

9 November 2017

## Santos 2017 Investor Day

Santos today outlined how its new strategy had transformed the company into a business that generates significant free cash flow in the current oil price environment.

Speaking at the company's Investor Day in Sydney, Santos Managing Director and Chief Executive Officer Kevin Gallagher said the excellent progress on the **Transform-Build-Grow** strategy presented to the market in 2016 had exceeded his expectations.

Mr Gallagher said since the beginning of 2016, the **Transform** phase of our strategy has already delivered:

- Forecast free cash flow breakeven<sup>(1)</sup> for 2017 now sits at US\$32/bbl, down from US\$47/bbl.
- A 22% reduction in upstream unit production costs.
- A 42% and 72% reduction in Cooper Basin and GLNG average well costs, respectively.
- A 40% reduction in net debt to US\$2.8 billion.

"We have simplified the business to focus on five core, long-life natural gas assets: Cooper Basin, Queensland (including GLNG), PNG, Northern Australia and Western Australia Gas. This core portfolio is positioned to provide stable base production for the next decade and positive free cash flow in an oil price range of US\$35-40/bbl, pre-major growth opportunities.

"We have removed substantial cost, arrested the production decline in the Cooper, GLNG is rampingup and PNG LNG is operating at record rates.

"We have embedded a disciplined operating model and established clear guidelines for portfolio management and priorities for uses of cash," Mr Gallagher said.

Addressing the **Build** and **Grow** phases of the strategy, Mr Gallagher also announced today:

- Santos has farmed-in for a 20% interest in five exploration licences<sup>(2)</sup> in Papua New Guinea between Hides and P'nyang, further strengthening partner alignment along this prospective trend.
- Successful appraisal drilling confirms the multi-tcf Barossa field as the lead candidate for backfill of Darwin LNG.
- Santos has executed agreements with APLNG for the evacuation of Santos' share of Combabula gas in Eastern Queensland, thereby freeing-up more Cooper Basin gas for the southern domestic market.
- A further reduction in gross debt through the pre-payment of an additional US\$350 million of the 2019 ECA loan facility, bringing the total pre-paid in 2017 to US\$600 million.
- The Narrabri gas asset in NSW will join the company's core asset portfolio.

<sup>(1)</sup> Free cash flow breakeven is the average annual oil price at which cash flows from operating activities (including hedging) in 2017 equal cash flows from investing activities. Forecast methodology uses corporate assumptions. Excludes one-off restructuring and redundancy costs, and asset divestitures and acquisitions.

<sup>(2)</sup> PPLs 395, 464, 487, 507 and 545. Farm-ins subject to Government approval.



"Our primary objective is to safely deliver production and reserves growth across the core assets, and discover new resources to grow the business, all within the constraints of our disciplined operating model," Mr Gallagher said.

#### **Guidance**

2017 production and sales volumes are expected to be towards the upper end of the 58-60 mmboe and 79-82 mmboe guidance ranges, respectively. All other guidance for 2017 is maintained, including capital expenditure of US\$700-750 million.

In 2018, Santos will increase drilling activity in both the Cooper Basin and GLNG to grow production and increase gas supply for the domestic market. The company also plans to invest in the Angore surface facilities and tie-in to Hides, Muruk appraisal and exploration drilling in PNG, and FEED on the Barossa project in Northern Australia.

Capital expenditure in 2018 is expected to be in the range of US\$825-875 million. Notwithstanding the increase in capex compared to 2017, the company expects to maintain a free cash flow breakeven in 2018 within the US\$35-40/bbl target range.

All five core assets are expected to deliver higher production in 2018, including allowing for major planned plant shutdowns at PNG LNG, Darwin LNG and Moomba. Higher production from the core assets is expected to be offset by natural field decline in the non-core assets. Production guidance for 2018 is 55-60 mmboe. Excluding the major plant shutdowns, upstream unit production costs are expected to be broadly in-line with 2017 levels. Including the major shutdowns, guidance for 2018 is US\$8.20-8.80/boe.

Sales volumes in 2018 are expected to be in the range of 72-78 mmboe, primarily due to lower forecast third party gas sales volumes and lower non-core asset volumes.

#### Live webcast

A live webcast of the Investor Day will be available on Santos' website at <a href="www.santos.com">www.santos.com</a> from 9am AEDT today.

Ends.

# Santos 2017 Investor Day

9 November 2017 Santos



## Disclaimer and important notice

This presentation contains forward looking statements that are subject to risk factors associated with the oil and gas industry. It is believed that the expectations reflected in these statements are reasonable, but they may be affected by a range of variables which could cause actual results or trends to differ materially, including but not limited to: price fluctuations, actual demand, currency fluctuations, geotechnical factors, drilling and production results, gas commercialisation, development progress, operating results, engineering estimates, reserve estimates, loss of market, industry competition, environmental risks, physical risks, legislative, fiscal and regulatory developments, economic and financial markets conditions in various countries, approvals and cost estimates.

All references to dollars, cents or \$ in this document are to United States currency, unless otherwise stated.

In 2016 and 2017, the results of an exploration and appraisal program on the Barossa field provided additional geological, geophysical and reservoir data. The incorporation of this new data has led to a detailed geological and engineering re-evaluation over the past 2 years including an upgrade of the expected recoverable volumes.

The contingent resource estimates referred to in slides 62 and 63 are as at 9 November 2017. The 2C contingent resource estimates on slides 62 and 63 are based on, and fairly represent, information and supporting documentation prepared by, or under the supervision of, Mr Nick Pink who is a full time employee of Santos Limited and a member of the Society of Petroleum Engineers. Santos prepares and classifies its petroleum reserves and contingent resources estimates in accordance with the Petroleum Resources Management System (PRMS) sponsored by the Society of Petroleum Engineers (SPE). Unless otherwise stated, all references to petroleum contingent resources quantities in this presentation are Santos' net share. Reference points for Santos' petroleum contingent resources and production are defined points within Santos' operations where normal exploration and production business ceases, and quantities of produced product are measured under defined conditions prior to custody transfer. Fuel, flare and vent consumed to the reference points are excluded. Petroleum contingent resources are typically prepared by deterministic methods with support from probabilistic methods.

Conversion factors: 1PJ of sales gas and ethane equals 171,937 boe; 1 tonne of LPG equals 8.458 boe; 1 barrel of condensate equals 0.935 boe; 1 barrel of crude oil equals 1 boe.

Agenda



Session 1	Торіс	Presenter	Title
9:00	Welcome	Andrew Nairn	Head of Investor Relations
9:05	Strategy	Kevin Gallagher	Managing Director & CEO
10:00	Marketing & Trading	Philip Byrne	Executive Vice President Marketing & Trading
10:15	Finance & Capital Management	Anthony Neilson	CFO
10:30	Morning Tea		
Session 2			
10:50	Upstream Onshore Development	Brett Woods	Executive Vice President Onshore Upstream Developments
11:20	Operations	Vince Santostefano	COO Conventional Oil & Gas & LNG Operations
11:40	Exploration & Appraisal	Bill Ovenden	Executive Vice President Exploration & Appraisal
12:00	Close	Kevin Gallagher	Managing Director & CEO
12:05	Q&A	All	
12:35	Lunch		

# Strategy

Kevin Gallagher Managing Director & CEO Strategy

## Transform, Build & Grow





Focus on becoming a low-cost, reliable and high performance business

## DISCIPLINED OPERATING MODEL

- + Core portfolio free cash flow breakeven at ≤\$40/bbl oil price
- + Each core asset free cash flow positive at ≤\$40/bbl, pre-major growth spend

# FIVE CORE LONG-LIFE GAS ASSET PORTFOLIO

 Positioned to provide stable production for the next decade, pre-major growth opportunities

# MAXIMISE FREE CASH FLOW

+ Target \$2 billion in net debt by the end of 2019

In December 2016, we said we would......

Reduce debt		
Deliver a core portfolio that targets free cash flow breakeven in a US\$35-\$40/bbl oil price range		
Target Australia's lowest-cost onshore operations		
Identify and develop growth opportunities across the 5 core long-life natural gas assets		
Run non-core assets separately for value	<b>√</b>	

Transform

## Significant turnaround in business performance ahead of plan



FREE CASH FLOW BREAKEVEN<sup>2</sup>

\$32 per barrel, down 32%

**UPSTREAM UNIT PRODUCTION COSTS** 

\$8.08 per boe YTD, down 22%

FREE CASH FLOW

\$659 million (pre acquisitions/divestments)

**NET DEBT** 

\$2.8 billion, down 40%

**GROSS DEBT** 

\$1.2 billion repaid, down 22% to \$4.4 billion

WELL COSTS<sup>3</sup>

Cooper

\$2.8 million, down 42%

GLNG (Roma)

\$0.9 million, down 72%

<sup>&</sup>lt;sup>1</sup> 1 January 2016 – 30 September 2017

<sup>&</sup>lt;sup>2</sup> Forecast free cash flow breakeven is the average annual oil price at which cash flows from operating activities (including hedging) in 2017 equals cash flows from investing activities. Forecast methodology uses corporate assumptions. Excludes one-off restructuring and redundancy costs, and asset divestitures and acquisitions.

<sup>&</sup>lt;sup>3</sup> Cooper gas well: drill, stimulate, complete. Roma well: drill, complete, connect

Build

Strategic core asset positions strengthened. Focus on maximising margins



#### PAPUA NEW GUINEA

- + Western Area farm-in executed
- + JV alignment continues to strengthen

## **QUEENSLAND**

+ Agreements executed to evacuate uncontracted Eastern Queensland gas

#### NORTHERN AUSTRALIA

+ Barossa two-well appraisal campaign supports a significant increase to the resource base

#### **NARRABRI**

- + Enters core portfolio
- + Drill-complete-connect business to apply learnings

Grow

Execute and bring on-line growth opportunities across the core portfolio



#### **NORTHERN AUSTRALIA**

- + Barossa field identified as lead candidate for Darwin LNG backfill. FEED targeted for 2Q 2018
- + Development study of Petrel-Tern initiated
- + Crown-Lasseter
  well positioned for backfill
  or expansion of existing
  infrastructure

#### PNG LNG

- + Further debottlenecking of existing plant
- + PNG LNG expansion

#### **NARRABRI**

- + EIS submitted and approvals process underway
- + Introduced to COTE portfolio

#### **GLNG**

+ Ramp-up to 6 mtpa by the end of 2019

### **COOPER BASIN**

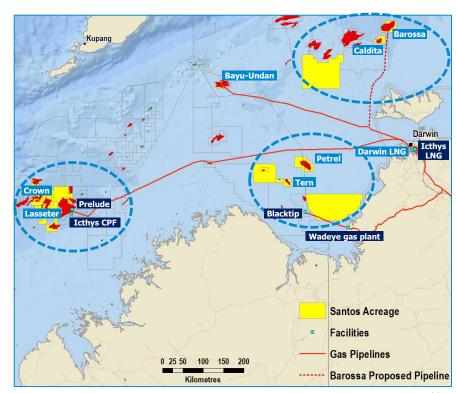
- + Expect to drill 70-80 wells in 2018 with 3 rigs to grow production
- + Strong inventory build. >100 opportunities identified

Northern Australia



Significant resource base well positioned for backfill or expansion of existing infrastructure

- + Darwin LNG delivered its 600<sup>th</sup> cargo in September
  - + Excellent reliability and availability
- + Barossa two-well appraisal campaign strengthens position as lead candidate for Darwin LNG backfill
  - + FEED targeted for Q2 2018
- Multi-tcf discovered resource across Browse and Bonaparte Basins
  - + Development study of Petrel-Tern initiated
  - Crown-Lasseter well positioned for backfill or expansion of existing infrastructure

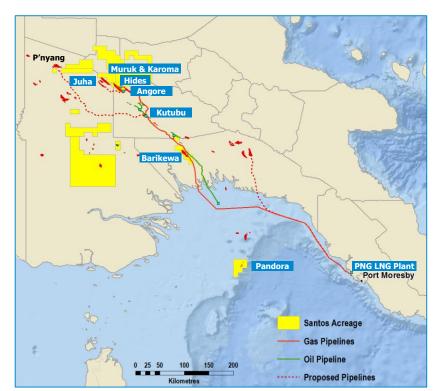


PNG

**Santos** 

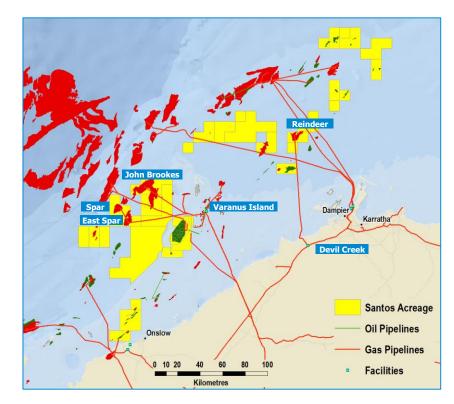
PNG LNG operating well above nameplate. Joint venture alignment continues to strengthen along the Hides-P'nyang trend

- + PNG LNG maximum day rate of 8.9 mtpa achieved (30% above nameplate capacity)
- Western area farm-in announced
  - Aligned exploration position along the Hides-P'nyang trend
- + Muruk appraisal ongoing
  - + Muruk 2 appraisal Q1 2018
- Karoma 1 exploration prospect to spud Q4 2018



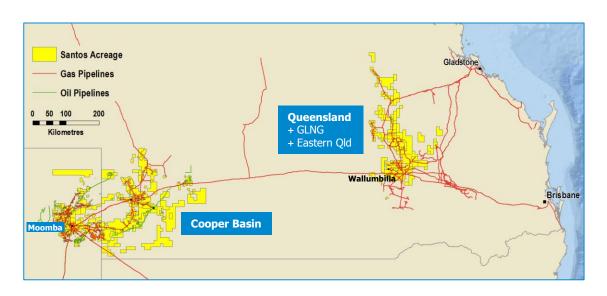
## Low cost operations with capacity and reserves to meet short and long-term demand

- + Low cost operations well positioned against other suppliers
- + Uncontracted reserves to meet demand
  - + Wesfarmers re-contracted 27 PJ for 3 years
- + Spar-2 tied back to existing infrastructure in 2017 providing additional offshore deliverability
- + Improved alignment with Quadrant Energy
  - Collaborating on backfill opportunities

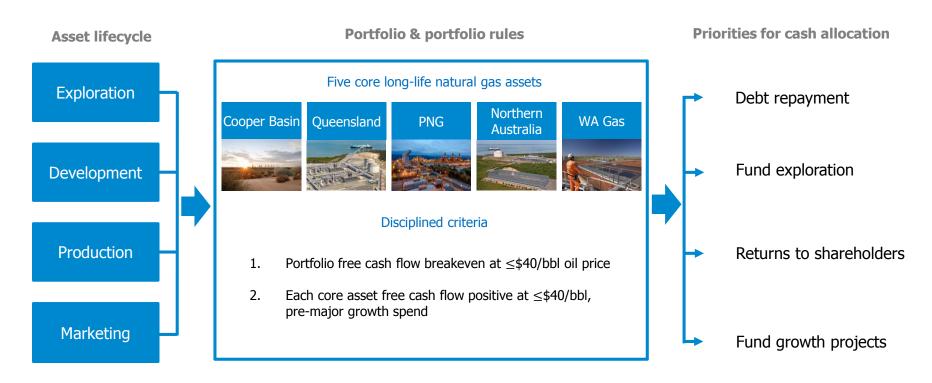


## Australia's lowest-cost onshore operations

- Sustainable structural cost reductions now embedded
- Lower Cooper Basin costs and increased exploration expected to deliver reserves additions over time
- 2018 drilling activity expected to increase<sup>1</sup>
  - 70-80 wells in the Cooper Basin
  - ~250 wells in GING
- Medium-term growth opportunities as a result of large uncontracted Eastern Queensland gas reserves
- Strategic infrastructure position and gas storage
- Narrabri introduced to core portfolio



Santos Operating Model sets a disciplined framework to drive value



Sustainability

## Santos

#### **SAFETY & ENVIRONMENT**

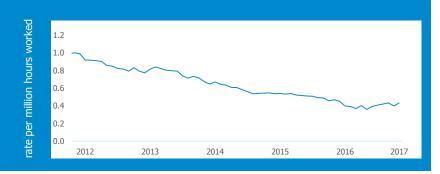
- + Aspiration: "We all go home without injuries or illness"
- + Increased focus on process safety and incidents with potential for significant harm
- Continued focus on compliance to safety critical maintenance activities
- + Energy Solutions group evaluating and selecting new technologies to reduce emissions and increase gas supply

### GOVERNANCE, SYSTEMS AND PROCESSES

- + Strong and streamlined governance structures and processes developed in 2017
- + Strengthened risk management processes
- + Increased focus on organisational capability development



Three year rolling average (2012 – October 2017)



#### **EXTERNAL REPORTING**

- + Consistently reported our greenhouse gas emissions and sustainability data since 2004
- + Inaugural Climate Change Report consistent with TCFD Guidelines, planned for early 2018

Summary



Driving sustainable shareholder value by becoming a low-cost, reliable and high performance business

# DISCIPLINED OPERATING MODEL

- + Core portfolio free cash flow breakeven at ≤\$40/bbl oil price
- + Each core asset free cash flow positive at ≤\$40/bbl, pre-major growth spend

## FIVE CORE LONG-LIFE GAS ASSETS

 Positioned to provide stable production for the next decade, pre major growth opportunities

## MAXIMISE FREE CASH FLOW

+ Target \$2 billion in net debt by the end of 2019

# Marketing and Trading

Philip Byrne

**Executive Vice President Marketing & Trading** 





- Executed agreements to deliver over
   125 PJ of gas to southern markets over
   2H17-2020
  - Executed a multi-year agreement to deliver a third party's Wallumbilla gas to southern delivery points for on-sale
  - Agreed to supply 27 PJs of ethane to Qenos until the end of 2019
- √ ~16 PJ (YTD) sold through short-term markets and hubs
- Re-contracted Wesfarmers for 3 years and 27PJ



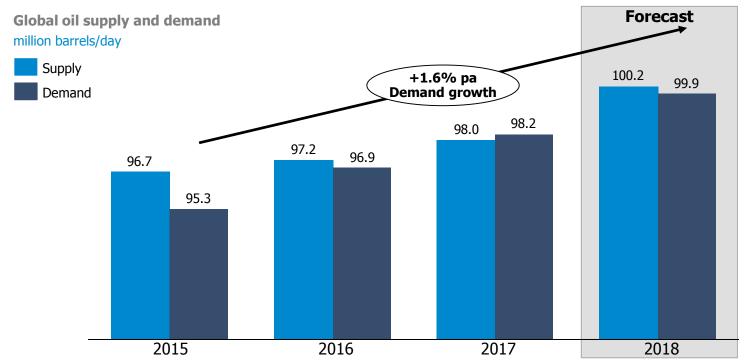
- Positive buyer response to marketing of mid-term PNG LNG volumes (~1.3 mtpa)
- Commenced marketing effort for Barossa-Caldita project
- Agreed pricing for 2018 Cooper Crude and Naphtha term contracts
- √ ~5 mmboe pa of third party liquids processed and sold through Santos operated Moomba and Port Bonython infrastructure



- Agreements executed to evacuate uncontracted Combabula gas
  - Unlocking additional volumes to flow to domestic market
  - Provides further flexibility in Santos portfolio/substitute into Horizon contract

## Global oil – supply and demand outlook

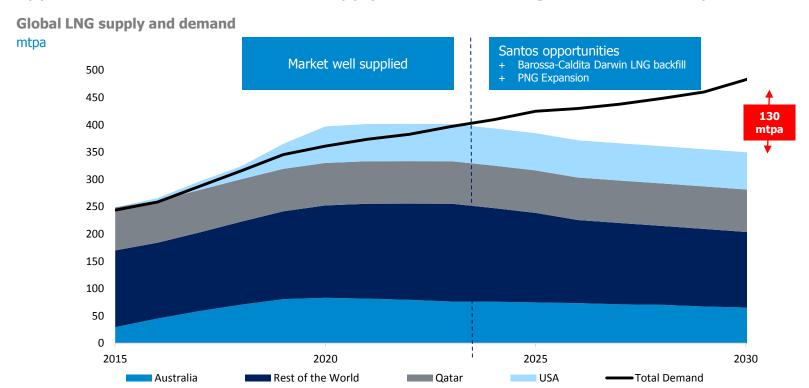
Global oil demand growth continues to strengthen, the market is expected to remain tightly balanced



Source: EIA, Short-term Energy Outlook, November 2017

## Global LNG – supply and demand outlook

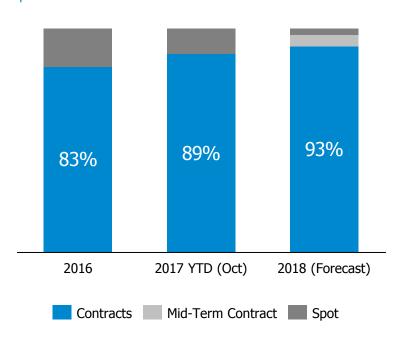
Opportunities exist for new LNG supply as the market tightens in the early-to-mid-2020s



Source: Wood Mackenzie LNG tool Q3 2017 dataset, LNG Supply effective capacity (contracted and uncontracted) from existing and under construction plants. Santos 2017 Investor Day

Underpinned by long-term high-value contracts with quality Asian buyers

## Santos LNG cargoes by type percent



- Santos' portfolio has a strong weighting to long-term, oil indexed contracts
- + LNG contracts have no price caps
- + PNG LNG operating above its nameplate capacity of 6.9 mtpa (annualised rate 8.6 mtpa 2017)
  - Mid-term contract volumes of 1.3 mtpa available
- Decreasing spot volumes over time

## Well positioned in both Eastern and Western Australia



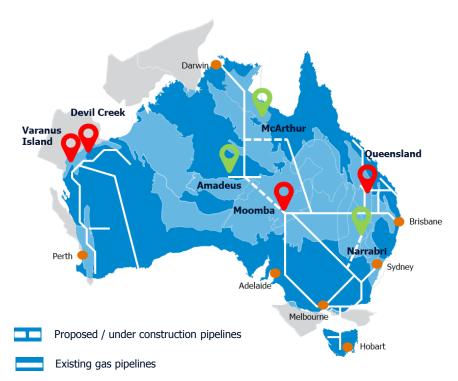
One of the largest suppliers of domestic gas and ethane, supplying ~120PJ into the domestic market in 2017

#### **Western Australia**

- Supply deficit emerging from early 2020s
- Expected that ~50%

   (1,000 PJ) of forecast
   market demand needs to
   be re-contracted during

   2019-24
- Santos has ~94 PJ of developed uncontracted gas (1P) during the same period
- Capital cities
- Santos gas resources / opportunities
- Santos domestic gas infrastructure



#### **Eastern Australia**

- Santos is committed to delivering increased gas supply to the domestic market
- Secured commercialisation path to evacuate uncontracted Combabula volumes
- Strong infrastructure and resource position provides future optionality
- New sources of indigenous supply (Narrabri, Amadeus) may play a role in addressing forecast supply/demand gas in the mid term

## Moomba can provide strategic gas storage



Santos operated Moomba strategic storage is well placed to provide security of supply to support emergencies and peak gas or power requirements

- Centrally located with access to major transmission pipelines connected to all east coast capital cities
- Proven storage asset servicing seasonal peak demand since 1981
- + 70 PJ storage capacity
- + ~120 TJ/d maximum withdrawal capacity
  - Between 30 TJ/d and 120 TJ/d available capacity<sup>1</sup>





<sup>&</sup>lt;sup>1</sup> Available capacity dependent on inventory levels. 120 TJ/d assume maximum storage of 70 PJ

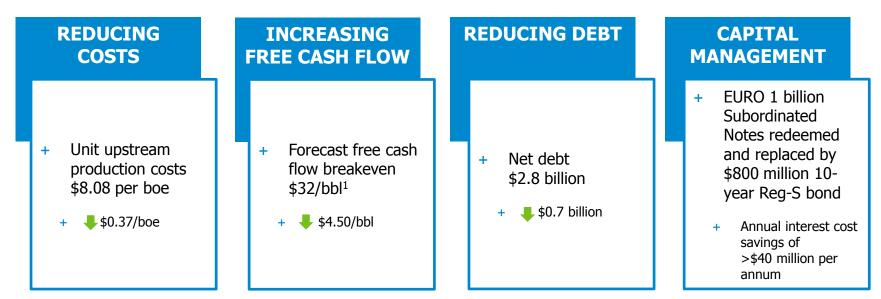
# Finance & Capital Management

Anthony Neilson CFO

Financial priorities



## Significant progress in 2017 on our financial priorities



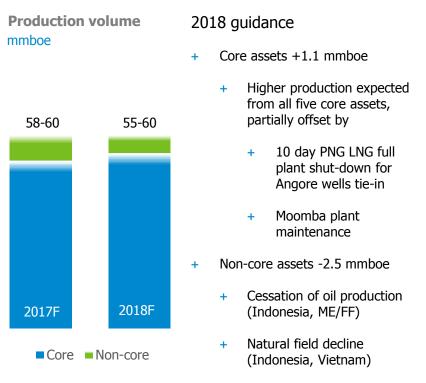
As at 30 September 2017 compared to 2016 full year outcomes

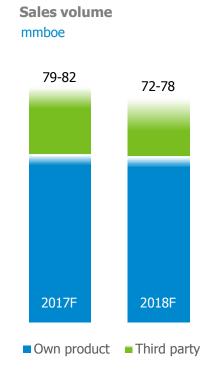
<sup>&</sup>lt;sup>1</sup> Free cash flow breakeven is the average annual oil price in 2017 at which cash flows from operating activities (including hedging) equals cash flows from investing activities. Forecast methodology uses corporate assumptions. Excludes one-off restructuring and redundancy costs, and asset divestitures and acquisitions.

## Production and sales volumes



2017 production and sales volumes expected to be toward the upper end of guidance. Five core assets expected to deliver higher production in 2018 and stable production for the next decade





#### 2018 guidance

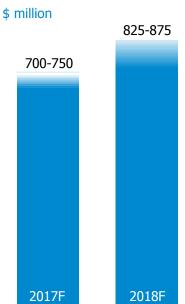
- Sales volumes lower
  - + Lower third party volumes predominantly due to cessation of contracts
  - Natural field decline from the non-core assets

## Capital expenditure and production cost guidance



Increased activity driven by cost efficiencies

#### Capital expenditure guidance<sup>1</sup>



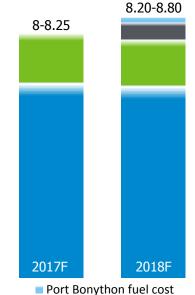
### 2018 guidance

- Cooper Basin 3-rig program drilling 70-80 wells
- GLNG drilling ~250 wells
- PNG LNG Angore pipeline and surface facilities
- Northern Australia Bayu-Undan 3-well infill program and Barossa FEED

## Sustainable cost out now embedded in our operations

Upstream unit production cost guidance<sup>1</sup>





- Shutdown impacts
- Non-Core
- Core

### 2018 guidance

- Cost out continuing for core and non-core assets
- In addition, 2018 also impacted by:
  - Higher costs due to planned DLNG / Bayu-Undan shutdown
  - Higher costs due to fuel purchases at Port Bonython
  - Lower production from PNG LNG and Moomba major shutdowns
  - Lower production from non-core assets

<sup>&</sup>lt;sup>1</sup> 2018 guidance assumes AUD/USD exchange rate of 0.75

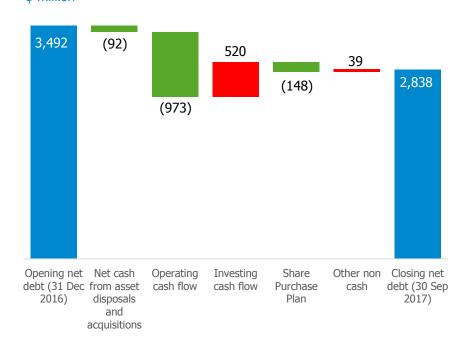
## Net debt reduced to \$2.8 billion

## **Santos**

## Target \$2 billion in net debt by the end of 2019

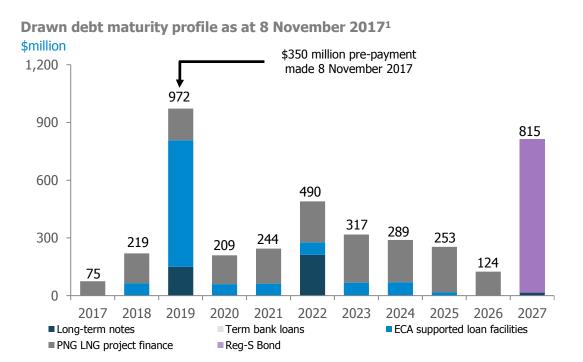
- Net debt reduced to \$2.8 billion<sup>1</sup> through a combination of free cash flow, previously announced asset sales and proceeds from the Share Purchase Plan
- Focus remains on debt reduction target of \$2 billion in net debt by the end of 2019
- S&P BBB- (stable) credit rating
- + Liquidity of \$3.5 billion<sup>1</sup>
  - + Cash balance of \$1.5 billion
  - + Undrawn bi-lateral bank debt facilities of \$2 billion

## **2017 movement in net debt to 30 September 2017** \$ million

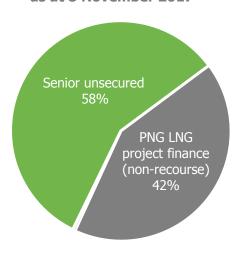


<sup>&</sup>lt;sup>1</sup> As at 30 September 2017

Euro hybrid redeemed and replaced with more efficient long-term debt funding. \$600 million of 2019 ECA supported loan facility prepaid in 2017



Breakdown of drawn debt facilities as at 8 November 2017<sup>1</sup>



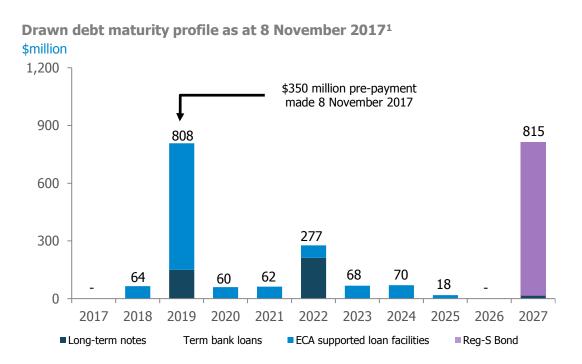
Weighted average term to maturity ~5 years

<sup>&</sup>lt;sup>1</sup> Excludes finance leases and derivatives.

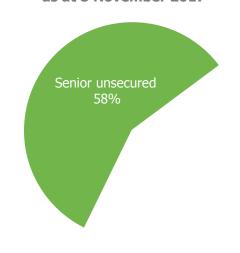
## Drawn debt maturity profile excluding PNG LNG



Senior debt profile \$2.2 billion ex PNG LNG non-recourse project finance



## Breakdown of drawn debt facilities as at 8 November 2017<sup>1</sup>



<sup>&</sup>lt;sup>1</sup> Excludes finance leases and derivatives.

**Summary** 



In 2018 the focus remains on reducing costs, increasing free cash flow, reducing debt and disciplined capital management

## REDUCING COSTS

- Cost out continuing in 2018 for core and non-core assets
- Lower cost base allows increase in activity to build and grow the business

# INCREASING FREE CASH FLOW

- Forecast 2018 group free cash flow breakeven expected to be at ≤\$40/bbl oil price
- + Disciplined model, all core assets free cash flow breakeven ≤\$40/bbl oil price

### **REDUCING DEBT**

- + Target \$2 billion in net debt by the end of 2019
- Further gross debt reduction through free cash flow

## CAPITAL MANAGEMENT

- Capital management strategy in place and continues to target efficient debt funding
- + Prudent oil price hedging

# Morning Tea



# Onshore upstream development

**Brett Woods** 

**Executive Vice President Onshore Upstream Developments** 



# STABILISE ONSHORE OPERATED ASSETS

# Set-up assets to be cash generating throughout the oil price cycle

- + Reset cost base
- Stabilise production

# DEVELOP AND APPRAISE

# Build inventory and execute efficiently

- Increase drilling activity
- Appraise new plays
- + Set foundation for reserves growth

# **EXPLORE AND GROW FOOTPRINT**

# Invest in high graded growth options

- Leverage the free cash flow generated by the assets
- Increase exploration program mix
- Develop new plays
- Grow reserves base
- Leverage infrastructure footprint and position as lowest cost operator to grow acreage position

Cooper & GLNG transformed to low cost, efficient drill-complete-connect-operate businesses

#### **Organisational focus**

- Engaged with North American operators to understand various operating models
- Established standalone upstream onshore division with focus on cost and efficiency
- + Shared learnings across Santos onshore teams

# Disciplined operating model

- Disciplined approach to budget allocation
- Core assets must be free cash flow positive at ≤\$40/bbl, pre-major growth spend
- + Fit for purpose Management Systems

# Relentless drive for cost and efficiency

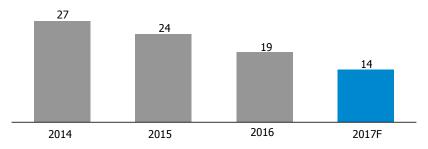
- + Focus on design-to-cost, lean operations, eliminating waste
- + Measure performance and adopt fast learning cycles
- + Best performance achieved resets the benchmark

## Cooper Basin drilling – a structural transformation



Improved cycle time performance has led to embedded and sustainable cost reductions

Cooper Basin drilling cycle times Average days (rig release to rig release)





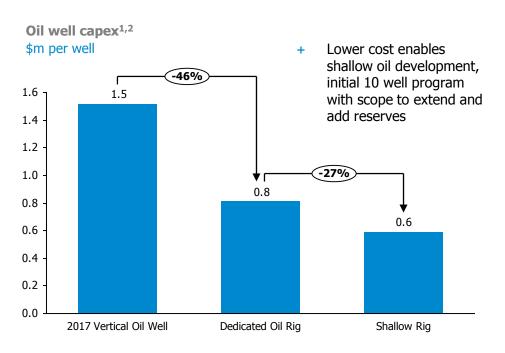
Cost effective increased use of logging while drilling (LWD) and rotary steerable technologies in onshore operations has reduced time and risks associated with wireline logging after reaching final depth

- Cooper Basin drilling cycle times halved
  - + Rig move efficiencies
  - + Skidding between slots for pad wells
  - Well evaluation
  - Eliminating work deemed unnecessary on certain well types
- + Drilling crews sharing learnings between rigs and crews. Workforce striving to achieve new technical limits

# Cooper Basin oil development

**Santos** 

Lean well design and disciplined operating model has lowered the minimum economic pool size from 100 kbbl to <40kbbl/well



**Ensign 950 - Shallow wells rig** 



<sup>&</sup>lt;sup>1</sup> Excludes connection costs. These are variable depending on the distance to gathering network

<sup>&</sup>lt;sup>2</sup> Assumes no fracture stimulation in all cases. Consistent with majority of oil program

## Cooper gas reserves replacement and reserves life

**Santos** 

The Cooper Basin continues to generate new gas reserves. Renewed focus in exploration to target further growth

- + Cooper Gas Reserves Replacement Ratio (RRR) has averaged 82% since 2006
- + Santos now refocusing on Cooper Basin exploration
  - + 2013-2016 averaged <5 gas exploration wells per year, dominated by low risk Near Field Exploration
  - + 2017+ planning ~9 gas exploration wells per year, more wildcats
- + With lower costs and increased exploration investment, we anticipate reserves additions over time
- + Step change growth potential with new plays such as deep coal and adoption of new technologies

## Cooper Basin gas development



Appraisal drilling in the Namur Field proved a significant gas resource in the previously un-proven Patchawarra sands

- + Namur field discovered 1976, originally produced from Namur sandstone. Ceased production in 1984
- + Drill Stem Test from original development identified tight gas in Patchawarra Sands, but not completed as flow was considered unattractive at the time
- + Patchawarra Fm and Coorikiana potential unlocked by recent re-mapping of 3D seismic and new thinking
- + Large potential field volume, ~2,000 acres with multiple follow-ups
- + Namur 4 Appraisal well drilled late 2016. A 3 stage fracture stimulation of the Patchawarra and flowback proved deliverability @ **10.1mmscf/d** @ 2150psi wellhead pressure, ~500psi drawdown
- + Multiple gas saturated Patchawarra reservoirs
- Appraisal of the Coorikiana reservoirs provides further potential

Namur 4 stimulation flowback @ 10.1mmscf/d

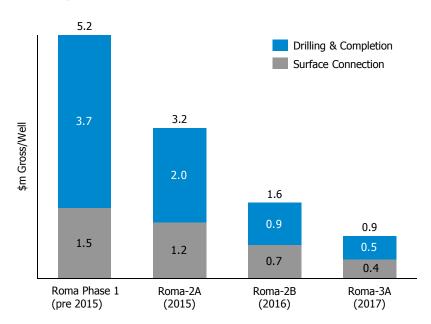


## GLNG upstream onshore transformation



Proven cost performance now allows GLNG to increase drill, complete and connect activities

#### Roma drill, complete, connect \$ million per well



- Now lowest cost operator in Queensland
- Plan to ramp up drilling while maintaining cost discipline
  - + Increasing to ~250 wells in 2018
- + 4Q17 drilling pace is already at rate required to meet 2018 target
- Growing production while ensuring GLNG is free cash flow positive in every year at ≤\$40/bbl

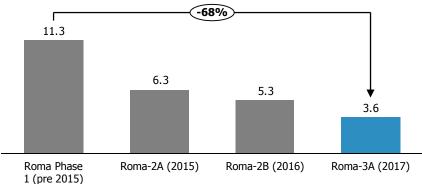
# GLNG drilling transformation



#### Improved cycle time performance has led to embedded and sustainable cost reductions

#### Roma drilling cycle times

Average days (rig release to rig release)





Savanna 407 coil tubing drilling rig executing Roma 3A drilling scope

- + Roma drilling cycle times reduced by more than 50%
  - + Change in rig execution strategy to lightweight hybrid coil halving rig move durations and reducing \$/ft. performance by 15% relative to 2016
  - Project optimisation workshops involving field and office based team members leading to implementation of initiatives such as night rig moves
  - + Continued optimisation of BHAs & bits to reduce drilling time
  - Application of technical limit principles to identify trends and high-grade focus areas
  - High volume, sequential, repeatable scope
- Unlocked potential to drill in excess of 100 wells in Roma with a single drilling rig in a given year
- Continual review and optimisation of both surface and subsurface designs has led to 83% reduction in Roma drill, complete, connect costs since FID

Well leases before and after transformation







# GLNG upstream onshore transformation

Surface kit before and after transformation



# GLNG upstream onshore transformation

**Santos** 

Drilling footprint before and after transformation







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**AFTER** 

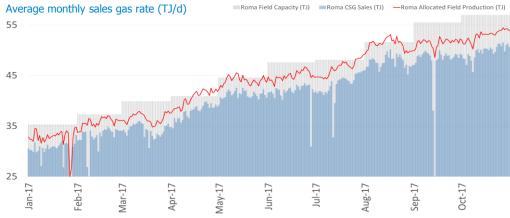
# Roma development

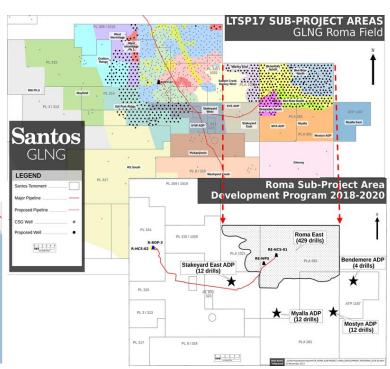


#### Moving to the high graded Roma acreage in the next phase of development

- + Cost base reset ready for development (down 83% on 2014 costs)
- + Solids management and pump reliability issues mitigated through modified completion design
- + Subsurface led optimisation of reservoir development plan
- + Commence development of the >75% undeveloped 2P reserves in Roma
- + Focus on minimising spud to online time

#### **Roma production**



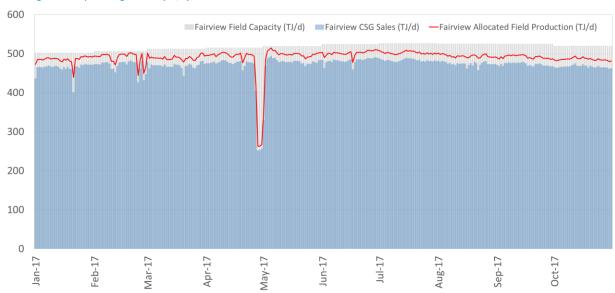


#### Fairview continues to perform

- Ongoing programme of production optimisation activity to maximise production from existing wells
- Programme of fill clean outs, liner installs and artificial lift system (ALS) re-installs being executed with positive results
- Deeper seam dewatering and gas rates inclining

#### **Fairview production**

Average monthly sales gas rate (TJ/d)

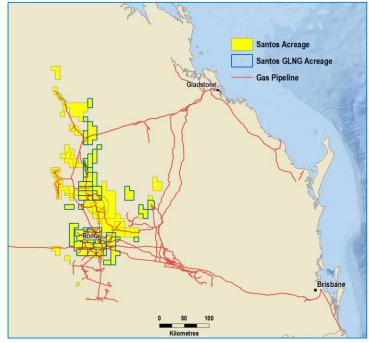


Eastern Queensland



Eastern Queensland portfolio to capture domestic gas opportunities while maintaining gas supply to GLNG

- + Santos has delivered cost reductions more rapidly in operated assets than observed in non-operated assets
  - + Opportunity to deliver additional value into these assets with the application of the Santos operating model
  - + Significant point of leverage
  - + Santos aims to be the operator of choice
- Exploration (GLNG & Eastern Queensland)
  - Domestic gas gazettal blocks providing additional growth opportunities



Santos holds a strong acreage footprint in Eastern Queensland in addition to the GLNG acreage. Approximately 20% of Santos' Queensland 2P Reserves are held in non-GLNG acreage.

# Operations

Vince Santostefano COO Conventional Oil & Gas and LNG Operations

Santos

Discipline, Cost and Volume remain the strategic focus for operations

#### DISCIPLINE

- Fit for purpose standards to enable low cost operations and maintenance
- Operational excellence program to embed best practice and continuous improvement
- Building a culture of compliance to ensure process discipline

#### **COST**

- + \$52 million (21%) reduction in Cooper Basin total production costs<sup>1</sup>
- + \$7 million (7%) reduction in GLNG conversion costs<sup>1</sup>
- Sustainable cost reductions delivered through contracting, engineering & process improvements

#### **VOLUME**

- Excellent continued operations at Curtis Island
- + 7% increased utilisation of Moomba Plant<sup>1</sup>
- Increased 3rd party activity in Cooper Basin enabled by incentivised tolling and processing agreements

<sup>&</sup>lt;sup>1</sup> 2016A vs. 2018F

153 LNG cargoes delivered as at end of October 2017



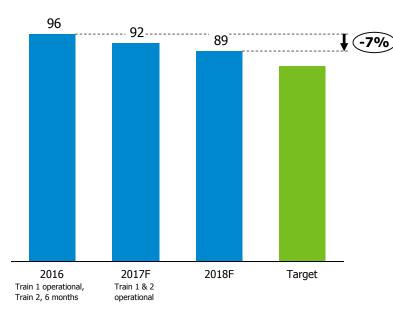
- + 8.9 mtpa maximum day rate achieved cf. 7.8mtpa nameplate capacity
- + 99% production reliability across the plant
- + Train 1 and 2 shutdowns completed successfully
- Collaboration with other LNG plants
  - + New Marine Operations Terminal shared with QGC
  - + Formal program for assessing collaboration opportunities underway
  - Opportunistic gas purchases during outages realising higher sales volumes

### Curtis Island conversion cost reductions

On track to deliver disciplined, sustainable and best in class cost performance

#### GLNG conversion costs<sup>1</sup>

\$m gross (real)

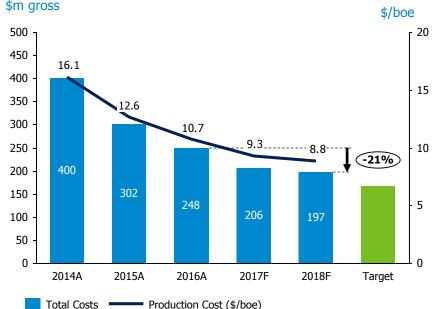


- + Two trains fully operational in 2017
- + Lean operations delivering cost performance
  - + Optimisation and consolidation of site workforce
  - + Engineering scope reviews
- Curtis Island Collaboration Room
  - Technology linking engineers from Brisbane
  - + Vision to remotely operate LNG plant
- + Operations excellence to continue cost challenge

<sup>&</sup>lt;sup>1</sup> Operational cost of converting gas to LNG

Sustainable cost out being delivered whilst maintaining exemplary Process Safety performance

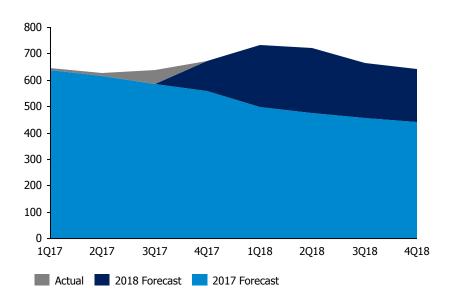
#### Total production costs \$m gross



- + 21% cost reduction in Cooper production costs
- + Cooper Basin operating philosophy rollout
  - + Employee support for EBA renegotiations
  - + Integrated scheduling
- + Continued challenge of costs to achieve future target
  - + Multiple initiatives to achieve these cost reductions
  - + Relentless discipline and cost focus
  - + Moomba rejuvenation project

Increased third party throughput enabled by competitive access agreements

Forecast third party oil – Moomba Plant<sup>1</sup> kbbl/month



- Increased third party throughput incentivised by competitive access agreements
  - + Pass through pricing mechanism
  - + Incremental volume tolling structure
- Continue to work with Third Party Operators in the Cooper Basin
- Reduced plant operating costs further improves margin
- + Increased focus to maximise our infrastructure position

<sup>&</sup>lt;sup>1</sup> SPA's signed and forecasted for 2018

Moomba re-set initiative

#### **Santos**

#### Rejuvenate and re-life the core hub of Moomba

- + Moomba town plan minimise footprint and maximise efficiency
- + Project commenced and is a key focus for 2017/18
  - + 24% annual cost reduction from camp tender
  - + 43% reduction in light vehicle fleet
  - Warehouse consolidation ongoing
  - + Removing underutilised buildings
- + Set standards and establish new ways of working



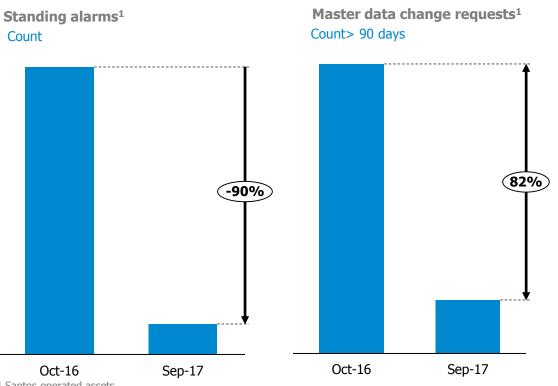
Operations Excellence is core to our operating philosophy



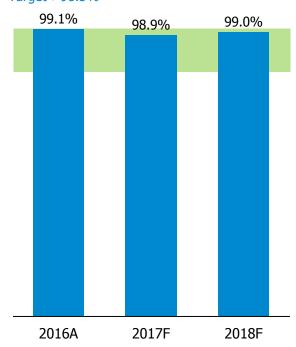
#### + What it is:

- + Is built up by key results areas
- + Clarity of expectations and standards
- + Enables measurement against performance standards
- + What it gives:
  - + Annual improvement expectation in each area
  - Drives a compliance culture to meet standards
  - + Locks in gains through visible performance monitoring

#### Improved visibility and focus on key metrics



#### Moomba plant inherent availability Target >98.5%



<sup>1</sup> Santos operated assets

# **Exploration and Appraisal**

Bill Ovenden

**Executive Vice President Exploration & Appraisal** 

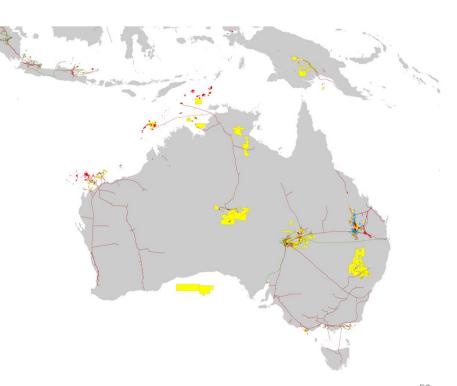


#### **Activity themes**

- + Deepen the exploration inventory across all assets
- Consolidate and align our exploration acreage around our infrastructure ownership
- + Disciplined and balanced allocation of risk capital

#### **Exploration and appraisal highlights (last 12 months)**

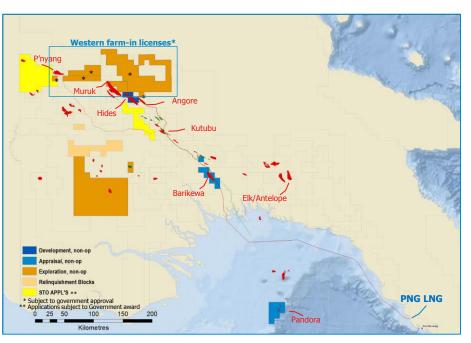
- PNG Muruk discovery
- + PNG Western farm-in
- + Northern Australia: Barossa appraisal upgrades
- Cooper: exploration success and inventory build
- McArthur: investment readiness
- + Amadeus: exploratory concept emerges



# Papua New Guinea

**Santos** 

Align and pursue gas resource options that offer commercialisation optionality through existing and expansion infrastructure. Grow short cycle-time opportunities



						H. C.
	2018	2019	2020	2021	2022	FF
Muruk 2	A					
Barikewa 3	A					
Karoma	Ø					
Pandora		A				
Tawanda			Ø			
Western Foldbelt*			Ø			Exploration wel
Blucher				Ø		Appraisal well
Western Foldbelt*					Ø	

- Western farm-in: Entered aligned exploration position (Santos, ExxonMobil, Oil Search) between Hides and P'nyang fields; Santos 20% equity
- + Licence Applications: pending government decision, two operated licence positions adjacent to Hides & P'nyang Fields
- + Accelerated exploration and appraisal program provides organic opportunity for ullage/expansion

#### Building aligned PNG LNG expansion optionality

#### **Muruk appraisal**

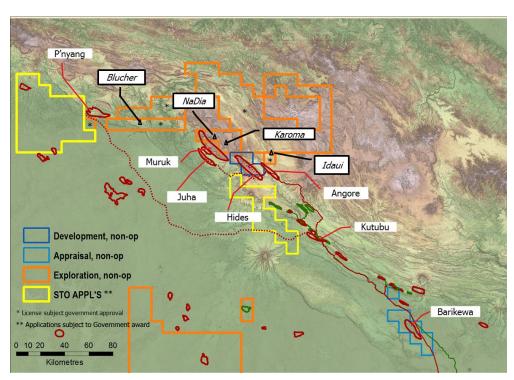
- + 2016-2017 discovery of 2 gas pools in greater Muruk structure
  - + Multi-Tcf contingent resource potential
- Planned activity
  - + Delineation 2D seismic (2017-18)
  - + Muruk 2 appraisal (1Q 2018)
- + 21 km tieback to Hides
- Leverage project performance and expansion optionality

#### Barikewa appraisal

- + Barikewa 1 proved gas in Toro and Hedinia sands with good flow rates
- Barikewa 3 appraisal 2018
- + 5 kms from PNG LNG sales gas pipeline
- Additional gas for PNG LNG or domestic gas

#### **Exploration**

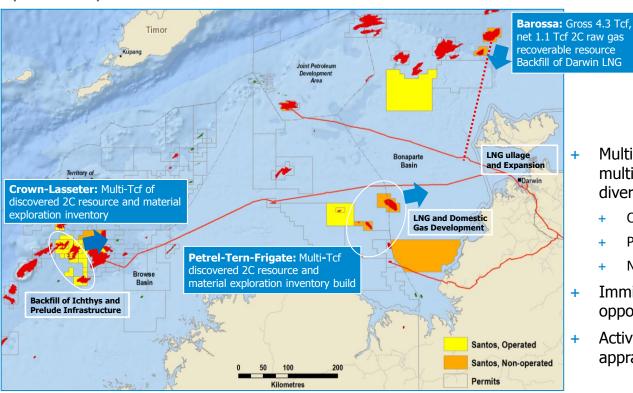
- + Western farm-in inventory pre-drill alignment and running room
- + Karoma 1 wildcat drill 4Q 2018 adjacent Muruk, along strike from Hides

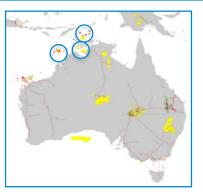


## Northern Australia growth

#### **Santos**

Powerful discovered resource position across 3 potential future upstream production hubs





- Multi-Tcf 2C resource ownership across multiple geologic provinces offers growth diversity
  - Central Browse Basin: Crown-Lasseter
  - + Petrel sub-basin: Petrel-Tern-Frigate
  - Northern Bonaparte: Barossa-Caldita field
- + Imminent and emerging market opportunities
- Active exploration (inventory build) and appraisal programs

# Successful de-risking of DLNG backfill candidate Barossa and systematic exploration inventory build around all discovered resource hubs

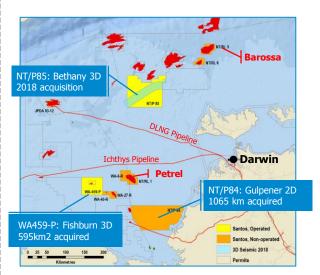
#### **Browse** (Santos 30%)

- Consolidated resource ownership retention leases secured over core Crown and Lasseter fields (multi Tcf gross discovered resource)
- + Adjacent low risk multi-Tcf potential

# WA-57-R WA-58-R WA-408-P WA-408-P WA-57-R WA-51-P WA-51-P Santos, Operated Santos, Non-operated Santos, Non-operated Permits

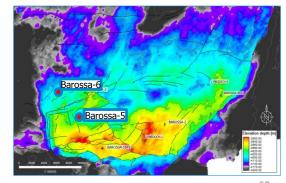
#### Petrel-Tern-Frigate (Santos 35-40%)

- Multi-Tcf gross discovered resource
- Prime short term LNG ullage feedstock opportunity
- Organic inventory build in new and emerging plays, with material running room



#### Bonaparte – Barossa (Santos 25%)

- Successful appraisal program complete
  - 2016/17 appraisal 3D
  - Barossa-5/5AST1; Barossa-6 drilled
  - Barossa-6 well test 65 mmscf/d (facility constrained)
- + 35% increase in 2C resource base (gross 4.3 Tcf, net 1.1 Tcf 2C raw gas recoverable resource)
- + FEED entry Q2 2018



# Cooper Basin exploration

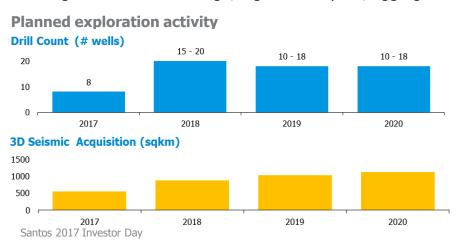
#### **Santos**

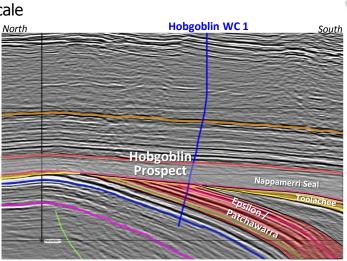
#### Resurgent exploration effort in a mature production province

- + Leverage deep basin knowledge and drill-complete-connect cost out
- + Focused on reserves replacement and value

#### **Deepened Inventory build**

- + 100+ oil and gas opportunities identified (multiple proven plays)
- + Balanced high value oil and gas near field exploration and emerging high impact gas wildcat prospect inventory
- + Target infrastructure ullage, high value liquids, aggregation and scale



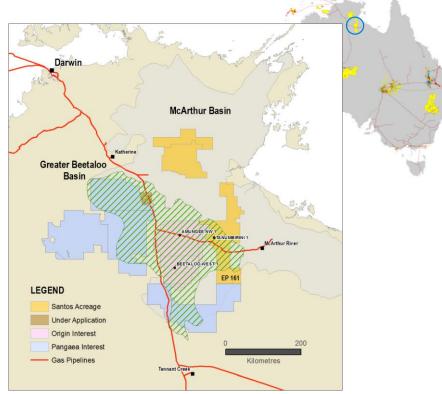


# McArthur Basin EP 161 exploration program

**Santos** 

Demonstrate productivity of Velkerri Shale gas resource and acquire critical data for appraisal planning

- + Focus on EP 161 in the Greater Beetaloo sub-basin
  - + Multi-Tcf prospective resource
  - + Santos 75% and operator
- + Forward activity plan
  - + 3D seismic acquisition & processing
  - + Stimulate and test Tanumbirini 1 vertical well
  - Drill, stimulate and test two horizontal appraisal wells
  - + Subject to outcome of NT moratorium

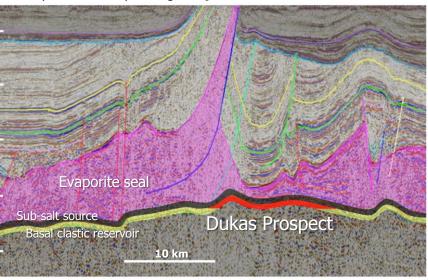


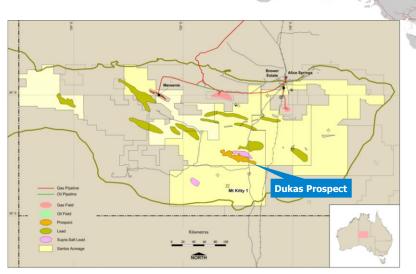
# **Amadeus Basin exploration**

#### **Santos**

#### Frontier sub-salt play – Multi-TCF gas potential

- + 2D seismic acquisition Dec17/Jan18 to supplement multiple phases of regional reconnaissance seismic (2014 and 1H 2017 campaigns) prospect delineation
- + Geologic concept on farm-in regional sub-salt central basin arch hosting large sub-regional closures validated: Dukas Prospect ~520 km² closure
- + On discovery, elemental He and H gas stream contents represent high value liquids proxies
- Exploration well planning for Q1 2019 drill



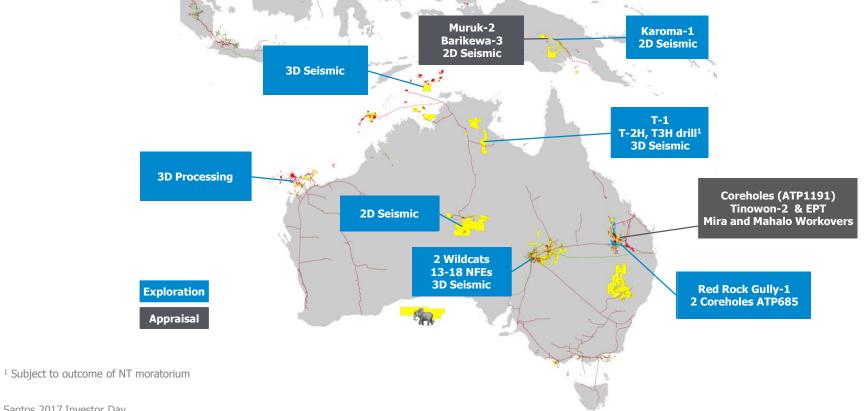


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Depth

66

Activity focused around core asset hubs



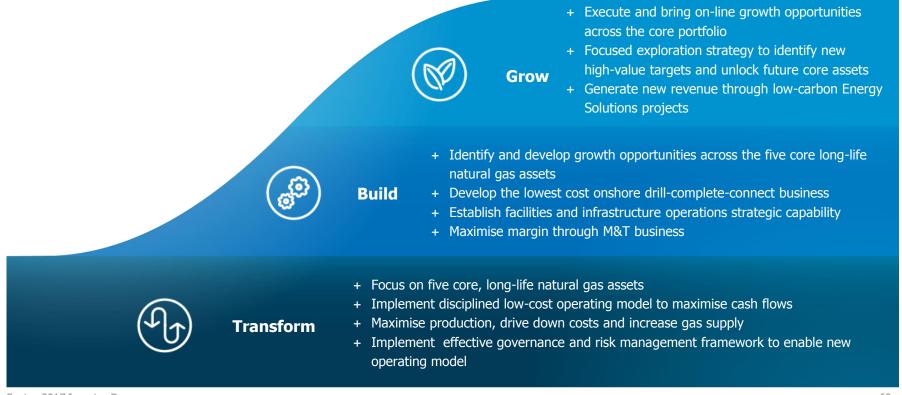
# Wrap-up

Kevin Gallagher Managing Director & CEO

Santos

Strategy

#### Transform, Build & Grow





Disciplined growth initiatives in the core assets and reducing debt further

#### TODAY'S ANNOUNCEMENTS Farm-ins to Evacuation Further Narrabri gas Barossa five confirmed as route secured reduction in asset in NSW lead candidate for Combabula gross debt prospective to join the through preexploration for DI NG equity gas in core asset licences in backfill Fastern payment of an portfolio Queensland additional PNG along the Hides-P'nyang \$350 million of the 2019 FCA trend loan facility

2018 strategic priorities

**Santos** 

Business focus aligned with the core strategy

Focus on business improvement to further reduce costs and maximise operating cash flow

Disciplined allocation of free cash to repay debt and build production levels across core assets

Disciplined inventory build around core assets

Progress program for new developments in Eastern Queensland, PNG, Northern Australia and Narrabri

Strengthen and develop Santos' high-performance culture

# Santos 2017 Investor Day

9 November 2017 Santos

