

To	Company Announcements Office	Facsimile	1300 135 638
Company	ASX Limited	Date	20 November 2019
From	Helen Hardy	Pages	105
Subject	2019 Investor Day Briefing		

Please find attached a release on the above subject.

Regards



Helen Hardy
Company Secretary

02 8345 5000

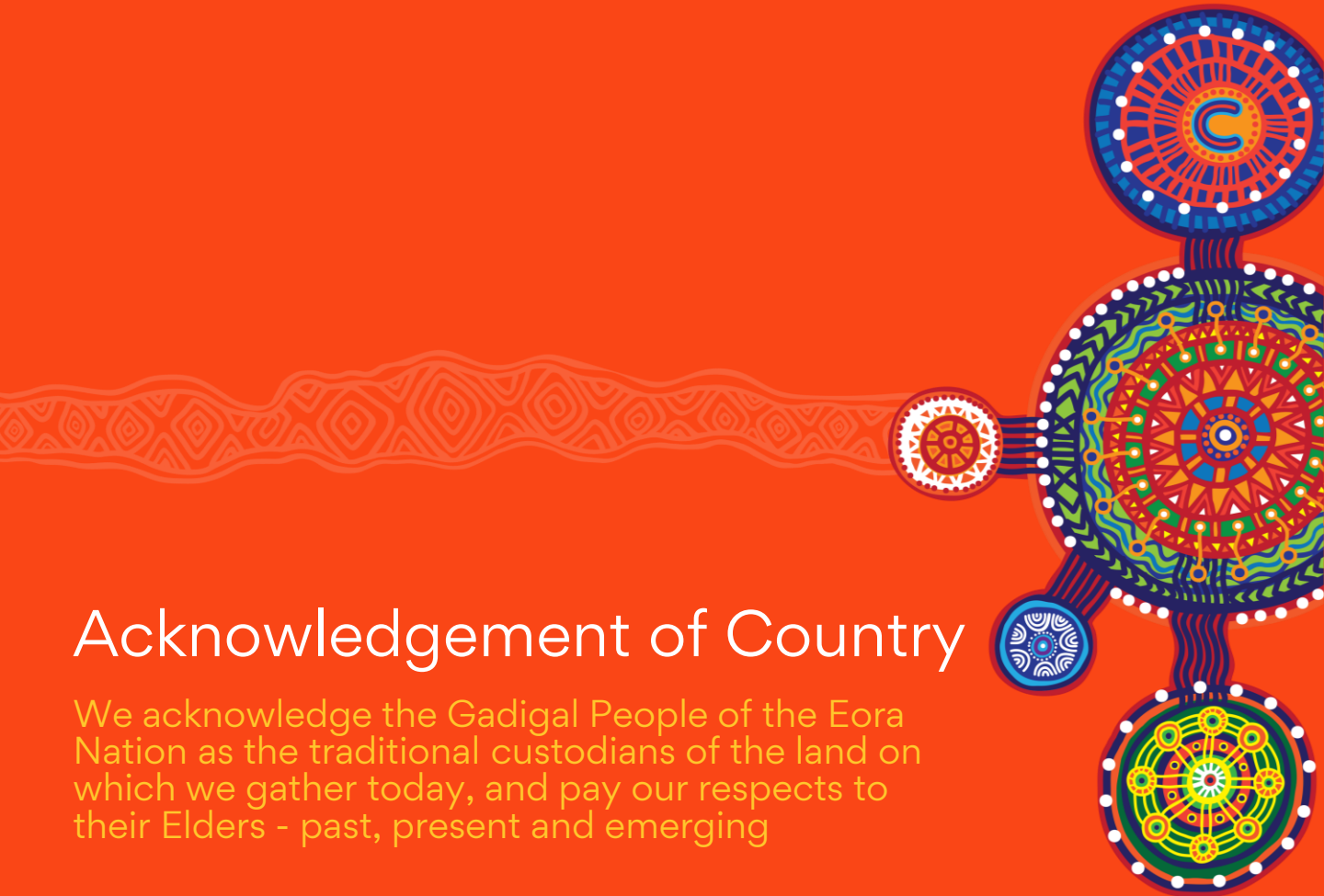
2019 Investor Briefing Day

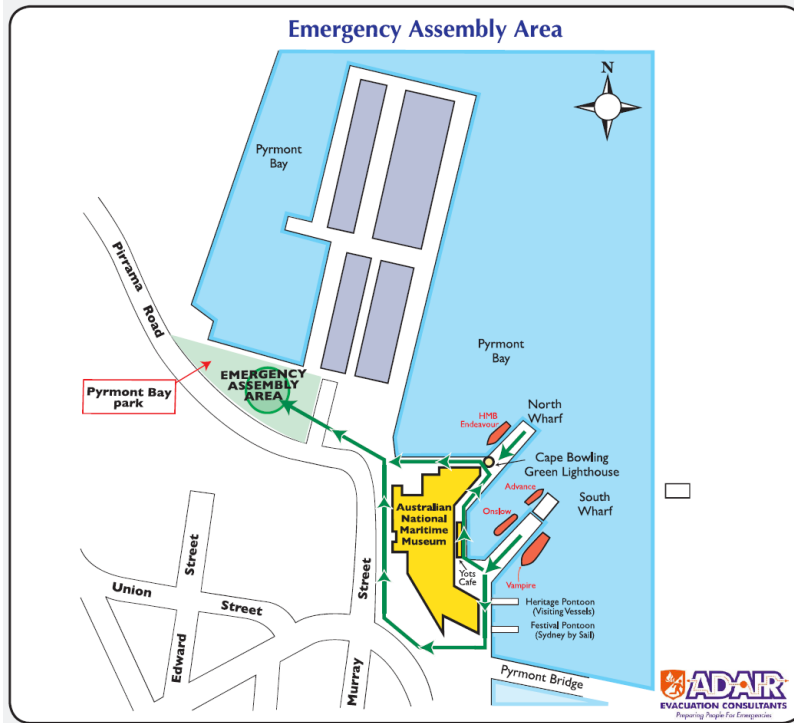
20 November 2019
Sydney, Australia



Acknowledgement of Country

We acknowledge the Gadigal People of the Eora Nation as the traditional custodians of the land on which we gather today, and pay our respects to their Elders - past, present and emerging





Alert tone “beep, beep, beep”

- Follow instructions of Wardens
- Be ready to evacuate

Evacuation tone “whoop, whoop, whoop”

- Leave now via nearest exit
- Proceed calmly to assembly area

Today's presenters



Frank Calabria, CEO



Sharon Ridgway
EGM, People & Culture



Samantha Stevens
EGM, Corporate Affairs



Lawrie Tremaine, CFO



Mark Schubert
EGM, Integrated Gas



Greg Jarvis
EGM, Energy Supply
& Operations



Jon Briskin
EGM, Origin Retail



Anthony Lucas
EGM, Future Energy &
Business Development



Agenda



Time	Duration	Topic	Presenter
9:30	5 mins	Introduction	Liam Barry, Investor Relations
9:35	15 mins	Strategic overview	Frank Calabria, CEO
9:50	10 mins	People & Culture	Sharon Ridgway, People & Culture
10:00	10 mins	Social purpose	Samantha Stevens, Corporate Affairs
10:10	15 mins	Capital management	Lawrie Tremaine, CFO
10:25	25 mins	Q&A session	
10:50	20 mins	Morning tea	
11:10	20 mins	Integrated Gas	Mark Schubert, Integrated Gas
11:30	15 mins	Energy Markets - Supply	Greg Jarvis, Energy Supply & Operations
11:45	15 mins	Energy Markets - Retail	Jon Briskin, Retail
12:00	20 mins	Energy Markets - Future Energy	Anthony Lucas, Future Energy & BD
12:20	30 mins	Wrap up / Q&A session	Frank Calabria, CEO
12:50		Lunch	





Strategic Overview

Frank Calabria
(CEO)

Building a track record



-
- Transforming culture
- ✓ Building an inclusive and achievement focused culture
 - ✓ Customer and digital first mindset

-
- Simplified portfolio
- ✓ Simplified processes, leaner corporate function, asset sales
 - ✓ Leaner, asset-led model in APLNG upstream

-
- Operational capability
- ✓ Reliable, low cost operator
 - ✓ Commercial capability in managing asset portfolios and risk

-
- Rebasing cost structure
- ✓ \$500m APLNG cost out achieved
 - ✓ Targeting >\$150m company-wide cost out by FY2021

-
- Capital discipline
- ✓ Balance sheet repaired
 - ✓ Dividends recommenced
-



External environment changing rapidly



Core beliefs

Fuels of the future

- Renewables the lowest cost form of new build generation
- Gas to grow in the Asia Pacific under all IEA scenarios¹

Decarbonisation

- Renewables lower average prices, but increases intra-day volatility
- Gas crucial as a lower emissions firming fuel
- Electrification to unlock emissions abatement

Decentralisation

- Empowering consumers
- Pervasive solar PV and batteries in the future
- New business models behind the meter

Digitisation

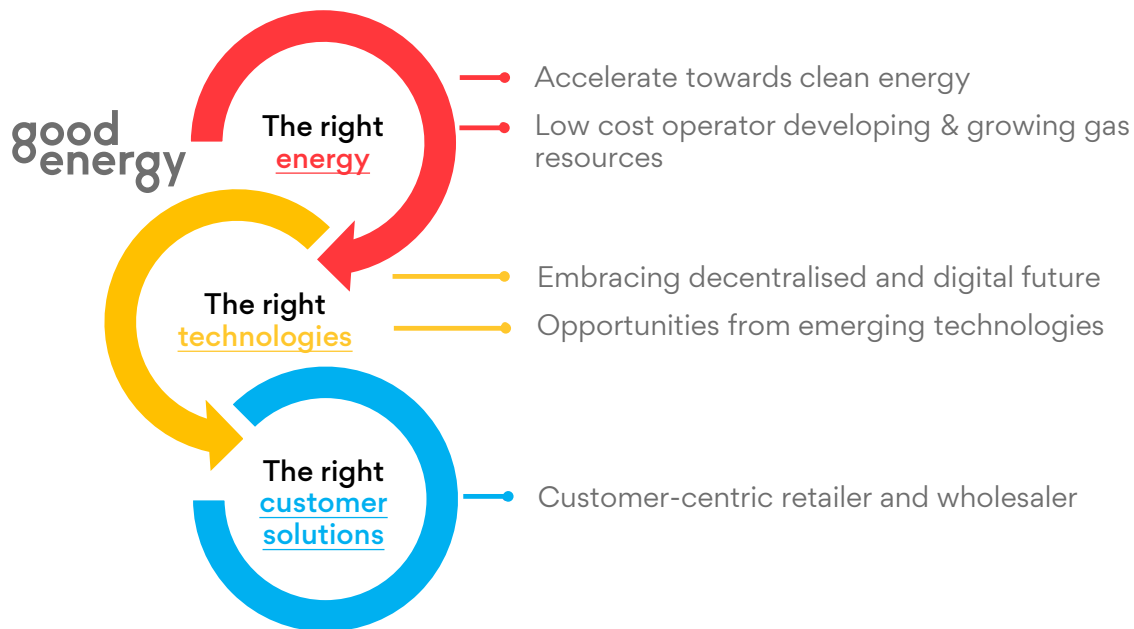
- Enabler of superior customer experience
- Automation of business process reduces costs
- Data driven business models

Australian context

- Government intervention and shift to central planning has created uncertainty
- Investment in flexible, fast-start technology required to support renewables
- Current policy environment makes investment decisions in generation challenging
- Strong market signal required to incentivise the right investments at the right time

1) International Energy Agency, *World Energy Outlook 2019*

Connecting customers to the energy and technologies of the future



Underpinned by capital discipline, our capabilities and our commitment to all stakeholders

We are committed to delivering for all stakeholders



Our people

- Focused on keeping our people safe
- Changing the way we work

Our customers

- Transforming customer experience
- Addressing energy affordability and reliability

Communities

- Contributing to communities in which we operate
- Leading position on climate change

Shareholders

- Resilient capital structure
 - Disciplined capital allocation
 - Maximising cash and returns through cycles
-

Our Purpose underpins everything we do



Our Purpose

Getting energy right for our
customers, communities and planet



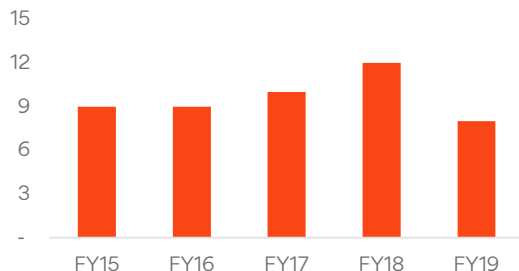
Safety remains a key priority



TRIFR



Process Safety Incidents



- FY2019 TRIFR performance disappointing following improvements in prior years
- Targeted programs to reduce specific risks
 - Partnering with contractors to improve personal safety during shutdowns and drilling
 - Review of site-based HSE improvement plans
 - Consolidating Safety Leadership Programs to apply consistent knowledge and safety tools
- Improvement in FY2019 Process Safety Incidents
 - Continued focused on reducing serious harm incidents
- Safety linked to executive remuneration



Our capabilities and strengths



Continuing to develop the right capabilities for the future



Executing on our strategy – making good progress



Accelerate towards clean energy

- > 25% renewables + storage capacity by 2020
- Generation flexibility supporting renewables
- Competitive fuel supply

Low cost operator developing & growing gas resources

- Increasing production and optimising cash costs at APLNG
- Investing in exploration to grow resource and scale low-cost model

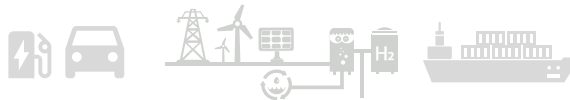
Embracing a decentralised & digital future

- Digital analytics improving customer experience and internal operations
- AI orchestration platform connecting assets and data to customers
- Connected business models in front of and behind the meter

Customer-centric retailer

- Transforming customer experience – simple, seamless, effortless
- Target step change in cost position (>\$100m cost out on track)
- Growing revenue streams (CES, Solar & storage, Broadband)

Pursuing opportunities from emerging technologies



E-Mobility

Hydrogen

LNG for transport

Where we are going



- Growing production at APLNG – strong medium term outlook
- Investing in exploration to grow new resources – at APLNG, Beetaloo and Cooper-Eromanga
- Targeting >\$150 million Origin-wide cost out by FY2021
 - >\$100 million from Energy Markets cost to serve
- Improving customer experience, lowering costs and growing revenue streams in Retail
 - Planning underway for the next wave of Retail transformation
- Energy supply portfolio well positioned for renewables + firming – cautious on investment
- Continuing to develop capabilities to test and deploy new connected energy solutions
- Strong cash generation and more resilient balance sheet provides options for capital allocation





People & Culture

Sharon Ridgway
(EGM, People &
Culture)

People and culture are critical to our success



- Key enablers of business performance are:
 - Effective ways of working
 - Strong people performance
 - Strong inclusive & achievement focused culture

- A strong culture:
 - ✓ Attracts the right people
 - ✓ Empowers and motivates
 - ✓ Unlocks great customer experience
 - ✓ Supports the success of the strategy
 - ✓ Is built on a solid set of values



We're changing the way we work



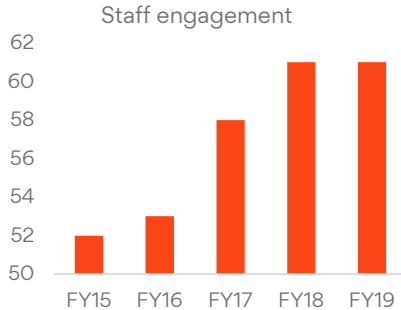
- Increased ownership & autonomy:
 - Reduced organisational layers
 - Reduced team sizes
 - Leaner management structures
 - Business & system simplification
 - Integrated Gas asset-led organisation
- Focused on capabilities:
 - Customer & digital first mindset
 - Strengthening 'operational' mindset
 - Investing in data & analytics
 - Process simplification & cost



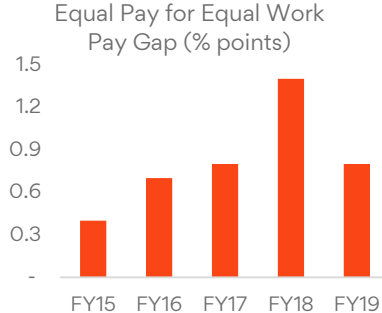
Our people performance



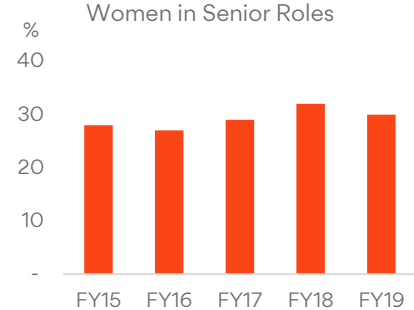
Engagement



Equal Pay



Gender Diversity



- Engagement & Diversity linked to executive remuneration
- Engagement improved during a period of significant change
- Target of <1% gender pay gap for equal work achieved in four of the last five years
- Employer of Choice for Gender Equality for fifth year
- Ranked Top 10 globally for gender equality



Getting energy right for our customers, communities and planet



Work as one team, one Origin



Be the customer champion



Care about our impact



Find a better way

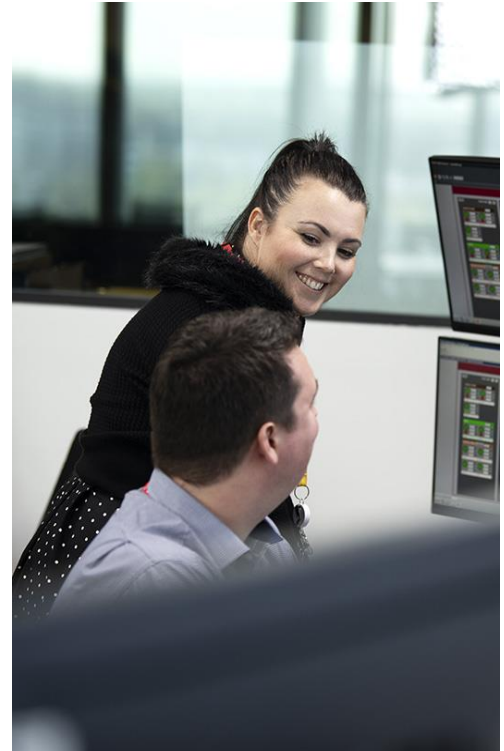


Being accountable

Building an inclusive & achievement focused culture



- Embedded Values into:
 - Staff incentive arrangements
 - Recruitment
 - Employee communications
- Introduced People Leadership Programme
- Targeting to attract and retain more senior females
- Introduced 'All Roles Flex' and new parental leave policy
- Launched Stretch Reconciliation Action Plan
- Enhanced performance management process





Social Purpose

Samantha Stevens
(EGM, Corporate Affairs)

Getting energy right...



... for our Customers

- Addressing affordability and reliability
- Advocating for sound energy and climate policies
- Leading the transition to a decentralised and digitised future



... for our Communities

- Supporting education through our Origin Foundation
- Contributing to our communities
- Creating opportunities for regional and Indigenous communities



... for our Planet

- Leading position on climate change
- Accelerating towards clean energy
- Focusing on emissions improvements



Creates value for our business and delivers for all our stakeholders

Leading position on climate change

- Believe electricity sector should deliver more than its proportional share of emissions reduction
 - Support national goal of net zero emissions in the electricity sector by 2050 or earlier
- First Australian company to set science based targets aligned to 2°C Paris Agreement
 - Halve Scope 1 and 2 emissions by 2032
 - 25% reduction in Scope 3 emissions by 2032

Accelerating towards clean energy

- Targeting >25% owned and contracted capacity from renewables and storage by 2020
- Utilise our strong gas position as a lower-emissions firming fuel domestically and delivering LNG to Asia to displace coal

Focusing on emissions improvements

- FY2019 Scope 1 and 2 emissions in line with FY2018
- 39% reduction in emissions from flaring in FY2019
- Implemented a range of emissions reductions initiatives across the business

Getting energy right for our Customers



Addressing affordability and reliability

- Reduced prices for > 520,000 customers
- Record Eraring output putting downward pressure on prices
- Market leading program to protect hardship customers
- APLNG supplied ~30% of east coast domestic gas in FY2019
- Co-developed an industry-wide Energy Charter

Advocating for sound energy and climate policies

- Support an overarching energy and climate change policy
- Advocating for policies that encourage the right investment at the right time

Leading the transition to a decentralised and digitised future

- Investing in analytics and digital capability to improve the customer experience
- Leading installer of rooftop solar for more than 10 years



Getting energy right for our Communities



Supporting education through our Origin Foundation

- > \$25 million distributed by Origin Foundation since inception
 - includes \$3 million of employee matched donations
 - 60,000 volunteer hours by our people
- #1 in GoodCompany's Top 40 Workplace to Give Back in 2019

Contributing to our communities and local causes

- > \$750,000 direct community investment in FY2019:
 - Sponsor of Elliot Hawks and established local football oval
 - Supported Roma State College Indigenous senior students' camp
 - Contributed to Wagga Wagga Multicultural Street Festival
- Supporting domestic manufacturing through supply of gas

Creating opportunities for regional and Indigenous communities

- Targeting increased regional procurement from \$247m in FY2019
- Aiming to double Aboriginal and Torres Strait Islander employment by 2022
- Delivering treated water to landholders via irrigation schemes



- Founded in 2010
- Focus on education to break the cycle of disadvantage
- Since 2010, supported > 60 non-profit organisations, including:
 - SolarBuddy
 - The Big Issue
 - Big Picture Education Australia
 - Gawura school
- Matched employee donations to more than 250 Australian charities in FY2019



[Click here to learn more about the Origin Foundation](https://youtu.be/2XAGblwSmsc)

<https://youtu.be/2XAGblwSmsc>



Capital Management

Lawrie Tremaine
(CFO)

Improved financial position & performance



Maximise cash & returns through cycles



- ✓ Two strong cash engines
- ✓ Underlying ROCE lifted to 9.1%
- ✓ Company wide cost reduction
- ✓ Lower interest costs at Origin and APLNG
- ✓ Lower hedging costs as balance sheet risk reduces

Resilient capital structure



- ✓ Target capital structure and credit rating achieved
- ✓ \$3.7bn reduction in debt FY16-19
- ✓ Debt restructured to optimise tenor and interest costs
- ✓ >\$4bn in undrawn facilities cancelled since Jun-17

Disciplined capital allocation



- ✓ Capex and opex tightly managed
- ✓ Dividend recommenced
- ✓ Base dividend policy announced
- ✓ Improved investment framework & governance

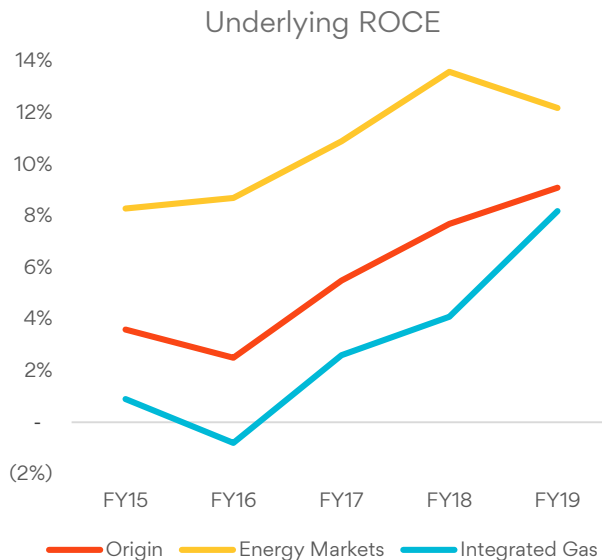
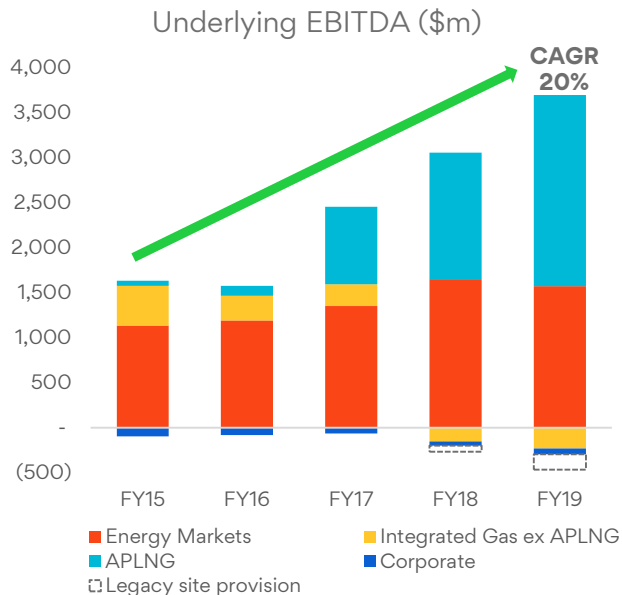
Portfolio management



- ✓ Leaner, simplified organisation
- ✓ Robust risk management framework
- ✓ Continual assessment of portfolio



Two strong cash & earnings generating businesses



- APLNG provides diversification of cash & earnings
- Energy Markets faces headwinds but earnings relatively stable

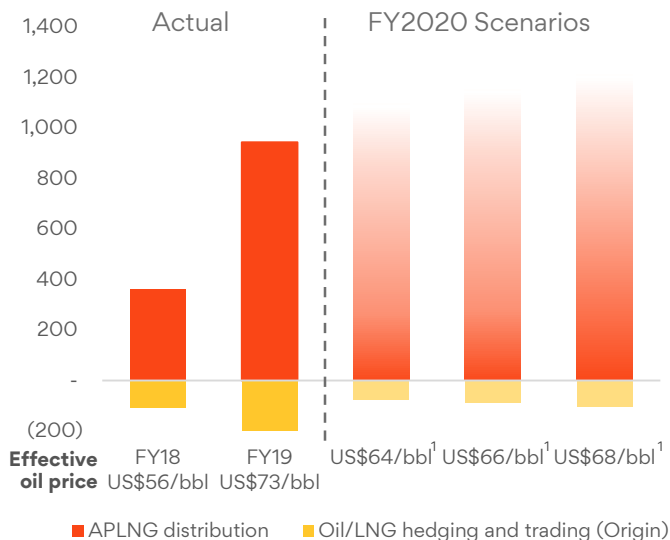
- Returns have improved but remain lower than our aspiration



Maximising cash generation from APLNG



APLNG estimated distribution and Origin oil/LNG hedging and trading (A\$m)



	Effective Oil Price US\$/boe	Effective Oil Price A\$/boe	Net Cash A\$m
FY2019	73	101	943
FY2020 1H	69	~100	~520

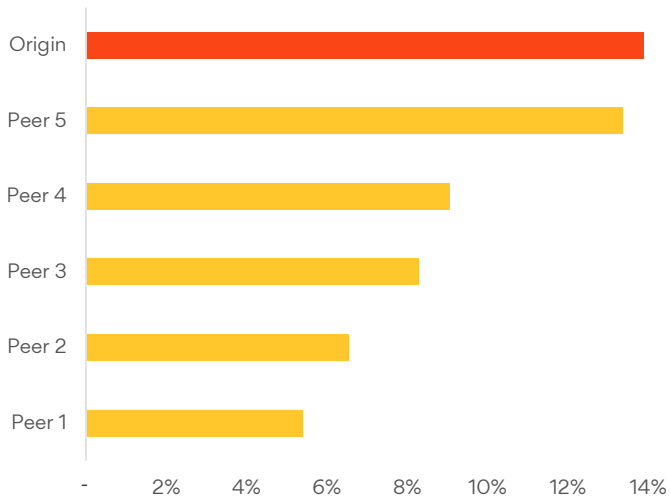
- FY2020 full year cash distribution driven by breakeven, FX and oil price
 - Reduce range of outcomes as ~80% of US\$ oil exposure priced as at 31 October 2019
 - Sensitivities assume performance is consistent with production & breakeven guidance

1) FY2020 effective oil prices based on a blend of actual pricing and FX to 31 October 2019 and average prices from 1 November 2019 of US\$50/bbl, US\$60/bbl and US\$70/bbl, all at AUD/USD of 0.70

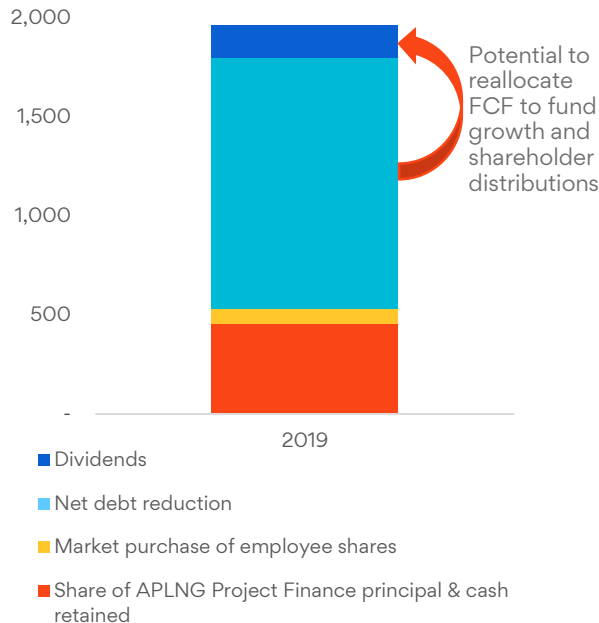
Potential to grow distribution to shareholders



Free cash flow yield^{1,2}
Origin – APLNG reflected on proportionate consolidation basis



Origin uses of proportionate FCF² (\$m)

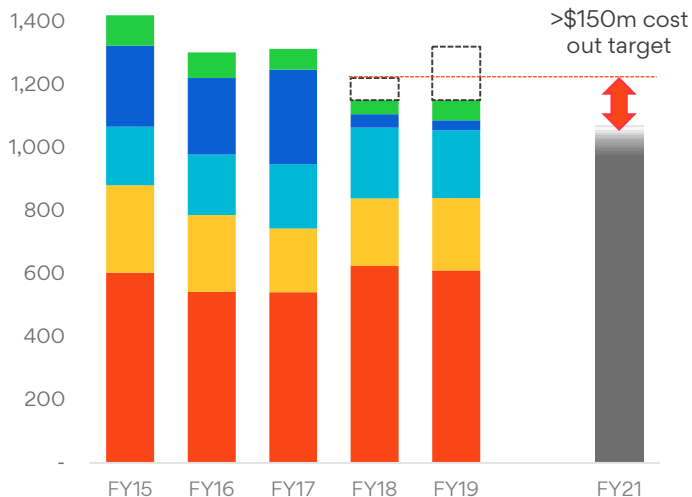


1) Peers group includes AGL, Contact, Oil Search, Santos, Woodside. Free Cash Flow Yield has been calculated based on CY2018 or FY2019 public data
 2) Free cash flow defined as cash from operating and investing activities (excluding major growth projects), less interest paid (Origin is prepared on the basis of proportionate consolidation of APLNG). Free Cash Flow Yield based on 30 day VWAP as at 18 November 2019 (for Origin of \$8.03 per share)

Leaner, Simpler operating model

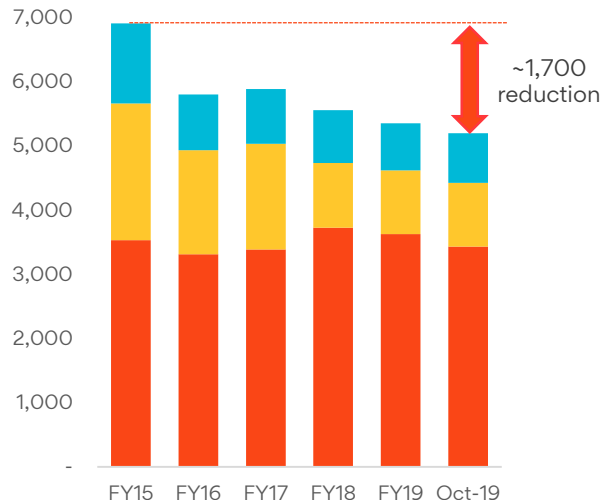


Origin-wide operating cost excluding APLNG (\$m)



- EM - cost to serve
- EM - generation opex
- EM - other
- IG - ex APLNG
- Corporate
- Legacy site provision

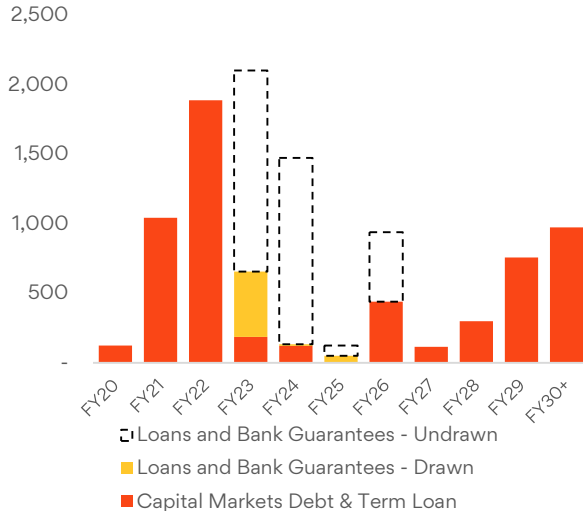
Number of permanent employees (excluding contractors)



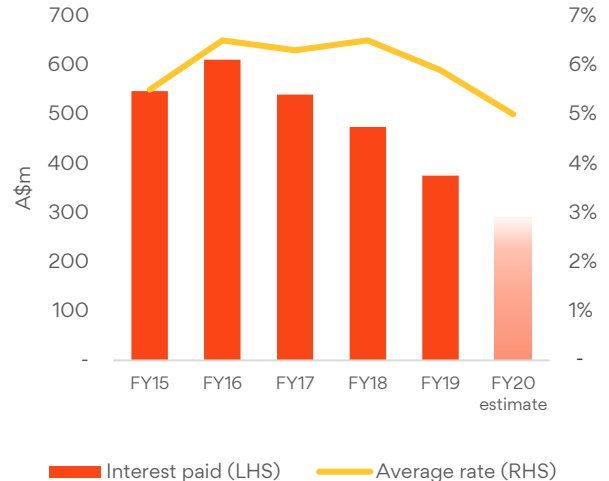
- Energy Markets
- Integrated Gas
- Corporate



Debt Maturity Profile as at November 2019 (A\$m)



Interest paid and average interest rate



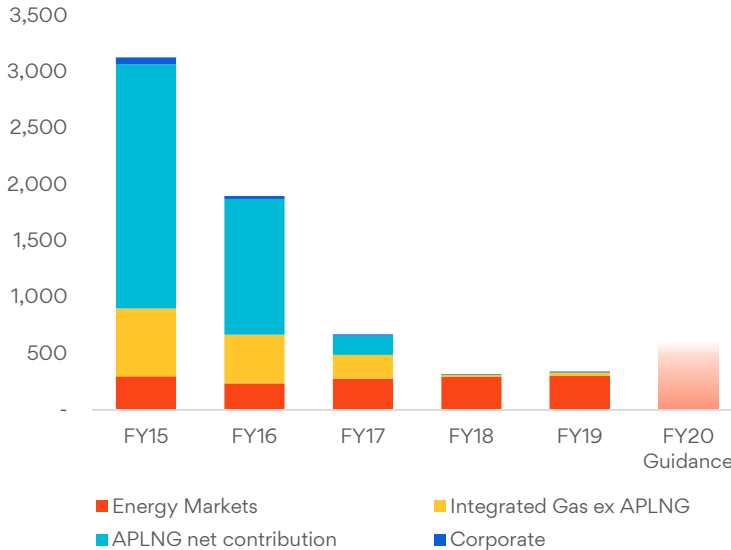
- Active refinancing to lower rates and increase tenor
- Recent 8 to 10 year debt at 2.7% to 3.2% range
- Undrawn liquidity reduced but maintained at high level to fund FY2021/FY2022 maturities

- ~\$240 million reduction in annual interest costs from FY2016 to FY2019
- >\$80 million reduction in net financing cost expected in FY2020
- FY2020 average interest rate expected to be low 5% range, down from 5.9%

Capital discipline



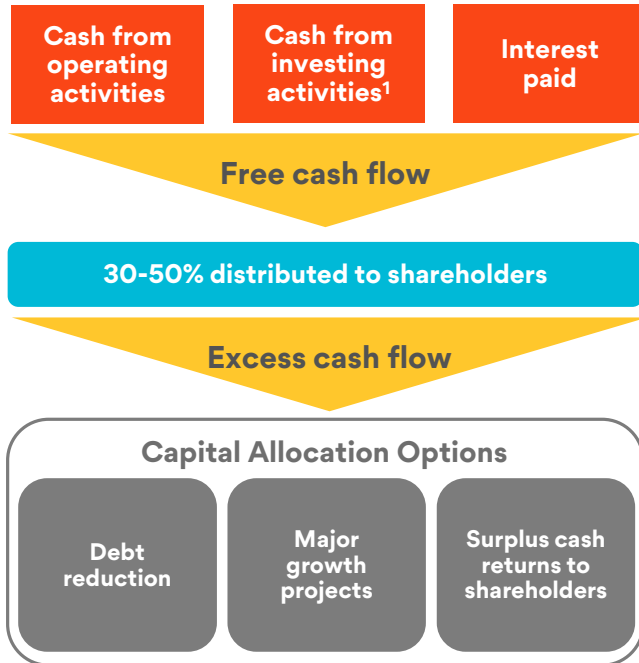
Capex¹ (\$m)



- Capex constrained at ~\$400 million over time, excluding E&A
- Beetaloo E&A driving the increase in FY2020 outlook
- Mature capital governance process in place
- Origin wide allocation based on greatest need or highest return
 - Hurdle rate: WACC plus buffer
 - Low case > \$0 NPV
- Carbon reduction scenarios reflected in business case economics

1) Capital expenditure in the chart above excludes divestments / acquisitions

Disciplined capital allocation framework



- Strong cash generation, a stable sustaining capex
- Potential for distributions at high end of payout range
- Franking limitations expected
 - Low tax payments over FY2021-23 due to realised FX losses on debt maturities
- Further debt reduction within amended Adjusted Net Debt / Adjusted Underlying EBITDA range of 2-3x
- Major growth subject to quality opportunities
- Surplus cash available for additional capital returns

1) Excludes major growth projects (to be announced on FID)

AASB 16 Leases (effective prospectively from July 2019)

- Required to account for all leases on-balance sheet

Origin excluding share of APLNG

Predominant lease types	Commercial offices, LPG terminals, power stations and fleet vehicles
Estimated balance sheet impact	Lease liability of \$450-500 million and Right-of-use asset of \$375-425 million
Estimated income statement impact	\$80-90 million increase in FY20 EBITDA offset in D&A and financing costs

Origin treatment of APLNG dewatering and workover costs

- With extended learnings post commissioning, dewatering and workover costs are now deemed more operational in nature (consistent with industry practice)
- Previously, future downhole costs for workovers and dewatering were estimated and amortised through the income statement on a units of production basis
- From 1 July 2019, these costs will be directly expensed as incurred
- Expected to result in a decrease to EBITDA more than offset by a decrease in amortisation
 - Initial estimates indicate a non-cash increase in EBIT of \$20-30 million (Origin share)

Questions

Morning tea break



Integrated Gas

Mark Schubert
(EGM, Integrated Gas)

Track record of transformation and performance



2X

PRODUCTION
2015 - 2020

↓50%

WELL COSTS
2017 - 2019

↓20%

OPERATED OPEX / GJ
2017 - 2019

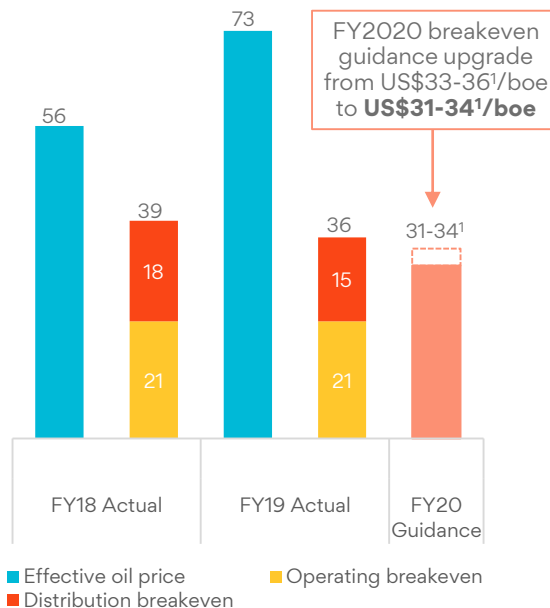


LAYERS IN THE ORGANISATION



ASSET-LED

Distribution breakeven and effective oil price (US\$/boe)



1) FX rate AUD/USD 0.70; reflects royalties payable at the breakeven oil price; excludes Ironbark acquisition costs



Focused on getting energy right



APLNG supplied **~30%** of east coast domestic demand in FY2019

APLNG regional spend of **A\$198m** in FY2019

Security of supply for China and Japan with 20 year contracts

Queensland gazettal supply keeps **450** Incitec Pivot **workers employed**

Net cash from APLNG **A\$943m** in FY2019

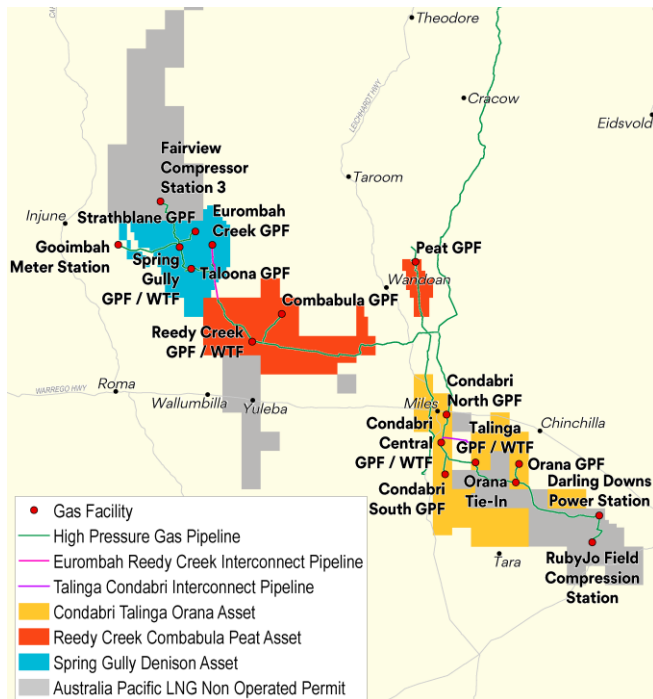
LNG delivered to China **lowers global emissions** by displacing coal

Opportunity to leverage capabilities to **deploy capital** into attractive growth

Delivering **treated water to landholders** via irrigation schemes



Asset led model creates ownership, alignment and results



	Avg Production TJ/day ¹	# GPFs ²	GPF reliability ³
Reedy Creek, Combabula & Peat	445	2	99.6%
Condabri, Talinga & Orana	757	4	100%
Spring Gully & Denison	284	1	100%
Non operated	441	5	n/a

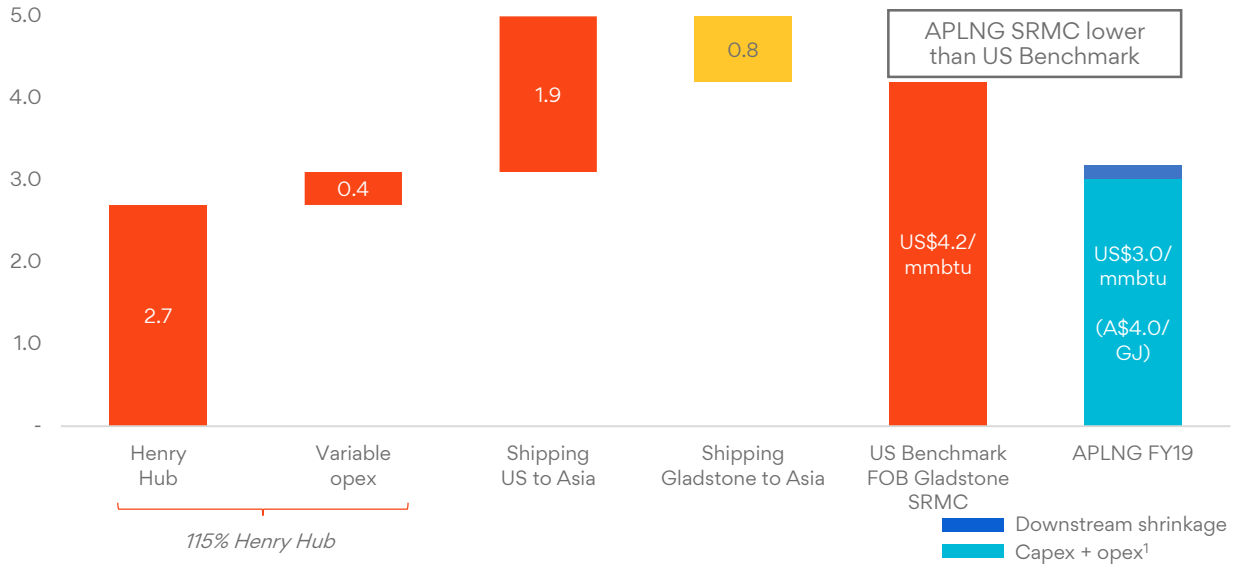
- Completed major maintenance on 15 GPF trains
- Record breaking production so far in FY2020:
 - Daily Operated Asset production record reset **11** times
 - Daily Portfolio production record reset **9** times

1) Average daily production Q1 FY20 (APLNG share)
 2) Phase 1 electric driven GPFs. Excludes legacy gas-fired GPFs
 3) Average monthly electric GPF reliability for Q1 FY20. Reliability is measured as operating time divided by the sum of operating time + unplanned down time

Built a business which is competitive with US Shale into Asia



Short-run Marginal Cost (SRMC) of US Shale into Asia & APLNG (US\$/mmbtu)



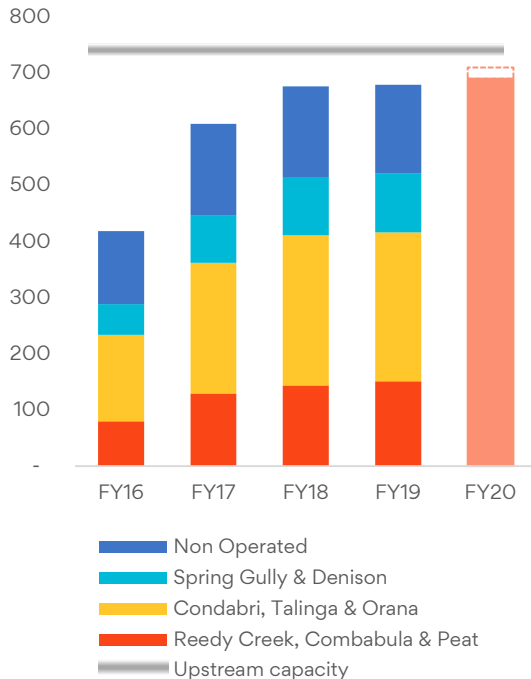
Source: McKinsey Energy Insights 'Global Gas Outlook - H1 2019 gas report update' September 2019, Origin analysis

1) Operating cash costs exclude purchases and reflects royalties payable at breakeven oil price; production adjusted for downstream volume shrinkage; AUD/USD 0.72

Production up, strong performance to continue



APLNG asset production (PJ)

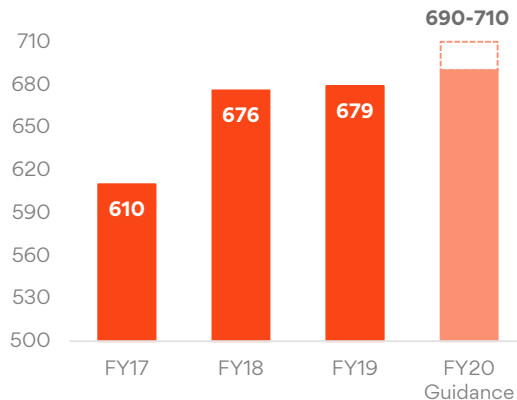


- Strong field performance and completion of Eurombah to Reedy Creek Interconnect pipeline has led to increased FY2020 production
- FY2020 **production guidance increased** from 680 - 700 PJ to **690 - 710 PJ due to strong field performance**
- **Targeting to maintain current strong production performance over next 3 - 5 years** with potential to increase production further by utilising spare upstream capacity

Steady cost performance to continue



APLNG Production (100%) (PJ)



APLNG (100%)	FY17	FY18	FY19	FY20 Guidance
Production (PJ)	610	676	679	690 – 710
Capex + opex, excl. purchases ¹ (A\$bn)	2.7	2.6	2.7	2.8 – 3.0
A\$/GJ	4.4	3.8	4.0	3.9 – 4.3

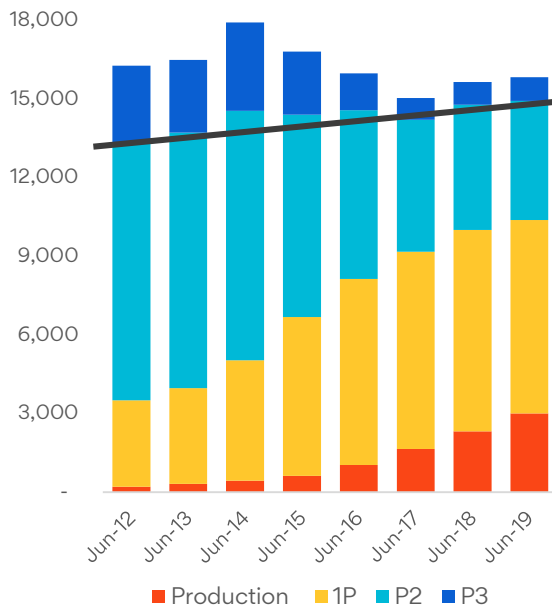
- **Total capex + opex¹ per gigajoule not expected to increase materially over next 3 – 5 years**
- Next wave of cost reduction prioritises activities that provide the greatest value:
 - Workover costs (frequency and unit cost reduction)
 - Fracture stimulation costs
 - Horizontal wells

¹) Operating cash costs exclude purchases and reflects royalties payable at the breakeven oil price. Royalties payable increases as oil price increases

Resource base performing well



APLNG reserves position^{1,2} (PJ)



Solid reserves

- Reserves converging towards 3P since FID
- Field performing in line with expectations
- Approximately half of 2P reserves yet to be developed

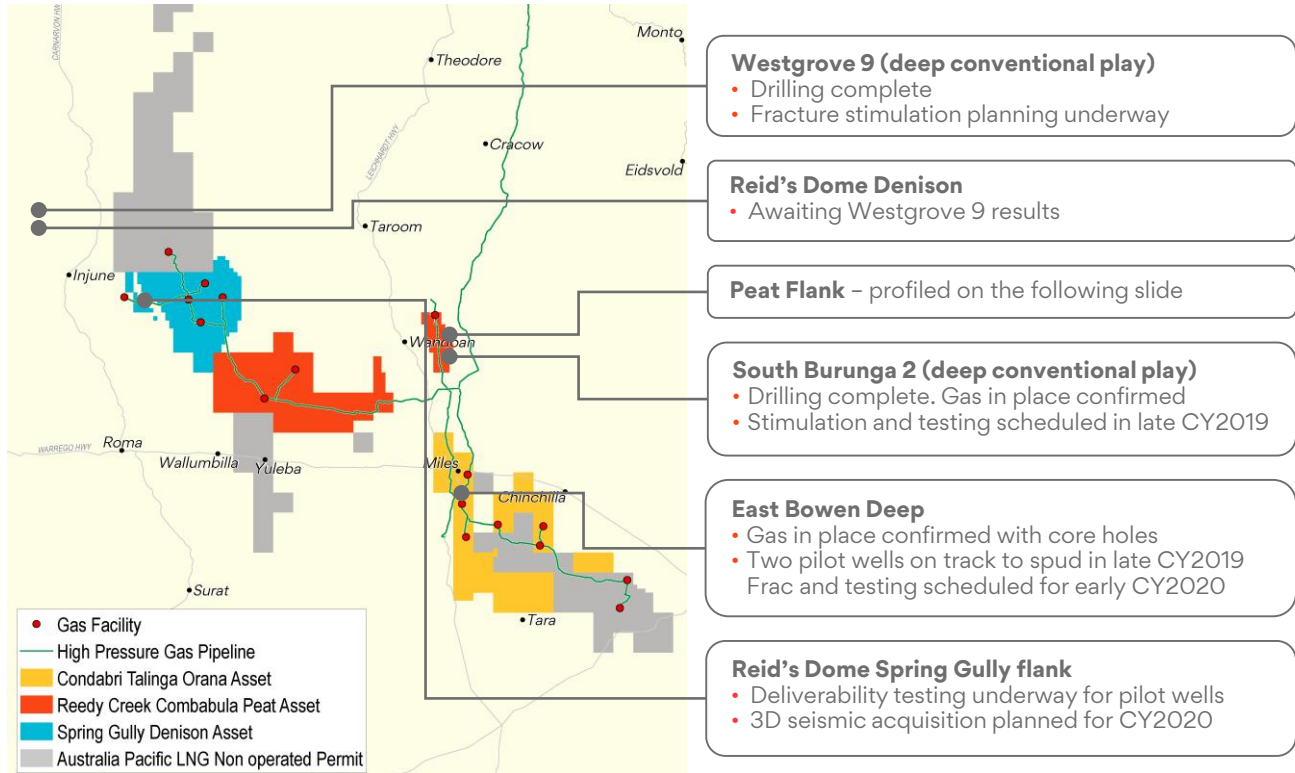
Expanding the resource base in FY20

- Murrungama gazettal awarded Jun-19, development ready (90 PJ 2P)
- Ironbark acquired by APLNG Jul-19, development ready (129 PJ 2P). Further exploration potential
- Gazettal block awarded Oct-19. Exploration potential adjacent to Peat

1) Reserves are 100% APLNG as reported in FY2019 Reserves Report released to the ASX on 22 August 2019

2) Some of APLNG's CSG reserves and resources are subject to reversionary rights and ongoing interest in favour of Tri-Star. Refer to section 7 of the Operating and Financial Review released to the ASX on 22 August 2019 for further information

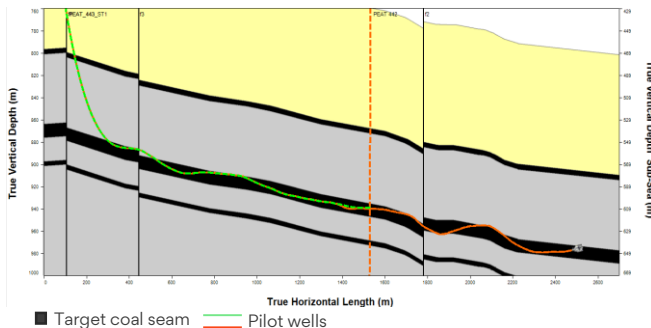
Exploration program underway and remains on track



Peat Flank profile



- 20 year old CSG field located on crest of geological structure, current production 10TJ/day
- Appraisal programme testing if field can be expanded to 60-100 TJ/day
- 2 pilot wells online indicate commercial viability (each average ~1 TJ/day), 3rd well ready to start
- High quality 3D seismic – confirmed high resource volumes, can place wells to maximise gas recovery
- Thick, continuous coals similar to Spring Gully – applying same horizontal well technology
- “Development ready” decision scheduled H2 FY2020



Proven ability to steer well for long lengths in reservoir and achieve good gas rates. Combined with 3D seismic, this allows well planning to maximise production

- Supporting the domestic market - multiple supply contracts signed
 - 61 PJ to Origin Energy over 2020 and 2021
 - > 50 PJ to manufacturers including Incitec Pivot, Orica and Orora
- LNG contract Downward Quantity Tolerance (DQT) declared for CY2020
- Cash flow from cargo deferral deal to commence in H2 FY2020
- Tri-Star proceedings
 - APLNG's position remains unchanged since 2015 that reversion has not occurred
 - APLNG expects to file its defence and counter claims to Tri-Star's September 2019 amended statements of claim during H2 FY2020
 - Next step will then be for Tri-Star to file its reply and answer. Once pleadings are finalised the usual court process would involve a period of document disclosure, potentially court ordered mediation and then finally a hearing

Beetaloo Stage 2 appraisal underway

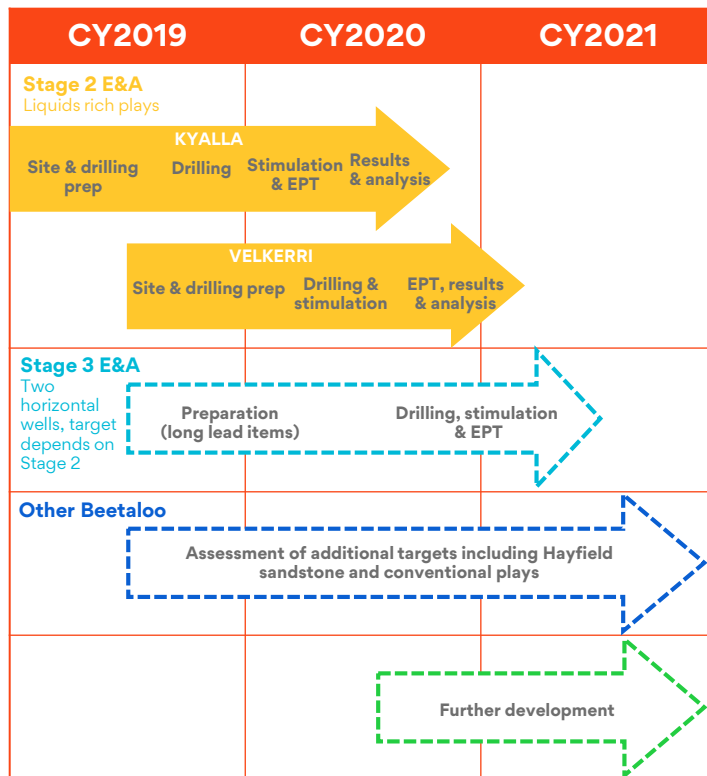
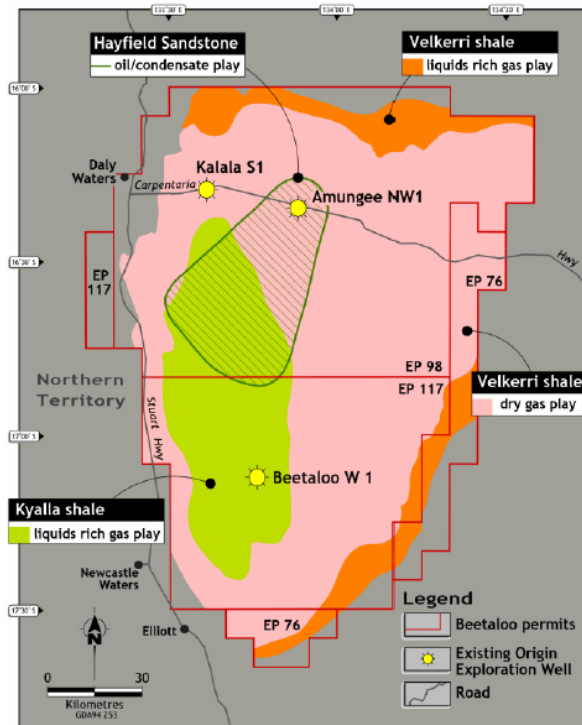


- **Kyalla shale liquids rich gas play:**
 - Well spudded 9 October, preparing to drill the horizontal section
 - 90-day extended production test (EPT) to commence in Q3 FY2020
 - Results expected in Q4 FY2020
- **Velkerri shale liquids rich gas play:**
 - Well pad civils nearing completion
 - Awaiting drilling and stimulation approvals
 - Drilling expected to commence after the wet season in Q4 FY2020
- **Objectives** are to flow liquids-rich gas to surface under production test conditions



Kyalla 117 well site

Beetaloo timeline



Engaging with Beetaloo Traditional Owners



- We have the support of our Traditional Owners (TOs) who are Native Title holders for where we are working
- We provide them with forward work plans, including any hydraulic fracture stimulation, prior to activity commencing
- We continuously engage with our TOs and host pastoralists – we hold on-country meetings to explain activities, sacred site clearances are coordinated and facilitated by the Northern Land Council and we have Aboriginal Areas Protection Authority Certification for our activities¹
- We actively seek to meet with communities outside of our exploration permit areas to discuss our activities, and the invitation remains open
- We genuinely work towards contributing to regional and local economic development, including employment and procurement opportunities for the local indigenous communities

1) In compliance with the NT Aboriginal Sacred Sites Act



Other Australian exploration opportunities



Cooper-Eromanga Basin permit

Cooper-Eromanga Basin

- 75% equity and Origin operatorship, Bridgeport 25%
- Staged farm in – drilling up to 5 exploration wells by 2024. Origin will carry Bridgeport's cost up to \$12 million
- Planning underway for Stage 1a vertical well
- Targeting unconventional liquids and gas

Other Australian Exploration

- Actively considering other onshore Australian growth opportunities

APLNG

- FY2020 production guidance increased to 690 – 710 PJ due to strong field performance
- Targeting to maintain current strong production performance over the next 3-5 years with potential to increase production further by utilising spare upstream capacity
- Total capex + opex¹ per gigajoule not expected to increase materially over the next 3-5 years
- Potential exploration upside

Growth assets

- Beetaloo progressing well, first results expected Q4 FY2020
- Actively looking to replicate, scale and leverage the Integrated Gas model to other Australian onshore exploration opportunities e.g. Cooper-Eromanga Basin

1) Operating cash costs exclude purchases and reflects royalties payable at the breakeven oil price. Royalties payable increases as oil price increases



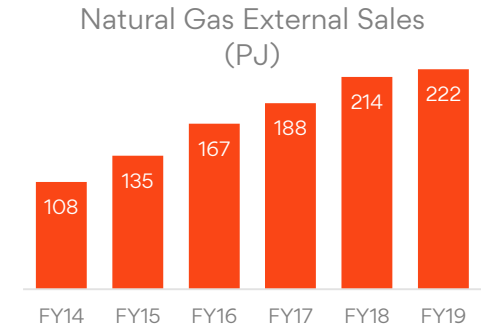
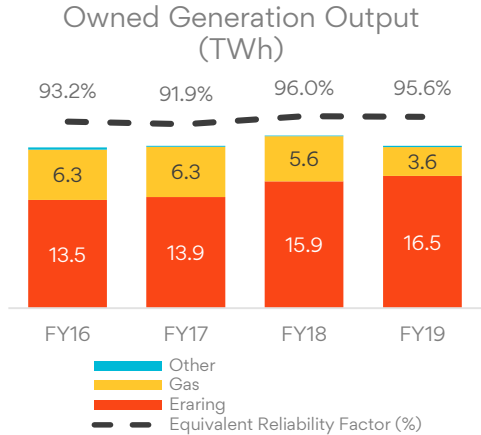
Energy Markets – Supply & Operations

Greg Jarvis
(EGM, Energy Supply &
Operations)

Track record of performance



- Record output at Eraring over the last two years
 - Capable of 880 MW to 2,880 MW in 1-1.5 hours
 - Fuel flexibility with minimal long term take-or-pay coal and enhanced rail unloading capability
- Strong reliability across the fleet
 - Eraring FY2019 full forced outage rate 3% (NSW Black coal - 7%)
 - High start reliability of 98% (4,320 starts in FY2019)
- External gas sales growth of 105% since FY2014
 - Underpinned by competitive gas supply and flexibility in transportation
- Proven wholesale and trading capabilities



Wholesale energy earnings drivers



Key Drivers

Earnings Considerations

Wholesale electricity prices

- 15-20 TWh of relatively fixed cost generation
- Covered for peak demand – fast start generation allows us to generate more in higher price periods and be short in lower price periods allowing us to lower our cost of energy

LREC prices

- Fixed cost PPA position (~5 million certificates p.a.)
- Impact to earnings from falling LGC prices to be partially offset by cheaper PPAs entering the portfolio (e.g. Stockyard Hill)

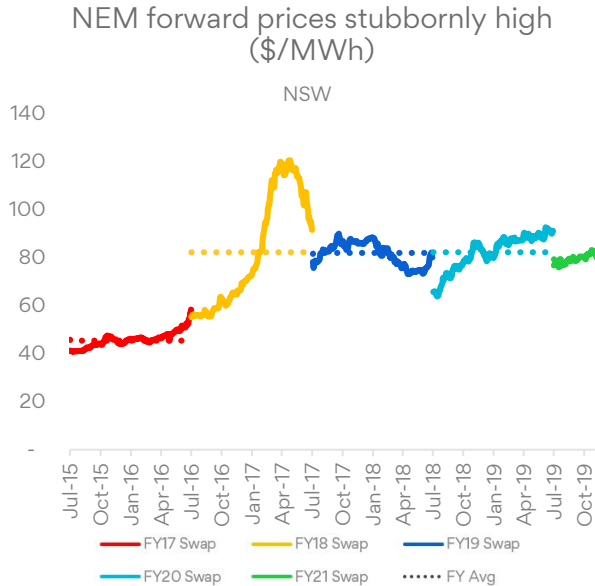
Fuel costs

- Flexible fuel position with ~4 mtpa coal contracted to 2022 out of total ~7mtpa current usage
- Strong gas supply underpinned by transportation flexibility, allowing us to direct gas to the highest value market and optimise seasonality

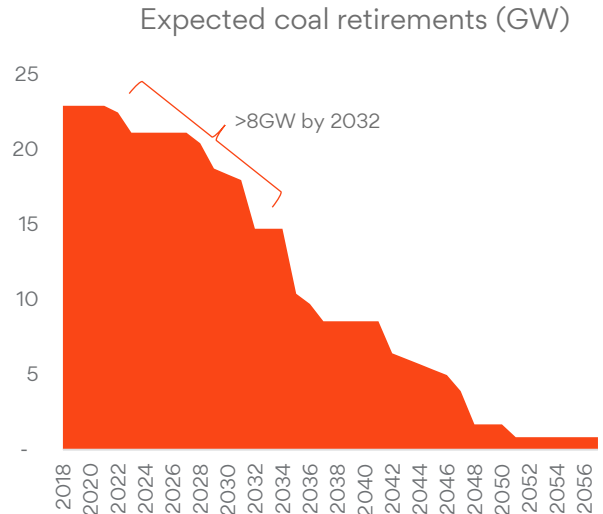
Firming capacity

- Continue to increase portfolio flexibility with low capital outlay
- Minimal replacement capex requirements near term, with a number of brownfield growth opportunities

Ageing NEM coal fleet, high wholesale prices



Source: AEMO/Bloomberg



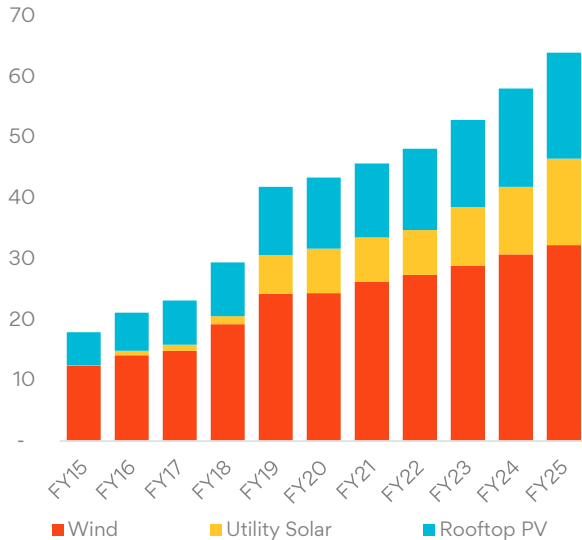
Source: AEMO

- Ageing NEM baseload coal fleet causing increased reliability issues
- Renewables delayed coming onto the grid
- Reliability issues over summer can also result in periods of high volatility

Increasing renewables driving intra-day volatility

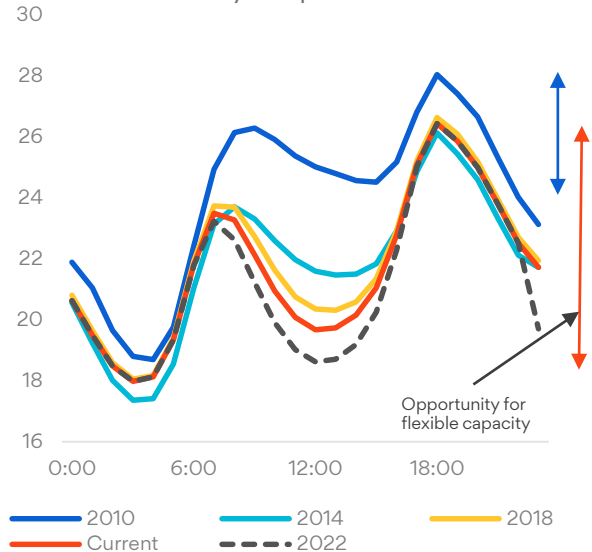


NEM Renewable Generation (TWh)



Source: AEMO, ISP 2018 Forecast

Average NEM demand July- Sep (GWh)



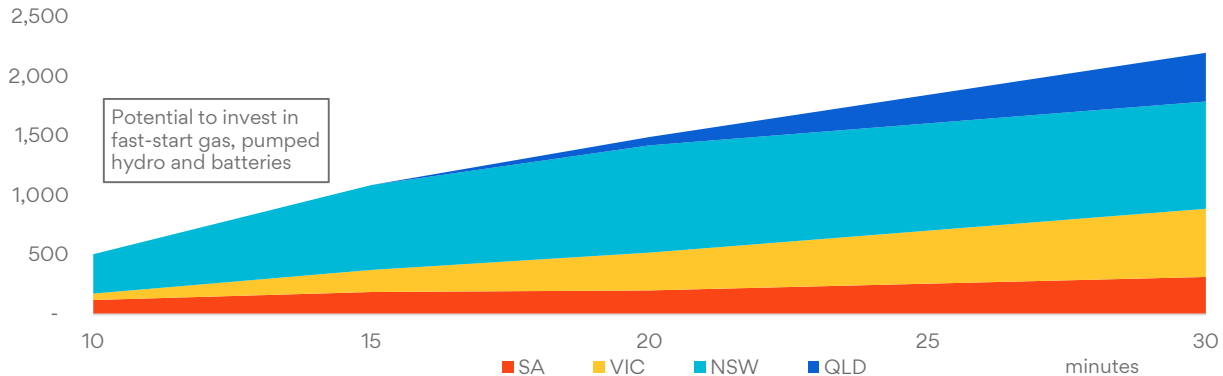
Source: AEMO

- Renewables generation expected to continue to increase, contributing to increasing intra-day volatility

Well positioned in an increasingly volatile market

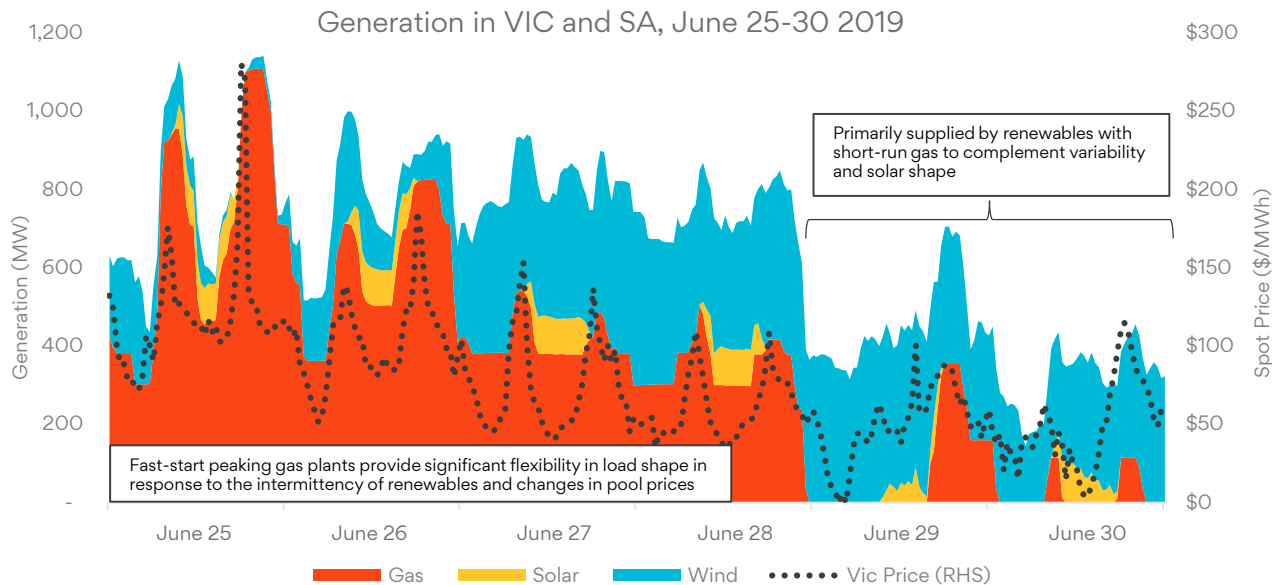


Origin's Fast Start Generation Portfolio (MW)



- Largest non Government owned portfolio of fast start generation (<30 minutes)
- Flexible gas supply portfolio to back gas fired generation
- Eraring is one of the most flexible coal generators in the market, with a low take or pay coal position
- We continue to analyse the results of our two shifting trial and minimum generation levels to optimise Eraring flexibility

Our flexible portfolio in action today

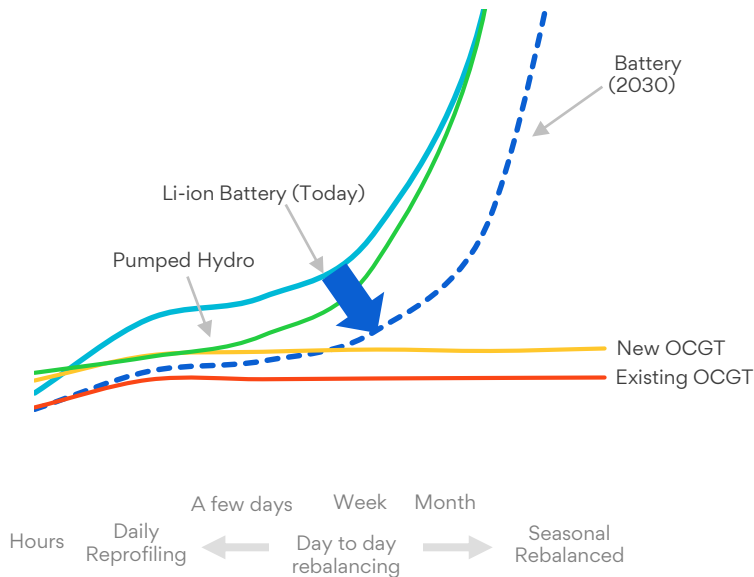


Source: AEMO

- Our gas generation fleet provides flexibility to respond to high prices, and turn off in periods of high renewable generation
- We have sufficient gas fired generation to manage expected renewable growth in the market, with low future capital outlay

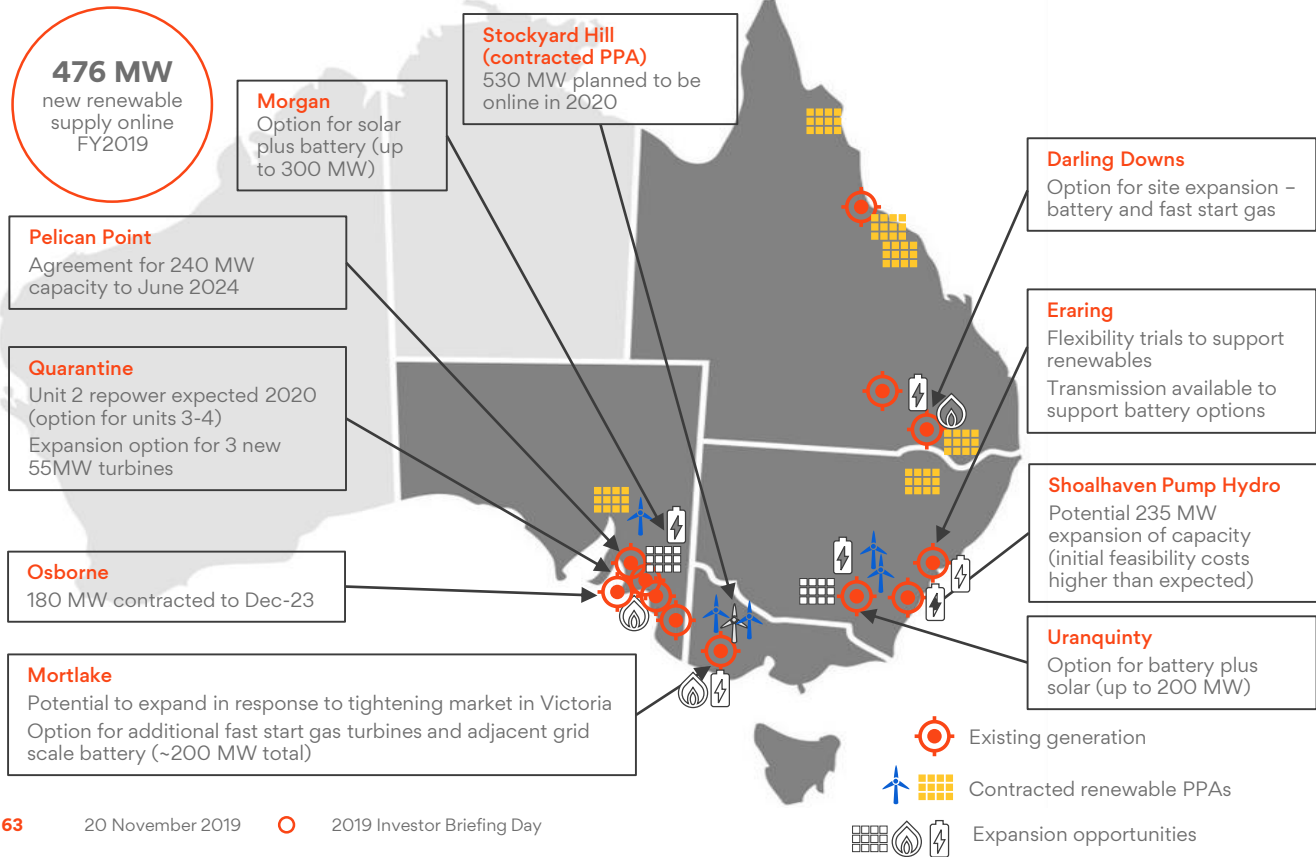
Firming requires a range of technologies

Cost of firmed renewables with different technologies



- OCGT (Gas) and hydro will continue to play an essential role in longer duration firming (particularly for evening and seasonal peaks)
- Batteries expected to be competitive for short duration firming (shallow storage)
 - Effective at shifting energy, increasing predictability of renewables
 - Currently not cost competitive for longer duration storage (beyond a few hours)

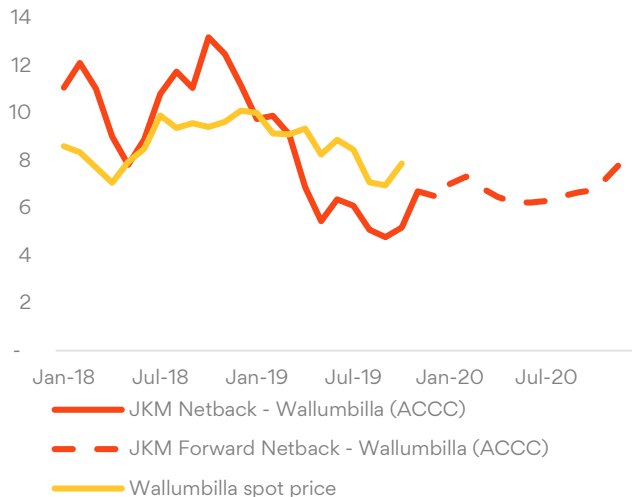
Progressing opportunities in a disciplined way



Competitive gas supply



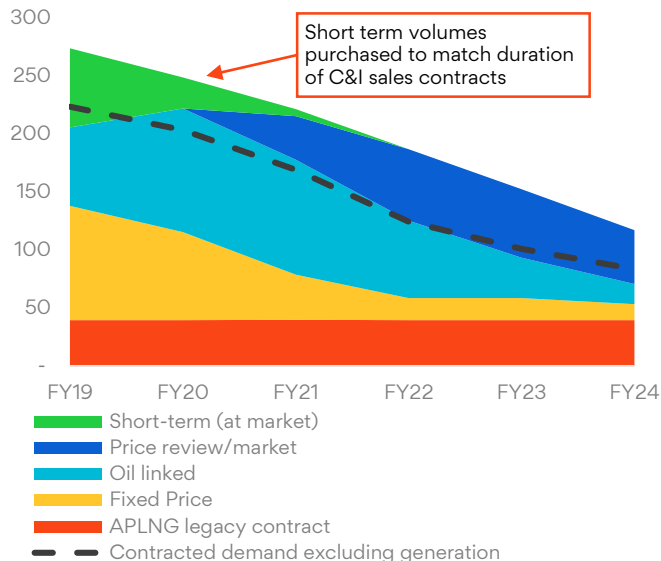
JKM Netback (A\$/GJ)



Source: ACCC, AEMO

- Domestic gas market well supplied in the near term
- Gas prices softening driven by weaker Asia region LNG pricing

Energy Markets East Coast Gas Supply (PJ)



- Portfolio well supplied medium term, with flexibility to provide firming generation
- As the market transitions to more renewable energy, gas supply flexibility becomes more valuable

Mortlake on schedule



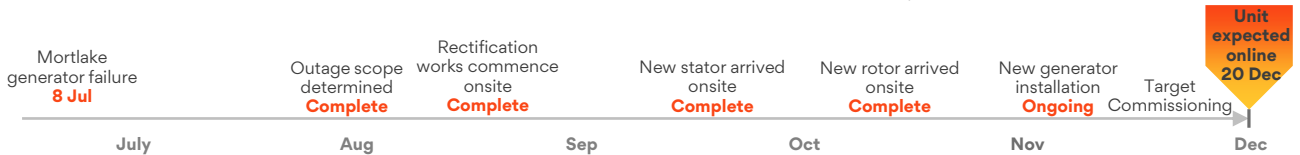
Old rotor being removed at Mortlake



New stator on-site at Mortlake



Replacement rotor unloaded at Avalon airport, and transported to site



- Mortlake unit repair on track, expecting return to service by 20 December 2019





Energy Markets – Retail

Jon Briskin
(EGM, Origin Retail)

On track to deliver our strategy in changing market



- Market dynamics have changed post implementation of VDO/DMO
 - Reduced dispersion in market offers
 - In situ churn reducing
- We continue to manage customer numbers and Customer Lifetime Value, with more emphasis on holding or growing share over time
- We are on track to deliver our strategy:
 - Transform customer experience
 - Target step change in cost position – >\$100 million cost out by FY2021 on track
 - Growth in revenue streams
- We are looking ahead to further improve customer experience and reduce cost beyond current targets
 - Developing plans to execute next wave of business transformation

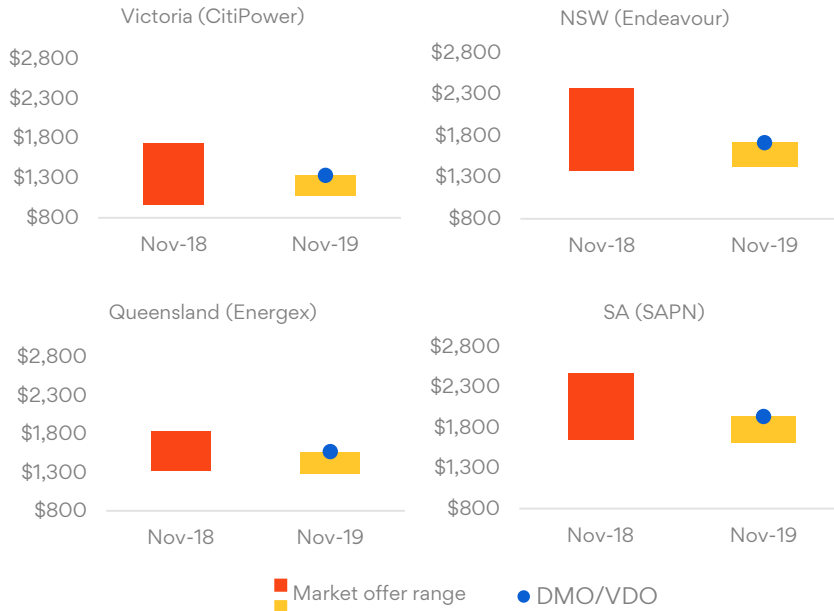


Price dispersion reduced, transparency improved



Market dynamics have changed post implementation of VDO/DMO

Market offers dispersion



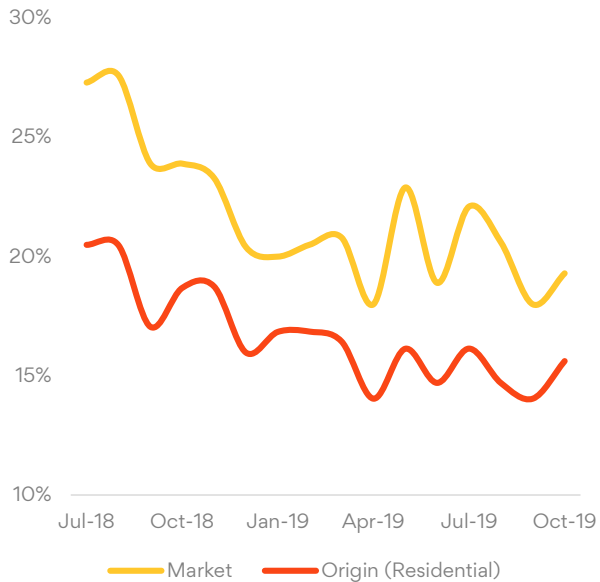
- Discounts quoted off DMO/VDO reference bill going forward
- AER has guided to adjusting the DMO for movements in component parts going forward
- ESC preliminary guidance has minimal changes to VDO methodology

Source: Energy Made Easy/Switchon - based on DMO/VDO reference bills, as at 12 November 2019, and offers quoted prior to announcement of DMO/VDO (Nov-18) including both discounted and standing offer rates

Customer activity reduced

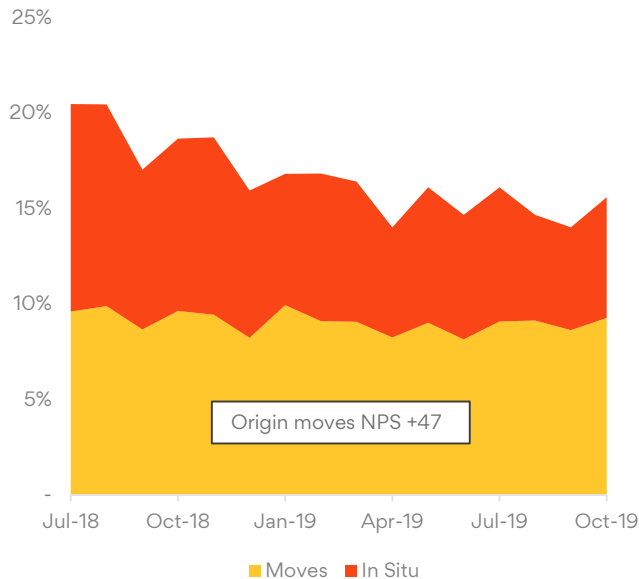


Customer churn (Monthly)



Source: AEMO/AER

In Situ vs moves churn (Monthly)

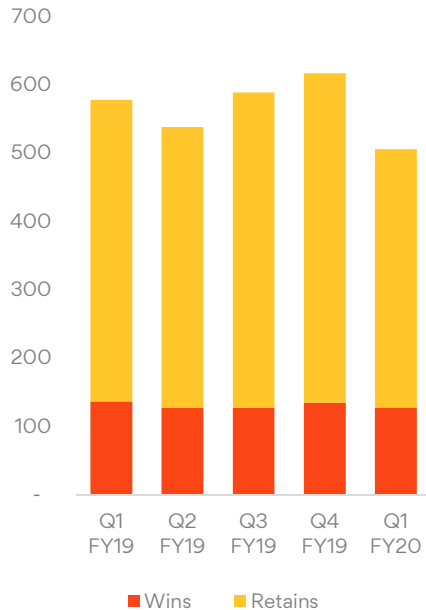


- Reduced in situ churn increases the importance of movers and new connections as acquisition channels

Customer numbers and value remain a key priority



Wins/Retains ('000s)

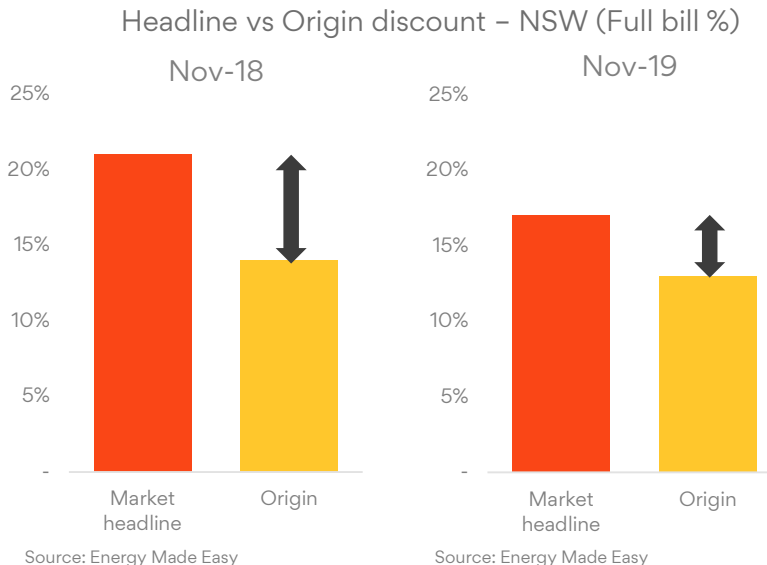
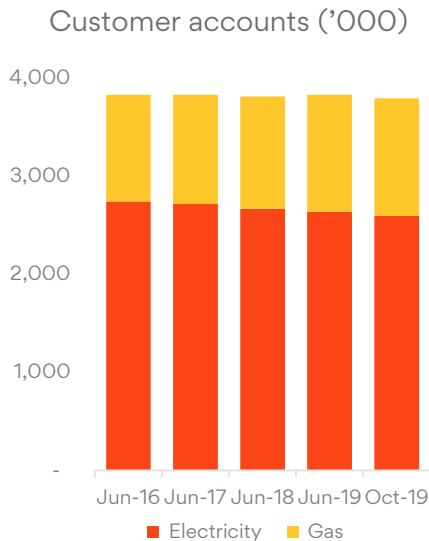


- Despite lower market activity, >2 million customers per annum are still being managed through a retention or win event
- We take a careful commercial approach, considering customer numbers and value
- Leading with a high headline discount to grow customer numbers has a direct impact on renewal costs and Customer Lifetime Value
- Use of lower cost channels also becomes an important driver of how we compete in market
- We optimise Customer Lifetime Value – pricing, products, channels and renewal strategies – and we monitor and respond to strong competition
- Underpinned by strong data and analytics capabilities

Considering share and value



We seek to win share, but are mindful of Customer Lifetime Value



- Customer accounts relatively steady last 4 years – down ~8k FYTD

- Currently, lower acquisition costs provide opportunity to compete effectively and maintain or grow share

Focused on customers, cost and growth



Transform **customer** experience

- Effortless digital experience
- Simpler offers and streamlined customer journeys
- Leading brand awareness and consideration

Target step change in **cost** position

- Simplified organisation driven by a customer and digital first mindset
- >\$100m cost out by FY2021 on track
- Underlying change in culture and capabilities

Grow revenue streams

- Community Energy Services (CES) - Centralised hot water and electricity networks
 - Solar and Storage
 - Broadband and Adjacencies
-



Moving to a simpler, digitised customer experience



good energy **Good Energy brand**

Simpler offers

Digitally-led customer journeys

	Max Saver Manage online and save	Flexi Flexible billing and payments	Basic Set and forget
			Solar Optimiser Higher feed-in-tariff
	Broadband Bundle Bundle and save		

Streamlined customer journeys

Helping customers stay in control

The image shows three smartphone screens from the Good Energy app. The first screen is the 'Move in' app, showing a form to enter a new address. The second screen is the 'Usage' app, displaying a bar chart of energy usage over time. The third screen is the 'Direct Debit' app, showing account details and a 'Change how you pay' button.

Move in App

Usage

Direct Debit

Personalised, effortless digital experiences

Analytics-driven personalised solutions

The image shows three smartphone screens from the Good Energy app. The first screen is the 'Solar' app, showing a 'A solar package right for your roof' recommendation. The second screen is the 'Broadband' app, showing a 'How to choose the right plan' guide. The third screen is the 'Self meter-read' app, showing a 'Please submit a self-meter read online' form.

Solar

Broadband

Self meter-read

- Fewer products and price points
- Easy to compare plans
- Bundle benefits
- Digital activation and onboarding

- Simpler Moves and Renewals
- Usage insights
- Alerts and notifications
- New Connections portal

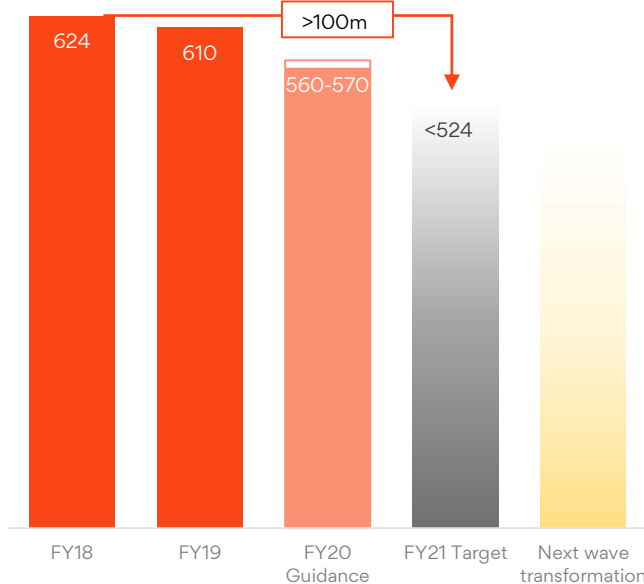
- >1.1m mobile App logins
- Digital service interactions up from 72% to 87% year on year
- Livechat volumes up 122% period on period¹ (NPS +40)
- Targeted campaigns driving digital awareness and adoption

1) 7 mths to Oct following April 2018 commencement

>\$100m cost out on track



Cost to serve (\$m)



Digitisation, automation and simplified organisation

12 months to Oct 19

Retail headcount ¹	↓ 21%
Service call volumes	↓ 16%
eBilling accounts	↑ 10% to 64%
Direct debit accounts	↑ 7% to 32%

1) Onshore

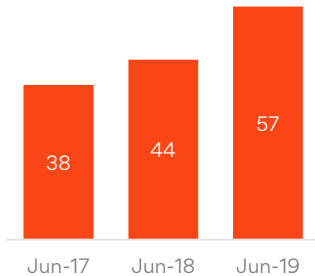
- Simpler products and customer journeys
- Targeted marketing and optimised channels
- Digitised customer interactions
- Automated processes
- Outsourced simple transactional activity
- Leaner support structure

Grow revenue streams



Community Energy Services

CES Gross Profit (\$m)

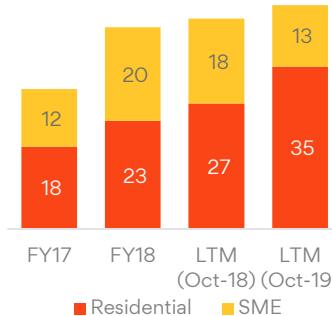


- CES allows customers to access bulk discounted prices, and benefit from the aggregated load profile
- Acquired OC Energy, adding 55,000 embedded network customers



Solar and Storage

Solar installs (MW)

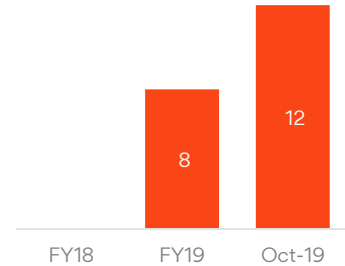


- Strong growth in retail solar
- Solar + storage enables opportunity to engage beyond the meter
- Residential sales ↑ 30% (12 months to Oct-19 vs Oct-18)



Broadband and Adjacencies

Broadband Customers ('000)



- Provides opportunities to bundle and build customer loyalty, lowering churn
- Moves an increasing component, providing opportunities to grow adjacent services



Next wave of transformation



- Built capability to transform customer experience and cost
 - A customer-centric culture
 - Simplified ways of working
 - A leading digital platform with automated processes
 - Growing sophistication of data and analytics
- This capability allows us to move to the next wave of transformation
- Lower activity provides an opportunity to further lower costs
- We are looking ahead to further improve customer experience and reduce costs beyond current targets
- Early stages – we will update the market as plans and targets become clear





Future Energy

Anthony Lucas
(EGM, Future
Energy & Business
Development)

Energy and Data are converging



We are experts at Energy, and now we have to be experts at Data

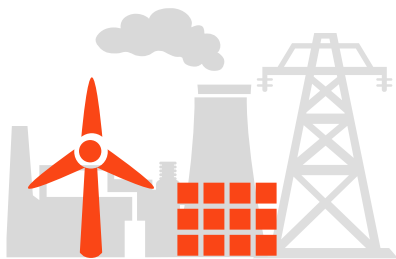
- Every time someone consumes an electron, data is generated
- Distributed assets are democratising energy and climate change challenges the traditional supply model
- Our customers expect more insights and innovation to make their lives easier
- IoT devices and big data analytics can be used to deliver these solutions for our customers



Decentralisation & digitisation changing the energy landscape



THE GRID IS CHANGING



Centralised grid with increasing renewables

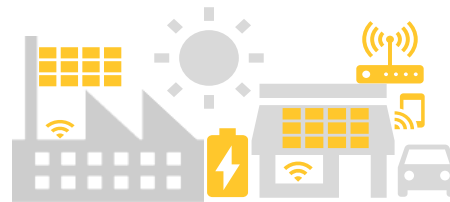
Historically ...

- Few large & reliable generation assets
- Aggregated analogue data

Moving to ...

- Increased intermittency from renewables
- Variable generation
- Increasing digitisation and data points

THE CUSTOMER IS CHANGING



Decentralised energy assets and IoT devices

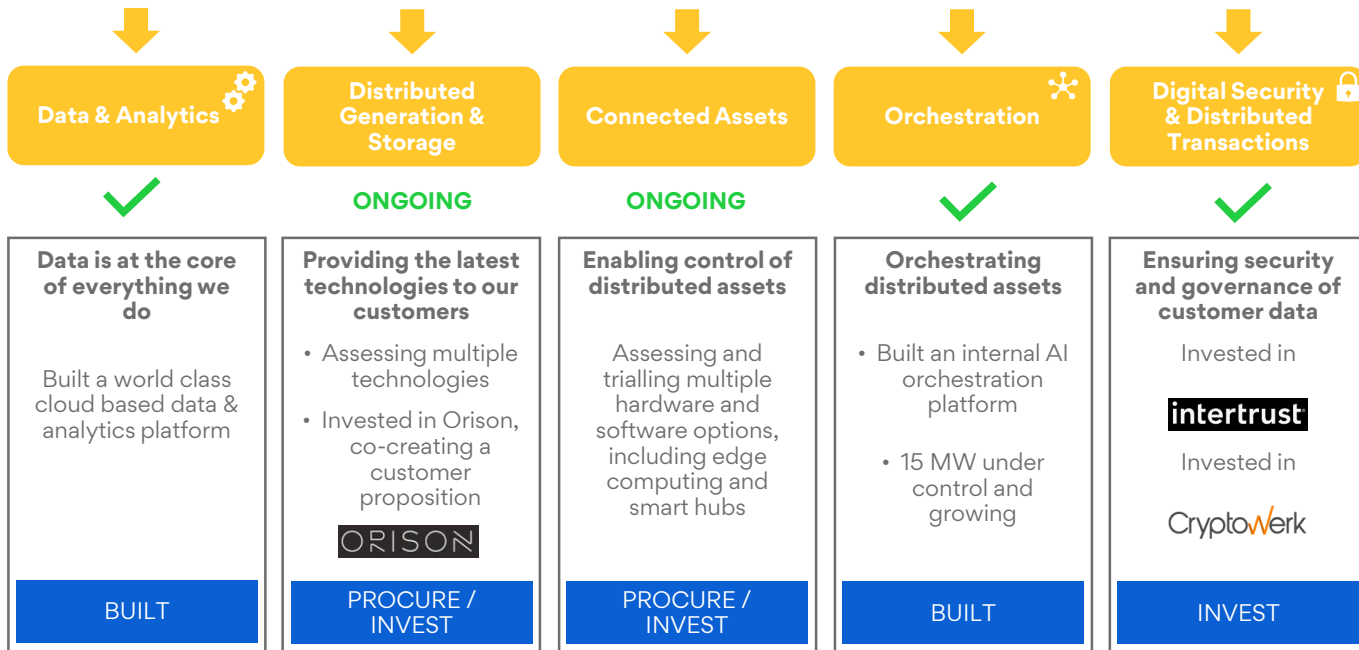
- Many distributed assets & IoT devices
- Disaggregated data
- Control at appliance / device level
- Variable demand / supply
- Two-way power flows
- Greater customer value from connecting and sharing distributed assets

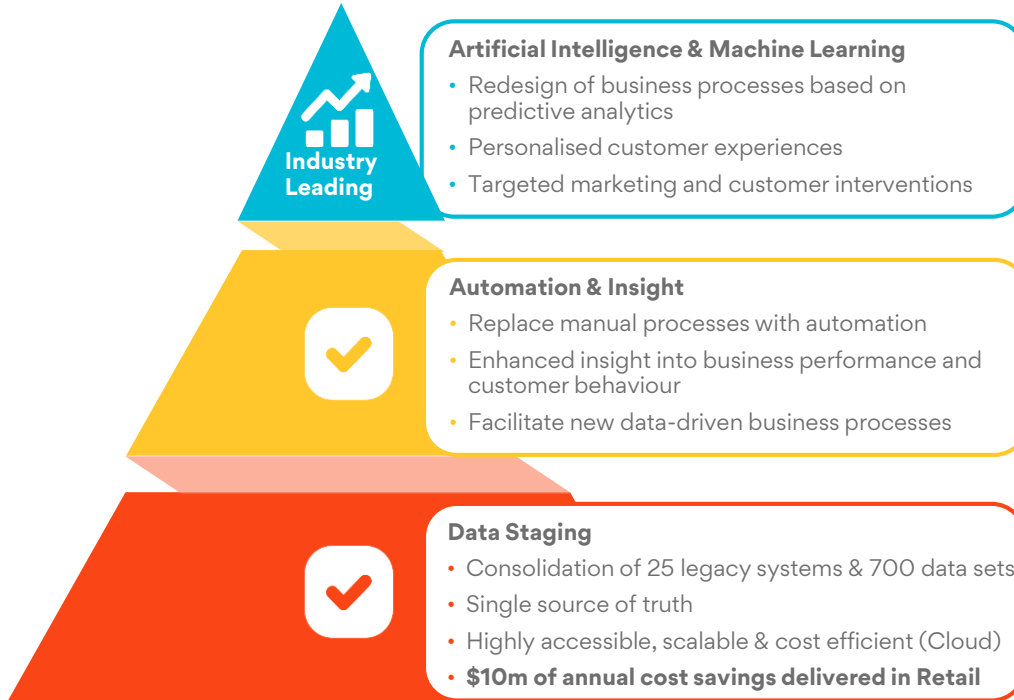
Origin's core skill of managing the demand / supply balance is a key strength

Building blocks for the future



Evaluated > 2,000 companies, deciding on where to procure, partner, invest or build capability





“...of 10,000 global customers we consider Origin to be in the top 10% for maturity & capability”

“...level of engagement with the AWS product team, Origin would be in the top 1%”



Maor Kleider
Principal Product Manager, Amazon Web Services



Data & Analytics capability is a business enabler



RETAIL AND BUSINESS ENERGY

Business simplification and leading customer experience

DIGITAL IoT RETAIL & WHOLESALE CAPABILITY



Data & Analytics

Churn propensity

Renewal propensity

Demand forecasting

Move propensity

Call optimisation

Solar propensity

CLV modelling

Dual fuel cross sell

Next best action

Personalised customer experiences

Network tariff optimisation

AI orchestration platform

Data Collection & Staging

IoT device trials

Personalised customer experiences





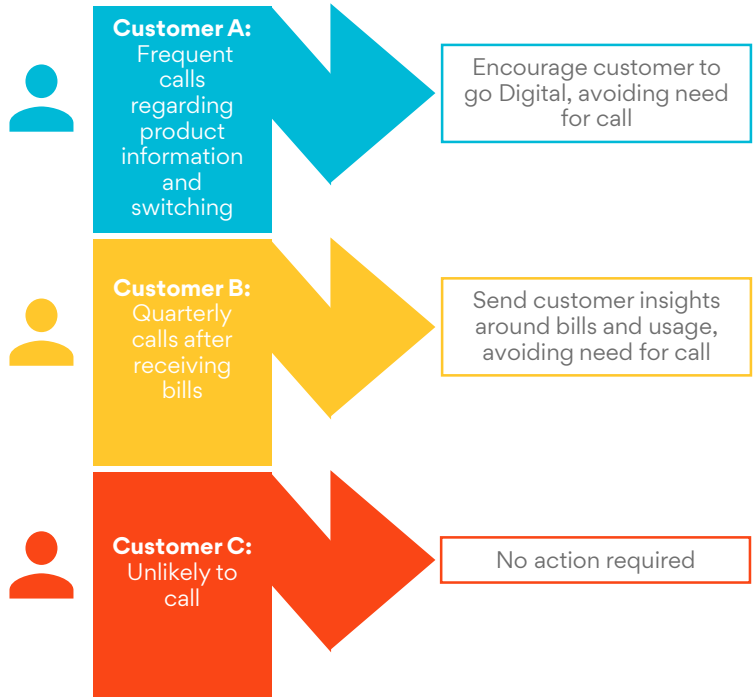
Case Study: Call Optimisation



AI used to predict likelihood of a customer calling, and the reason for their call

We found that:

- **80% of customers either don't call or call only once**
- **8% of customers drive ~45% of call costs and call more than 4 times a year**

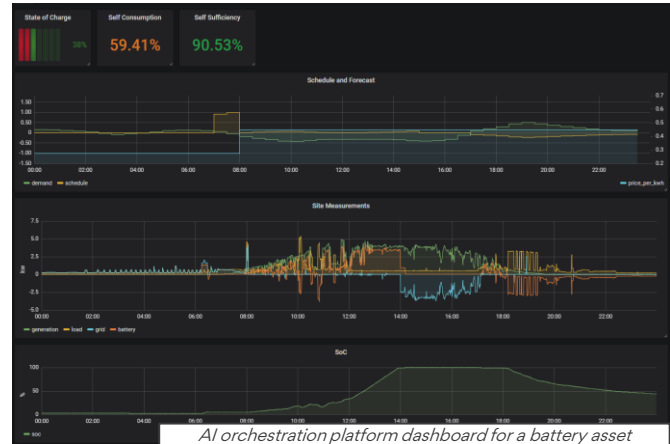


AI improves the customer experience and reduces costs





- Combines use of machine learning and algorithms to optimise across the grid for a number of variables, including
 - supply/demand balance
 - wholesale price
 - customer tariffs
- Platform live and orchestrating 15 MW of distributed assets
 - Load flexing of industrial chillers
 - Large scale commercial batteries with cogeneration plant
 - Power station cooling water pumps
 - Residential AC control
- Capable of computing millions of optimal schedules every 5 minutes



Pipeline of MW from:

- C&I customers' assets
- Energy assets and IoT devices in the home (batteries, EV chargers, hot water, AC controllers, etc)
- Hot water trials



intertrust®

- Management and security of data critical in distributed and digitised energy world
- Global pioneer in Digital Rights Management technology, data security and privacy, distributed data governance and trusted transactions
- Major co-investors include Innogy/E.ON, Sony, Philips, WiL
- US\$20 million equity investment with a 5 year Joint Technology Development Partnership to co-develop data-driven products

Cryptowerk

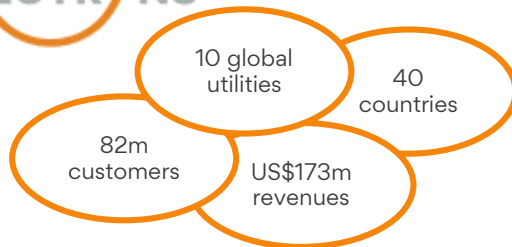
- Blockchain technology can provide a cyber-resilient solution for data verification
- Traditional blockchain has limited transactional throughput and is very costly
- Cryptowerk technology enables high transaction throughputs at low cost by cryptographically bundling individual transactions
- SAP certified and PwC technical audit
- US\$1.5m investment

Deeply imbedded in the global innovation ecosystem

Co-founder of **Free Electrons**, a global open innovation program

- Over 1,500 applications
- 42 clean tech energy start-up graduates
- Now taking applications for the 4th cohort

**FREE
ELECTRONS**



www.freeelectrons.org

Principal sponsor of **EnergyLab**, Australia's largest cleantech start-up accelerator



Presence in **Silicon Valley**, the global epicentre of digital innovation.
Investment in **The Westly Group** fund.





Wrap up

Frank Calabria

FY2020 Guidance update



Provided on the basis that market conditions do not materially change and the regulatory and political environment does not result in further adverse impacts on operations

		FY2019	FY2020 previous guidance	FY2020 updated guidance
Energy Markets				
Underlying EBITDA	A\$m	1,574	1,350 - 1,450	1,400 - 1,500
Integrated Gas – APLNG 100%				
Total production	PJ	679	680 - 700	690-710
Capex + opex, excl. purchases ¹	A\$m	2,691	2,800 - 3,000	2,800 - 3,000
Distribution breakeven	US\$/boe	36	33 - 36	31 - 34 ²
Corporate				
Underlying costs	A\$m	(234) ³	(70 - 80)	(60 - 70)
Capex (incl. investments)	A\$m	(405)	(530 - 580)	(530 - 580)

Guidance update due to adoption of lease standard

- EBITDA changes due to adoption of leasing standard offset within D&A and financing costs (no change to underlying profit)

1) Operating cash costs excludes purchases and reflects royalties at the breakeven oil price. Royalties payable increases as oil price increases
 2) FX Rate: 0.70 AUD/USD, excludes Ironbark acquisition costs
 3) Includes \$170 million relating to a non-cash provision increase in legacy site remediation

- Two strong and diversified cash generating businesses
 - APLNG increasing production, capex + opex¹ per gigajoule not expected to increase materially over the next 3-5 years
 - Wholesale portfolio well suited for renewables + firming
 - Retail cost out on track
- Capabilities to enhance value going forward
 - Replicating the low cost upstream model to develop new resources
 - Transforming our Retail business, with opportunity to further improve customer experience and reduce costs beyond the current target
 - Building a digital IoT retail and wholesale capability
- Disciplined approach to capital management with potential for dividends at high end of 30-50% free cash flow

1) Operating cash costs exclude purchases and reflects royalties payable at the breakeven oil price. Royalties payable increases as oil price increases

Questions

Lunch



Appendix



Moderate medium term capex at ~\$400 million, excluding E&A

	Estimated medium term spend p.a.	FY2020 Project examples
Generation Sustain	~\$150m	<ul style="list-style-type: none">• Major inspections at Uranquinty and Earing• Mortlake repairs
Other Sustain	~\$125m	<ul style="list-style-type: none">• ERP upgrade over FY20-21• LPG
Productivity/ Growth	~\$125m	<ul style="list-style-type: none">• Solar & Energy Services• Digitisation• QPS repower (unit 2)
E&A		<ul style="list-style-type: none">• Beetaloo – stages 2 and 3¹• Cooper-Eromanga Basin

E&A spend is subject to project maturation

1) Subject to Northern Territory approvals

Regulatory summary



Major regulatory themes and activities during 2019

Government investment in energy	Feb 19: Snowy 2.0 approved (\$1.4b funding)	Mar 19: Underwriting New Generation Investment (UNGI) program	Underwriting Transmission work pre approval	\$1bn to CEFC to invest in new energy
Intrusive regulation of pricing & conduct	Jul 19: Default Market Offer (DMO) and Victorian Default Offer (VDO) came into effect	Aug 19: Review of gas reservation , the ADGSM and gas transparency measures	Aug 19: Consumer Data Right legislated	Nov 19: Federal government ' Big Stick ' legislation passed
Shift to central planning	AEMO Integrated System Plan (ISP) being 'actioned' through 2019	Aug 19: Task force formed to consider options for Liddell closure	Sep 19: Expansion of Reliability and Emergency Reserve Trader (RERT) panel	
Climate change policy uncertainty	May 19: Coalition election win without policy to meet Australia's Paris commitment	Jun 19: Independent expert report on pathways for Victoria to achieve net zero emissions by 2050	Oct 19: Coalition appoints expert panel to examine opportunities for further emissions abatement	
Changes in market design	ESB NEM 2025 review ongoing	AEMC proposes Coordination of Generation & Transmission Investment scheme (COGATI) scheme	Jul 19: Retailer Reliability Obligation (RRO) scheme commenced	Jul 19: Draft Determination proposes Wholesale Demand Response Mechanism

FY2020 oil hedging (US\$/bbl)



FY2020 oil hedging

- \$28 million¹ hedge premium
- Gain of \$11 million based on forward market prices as at 20 November 2019
 - 11.6 mmbbl hedged at US\$48/bbl floor
 - 2.5 mmbbl capped at US\$85/bbl
 - 3 mmbbl fixed via a swap at A\$97/bbl
 - Estimated Origin JCC exposure ~22mmbbl

FY2021 oil hedging

- 2.1 mmbbl fixed via swaps
 - 1.7 mmbbl at A\$85/bbl
 - 0.4 mmbbl at US\$57/bbl

1) FX Rate: 0.70 AUD/USD

APLNG is underpinned by:

**Strong reserves^{1,3}
Quality assets**

3P: 12,820 PJ



Leading operators



Upstream Operator

ConocoPhillips

Downstream Operator

Aligned shareholders



37.5%

ConocoPhillips

37.5%



(SIPC)²

25%

**Strong offtake contracts
with creditworthy
customers**



A3/Stable (Moody's)

~1 mtpa
contracted
until 2035



A+/Stable (S&P), A1/Stable (Moody's)

~7.6 mtpa
contracted
until 2035

- 1) Refer to the Important Notices section for more information on reserves and resources. Refer to SPE PRMS 2018 for classification and categorisation guidelines for reserves and contingent resource estimates. Reserves balance as at 30 June 2019.
- 2) SIPC, being Sinopec International Petroleum Exploration and Production Corporation ("SIPC"), is owned 30% by Sinopec Group, 30% by China Reform Holdings Corporation ("CRHC") and 40% by China Chengtong Holdings Group ("CCHG"). CRHC and CCHG are Chinese central government-owned investment companies, to whom Sinopec Group transferred 70% of its ownership in SIPC in 2016 (40% to CCHG and 30% to CRHC).
- 3) Some of APLNG's CSG reserves and resources are subject to reversionary rights and ongoing interest in favour of Tri-Star. Refer to section 7 of the Operating and Financial Review released to ASX on 22 August 2019 for further information.

APLNG sales mix and domestic legacy contracts



Legacy domestic contracts:

- ~40 PJ p.a. to Origin ending 2034
- 472 PJ over 21 years to Rio Tinto ending 2031
- ~16 PJ p.a. to QAL ending 2041
- 25 PJ p.a. to AGL ending 2020
- ~25 PJ p.a to QGC ending 2035, oil linked

Contract LNG:

- Flexibility for both the buyer and the seller
 - Sellers maintenance flexibility
 - Buyers Downward Quantity Tolerance option

Sales mix (100%)	FY2019		FY2018	
	PJ	%	PJ	%
Contract LNG	464	69%	433	64%
Legacy domestic contracts	127	19%	127	19%
Short term domestic	68	10%	78	11%
Spot LNG	17	2%	42	6%
Total	676		680	



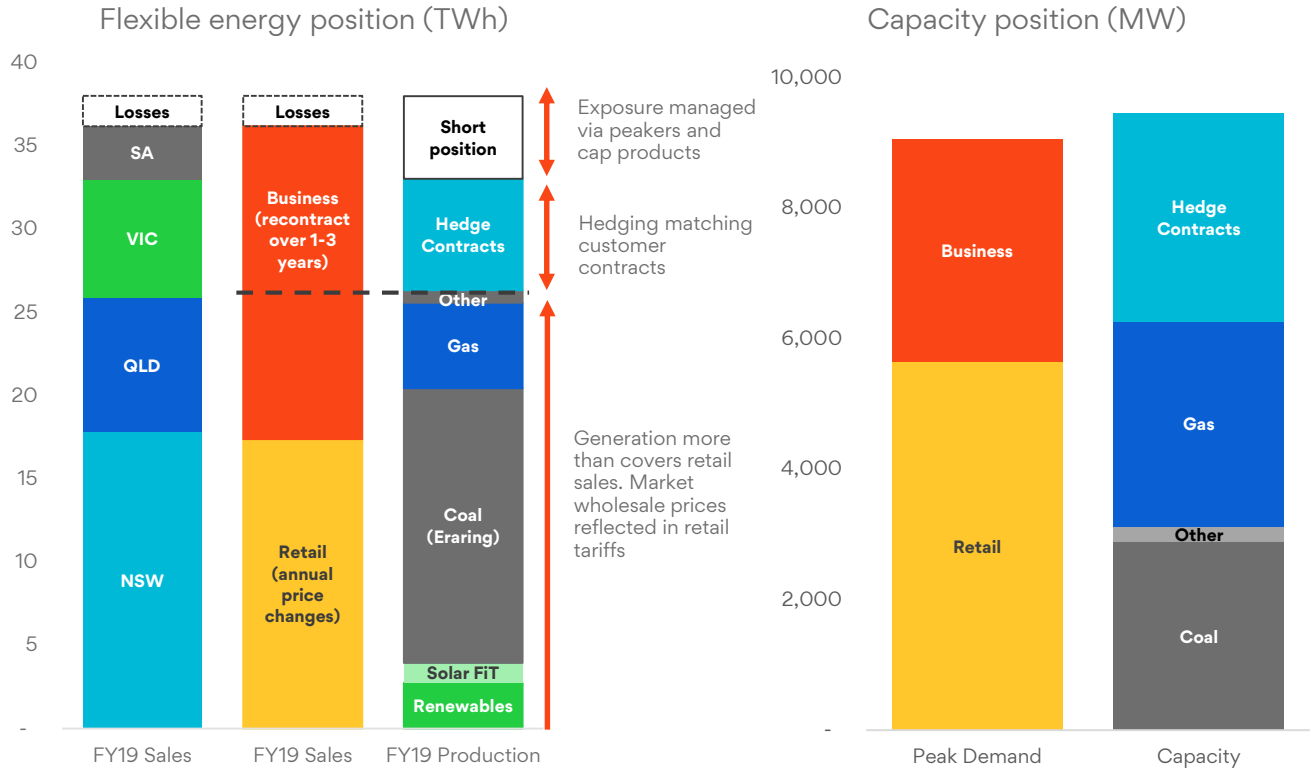
Australian energy market context



	Retail market	Wholesale market
	<ul style="list-style-type: none">• Retail profitability on marginal supply is modest<ul style="list-style-type: none">– Competitive market– Default tariffs act as price cap & reference bill	<ul style="list-style-type: none">• Margins reflect long term investments and risks<ul style="list-style-type: none">– Investment in generation– Long term supply and transportation contracts
Value drivers	<ul style="list-style-type: none">• Attracting customers through superior experience and solutions• Low operating costs• Growing revenue streams in front of and behind the meter	<ul style="list-style-type: none">• Ability to use physical assets to deliver low cost solutions• Movement in wholesale prices relative to portfolio cost of energy• Volatility and ability to respond to market signals



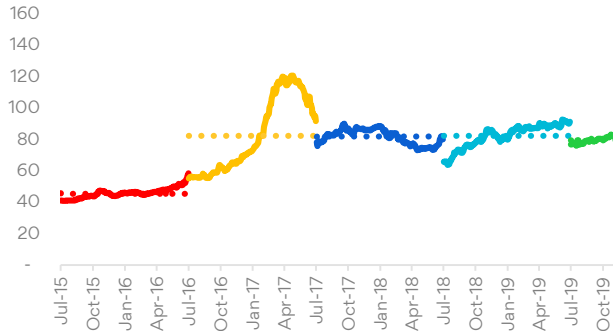
Flexibility: short energy, covered for peak



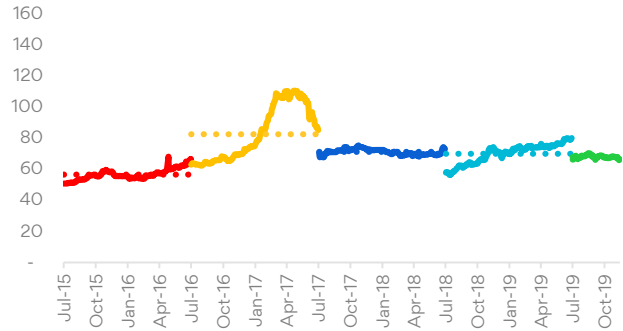
Electricity forward price by state (A\$/MWh)



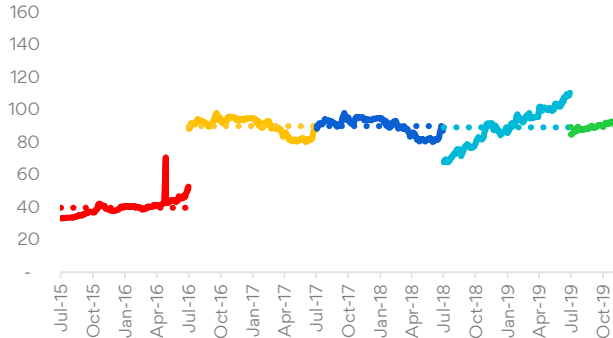
NSW forward baseload energy prices



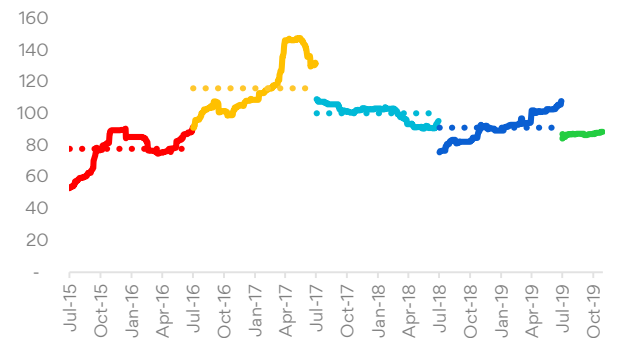
QLD forward baseload energy prices



Vic forward baseload energy prices



SA forward baseload energy prices



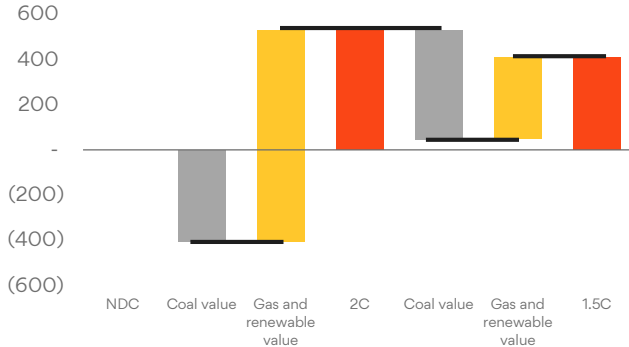
Source: AEMO/Bloomberg



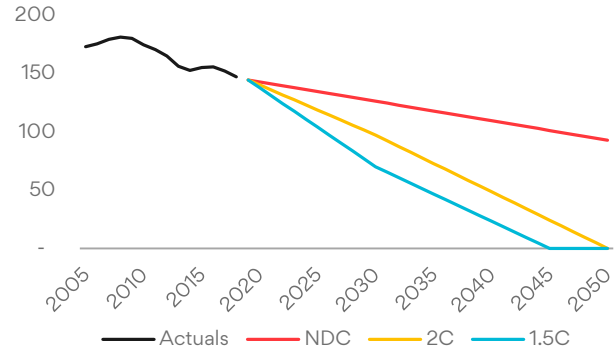
Resilience to a low carbon future



Climate Change Scenarios
Change in NPV (\$m)



NEM Emission Scenarios (NtCO₂-e)



- Portfolio resilience as the market transitions to a low carbon future
 - Value higher under 1.5°C scenario than Nationally Determined Contribution (NDC) case driven by gas and contracted renewables
 - Value of Eraring declines, however remains positive due to its role near term in providing affordable and reliable supply

Source: Resilience of Origin's generation portfolio to a low-carbon economy. Released to the ASX on 16 October 2019

Financial Term	Meaning
Adjusted Net Debt	Net Debt adjusted to remove fair value adjustments on hedged borrowings.
Adjusted Underlying EBITDA	Underlying EBITDA – Share of APLNG Underlying EBITDA + net cash from APLNG
CAGR	Compound Annual Growth Rate.
Free Cash Flow	Net cash from operating and investing activities (excluding major growth projects), less interest paid.
Proportionate Free Cash Flow	Origin’s Free Cash Flow plus share of APLNG Free Cash Flow, excluding transactions between Origin and APLNG shareholders.
Underlying EBITDA	Underlying earnings before underlying interest, underlying tax, underlying depreciation and amortisation (EBITDA) as disclosed in note A1 of the Origin Consolidated Financial Statements for the year ended 30 June 2019.
Underlying ROCE	Underlying ROCE (Return on Capital Employed) is calculated as Adjusted EBIT / Average Capital Employed. Average Capital Employed = Shareholders Equity + Origin Debt + Origin’s Share of APLNG project finance - Non-cash fair value uplift + net derivative liabilities. The average is a simple average of opening and closing in any year. Adjusted EBIT = Origin Underlying EBIT and Origin’s share of APLNG Underlying EBIT + Dilution Adjustment = Statutory Origin EBIT adjusted to remove the following items: a) Items excluded from underlying earnings; b) Origin’s share of APLNG underlying interest and tax; and c) the depreciation of the Non-cash fair value uplift adjustment. In contrast, for remuneration purposes Origin’s statutory EBIT is adjusted to remove Origin’s share of APLNG statutory interest and tax (which is included in Origin’s reported EBIT) and certain items excluded from underlying earnings. Gains and losses on disposals and impairments will only be excluded subject to Board discretion.
VWAP	Volume Weighted Average Price
Non-financial Term	Meaning
1P	Proved Reserves are those reserves which analysis of geological and engineering data can be estimated with reasonable certainty to be commercially recoverable. There should be at least a 90 per cent probability that the quantities actually recovered will equal or exceed the estimate.
2P	The sum of Proved plus Probable Reserves. Probable Reserves are those additional reserves which analysis of geological and engineering data indicate are less likely to be recovered than Proved Reserves but more certain than Possible Reserves. There should be at least a 50 per cent possibility that the quantities actually recovered will equal or exceed the best estimate of Proved plus Probable Reserves (2P).
3P	Proved plus Probable plus Possible Reserves. Possible Reserves are those additional Reserves which analysis of geological and engineering data suggest are less likely to be recoverable than Probable Reserves. The total quantities ultimately recovered from the project have at least a 10 per cent probability of exceeding the sum of Proved plus Probable plus Possible (3P), which is equivalent to the high estimate scenario.
2C	The best estimate quantity of petroleum estimated to be potentially recoverable from known accumulations by application of development oil and gas projects, but which are not currently considered to be commercially recoverable due to one or more contingencies. The total quantities ultimately recovered from the project have at least a 50 per cent probability to equal or exceed the best estimate for 2C contingent resources.

Non-financial Term	Meaning
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
AI	Artificial Intelligence
APLNG	A reference to Australia Pacific LNG or APLNG is a reference to Australia Pacific LNG Pty Limited (and its related entities), an incorporated Joint Venture between Origin, ConocoPhillips and Sinopec in which Origin holds a 37.5% shareholding. Origin's shareholding in Australia Pacific LNG is equity accounted
Bbl	Barrel – An international measure of oil production. 1 barrel = 159 litres
Boe	Barrel of oil equivalent
CES	Community Energy Services
CSG	Coal seam gas
DMO	Default Market Offer
E&A	Exploration and appraisal
FID	Final Investment Decision
GJ	Gigajoule = 10^9 joules
GPF	Gas Processing Facility
GW	Gigawatt = 10^9 watts
GWh	Gigawatt hour = 10^3 megawatt hours
JCC	Japan Customs-cleared Crude
LNG	Liquefied Natural Gas
LPG	Liquified Petroleum Gas
LREC	Large scale Renewable Energy Certificate
mmbbl	Million barrels
mmbtu	Metric million British thermal units
mtpa	Million tonnes per annum
MW	Megawatt = 10^6 watts
MWh	Megawatt hour = 10^3 kilowatt hours
NEM	National Electricity Market
NPV	Net Present Value
OCGT	Open cycle gas turbine
P2	2P reserves less 1P reserves
P3	3P reserves less 2P reserves
PJ	Petajoule = 10^{15} joules
PPA	Power Purchase Agreement
PRMS	Petroleum Reserves Management System
QPS	Quarantine Power Station
SPE	Society of Petroleum Engineers
SRMC	Short run marginal cost
TJ/d	Terajoules per day (Terajoule = 10^{12} Joules)
TRIFR	Total Recordable Incident Frequency Rate
TWh	Terawatt hour = 10^9 kilowatt hours
Watt	A measure of power when a one ampere of current flows under one volt of pressure.

Important Notice



Forward looking statements

This presentation contains forward looking statements, including statements of current intention, statements of opinion and predictions as to possible future events. Such statements are not statements of fact and there can be no certainty of outcome in relation to the matters to which the statements relate. These forward looking statements involve known and unknown risks, uncertainties, assumptions and other important factors that could cause the actual outcomes to be materially different from the events or results expressed or implied by such statements. Those risks, uncertainties, assumptions and other important factors are not all within the control of Origin and cannot be predicted by Origin and include changes in circumstances or events that may cause objectives to change as well as risks, circumstances and events specific to the industry, countries and markets in which Origin and its related bodies corporate, joint ventures and associated undertakings operate. They also include general economic conditions, exchange rates, interest rates, regulatory environments, competitive pressures, selling price, market demand and conditions in the financial markets which may cause objectives to change or may cause outcomes not to be realised.

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No offer of securities

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Reserves

Disclosures of Origin and APLNG's reserves and resources are as at 30 June 2019. These reserves and resources were announced on 22 August 2019 in Origin's Annual Reserves Report for the year ended 30 June 2019. Petroleum reserves and contingent resources are typically prepared by deterministic methods with support from probabilistic methods. Petroleum reserves and contingent resources are aggregated by arithmetic summation by category and as a result, proved reserves (1P reserves) may be a conservative estimate due to the portfolio effects of the arithmetic summation. Proved plus probable plus possible (3P reserves) may be an optimistic estimate due to the same aforementioned reasons.

Some of APLNG's reserves and resources are subject to reversionary rights and an ongoing royalty interest in favour of Tri-Star. Refer to Section 7 of the Operating and Financial Review released on 22 August 2019 for further information.

Figures

All figures in this presentation relate to businesses of the Origin Energy Group (Origin, or the Company), being Origin Energy Limited and its controlled entities, for the reporting period ended 30 June 2019 (the period) compared with the reporting period ended 30 June 2018 (the prior corresponding period), except where otherwise stated.

A reference to \$ is a reference to Australian dollars unless specifically marked otherwise.

All references to debt are a reference to interest bearing debt only. Individual items and totals are rounded to the nearest appropriate number or decimal. Some totals may not add down the page due to rounding of individual components.

For more information

Peter Rice

General Manager, Capital Markets

Email: peter.rice@originenergy.com.au

Office: +61 2 8345 5308

Mobile: + 61 417 230 306

Liam Barry

Group Manager, Investor Relations

Email: liam.barry@originenergy.com.au

Office: +61 2 9375 5991

Mobile: + 61 401 710 367

www.originenergy.com.au

