

# Some Facts



... about onshore natural gas  
extraction in the Northern Territory

# 1960's

## Introduction to Territory onshore natural gas

Onshore gas has played a major role in the Territory economy since the discovery of the inaugural fields in Central Australia in the 1960s.

The Territory's abundant onshore gas resources remains one of our strongest competitive advantages and will play an essential role as a transition fuel in our journey to a net zero-emissions future.

There are various types of onshore gas in the NT, but they are extracted from two types of reservoirs: **conventional** and **unconventional**.

### Conventional gas extraction

Conventional gas reservoirs largely consist of porous sandstone formations capped by impermeable rock, with the gas stored at high pressure. Conventional gas easily flows to the production well and the surface under natural high pressure. Sometimes fracture stimulation (hydraulic fracturing) is needed. This extraction typically involves vertical drilling.

### Unconventional gas extraction

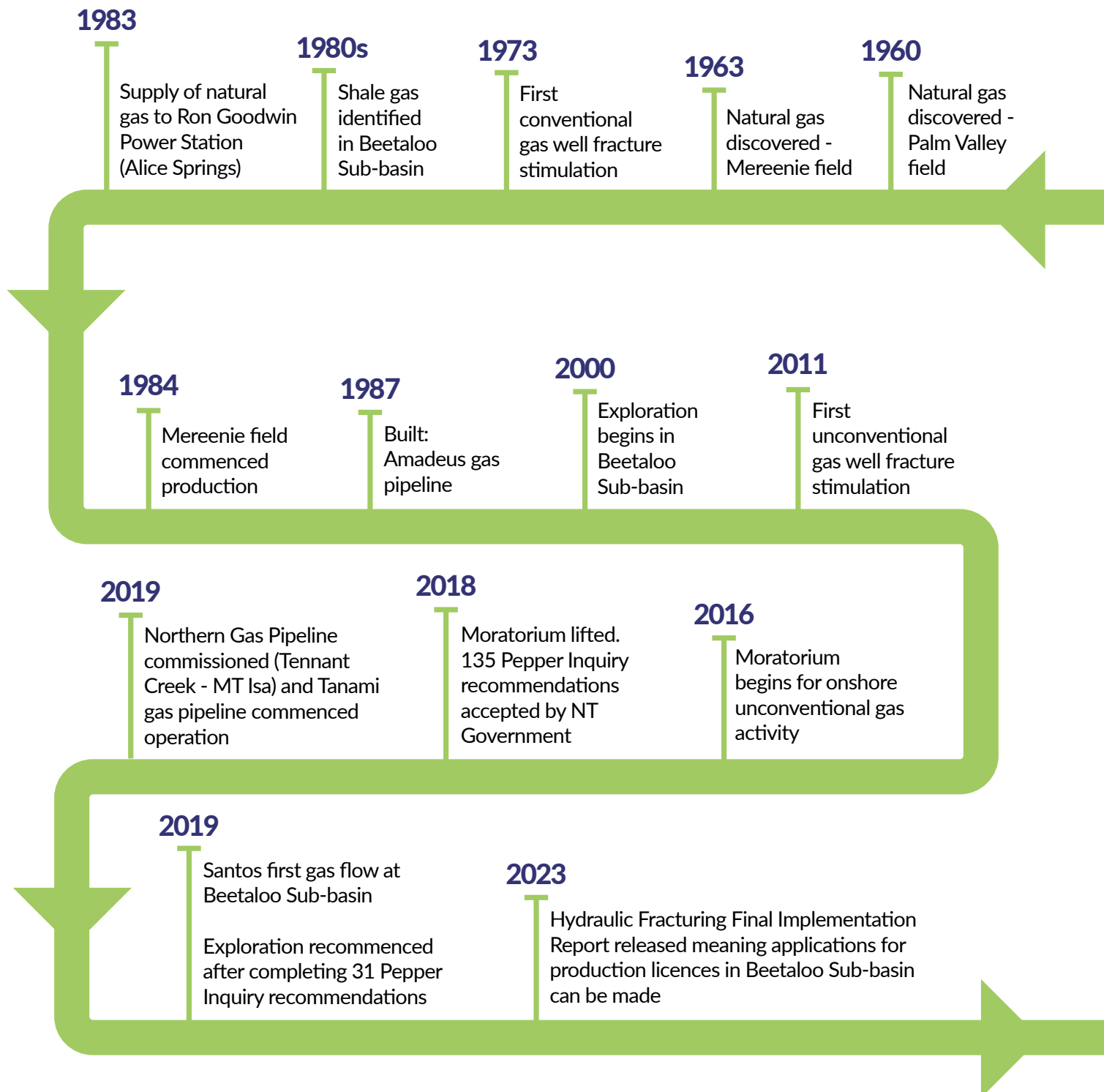
Unconventional Shale gas occurs within rock formations under high pressure. These rock formations have extremely low porosity requiring hydraulic stimulation to enable gas to flow from the reservoir to the wells. This extraction involves vertical AND horizontal drilling and the use of fracture fluids.

The Territory produces onshore conventional gas from 3 fields in the Amadeus Basin in Central Australia (Mereenie, Palm Valley and Dingo) for local and interstate use.

Unconventional shale gas exploration is occurring in the resource rich Beetaloo Sub-basin in the Barkly Region for local and interstate use plus export.

# The Territory's onshore natural gas history

# HISTORY



# Onshore natural gas fracture stimulation in the Territory

# 1973

Conventional fracture stimulation used in the NT since 1973

# 2011

Unconventional fracture stimulation used in the NT since 2011



More than 50 wells have been fracture stimulated in the NT

# 50 Years of fracture stimulation in the NT

Most contemporary onshore gas extraction regulation in Australia



Water



Soil



Flora & Fauna



Air quality



Health



Culture & Heritage

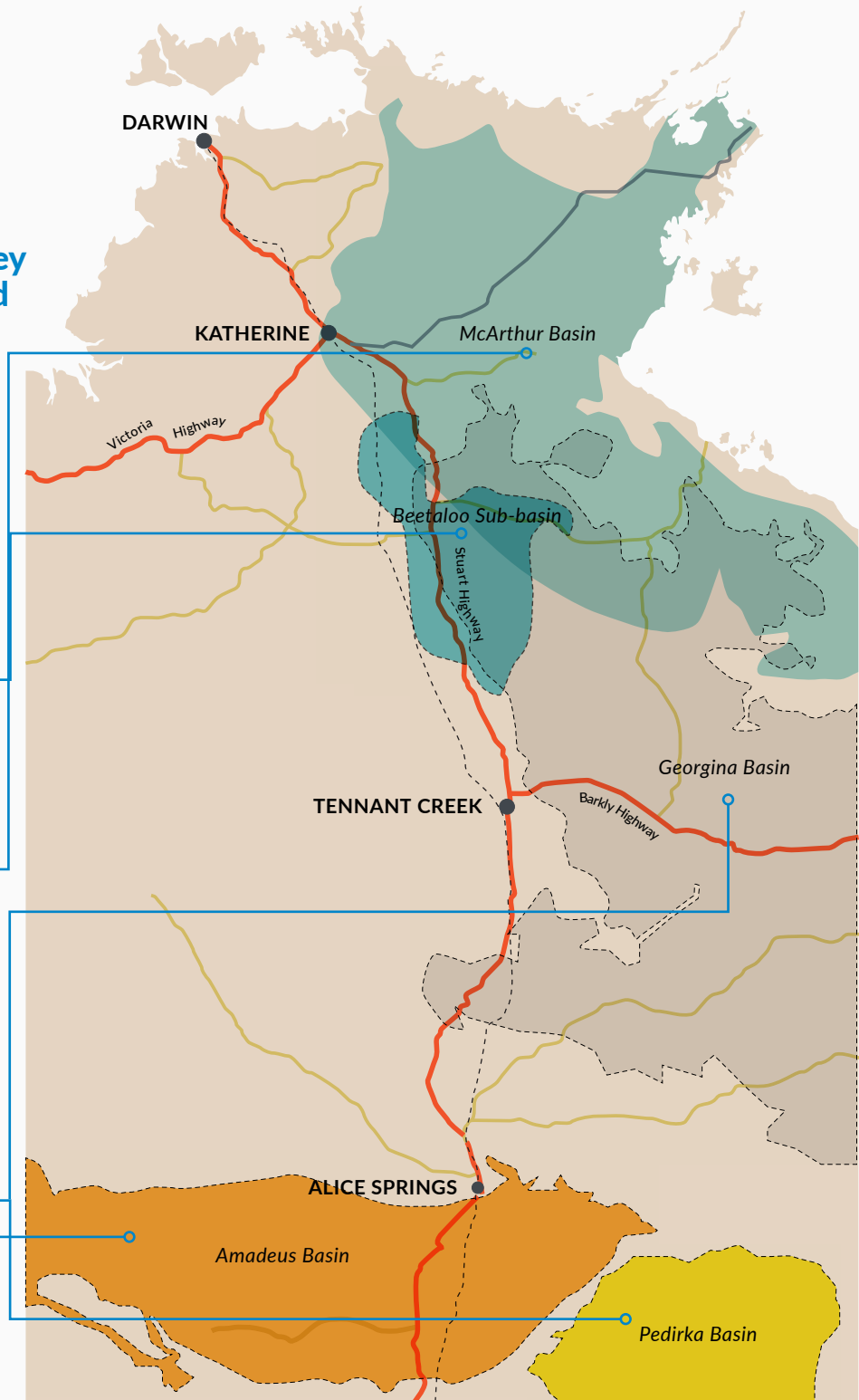
# Onshore natural gas basins in the Territory

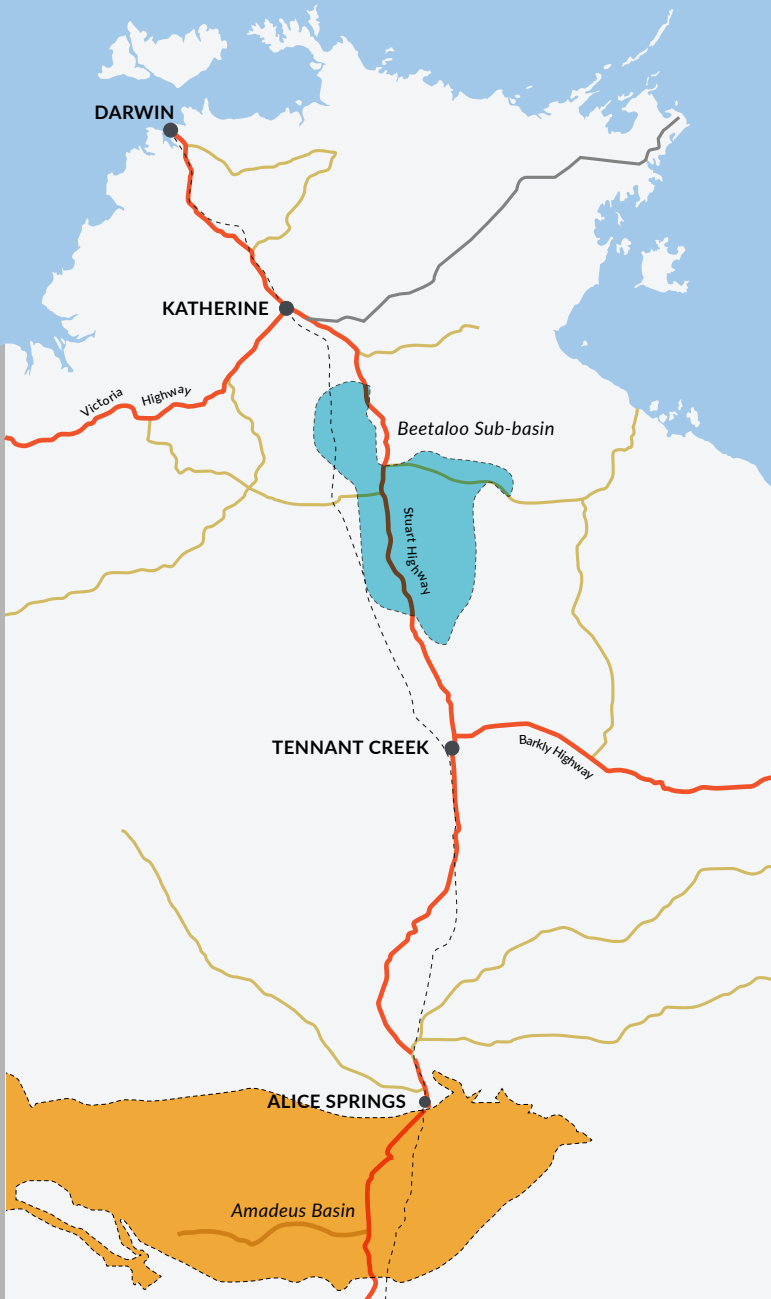
**Current production:**  
Amadeus Basin in  
Central Australia  
(Mereenie, Palm Valley  
and Dingo) - local and  
interstate use.

**Current exploration:**  
Beetaloo Sub-  
basin - for local  
and interstate use  
plus export.

**Prospects:**  
McArthur Basin

**Mostly unexplored prospects:**  
Pedirka Basin and  
Georgina Basin.





## Producing basins

# 482

Billion Cubic Feet (BCF)

Amadeus Basin has produced almost 500 BCF over its life creating vital local jobs and significant economic activity for the NT.

## Current Exploration

# 500

Trillion Cubic Feet (TCF)

Beetaloo Sub-basin has enough estimated unconventional gas in a single layer to supply Australia's energy and manufacturing demand for 1,000 years

The NT Government has a reserved block policy that safeguards towns, parks, reserves and areas of high ecological value from onshore gas activity.

Beetaloo Sub-basin is expected to produce 13,000+ jobs and \$17+ billion in economic activity in the NT over 25 years.

# Strict regulations for unconventional onshore gas extraction

The independent Scientific Inquiry into Hydraulic Fracturing in the NT provided its final report in March 2018. It found that environmental, social, cultural and economic risks could be sufficiently mitigated if **135 recommendations (that became 138)** were implemented.

In May 2023, the NT Government released the Final Implementation Report detailing actions undertaken to fulfil all recommendations and create a robust regulatory and monitoring framework that meets community expectations.

This implementation response has concluded and companies can now apply for production approvals.

**The NT Government also completed a world-class Strategic Regional Environmental and Baseline Assessment (SREBA) into Beetaloo Sub-basin to inform decision making and monitoring.**

## All 138 Inquiry recommendations implemented to mitigate risks from Hydraulic Fracturing in 10 focus areas

1. Strengthening of the regulatory environment
2. Addressing a lack of knowledge
3. Safeguarding water resources
4. Protecting landscapes
5. Preserving the natural environment
6. Improving the health of local communities
7. Mitigating the contribution to climate change
8. Embedding Aboriginal people and their culture in all considerations
9. Enhancing the wellbeing of local communities
10. Ensuring local communities receive economic benefits

# 4 Years

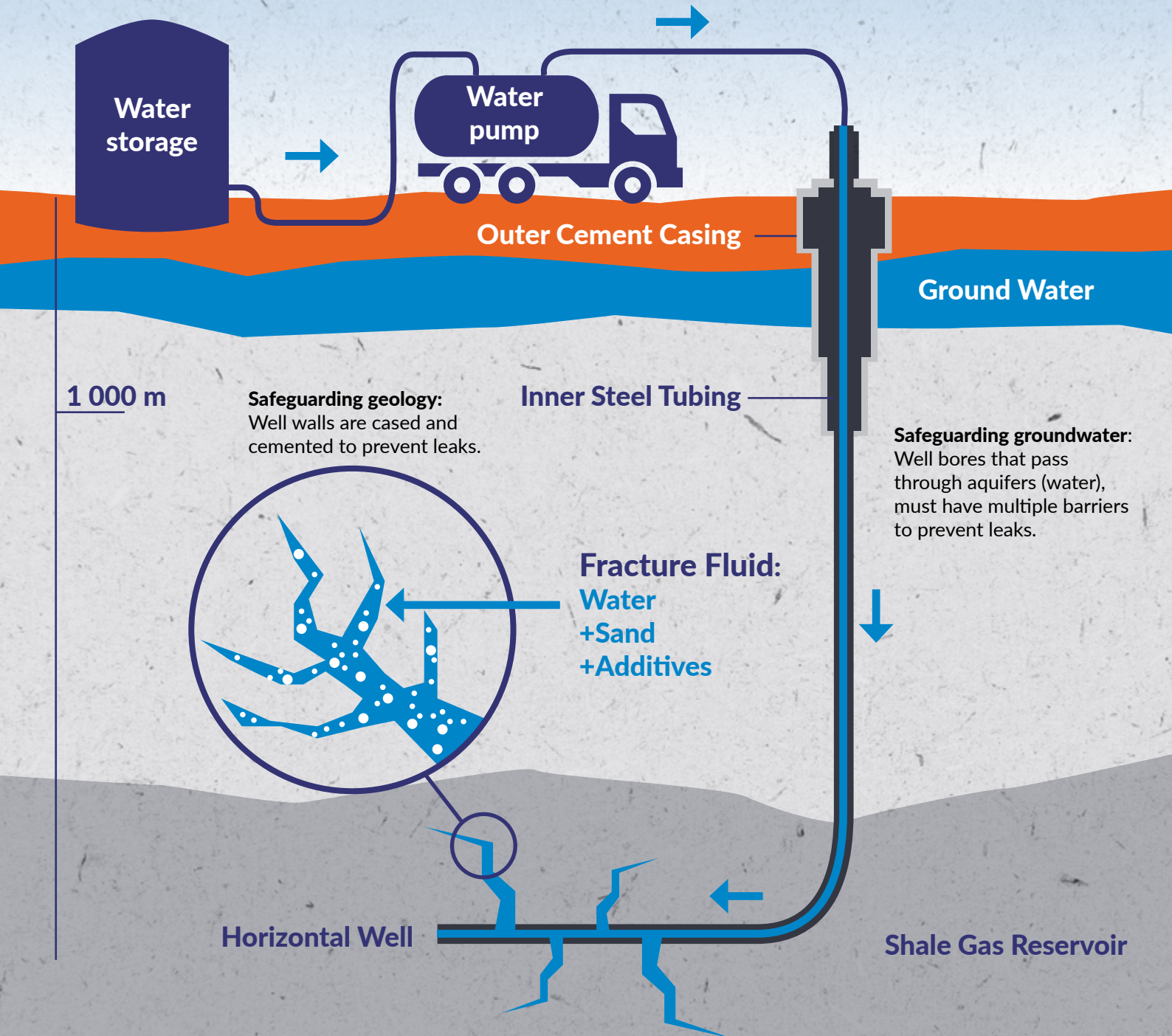
Extensive 4+ year implementation of Inquiry recommendations.

# Independent Officer

Dr. David Ritchie oversaw and reported on implementation of 138 recommendations.

# How is unconventional natural gas extracted?

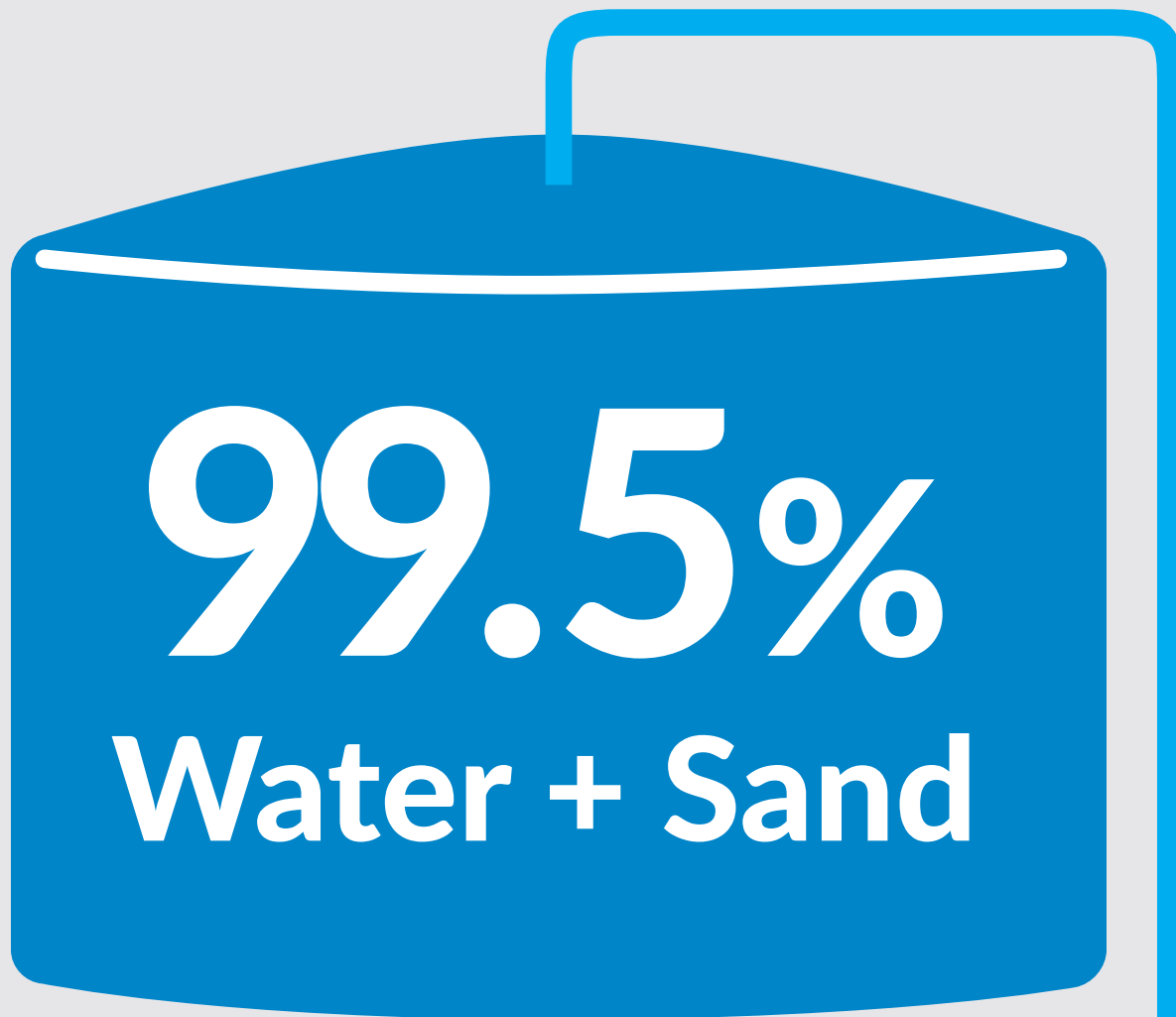
Before gas can be extracted from a shale gas reservoir, fracture fluid is injected at high pressure into sections of rock. This creates localised networks of tiny fractures that enables gas to flow into the well and to the surface.



A typical well is 20cm in width. This is the length of an average adult tooth brush.



# What is fracture fluid?



**0.5% Additives**

Commonly found in



Household cleaning products



Hair products



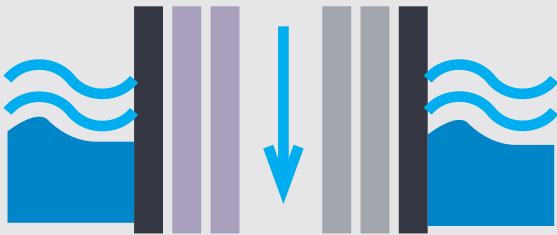
Food additives

# Is onshore natural gas fracture stimulation safe?

There is no evidence that fracture stimulation in Australia has caused serious environmental harm.

In the NT, the independent Scientific Inquiry into Hydraulic Fracturing found that risks could be sufficiently mitigated if all 135 recommendations (that became 138) were implemented. All have been implemented to create a new regulatory environment.

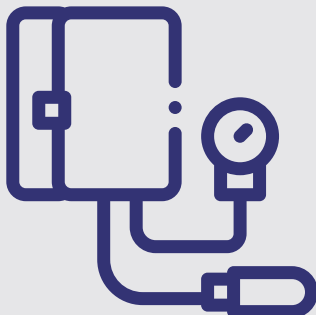
The NT Government also completed a world-class Strategic Regional Environmental and Baseline Assessment (SREBA) into Beetaloo Sub-basin to inform decision making and monitoring.



**Wells that go through aquifers must have multiple layers of steel casing and cement to stop leaks.**



**Operators monitor the containment of wells using high-tech equipment and have strict report rules.**

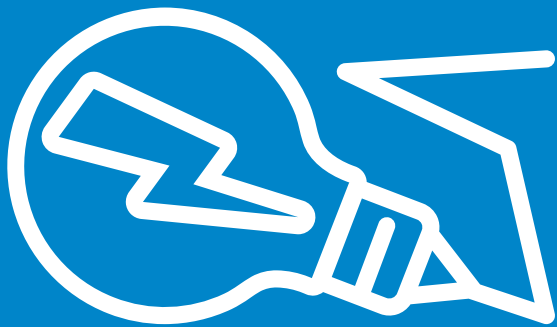


**Casing and cement in drilling wells is pressure-tested for leaks before being used.**



**Unconventional gas extraction is different to coal seam mining (which doesn't occur in the NT).**

# The benefits and economic potential.



**Local, National and International energy security** for households and business

- Guaranteed supply
- Lower costs



**Billions of dollars into NT and Australian economies**



One layer of Beetaloo Sub-basin alone could deliver \$17+ billion economic activity to the NT over 25 years



**Thousands of local jobs**

- + Indigenous community benefits
- Local jobs
- Business partnerships



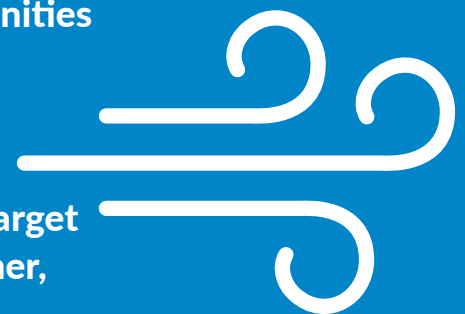
**Regional development**

- Better roads
- More services
- New supply chains
- More economic opportunities

**Reduced emissions**

(Gas as a transition fuel to renewable energy)

- Aligns with National and NT 'net-zero by 2050' target
- Supports growing international demand for cleaner, affordable transition fuel



# Onshore gas supports the Territory's transition to net-zero emissions by 2050

Natural gas is a cleaner, reliable and stable source of energy as we transition to 100% renewables sources (ie. solar and wind).

# 30%

less carbon emissions than oil

# 45%

less carbon emissions than coal



**Fact:** While uptake is growing, renewable energy supplies cannot currently meet **household** demands for heating and electricity.



**Fact:** While uptake is growing, renewable energy supplies cannot currently meet **business** demands for power generation.



**Fact:** Natural gas is the cleaner, reliable and stable option to meet current energy demands. Importantly, it is also used to make other lower-emission fuels like Hydrogen.



**Fact:** Natural gas is also used in the manufacturing process of zero-emission renewable energy products like:

- Solar panels
- Wind turbines
- Magnets and batteries

## How are onshore gas activities approved?

### Environment Management Plan Approval Process

Before onshore unconventional natural gas extraction activities can occur in the NT, companies must submit an Environment Management Plan (EMP) that describes what they propose to do, where they propose to do it, what the potential impacts might be, and how these will be avoided or minimised.

The Minister for Environment considers all these things before making a decision to approve an EMP under the Petroleum (Environment) Regulations 2016. An EMP can only be approved if impacts are minimised to acceptable levels. This process was made more robust as part of the Independent Scientific Inquiry into Hydraulic Fracturing.

### Environment Management Plans must consider many impacts



Stakeholder Engagement



Water Protection



Environmental impacts are minimised



Cultural Heritage is protected



Site rehabilitation



Greenhouse gases reduced and offset



For more information visit:  
[hydraulicfracturing.nt.gov.au](http://hydraulicfracturing.nt.gov.au)