IMPERIAL
OIL & GAS

Shale Gas Exploration
McArthur Basin Onshore Australia

John Warburton
Director & Chief Executive Officer

16th Asia Oil Week Upstream Conference
Singapore
30th September 2011

EMPIRE energy

Aims

- Demonstrate why cultural heritage & natural environment must take precedence over petroleum
  - Challenge technology providers to deliver necessary & timely breakthrough
    - Imperial's stand to preserve culture & environment *and* exploit resource

Disclaimer

The purpose of this presentation is to provide general information about Empire Energy Group Limited ("Empire Energy") and its 100% owned subsidiary Imperial Oil & Gas Pty Ltd. The presentation contains certain statements which may constitute "forward-looking statements". Such statements are only predictions and are subject to inherent risks and uncertainties which could cause actual values, results, performance or achievements to differ materially from those expressed, implied or projected in any forward-looking statements.

No representation or warranty, express or implied, is made by Empire Energy that the material contained in this presentation will be achieved or prove to be correct. Except for statutory liability which cannot be excluded, each of Empire Energy, its officers, employees and advisers expressly disclaims any responsibility for the accuracy or completeness of the material contained in this presentation and excludes all liability whatsoever (including in negligence) for any loss or damage which may be suffered by any person as a consequence of any information in this presentation or any error or omission there from. Empire Energy accepts no responsibility to update any person regarding any inaccuracy, omission or change in information in this presentation or any other information made available to a person nor any obligation to furnish the person with any further information.

Presentation

McArthur Basin Shale Gas Play

- Imperial Oil & Gas
- Competitive landscape in Australia
- Shale Gas Play
- Aboriginal Land & Environment
- V + V + S
- Footprint
- *Call to Action* for petroleum technologists

Imperial Oil & Gas

Empire Energy Group Limited
Australian Securities Exchange
(ASX:EEG)

96%

Imperial Resources LLC

100%

~92%*

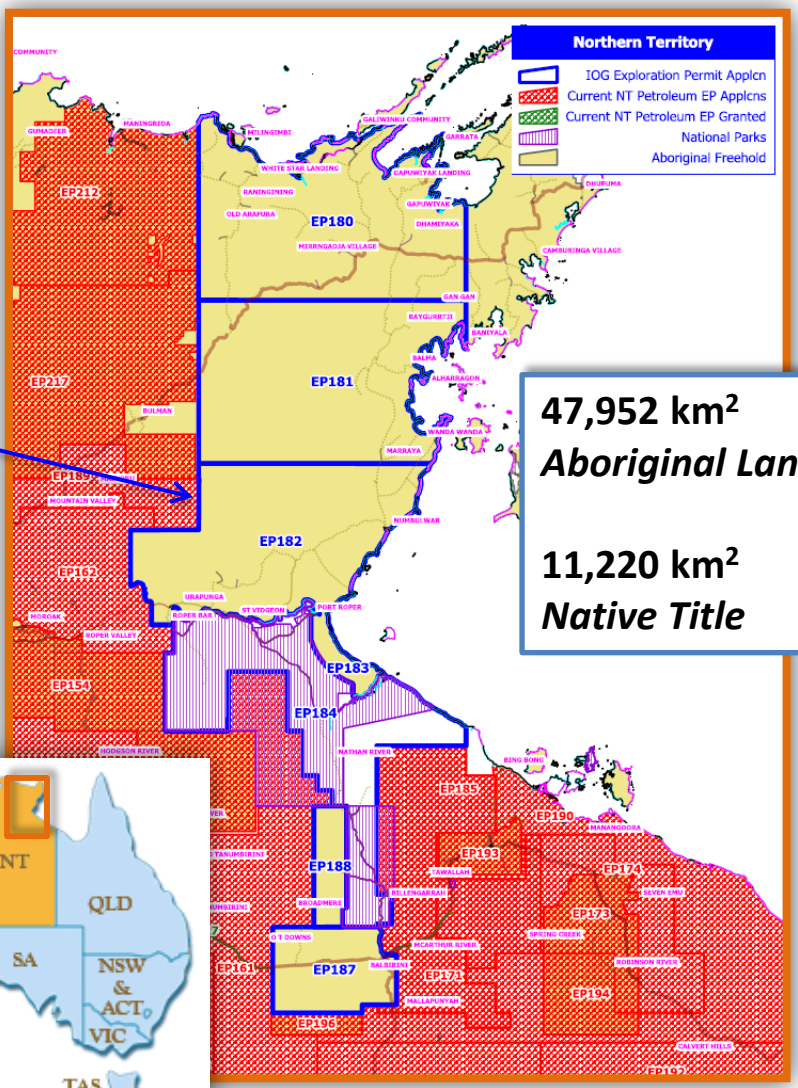
Empire Energy USA LLC

100%

Empire Drilling & Field Services LLC

100%

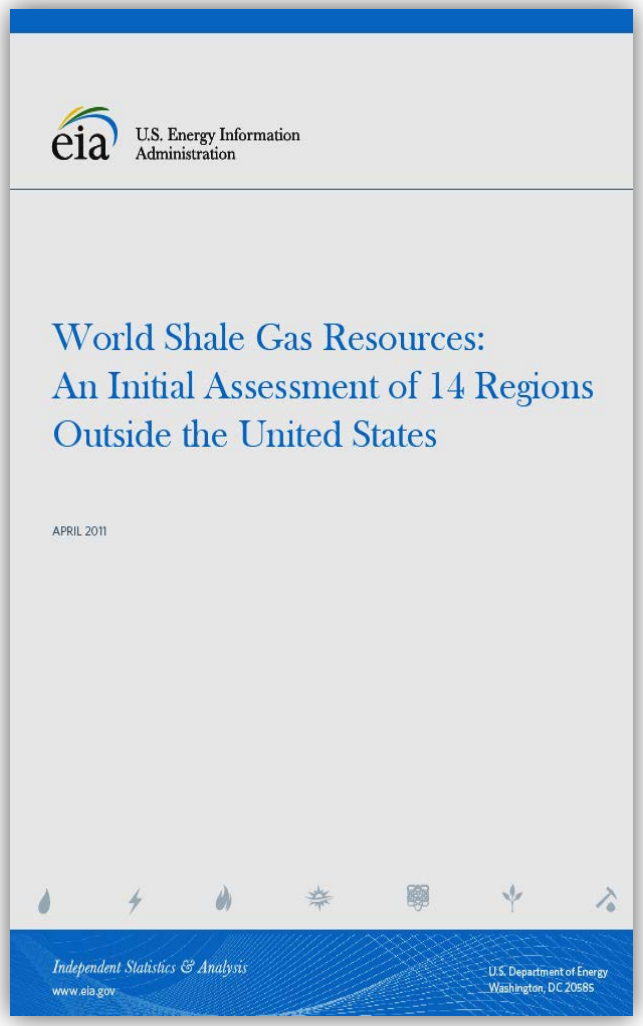
Empire E&P LLC



47,952 km²
Aboriginal Land

11,220 km²
Native Title

Scale



Australia

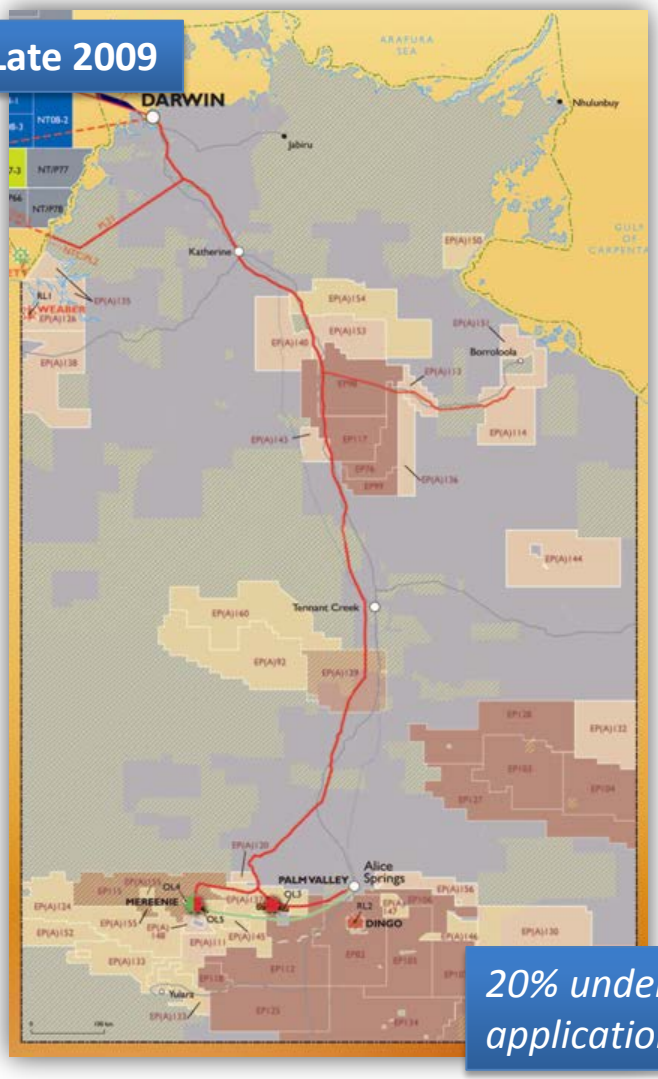
- Shale Gas is still in infancy
  - Little exploration & no-commercial production
- 396 Tcf TRR Shale Gas
- Greater than estimated CSG reserves that will…
  - underpin 3 recent LNG projects
  - deliver capacity of 25 million tonnes a year

Continent	Risked Gas In-Place (Tcf)	Risked Technically Recoverable (Tcf)
North America	3,856	1,069
South America	4,569	1,225
Europe	2,587	624
Africa	3,962	1,042
Asia	5,661	1,404
Australia	1,381	396
Total	22,016	5,760

6

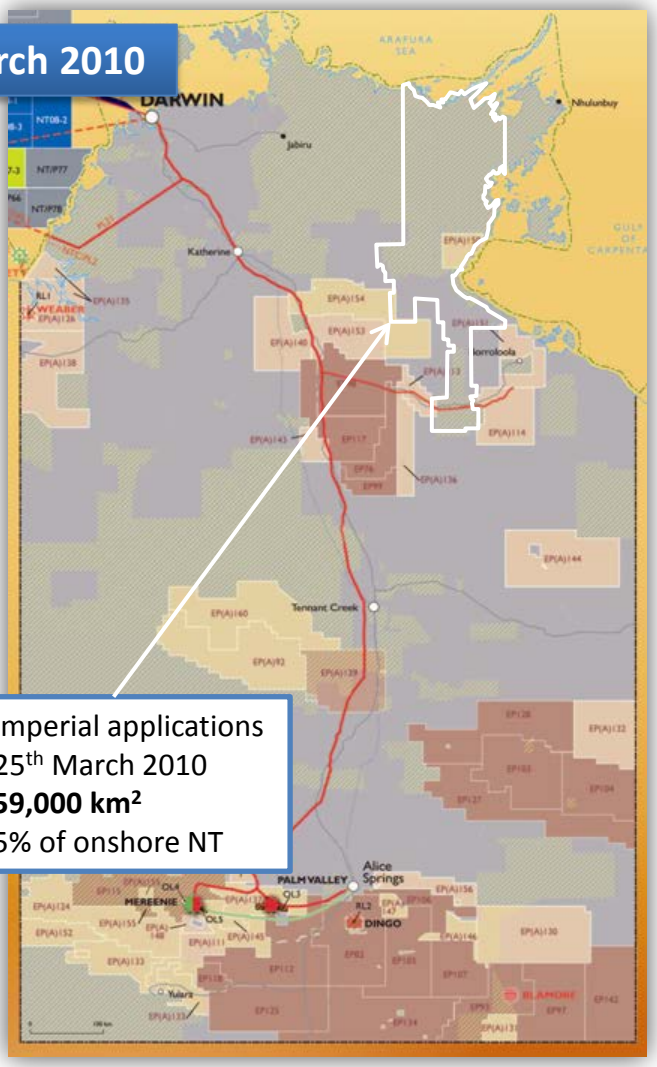
Pace

Late 2009



20% under application

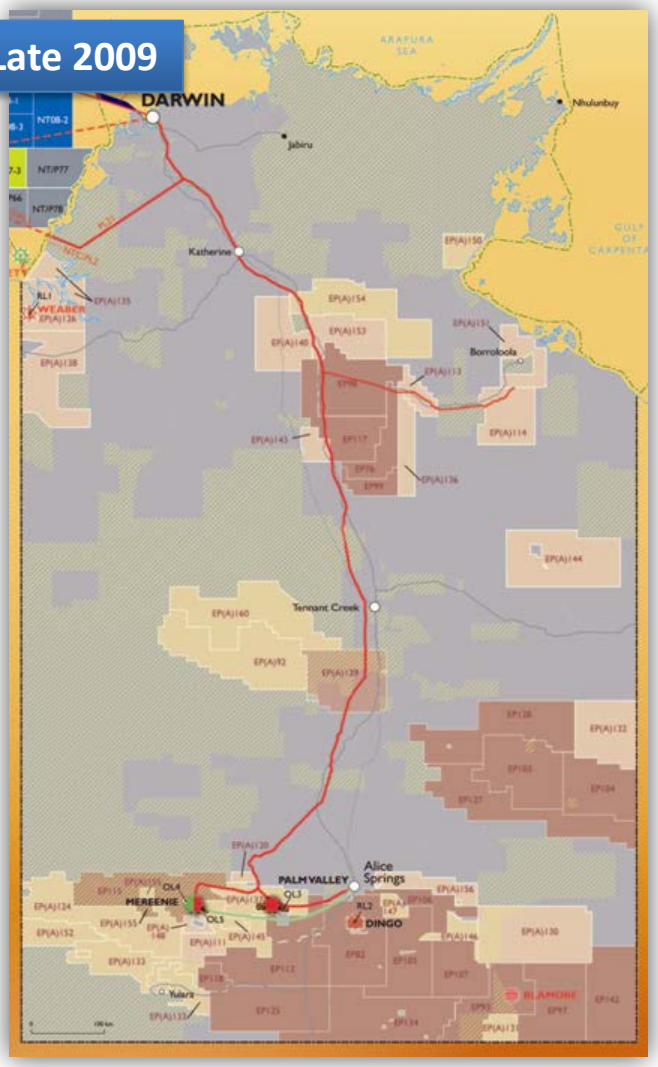
March 2010



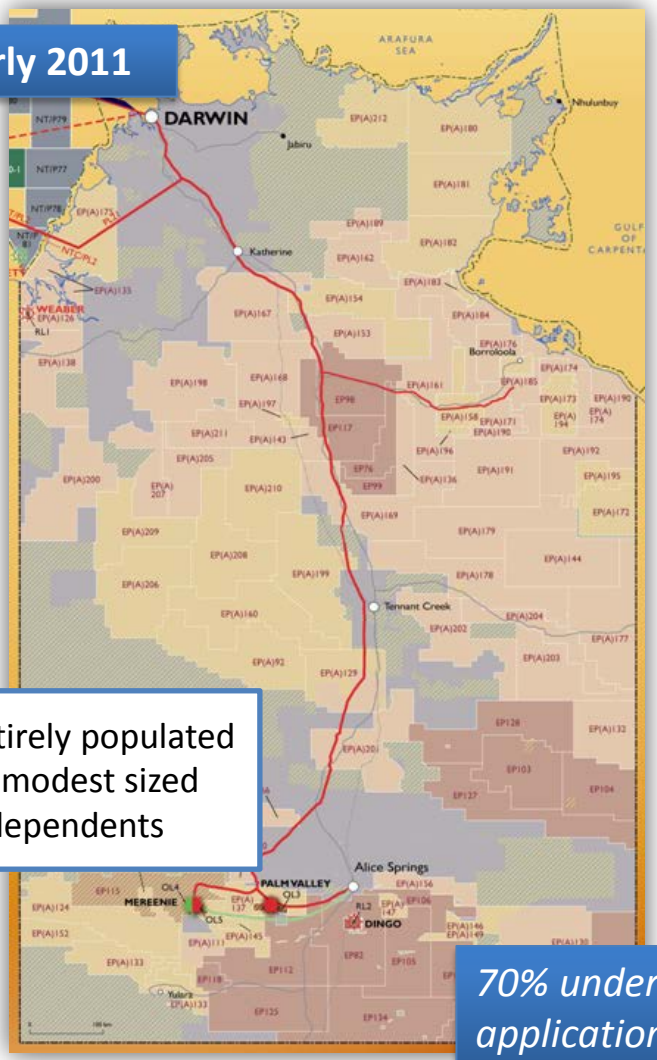
- Imperial applications 25th March 2010
- **59,000 km²**
- 5% of onshore NT

Pace

Late 2009



Early 2011



Entirely populated by modest sized independents

70% under application

Shale Deals

Big** moving on the **small

Jun 2010	**Mitsubishi**	**A$ 152.4 million**	50%	**Buru Energy**	Canning Basin
Dec 2010	**CNOOC**	**A$50 million**	50%	**Exoma Energy**	Galilee Basin
Apr 2011	**Hess**	**U$60 million** (+10 mm shares)	62.5%	**Falcon Oil & Gas**	Beetaloo Basin
Jul 2011	**CoP**	**A$ 109.5 million** (+back costs)	75%	**New Standard Energy**	Canning Basin
	BG	**A$ 130 million** (+back costs)	60%	**Drillsearch Energy**	Cooper Basin

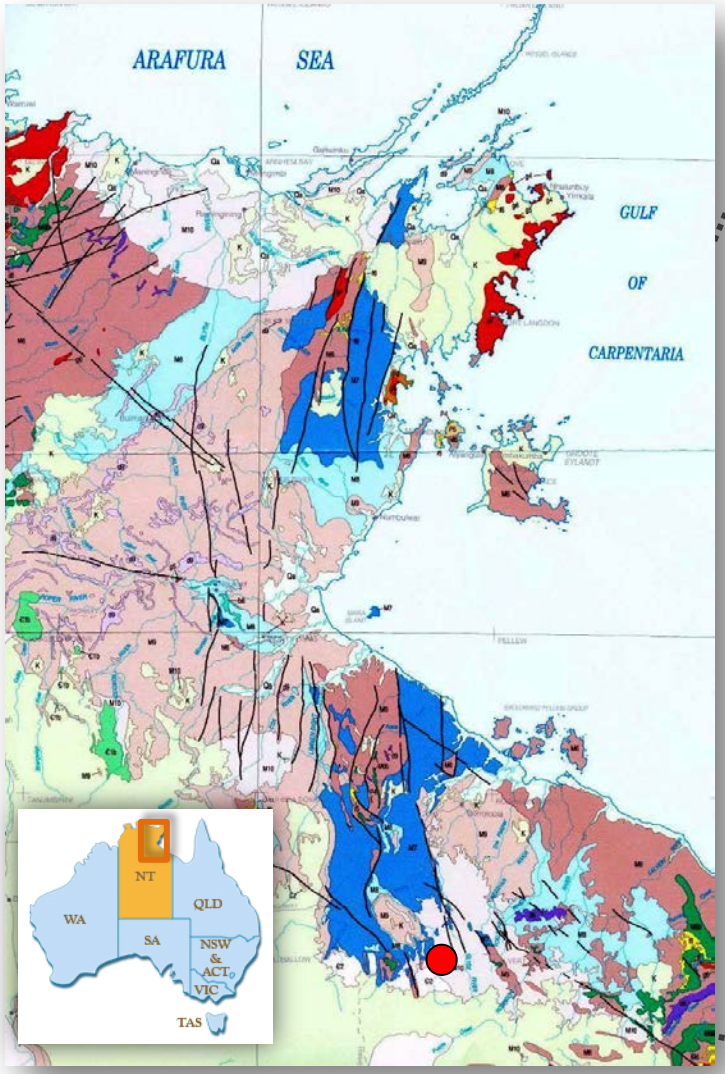
- **Beach** flowed 2 mm scfd shale gas booking contingent 2Tcf in Cooper Basin

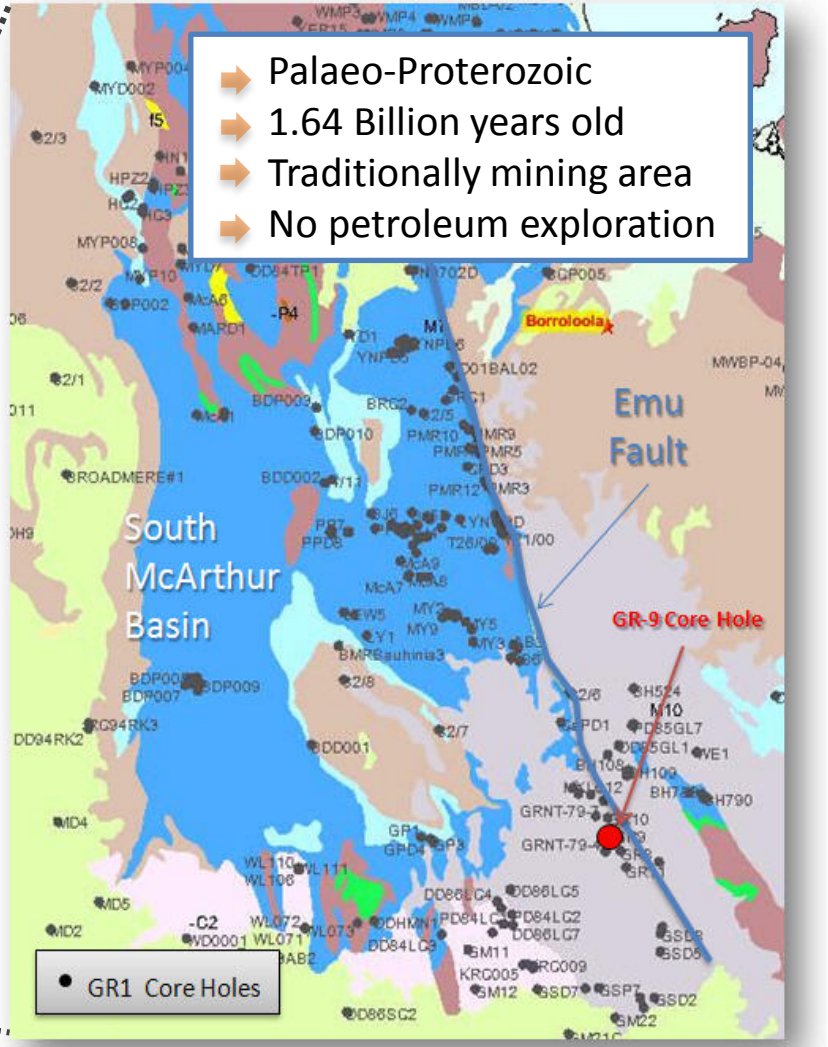
Oz deals currently modest compared with USA & Canada

Jul 2011 **BHP U$12.1 billion Petrohawke Energy**
(Texas & Louisiana Eagle Ford, Haynesville & Permian shale plays)

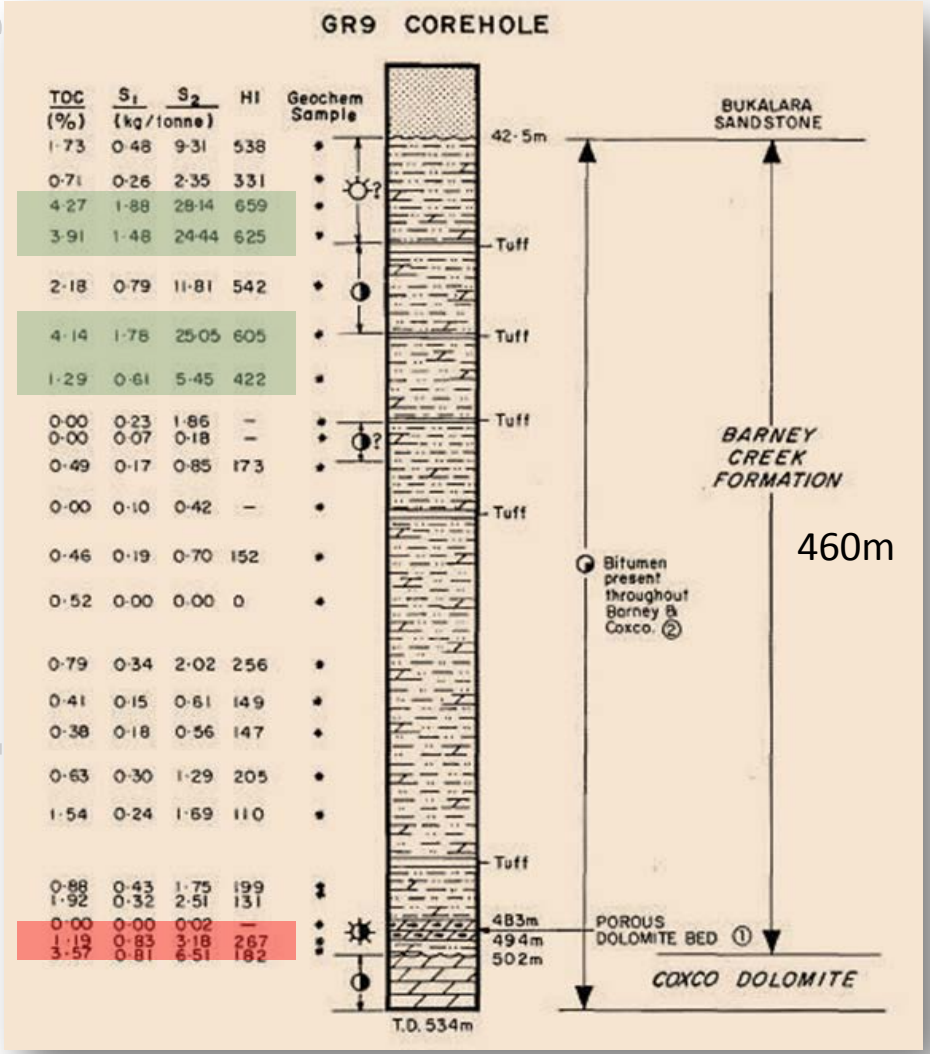
From Norton Rose Australia, 18th August 2011. "Unconventional series - The shale gas revolution comes to Australia"

McArthur Basin





Shale Play

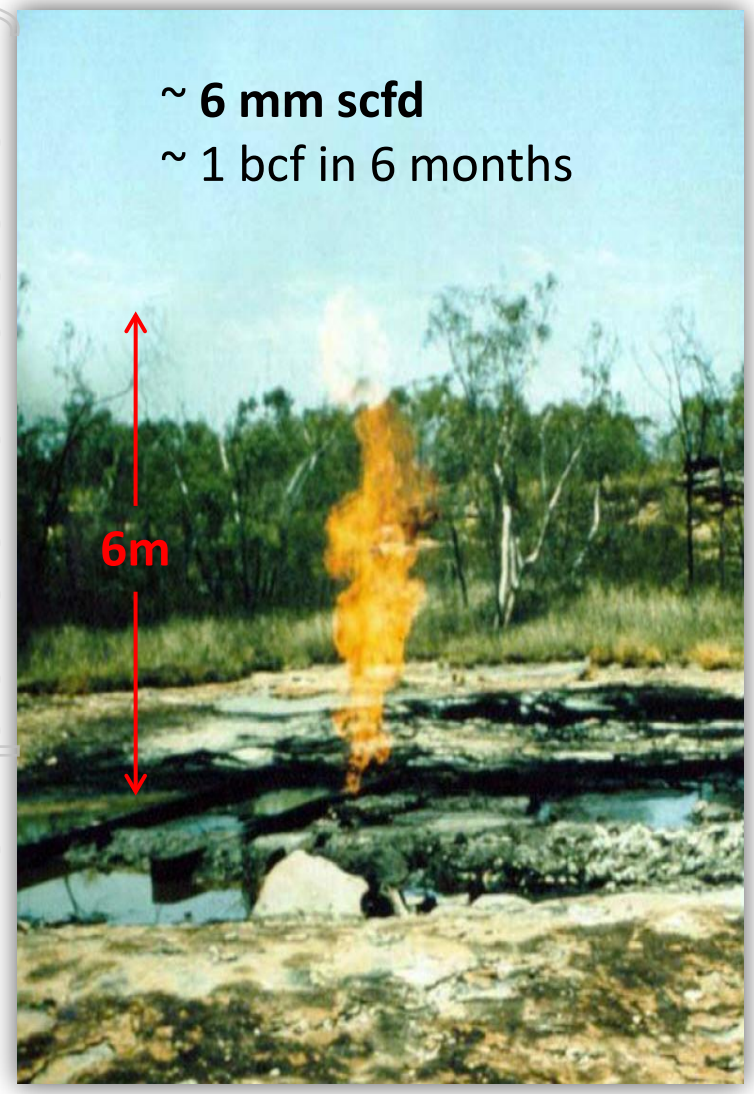


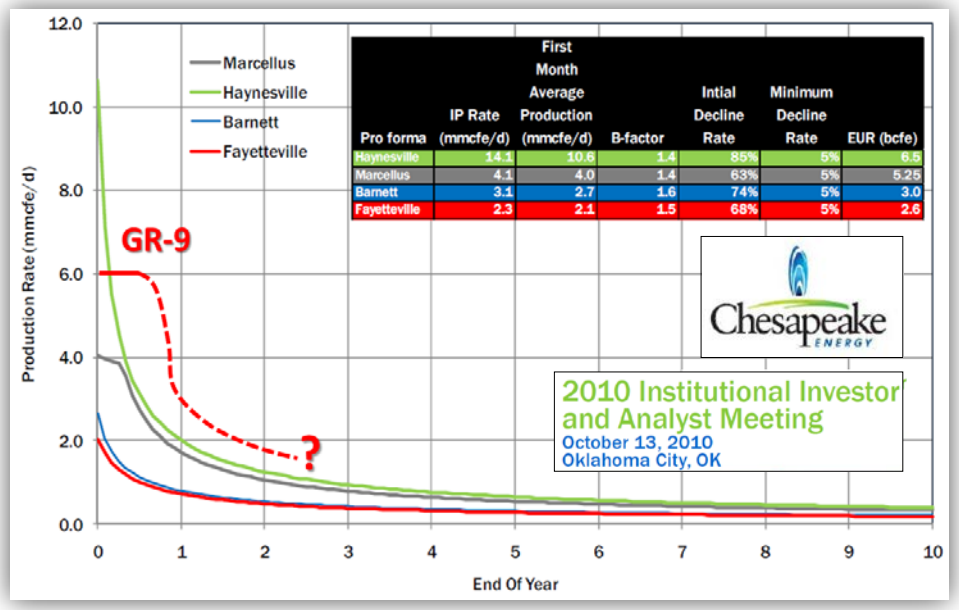
The most spectacular indication of live hydrocarbons encountered to date in the McArthur Group was in the Kennecott-Amoco mineral exploration corehole GR 9, drilled in the Glyde area. A summary log of this drillhole is shown as Figure 5, and the location is shown in Figure 2. Upon unintentional swabbing at the end of drilling (in December 1979), the corehole experienced a gas blow-out which yielded a 5-6m (15-20 ft) long flame. Condensate flow accompanying the gas, was indicated by the bright orange-yellow colour of the flame, and by an accompanying sooty tail. The hole flowed gas for an indeterminate period during the immediately following "Wet" season. By the end of the "Wet" the hole was filled with water and the gas flow had degenerated to a series of gas bubbles percolating through hydrostatic head. A sample of the gas taken at this stage yielded the following analysis:-

Methane	74.25%
Ethane	10.25%
Propane	3.25%
Iso-Butane	0.175%
N-Butane	0.60%
N-Pentane	0.105%
Hexane	0.165%
Heptane	0.08%
Nitrogen	10.75%
Carbon Dioxide	0.20%.

The hole was plugged with cement in April 1980.

GR-9 Well





Pro forma	IP Rate (mmcfe/d)	First Month Average Production (mmcfe/d)	B-factor	Intial Decline Rate	Minimum Decline Rate	EUR (bcfe)
Haynesville	14.1	10.6	1.4	85%	5%	6.5
Marcellus	4.1	4.0	1.4	63%	5%	5.25
Barnett	3.1	2.7	1.6	74%	5%	3.0
Fayetteville	2.3	2.1	1.5	68%	5%	2.6

*"… **mineral exploration hole** drilled at the Glyde River prospect by **Amoco** in **1979** flowed gas and condensates at 140psi for 6 months ……."*

Armour Energy ASX announcement 11th October 2010

Play Summary

Uncertainties

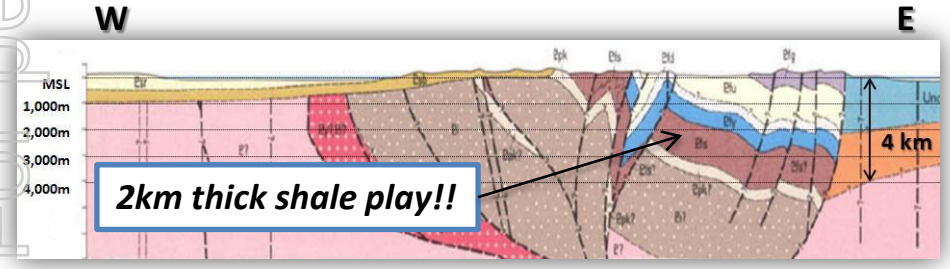
Shale Quality

- *Distribution of gas-shale*
- *Regional quality trends*

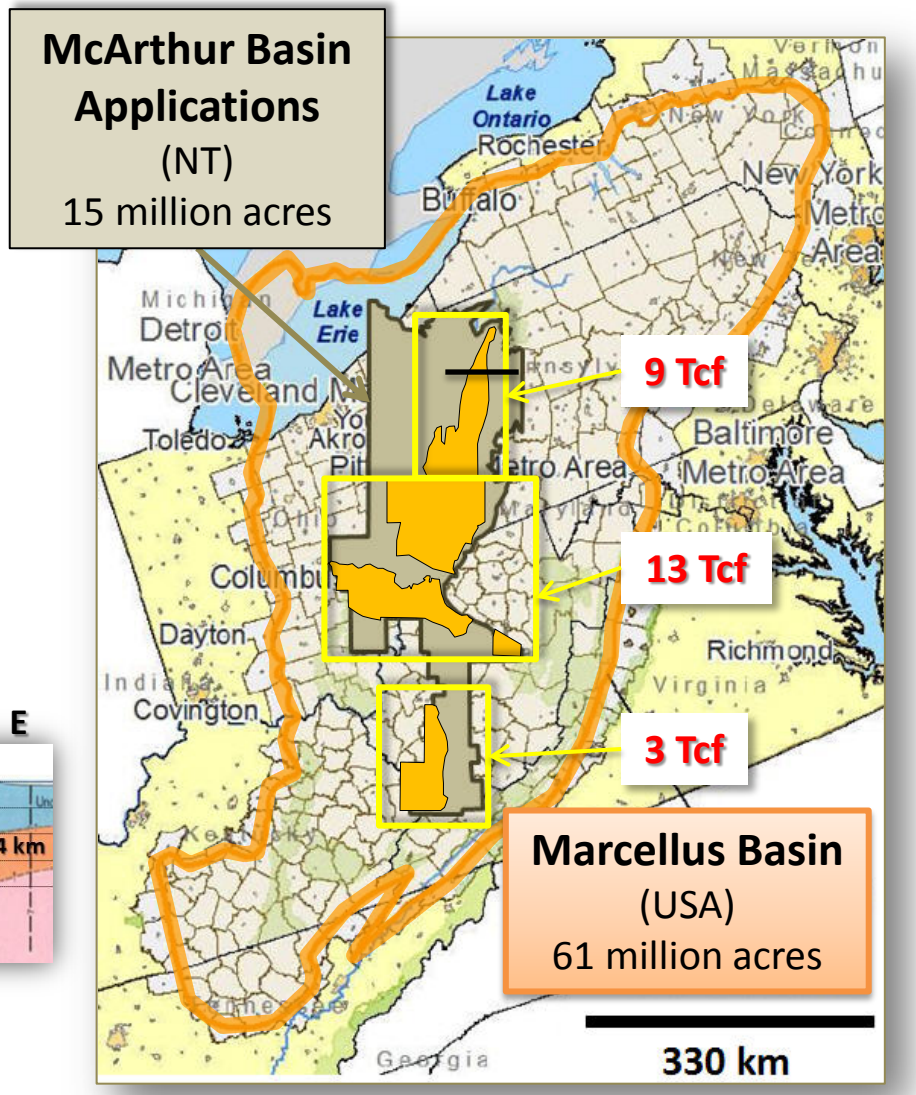
Shale Effectiveness

- *Position of OGW/GGW*
- *Timing*
- *Sweet spots*

Marcellus Analogue for volume



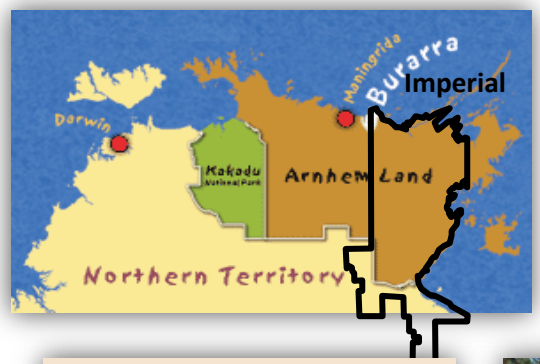
Access to Aboriginal Land……

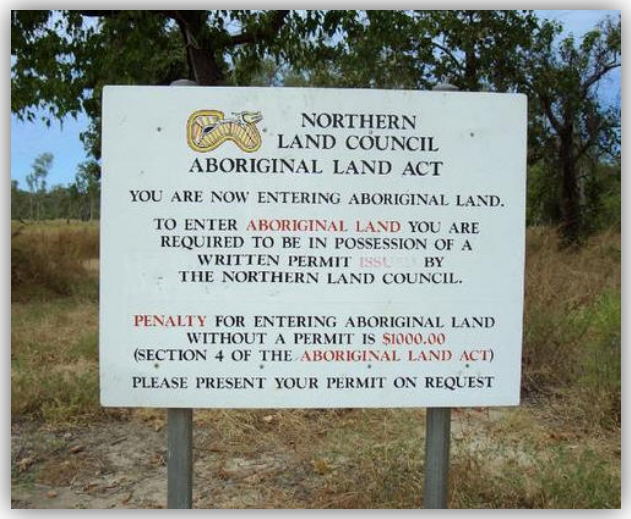


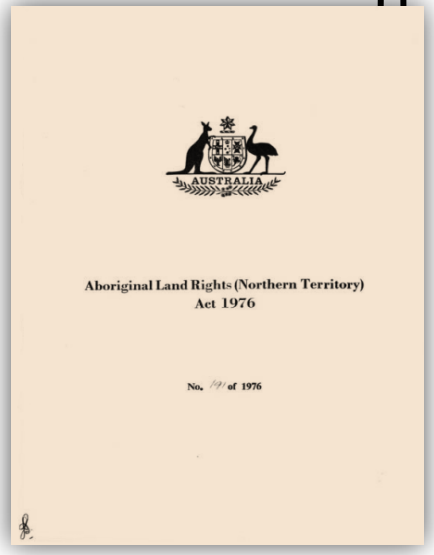
Aboriginal Land

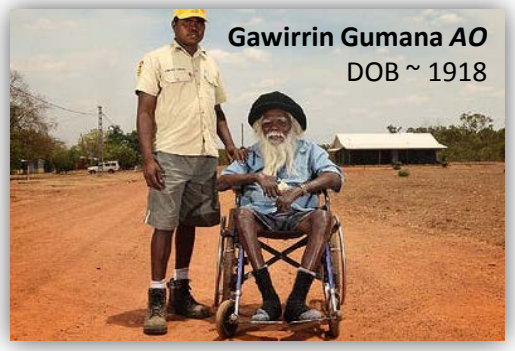
Imperial Acreage

47,952 km² *Aboriginal Land* 80%
11,220 km² *Native Title* 20%

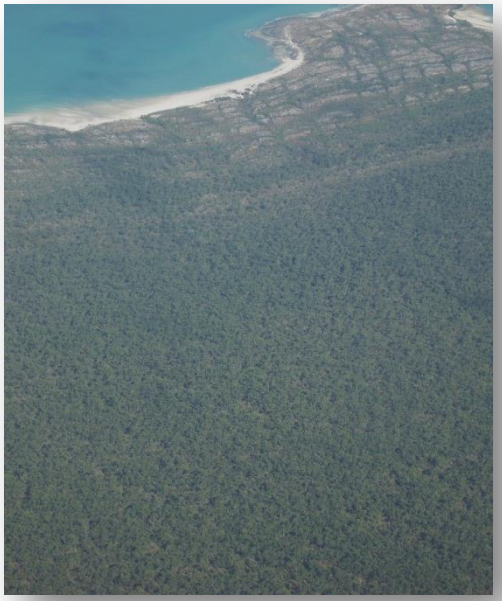


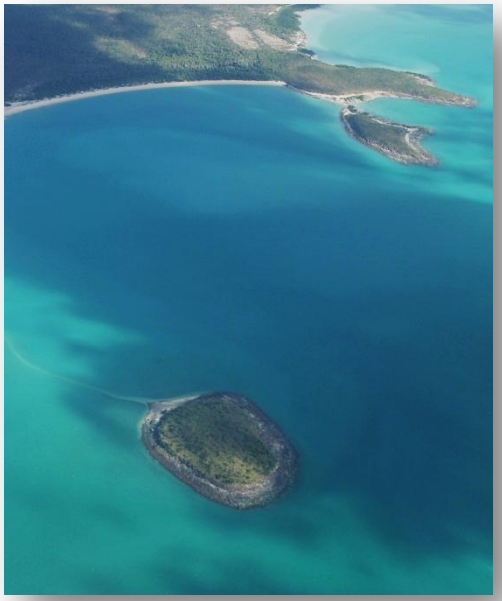






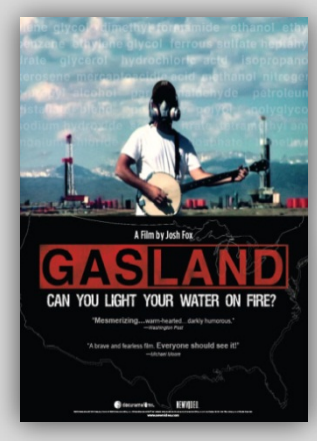
Environment





Perception

Now ---------- Future ?



..... is not necessarily fact

On the one hand....

"...the push to drill for natural gas is turning vast swaths of beautiful American country into dangerous sludge dumps..."

"... dirty business..."

.... yet on the other

"...2 out of the 3 wells that Gas-Land featured were contaminated biogenic gas unrelated to oil and gas activity"

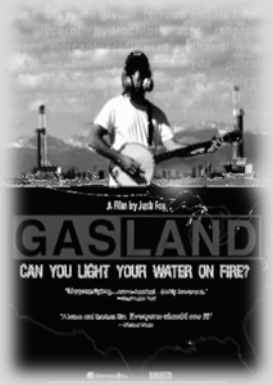
"...natural gas falsely accused (of) 35 mile fish kill. U.S. Environmental Protection Agency tied the fish kills to coal mine run-off"

.... SO....

Incremental Change

Now

Future



Opportunity

INCREMENTAL EFFICIENCY

Technology Creep

$$$

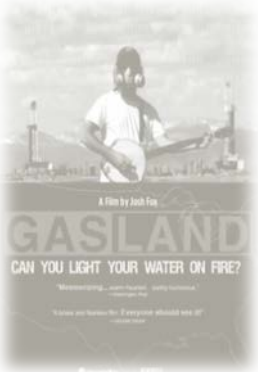
More of the same

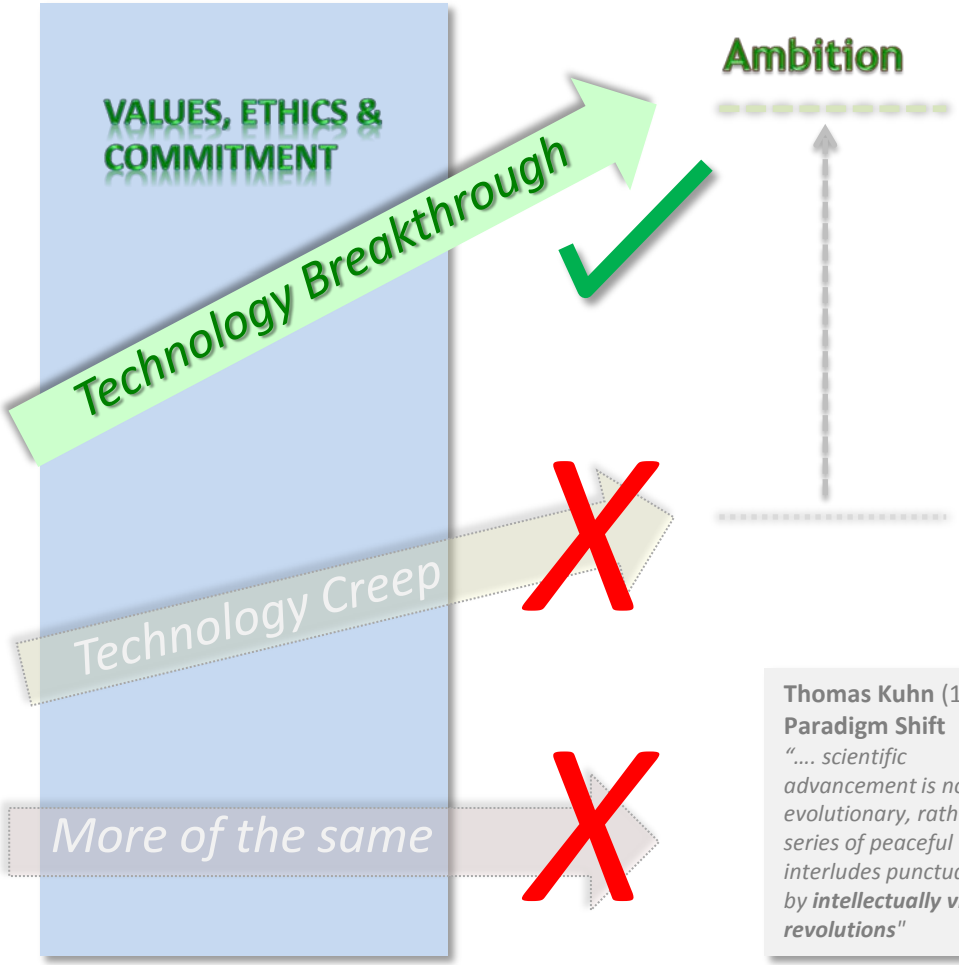
... is not acceptable

Future Base Case

Game Change

Now ---------- Future





Thomas Kuhn (1962)
Paradigm Shift
*"…. scientific advancement is not evolutionary, rather is a series of peaceful interludes punctuated by **intellectually violent revolutions**"*

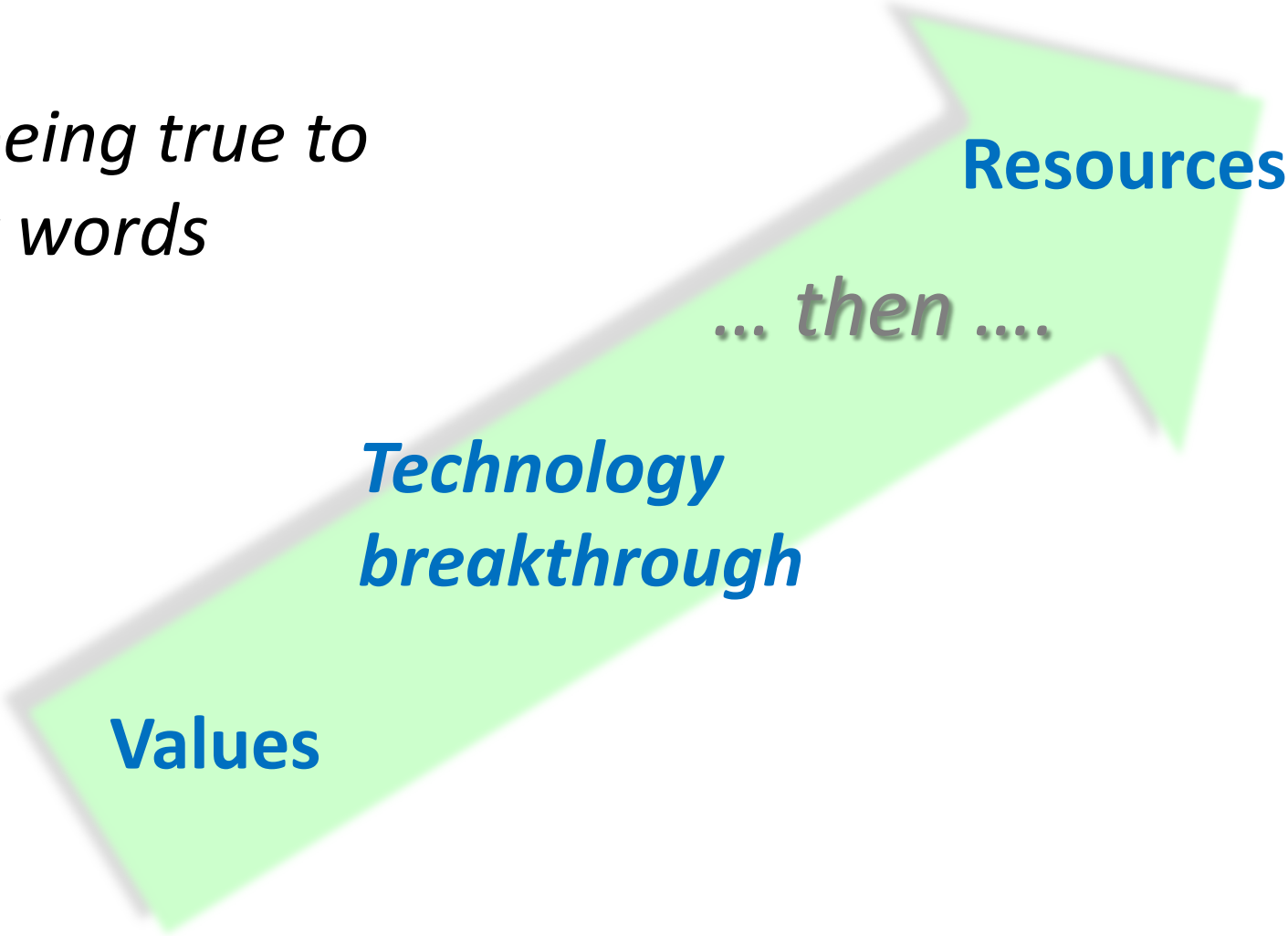
Imperial's Vision

Safely develop the shale gas resources while preserving cultural heritage, customs & natural environment

… which means ….

Guiding Principle

… being true to our words



So, the reality is …..

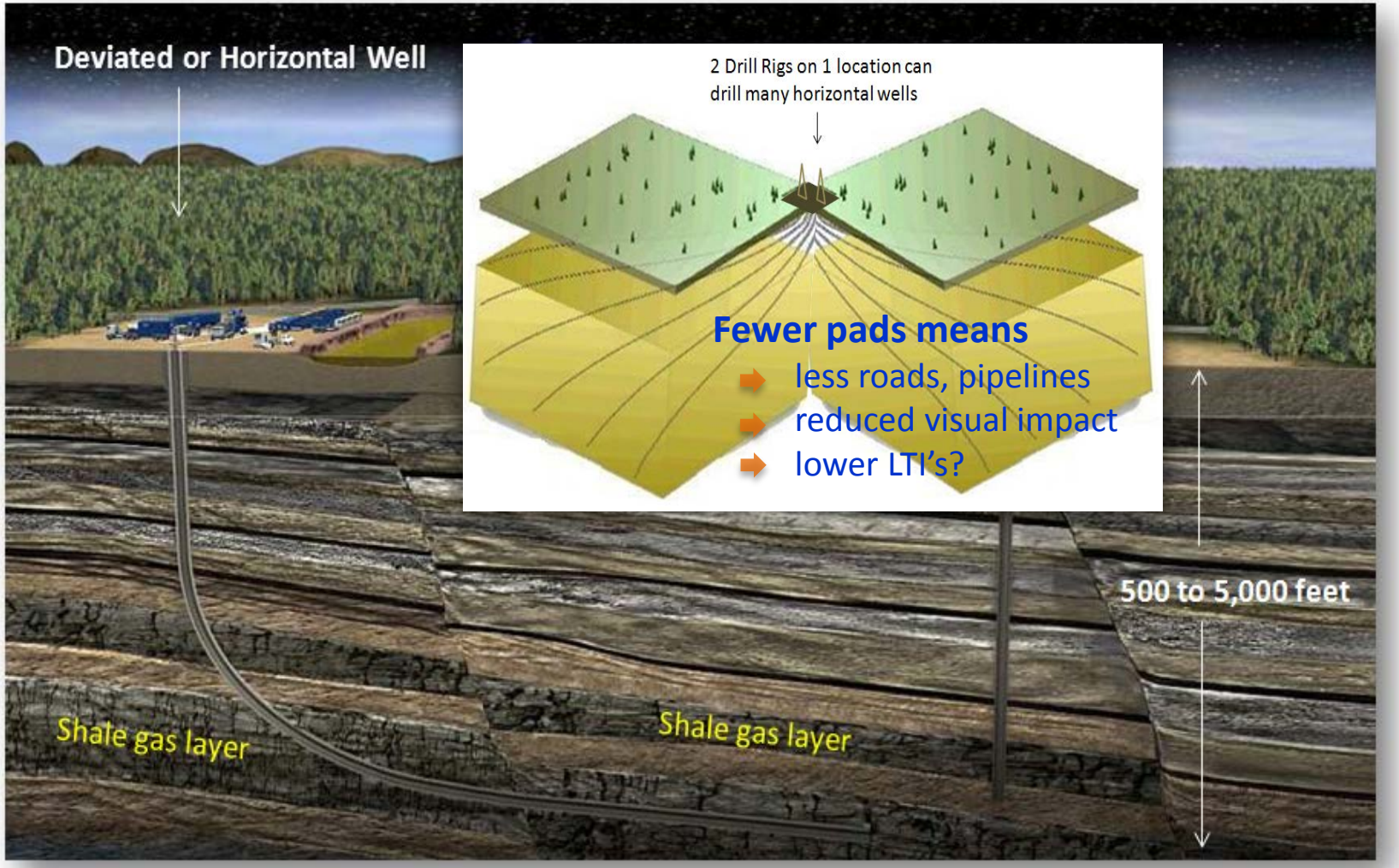
- access to resource is constrained by environment & culture
- protect these or forget the resources

Strategy

Drive the **timely development** & implementation of drilling & production **technology** to

- remove risk to environment & culture
- maximise recovery
- optimise shale gas economics

Minimising Footprint



Natural Rehabilitation

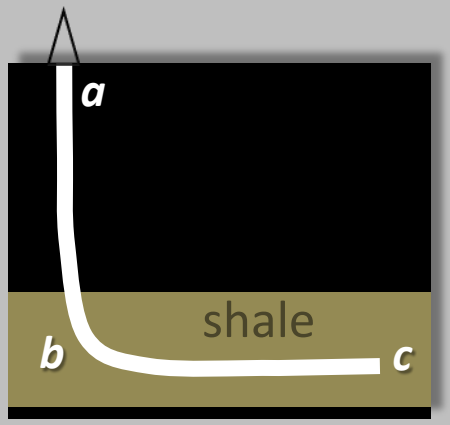
6 months - regrowth

10 years - complete regrowth

Shale Gas Drilling Limit

Current

- Deepest (MD) *7,620m* ***a-c***
- Deepest (TVD) *4,481m* ***a-b***
- Lateral Length *3,048m* ***b-c***
- Highest Initial Production
  - 10,000 BOPD
  - 60 MMCF/Day
- Up to 22 fracs per well



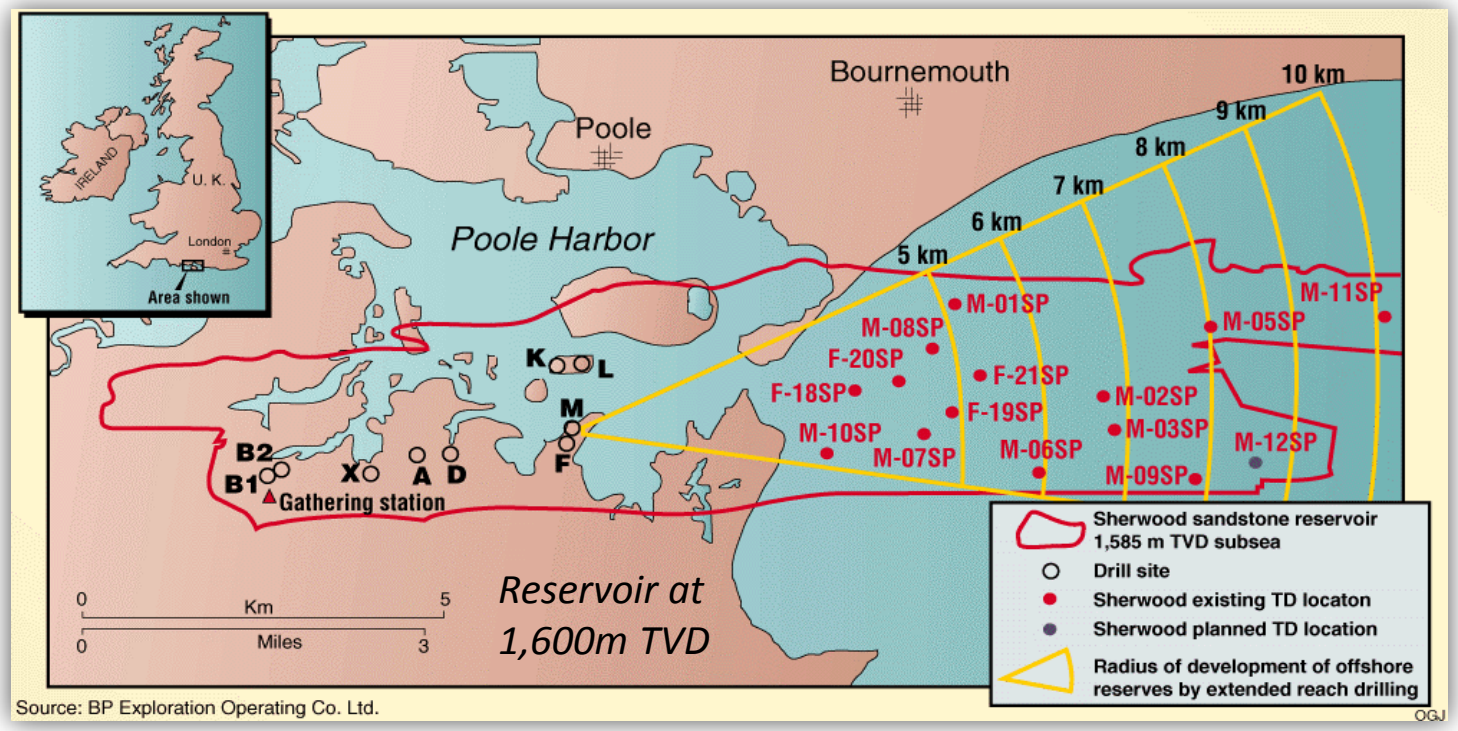
Values provided by Packers Plus April 2011

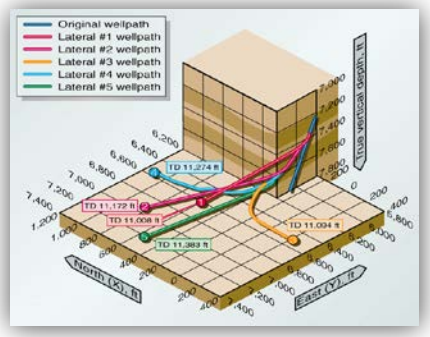
Trends

- *Cleaner*
- *Deeper*
- *Hotter*
- *Longer*
- *More Laterals*
- *More fracs per well*
- *Cheaper*

In 2-5 years?

Push the limit





1999
World record for 11km long reach horizontal well

A Call for Technology

Strategy

Drive the **timely development** & implementation of **drilling & production technology** to

- remove environment risk
- maximise recovery
- optimise shale gas economics

Technology Challenge

- *Cheap*
- *Safe*
- *10km+ fracced horizontal wells*
- *with multi-lateral, multi-level & multi frac*
- *that have no lasting impact on environment*

Call for Action

- Acknowledge the past but no precedent for future
- Responsibility to protect heritage & natural environment
  - *no compromise!*

"….I'll tell you what I want,
what I really, really want…"

- Technology breakthrough in 2-5 years
  - *Safe, cheap & clean*
  - *10km+ fracced horizontal wells <u>as standard</u>*
  - *multi-lateral/level/frac*

Broader Vision

The first predominantly Aboriginal-led petroleum exploitation company with focus on the East Arnhem Region

*….. a 'NOC' like **PetroMin** in PNG*

Petromin PNG Holdings Limited is an independent company created by the State of Papua New Guinea to hold the State's assets and to maximise indigenious ownership and revenue gains in the mineral and petroleum sectors.

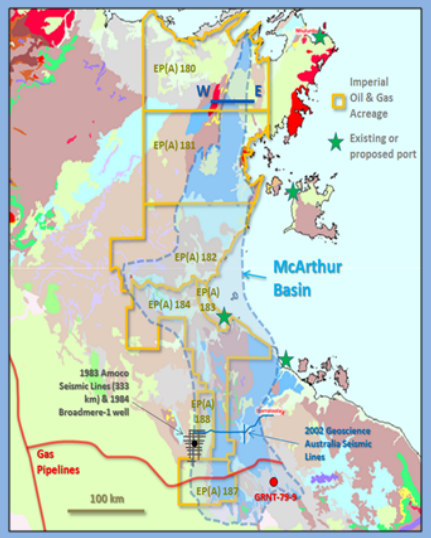
It is empowered as the vehicle to better leverage the State's equity holdings and encourage more production and downstream processing of oil, gas and minerals in PNG through proactive investment strategies either wholly or in partnership with resource developers.

More Stuff

McArthur Basin Shale Gas Play
Northern Territory Onshore Australia

Opportunity

In 2010 Imperial Oil & Gas secured **100% interest in 59,000km²** of prospective shale gas exploration acreage in the Proterozoic McArthur Basin (*Exploration Permit Applications EP (A) 180 – 188*). The McArthur is a petroleum frontier basin at **low exploration maturity** and no prior shale gas activity. It is an inverted Proterozoic basin with **thick carbon-rich black shale** petroleum source rocks also mined for Pb-Zn. There are **direct indications of oil & gas** in the basin and existing gas pipelines. Analogue shale gas basins suggest Imperials acreage contains of the order of **24 Tcf of potential recoverable resources**. For the permits to be granted and exploration work to start agreements must be negotiated with Traditional Land Owners. This process has commenced.



Contact

Dr John Warburton

Director & CEO

Imperial Oil & Gas Pty Ltd

(ABN 92 002 699 578)

T +61 (0)2 9251 1846

M +61 (0) 404 80 70 70

E jwarburton@empiregp.net

Exploration Plays The target gas resource is in 1,640 million year old Palaeo-Proterozoic organic-rich black shales of the **Barney Creek Formation** and equivalents, proven gas-prone in the South McArthur Basin. In particular the 1979 mineral core hole GRNT-79-9 ignited and sustained a 6m high yellow smoky gas flare for approximately 6 months producing an estimated 0.5 Bcf at 6mmscfd. Gas analysis revealed C1-C7. In addition oil bleeds are common in cores and hence shale oil offers secondary potential.

The Meso-Proterozoic **Velkerri Formation** also contains carbon-rich black shales & siltstones and is present in the southern EP(A)s 187 & 188. This formation is the focus of shale gas exploration by others in the adjacent Beetaloo Basin to the south.

Key Uncertainties & Risk Consistent with a frontier basin the regional extent, quality, and thermal maturity of the Barney Creek & Velkerri Formation shales have yet to be adequately constrained due chiefly to past focus on mineral exploitation from the former. Potential gas-prone sweet spots are yet to be delineated and hence Imperials strategy of acquiring a very large initial acreage position.

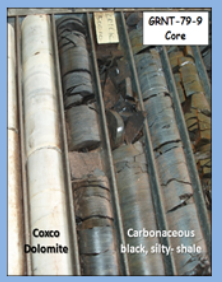
Land access and permit grant in six of the seven permit applications requires approval of the Traditional Owners given they are in Aboriginal Freehold Land. This is a risk given the licenses may not be granted for some time or at all. If negotiations are successful then some permits could be granted and work commence as early as 1H 2012. If not then the majority of the permits enter a 5 year veto period after which negotiations may re-commence.

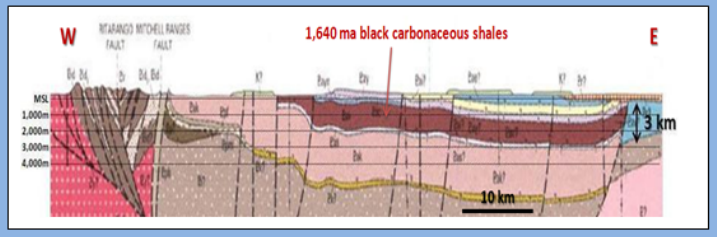
Exploration Work Programmes Once each permit is granted, the work programmes in all 7 permit areas are essentially the same. **Years 1 & 2** of the 5 Year initial Exploration Term will be concerned with demonstrating the quality of any potential gas shales by geological fieldwork, sampling, and by acquiring drill core samples. This work will form the basis for a Petroleum System Analysis to constrain whether, and in what locations, these shales may be capable of gas (or oil) production. The option to exit can be exercised at the end of any permit year.

Year 3 will focus on 2D seismic acquisition to define the basin shape and depth as well as subsurface targets for vertical test drilling in **Year 4**. If proven to contain shale-gas then **Year 5** will include the drilling and evaluation of a deviated or horizontal well involving fraccing and gas production testing.

Barney Creek Formation

Lithofacies	Carbonaceous black silty dolomitic shale
Depth	Outcrop to 4,000m
Gross	500 – 1,000m
Net	13% (in GR-9) to ?
TOC	0.4 – 10.4%
S1+S2	5 – 70 kg/ton
Maturity	Immature to GGW





For more information on **Imperial Oil & Gas Pty Ltd** and its Parent **Empire Energy Group Limited** (ASX: EEG) visit **http://empireenergygroup.net/**