



Santos

Exploration in the Narrabri Area

Narrabri
15 August, 2012

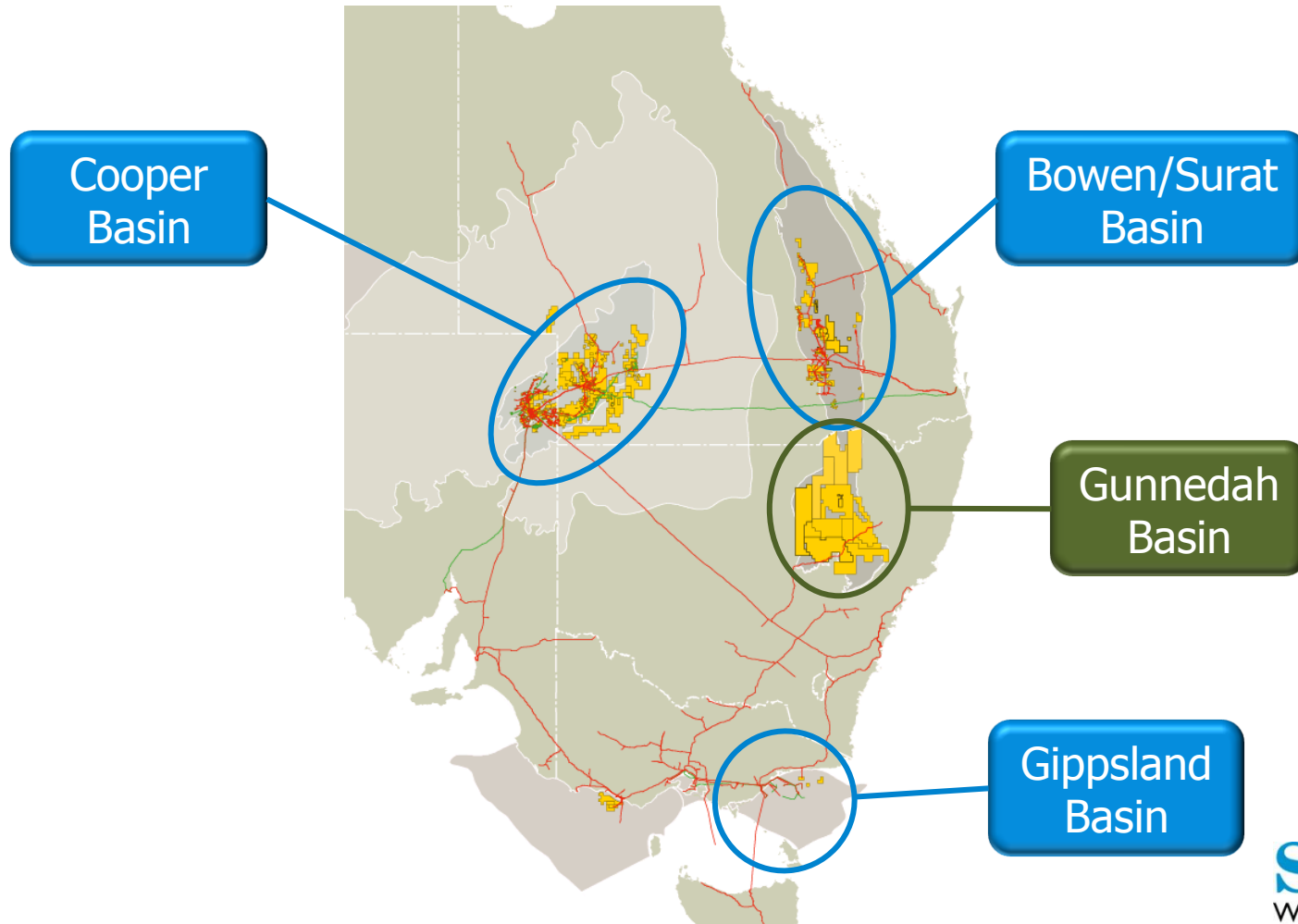
Who is Santos?

- Santos is an Australian company, established in 1954.
- Originally an acronym: **S**outh **A**ustralian **N**orthern **T**erritory **O**il **S**earch.
- Sir Douglas Mawson was a founding director of the company.
- It is Australia's largest domestic gas producer.
- Producing CSG since 1995 in QLD in Roma and Injune fields.
- Employ over 2800 employees and over 4000 contractors.



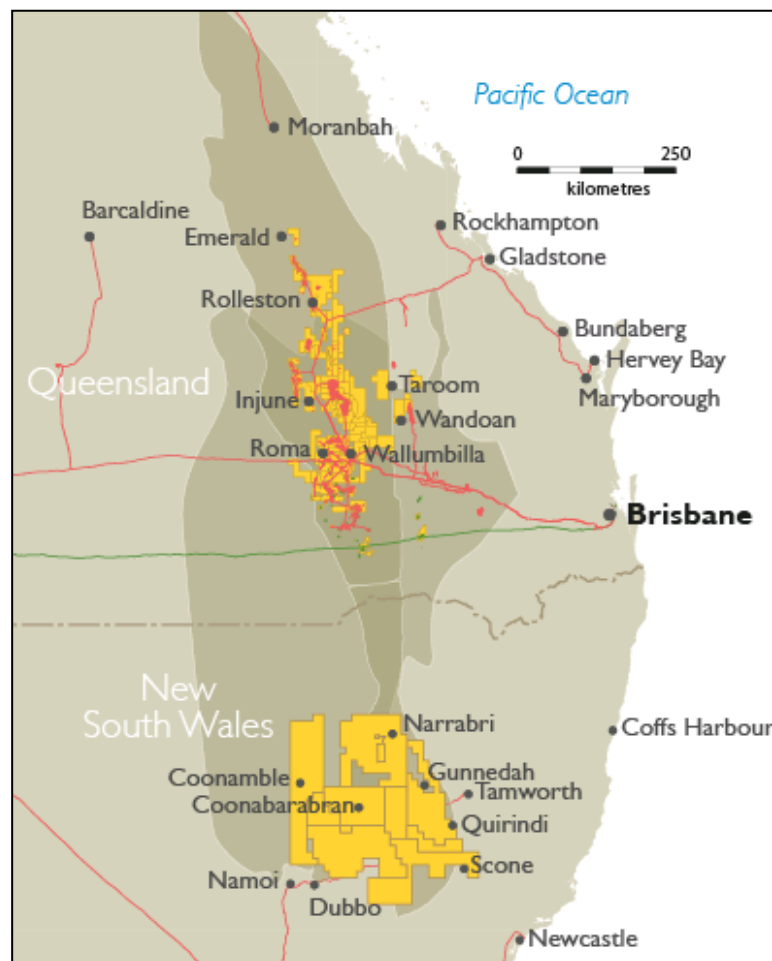
Eastern Australia gas supply basins

Santos is operating in 3 key producing basins, Cooper, Gippsland, Otway and Bowen-Surat. Gunnedah the next major producing basin



What is Coal Seam Gas?

- Natural gas extracted from coal seams
- Coal seams located 350-1000mtrs below surface
- It is methane
- Relatively simple production process
- CSG already accounts for 90% of gas used in Queensland / 30% east coast
- Coal contains **water and gas** particles.
- The coal is **not mined**, the water and gas from within the coal is **extracted** and the coal structure remains in place.



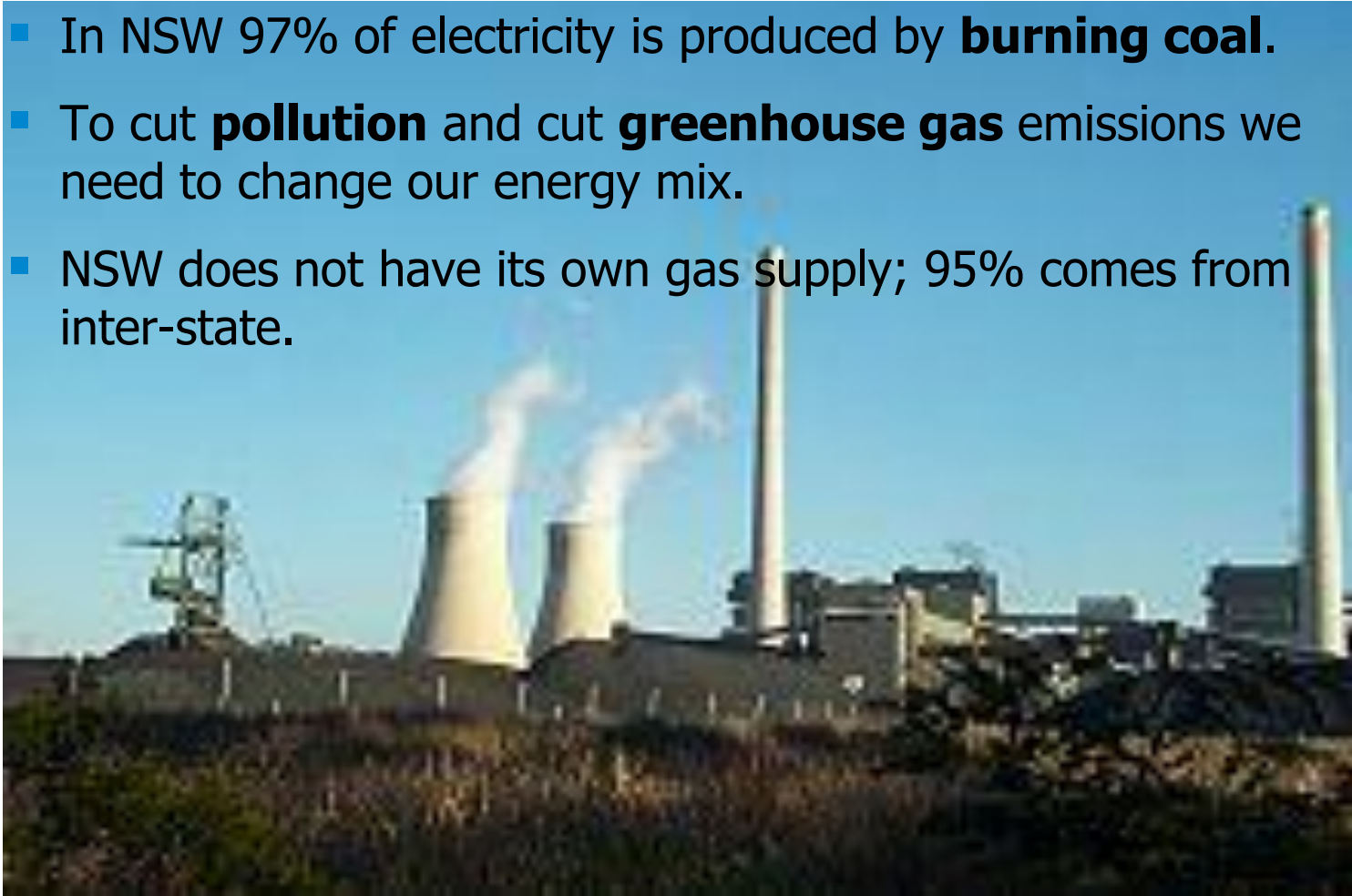
What is coal seam gas?

- Natural gas is defined as primarily **methane**, typically 80% or more.
- Natural gas is classified as **conventional** or **unconventional**.
- Conventional natural gas is from underground **reservoirs**, typically sandstone.
- Unconventional natural gas is contained **within the source rock**.
- **Coal** is a source rock for natural gas.
- Coal contains **water and gas** particles.
- The coal is **not mined**, the water and gas from within the coal is **extracted** and the coal structure remains in place.



Why do we need coal seam gas?

- In NSW 97% of electricity is produced by **burning coal**.
- To cut **pollution** and cut **greenhouse gas** emissions we need to change our energy mix.
- NSW does not have its own gas supply; 95% comes from inter-state.

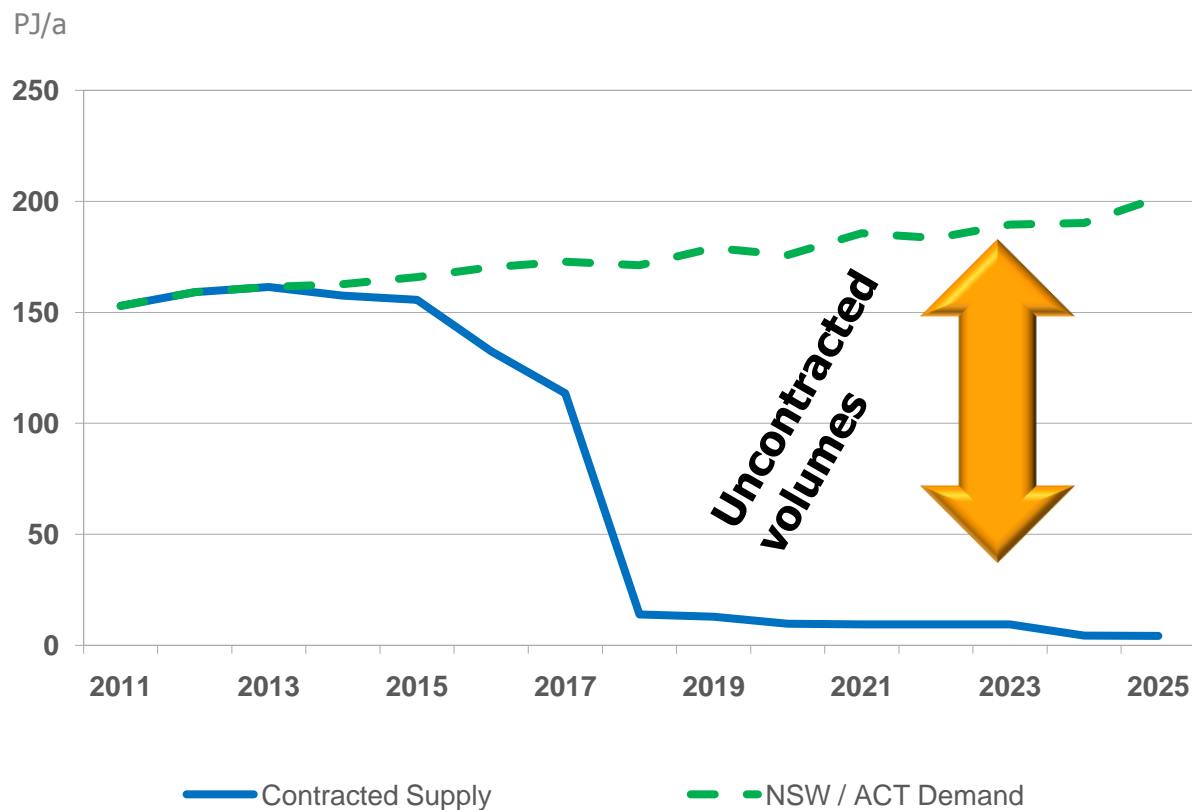


Bayswater Power Station, Hunter Valley, New South Wales.

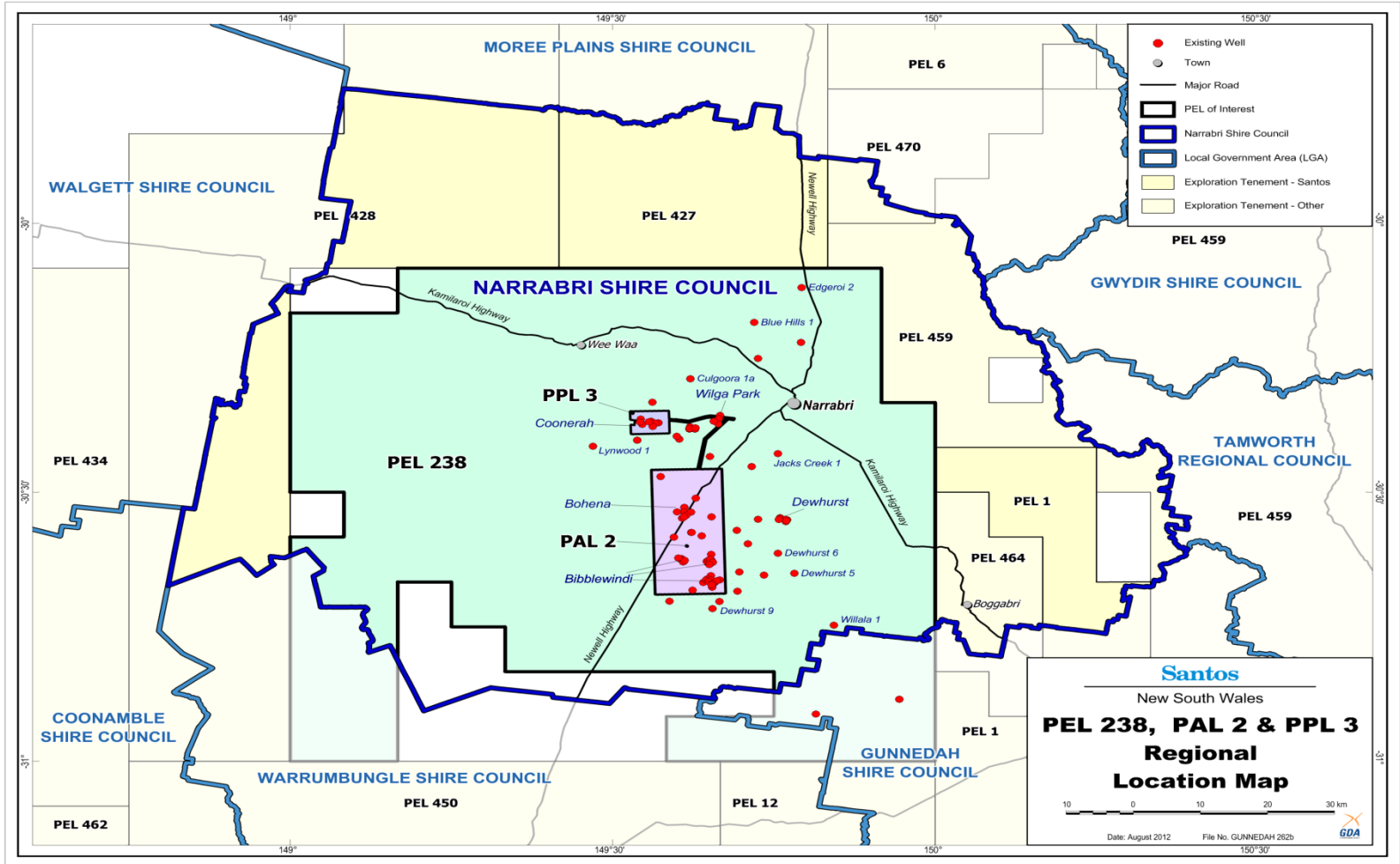
NSW is materially uncontracted post 2017

NSW will be >90% uncontracted post 2017, but starting in 2015

NSW / ACT Demand and Contracted Supply

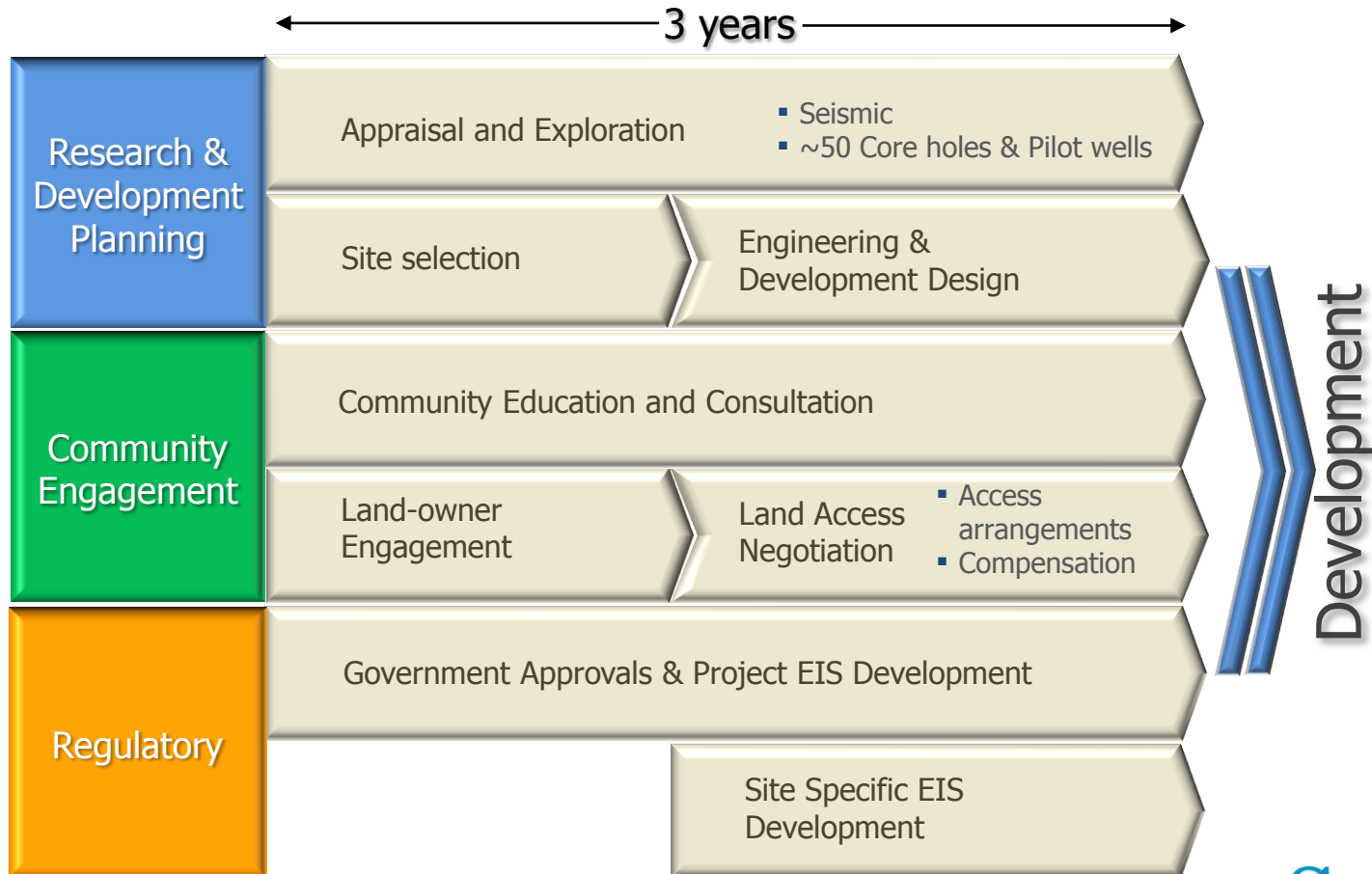


Exploration area in PEL 238



Modest 3 year research program

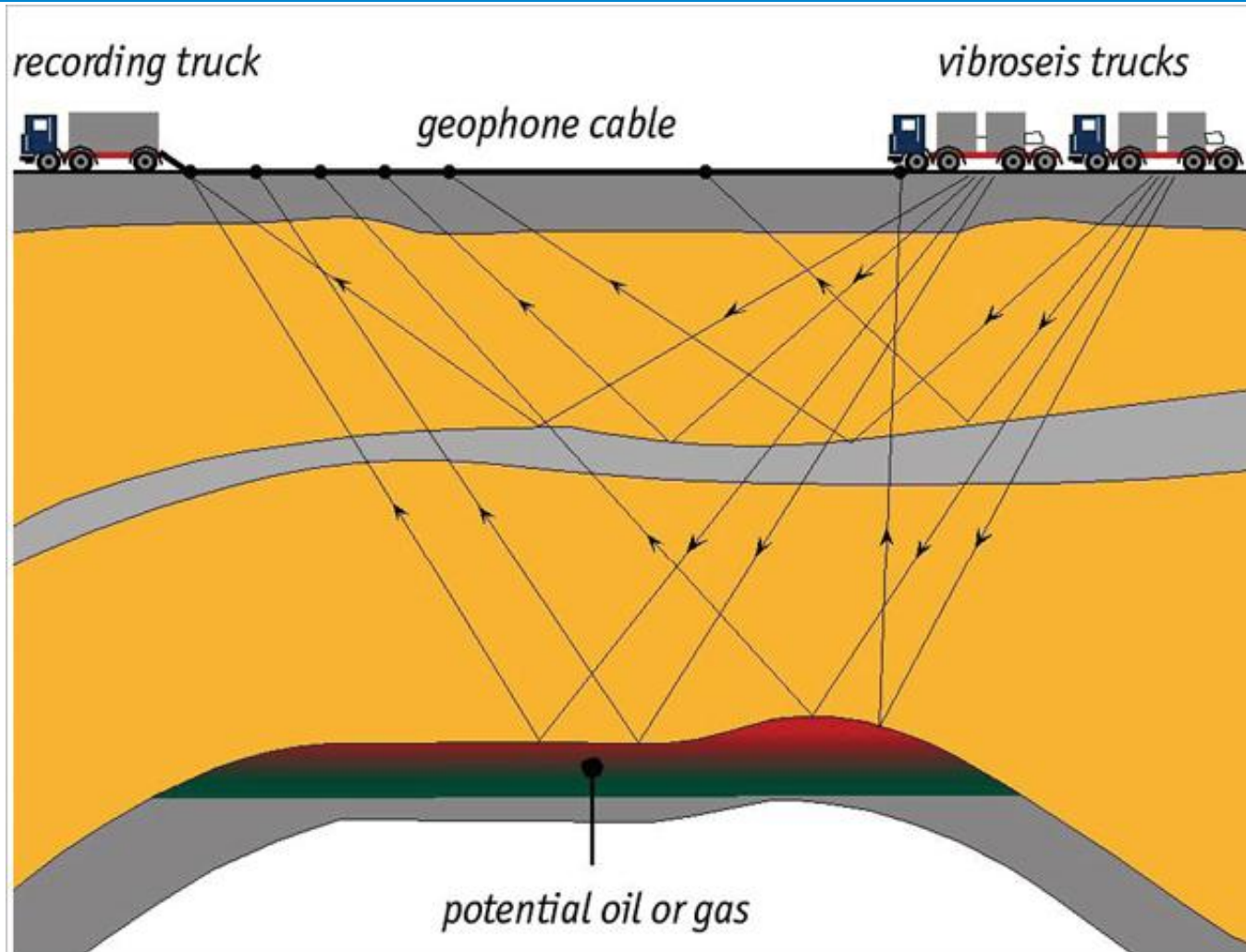
Demonstrate that Santos can extract the gas and operate sustainably long-term



Santos - The next 12 months

- Opening of the new Narrabri office shopfront in October.
- Continue to upgrade and rehabilitate infrastructure in the Pilliga to Santos Standards.
- Continue to undertake exploration activities- Concentrating in the Pilliga and North of the Pilliga. This will involve seismic surveys, pilot wells and continuing to plug and abandon old wells.

Seismic surveys



What Happens



1.

Seismic survey.



2.

Location of area and landholder negotiation.



3.

Water bore - water and gas monitoring program.



4.

Civil works - lease and access track preparation.



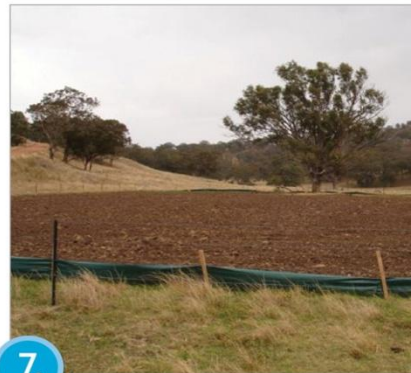
5.

Drilling.



6.

Coal geology - obtaining coal data eg coal thickness, gas content and type.



7.

Site lease rehabilitation.



8.

Full rehabilitation.

Core hole site during drilling



Well site at Brawboy, Scone

The same site during rehabilitation...



Well site at Brawboy, Scone

The same corehole 6 months later...



Well site at Brawboy, Scone

Coal seam water use

