to continue to provide that support.

[SLIDE 5]

The visual on slide 5 builds on the previous slide and focuses on our asset base as you see it today and the structure into which we see it evolving. This is a concept we have presented previously.

The dark blue bars show our current asset base, split by asset type and again shows the renewable PPAs as an asset, even though technically they are off balance sheet.

The light blue wave shows, very conceptually, what the future asset base could look like.

I cannot stress enough that this wave is not to scale – it's just conceptual.

The obvious take away from this graph is that the we are moving towards a model during which our asset base will evolve again, gradually, as the need for AGL to invest in large-scale energy generation assets is replaced by storage assets, flexible generation assets, and assets that support the convergence of customers' experience of data and energy.

[SLIDE 6]

Thermal assets have underpinned our strength today and will continue to be extremely important to AGL for years to come.

Here we can see AGL's thermal fleet relative to the National Electricity Market in terms of capacity, which is reflected in the width of each column; in terms of cost to run which is reflected in the height of each column; and age which is reflected by colour.

AGL has an enviable position in the market at the moment, with some of the largest, lowest cost and highest quality plant. This means that as the market transitions to new sources of generation and storage, our plants should be some of the last to retire, and will play a big role in supporting the transition to renewables. The two that stand out in this graph, in the bright blue and bright purple are Loy Yang A and Bayswater.

AGL's portfolio of major thermal assets are at the heart of the energy transition and will be key to system stability and security. This is why we are investing in their resilience, their flexibility and their availability.

At the half year results we announced a 25-million-dollar upgrade of the low-pressure turbines and feedwater heaters at AGL Loy Yang unit two. We have previously announced a 100-million-dollar upgrade to Bayswater Power Station to begin in FY20. Neither of these upgrades will bring any increase in carbon emissions.

As part of this strategy we have also changed our approach to operating costs, increasing our focus on value creation rather than cost reduction. While this means less reduction in operating costs in the short-term, it will optimise portfolio performance and drive improved results over the longer term.

On this graph you can also see one of our newest assets is the Barker Inlet Power Station, which leads me to the next slide.

[SLIDE 7]

As the market transitions inevitably towards higher renewable penetration, AGL has an opportunity to play a key role as an enabler.

Renewables will continue to penetrate but as we have said many times before, renewables alone cannot fully replace capacity without firming to smooth out their inherent volatility.

Flexibility and storage will be valuable in more volatile markets. This means flexible gas peakers, pumped hydro and in the longer-term, grid-scale batteries.

AGL already has the 210MW Barker Inlet gas-fired peaker in South Australia due for completion in FY20. The Crib Point LNG import jetty, with potential first gas in FY21, has the potential to provide a new source of gas to the East Coast and to support our storage and shaping strategy and our development of flexible peaking capacity.

In 2019 we have so far announced that we have secured options over two 250 megawatt pumped hydro projects; one at Bells Mountain in New South Wales and one at Hillgrove Resource Limited's Kanmantoo copper mine in South Australia. We see pumped hydro as potentially forming an essential component of Australia's firming capacity – and these options and others we are pursuing have the potential to add unique flexibility to our generation fleet.

Grid-scale batteries, although expensive now, have the potential to be the game-changer once costs decrease. As I laid out in my presentation here in 2017, the bow-wave for change in the scenario for renewables will be falling battery costs. Having commissioned the Dalrymple battery in South Australia in January, we're looking for more opportunities in this space.

The pace and success of this transition is still dependent on government policy. Government policy should facilitate private sector investment, not hinder it and should be focussed on encouraging clear market signals for investment. In the current energy market there is a disconnect between system reliability and market price. Whilst possible instruments like the National Energy Guarantee attempts to solve part of the problem more needs to be done to ensure the right balance between supply reliability and cost to customer. This work will need to examine all parts of the market especially the ancillary services that are a pre-requisite to a stable system.

[SLIDE 8]

Despite a dynamic and challenging environment, AGL's core customer base is strong and indeed growing. This reflects continued investment in our customer systems, including most recently our Customer Experience Transformation program.

Upcoming regulatory change is significant but AGL is well placed to respond and we are positioned well for growth by creating opportunities with connected customers.

What do I mean by connected customers? Customer needs and expectations are increasing and evolving. There has been a convergence of a number of technology disruptors across transportation, power generation and traditional utilities, which applies to both retail and business customers.

The convergence of energy and data creates an opportunity for AGL to position itself as a trusted and preferred partner of the connected customer. Data plays an integral part in our day-to-day lives, much like traditional energy services. Customers increasingly expect and need a reliable provision of that service, again much like traditional energy service.

As AGL wants to go where our customer is going, we will continue to evolve; from our core energy providing service to a multi-product provider. The role AGL plays and the products we provide will continue to be at scale and make sense for our business.

[SLIDE 9]

Connected customers and the connected home present opportunities in distributed energy, energy storage and behind the meter orchestration, and further in the future e-mobility and electric vehicles. I will speak about this more on the next few slides.

In residential batteries, live and proposed government schemes are now presenting an opportunity for rapid growth.

As you will see on the graph to the left, even the moderate CSIRO/AEMO forecast anticipates over 150,000 batteries by 2025.

We intend to have the capability to deliver basic solutions in place by 1 July and to date nearly 700 of our customers have registered their interest in this rollout.

Our offering will be about building capability and ramping up as government schemes do, expanding on what we've learnt through our Adelaide virtual power plant, which is still the largest operating retailer led project of its kind in Australia.

The current total market opportunity based on Victoria and South Australia's committed schemes alone is in the region of 50,000 batteries.

That translates to a total investment across the market of 600 to 700 million dollars based on current battery prices.

Underpinning this growth in battery storage is the growth in rooftop solar between now and 2030, with capacity expected to double from ~7GWh to ~14GWh. This provides a potential opportunity from a combination of battery sales with an orchestration contract. The customer value is limited to their own time shifting, but with orchestration additional value can be shared between the customer and AGL, such as the use of customer storage beyond the home during periods of high prices.

[SLIDE 10]

One growth area that has a further time horizon, but is no less topical in this current climate, is e-mobility. The electric vehicle industry has the potential to change the dynamics of the electricity market beyond 2025. It is expected to be the single greatest source of increased electricity consumption.

This slide presents a simple scenario comparing the potential increased electricity usage and cost differences of an average Victorian household with an electric vehicle versus one with a vehicle powered by fossil fuel, in this case petrol. The scenario assumes 1.8 vehicles per household as per the ABS, which would result in an increase in electricity consumption of roughly 4 megawatt hours per annum. This equates to an additional $1,300 to the household's electricity bill per annum. Compare this to the average annual petrol cost for a household with the same number of petrol vehicles of $3,300 and the customer with an electric vehicle has a potential annual saving of $2,000.

There is also a further benefit to the environment with the reduction in carbon emissions.

Two of the obvious economic benefits to the customer and AGL of electric vehicles are demonstrated as you can see:

1. The saving to the customer in fuel costs
2. The increase in household demand for electricity

Based on an average Victorian household's demand of around 6 megawatt hours per annum and using this scenario of 4 megawatts per annum added for electric vehicles this represents a potential 66 per cent increase in electricity demand per household.

At the moment there are several challenges facing the electric vehicle industry, including supply side constraint in the Australian market and a lack of infrastructure. Electric vehicle market growth looks probable – although we are also excited about the potential for growth for hydrogen vehicles.

[SLIDE 11]

Let me close by reiterating what I mentioned at the beginning of this presentation, one of the short-term challenges facing the energy industry is the rising community expectations of large companies, and in particular, essential services providers like AGL.

As one of Australia's largest energy providers, we play a critical role in delivering reliable, secure, sustainable and affordable sources of power to the Australian economy. Our growth plans depend on our social license to operate.

When we identified social licence as one of our top 3 strategic priorities, it means we are committed to driving the cultural change that's needed to build trust with our customers and the community. As part of this we have undertaken a review of our key customer and regulatory processes to ensure they are meeting rising expectations, we have boosted debt relief for hardship customers and introduced automatic discounts for our standing offer customers, and we have signed up to an industry-wide Energy Charter to embed a customer-centric culture across the energy supply chain.

Importantly, we are investing more than any other company in the new supply that will help make energy more affordable and reliable over the long-term. Across the country we have people in hard hats and with shovels building the new generation that the energy system needs, which is providing employment in many regional communities.

I have set out how we are continuing to invest in our thermal assets to maintain system reliability and stability as the transition to renewables continues.

We are also investing in flexible storage and peaking assets which will help to reduce wholesale electricity price volatility.

And we are pursuing alternative sources of gas through our investment in Crib Point in order to provide the East Coast gas market with supply, which will ultimately stabilise prices.

[SLIDE 12]

Now, before I take your questions, it is customary at this conference to provide an outlook update.

AGL's FY19 guidance is unchanged from the comments we provided at our half-year result stating that Underlying Profit after tax is tracking towards the mid-point of the range we provided of between 970 and 1,070 million dollars.

Everything on this slide is exactly as stated at our half-year result. As always, our guidance is subject to normal trading conditions and policy and regulatory uncertainty.

Looking at our expectations for FY20, while we continue to trade strongly amid challenging and volatile conditions, there are a number of market headwinds;

- LREC prices have reduced materially and are expected to fall further during FY20, impacting Eco Markets gross margin;
- Wholesale prices for electricity are expected to be lower on average than FY19, even though the forward curve has risen in recent months;
- Higher input coal and gas costs as legacy contracts continue to mature; and
- Expected partial re-regulation of retail electricity prices via the DMO and VDO creating uncertainty for Consumer Electricity;

Thank you again for your time.

I will now take questions.