



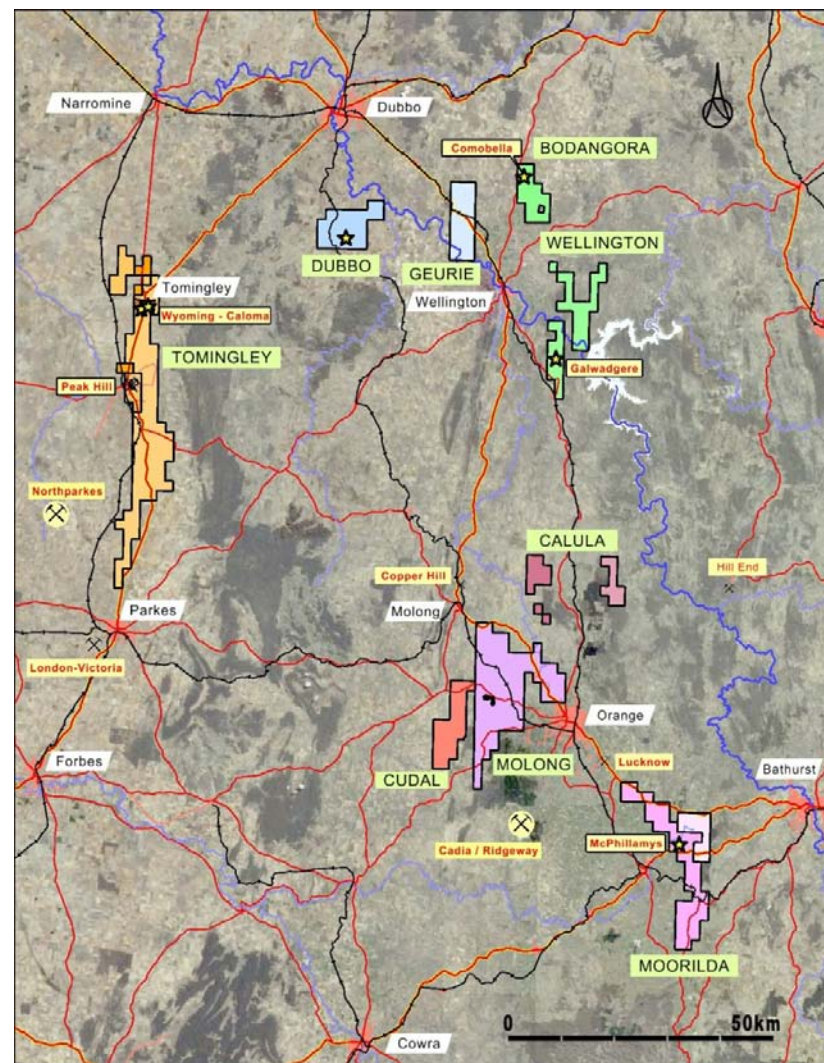
# ***Alkane's Multi Commodity Program in the Central West***

***SMEDG MEETING***  
**Sydney 28 June 2012**



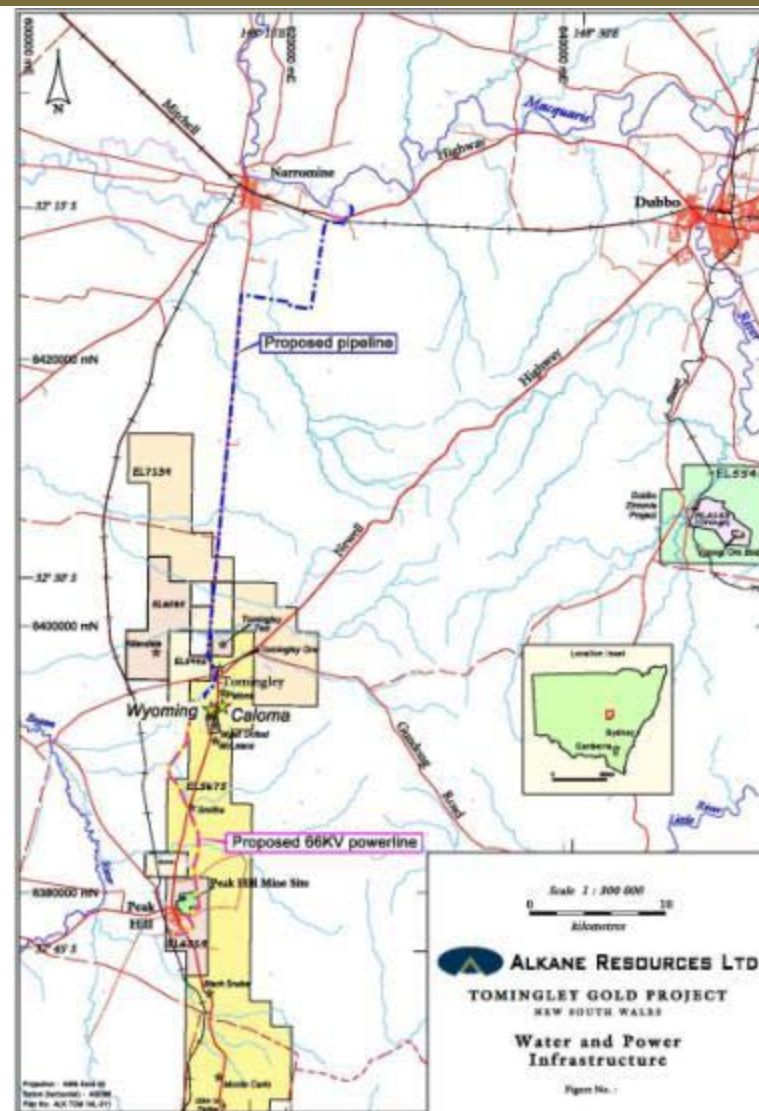
## Location

- Multi commodity explorer and miner – focussed in the Central West of New South Wales, Australia Region with substantial existing infrastructure.
- Dubbo Zirconia Project – world class resource of zirconium, hafnium, niobium, tantalum, yttrium and rare earths.
- Peak Hill Gold mine – gold production from 1996 - 2005. Site substantially rehabilitated.
- Tomingley Gold project – new gold development planned to commence 2013 based upon 812,000 oz resource.
- McPhillamys Gold project – major gold discovery (~3 million oz). Joint Venture with Newmont .
- Develop multiple operations over next five years – within tight geographic area. New discoveries at Cudal (Au-Zn) , Bodangora (Au-Cu) and Galwagere (Cu-Au).

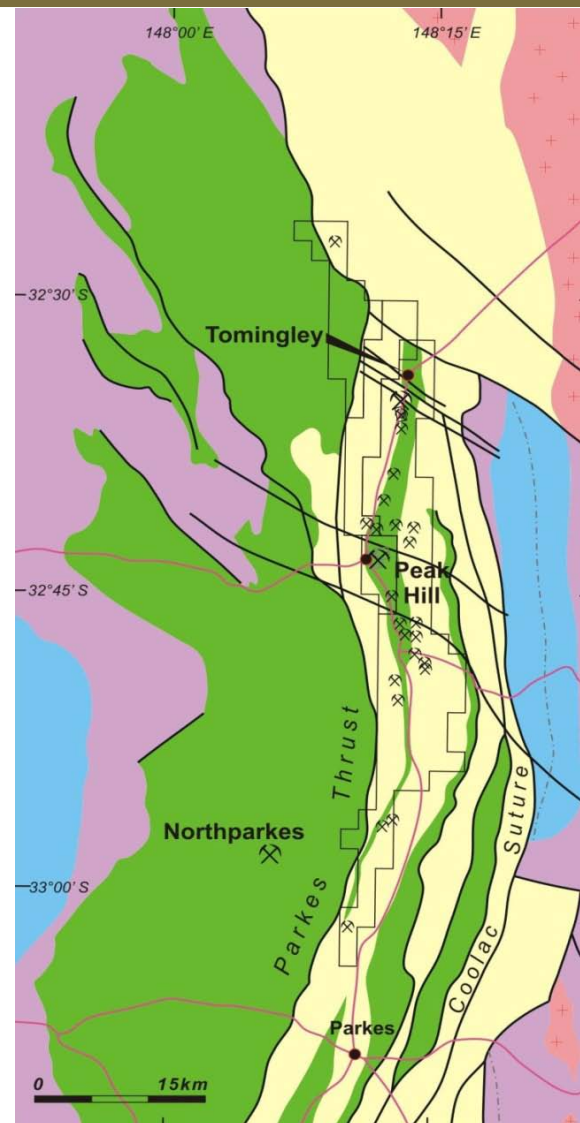


## Location / Infrastructure / Resources

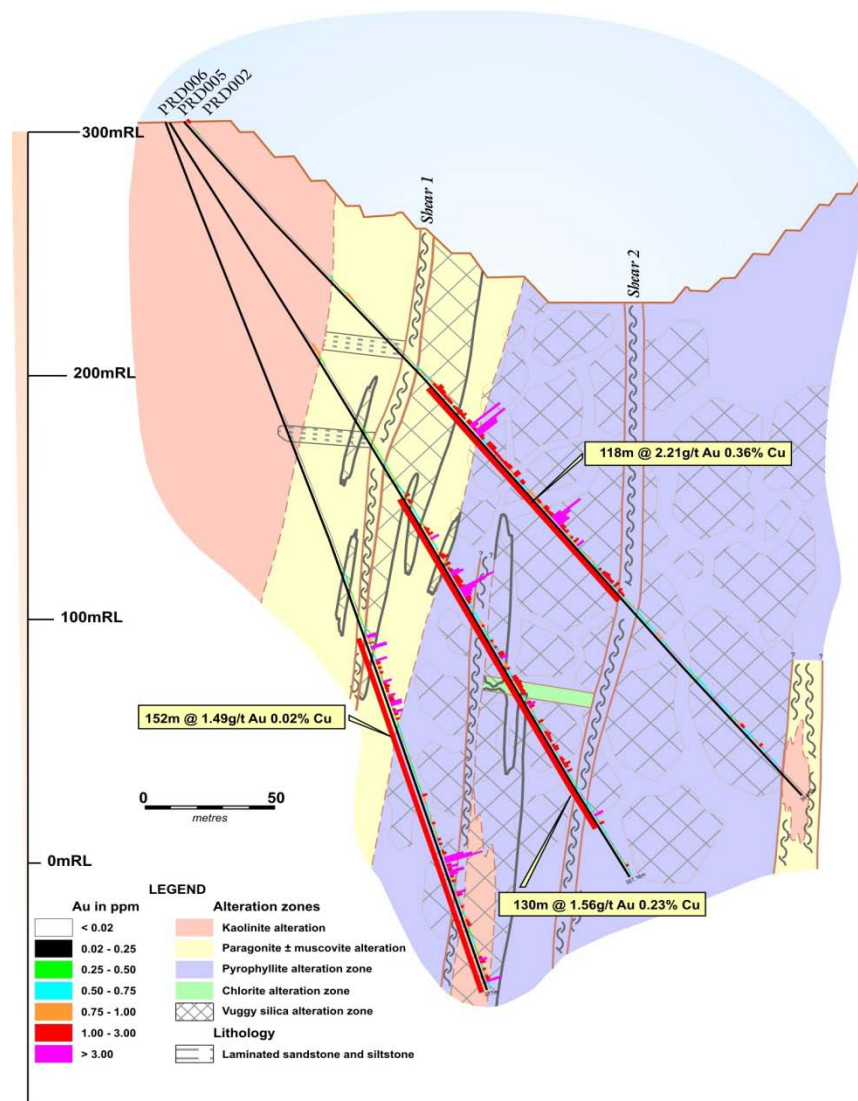
- TGP located 50km south west of Dubbo on the Newell Highway
- 15km north of Alkane's Peak Hill Gold Mine (467,000oz)
- Resource – 12.6 Mt @ 2.0g/t (812,000oz)
- Three deposits – Wyoming One; Wyoming Three; Caloma, with Caloma Two a potential resource
- Exploration – significant upside
- Infrastructure
  - **water** - 45km pipeline
  - **power** - State Grid with 20km 66Kv power line
  - **roads** - primary & secondary access
- **Skilled local workforce**
  - 150,000 population within 120km diameter area
  - no accommodation required (no fly-in / fly-out)



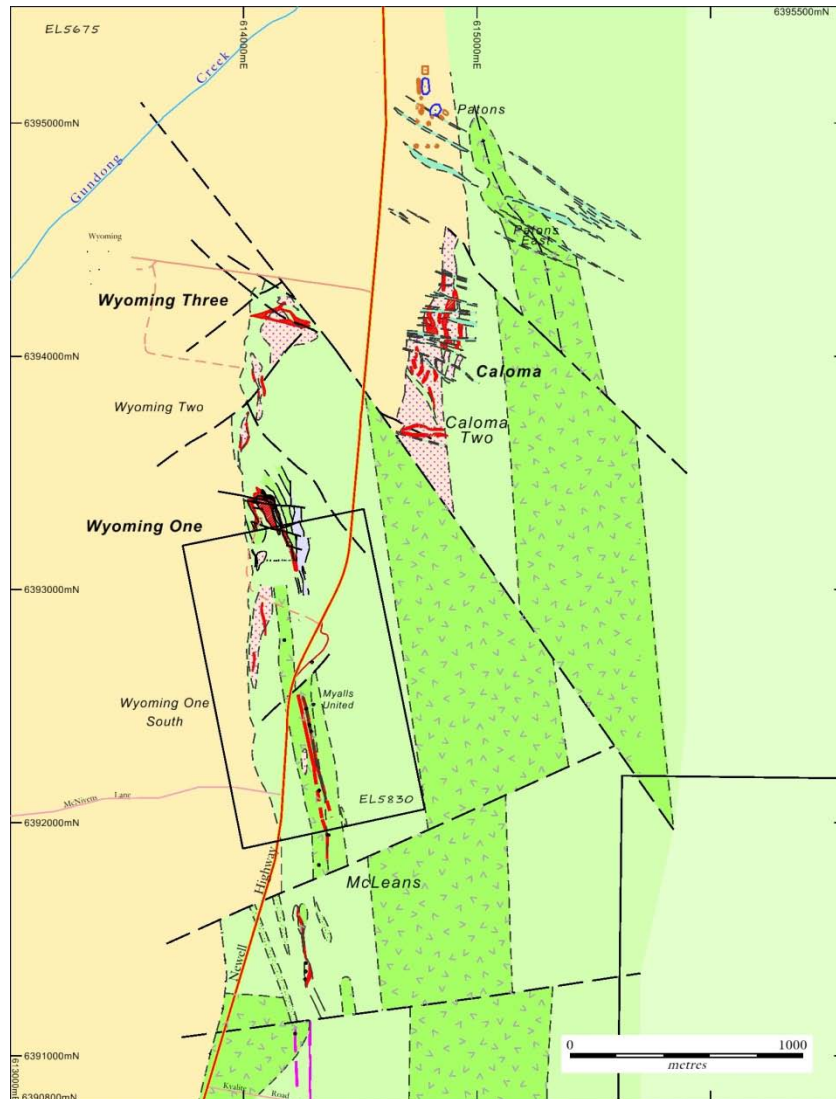
## Regional Geological Interpretation



- Mined 1996 to 2002, recovered 152,000 ounces of gold through to 2005 from heap leach operation
- Oxidised cap of a high sulphidation epithermal system
- Substantial but only partly tested large sulphide mineralisation that is moderately refractory (467,000oz)
- Where is the porphyry source?
- Could become part of “Plan Z” to provide sulphur for DZP acid plant and feed oxidised product into TGP CIL plant



## Geological Summary Wyoming - Caloma



*Pelitic Sediments*

*Feldspar porphyry*

*Volcaniclastic sediments*

*Graphitic mudstone*

*Volcaniclastic conglomerate*

*Epidote altered volcanics*

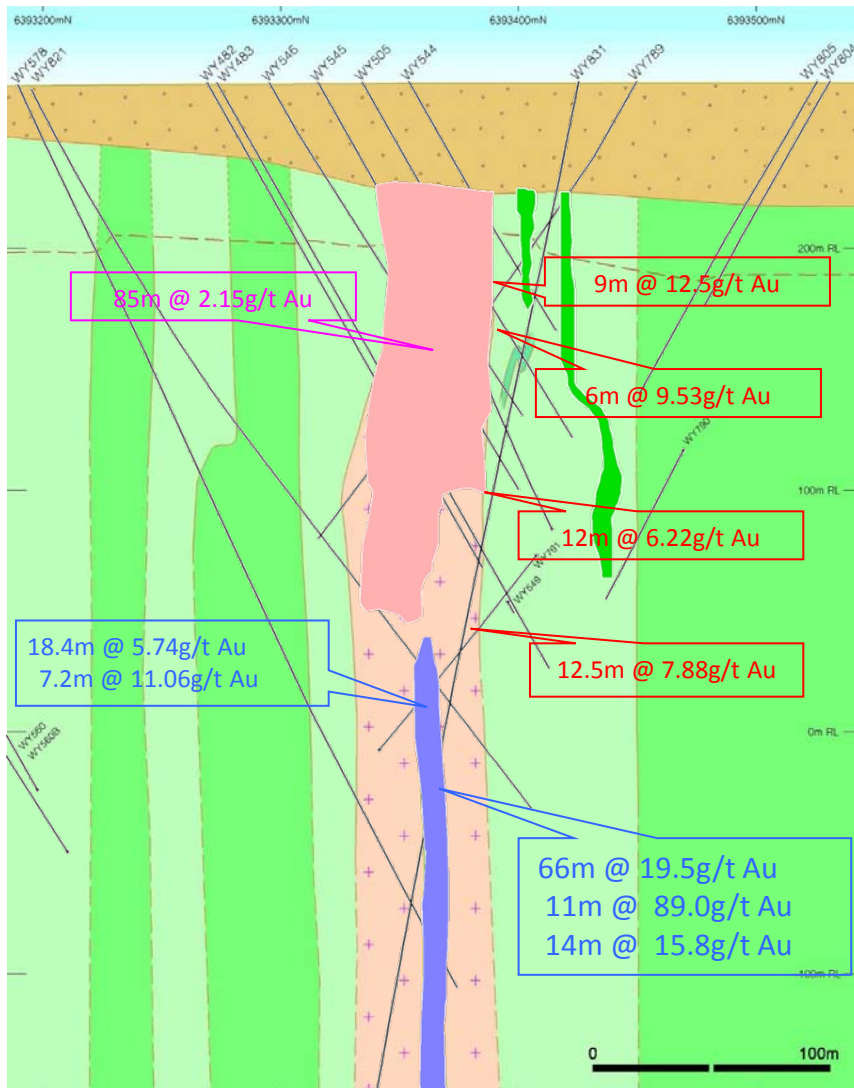
*Chlorite-talc schist*




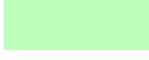

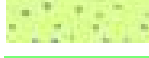
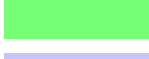
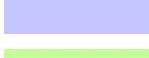
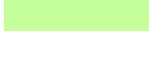
*Andesitic volcanics*

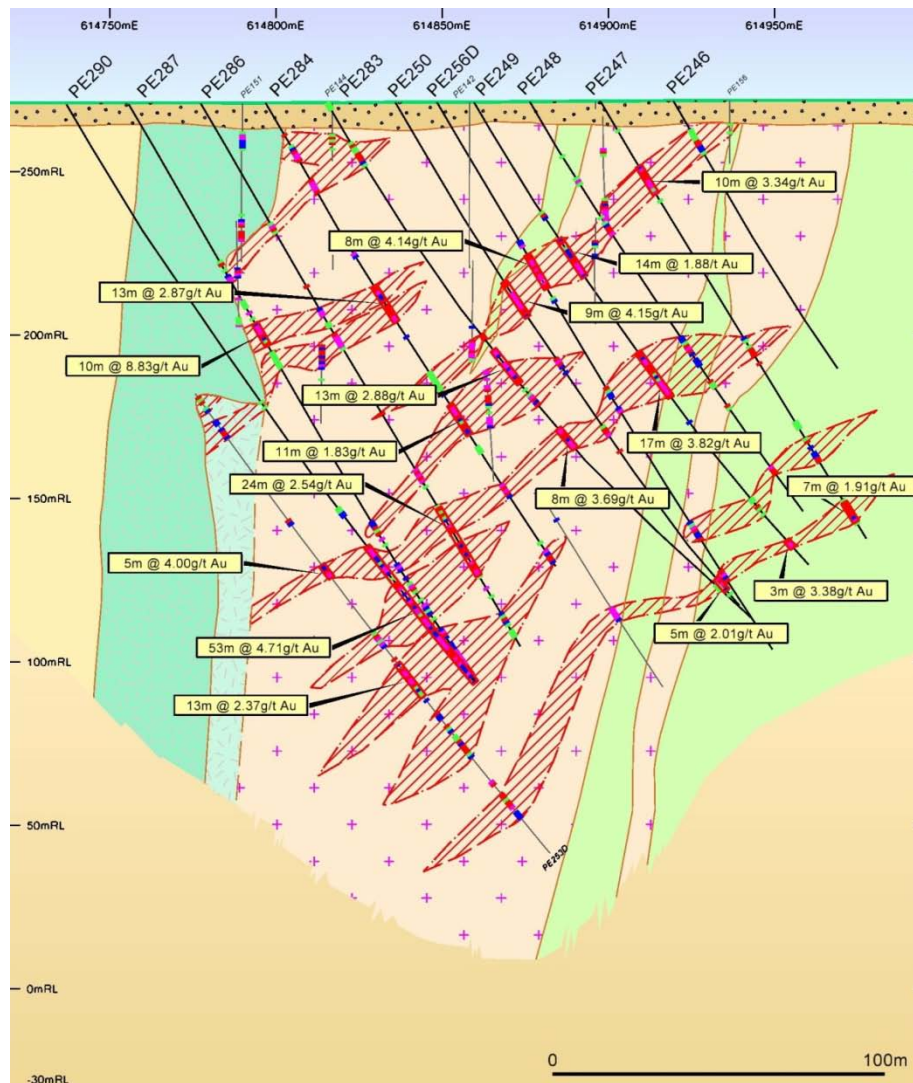
*Mineralisation*

**Typical Orogenic style gold deposits**

## Wyoming One North – South Section 614075mE

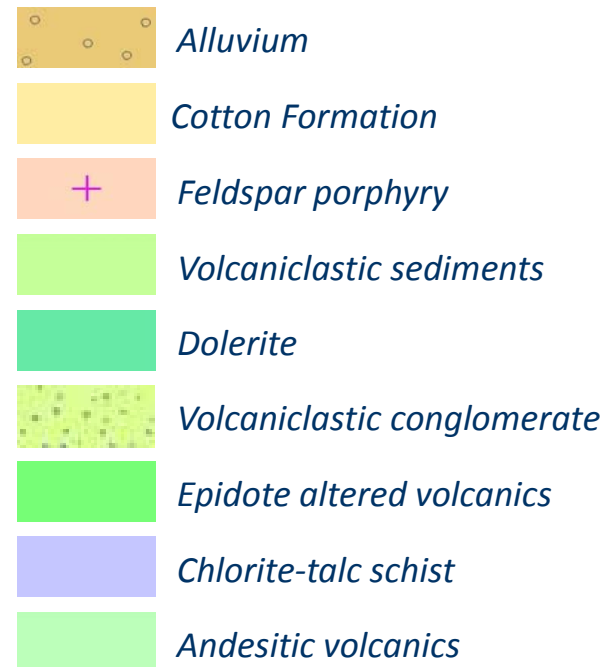


-  Alluvium
-  Cotton Formation
-  Feldspar porphyry
-  Volcaniclastic sediments
-  Graphitic mudstone
-  Volcaniclastic conglomerate
-  Epidote altered volcanics
-  Chlorite-talc schist
-  Andesitic volcanics



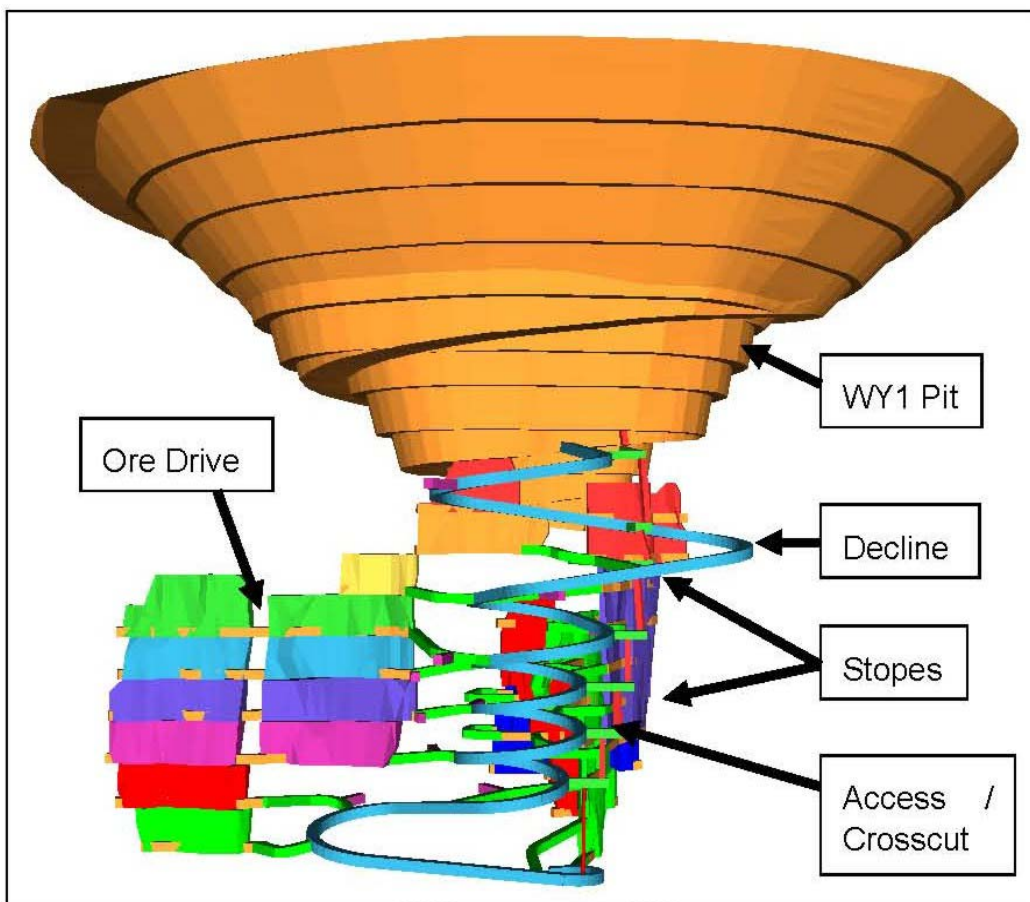
## Caloma

### East – West Section 6394100



## Wyoming One

### Conceptual underground development

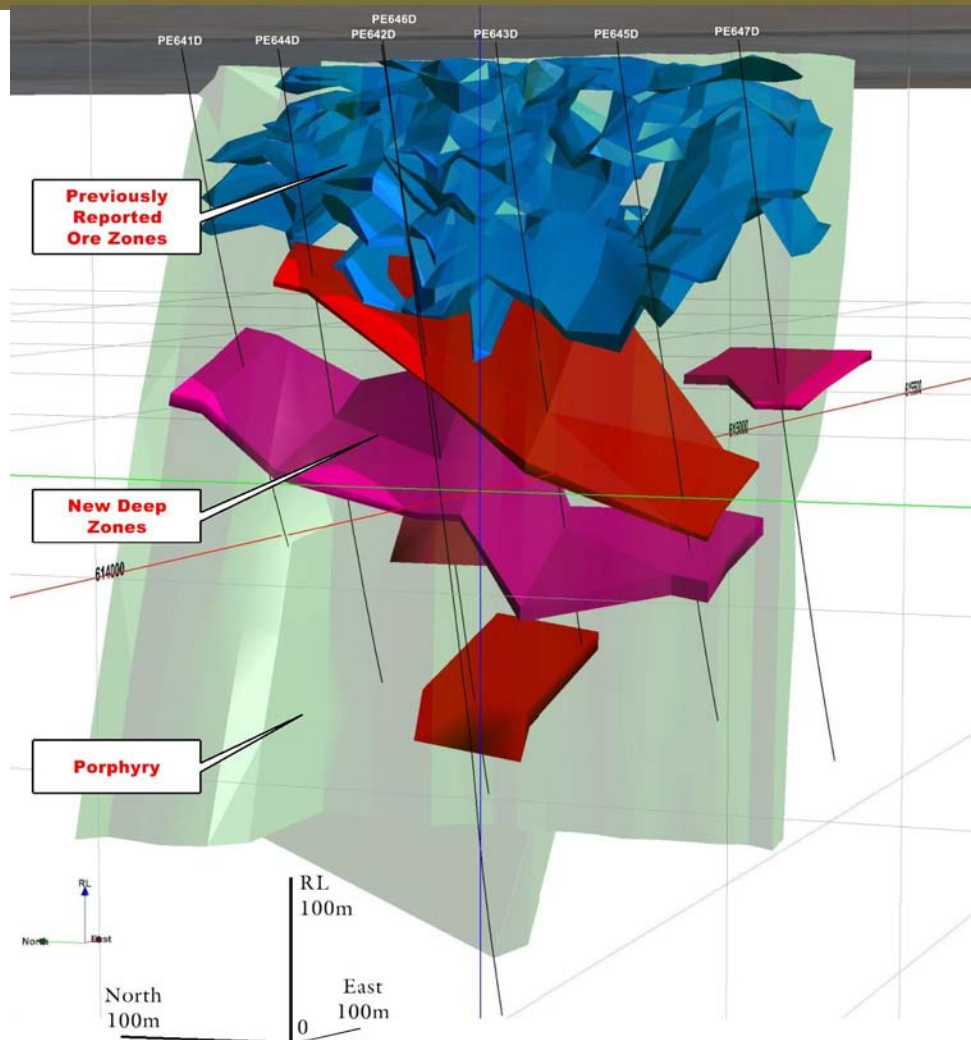


#### Ore Inventory:

- 679,000 tonnes @ 3.98g/t Au (87,000 oz)

#### Prefeasibility study:

- Decline development near base of pit
- Sub level long hole open stope
- Only three ore bodies '376', '831' and 'Hangingwall' targetted
- > 80,000 oz recovered



Caloma Deposit 3D Ore Model

## *Project Upside*

### Caloma Underground

- Seven core holes 3,500m
- Numerous mineralised intercepts
 

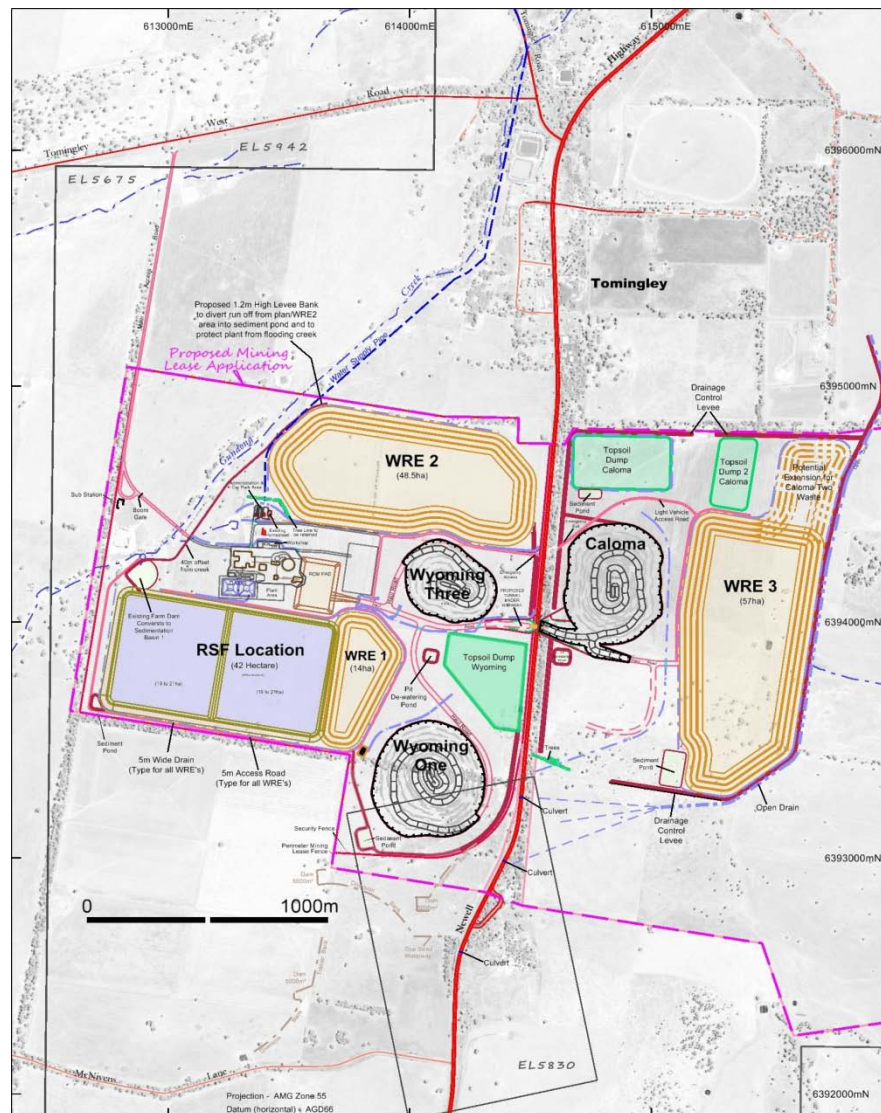
PE 641D	7.1m @ 12.9g/t Au
PE 645D	4.4m @ 4.76g/t Au
PE 647D	3.0m @ 5.53g/t Au
- Geological modelling for resource potential
- Shallow south plunging system, not tested at depth

### Caloma Two

Open pit potential

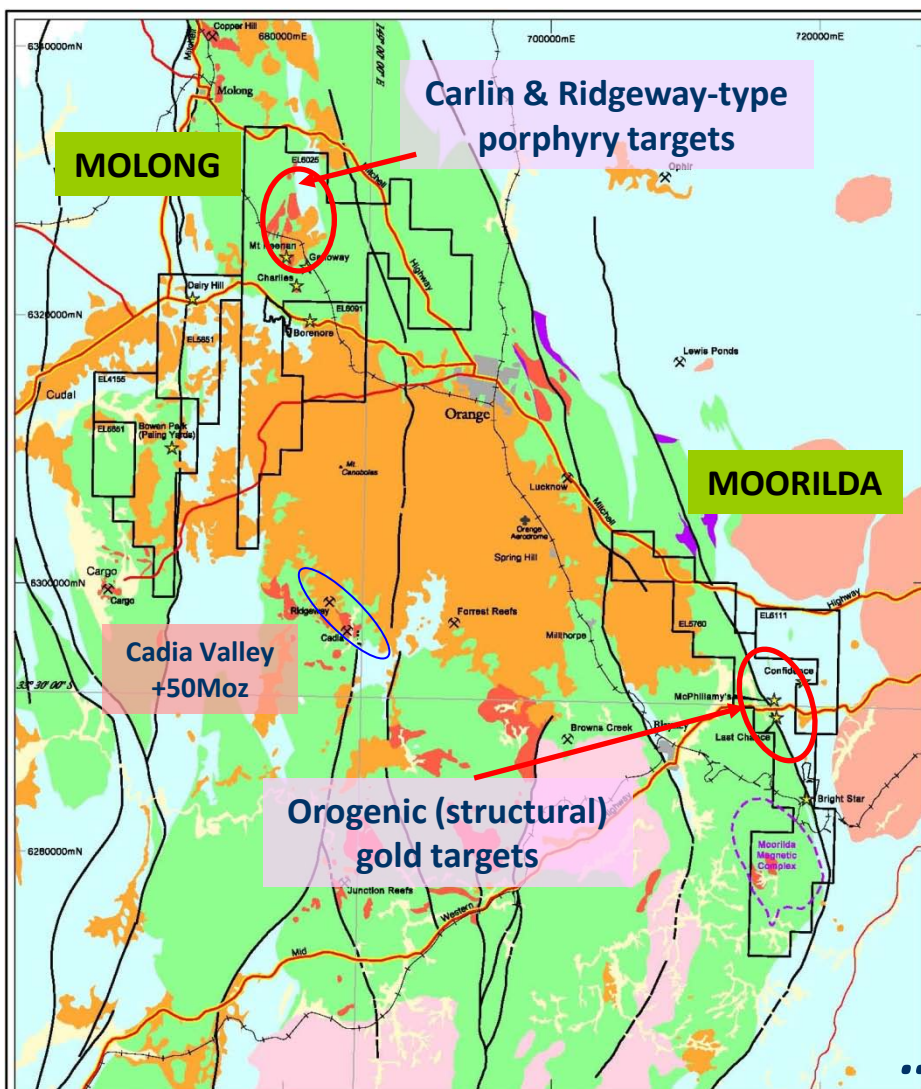
## Current Project Activities

- Project waiting for approval from NSW Department of Planning and Infrastructure
- Review of capital and operating costs in progress
- Long lead construction items ordered  
(ball mill, water supply, tenders for earth works and other infrastructure)
- CAPEX – A\$107M  
(\$54M plant; \$30M infrastructure; \$23M owners costs)
- Throughput – 1.0Mtpa
- Head Grade – 2.00g/t
- Recoveries – 93%
- Gold Production – 50 - 60,000ozpa
- Operating Costs – being reviewed
- Life – 7.5years (targeting +10 years)
- Mine method – open cut & underground
- Caloma Two resource estimate
- Production anticipated mid 2013



# McPhillamys Gold Project (49%)





## ORANGE DISTRICT EXPLORATION JOINT VENTURE (ODEJV)

Gold, Copper – Orange, NSW | Alkane Resources: 49%, Newmont Australia: 51%

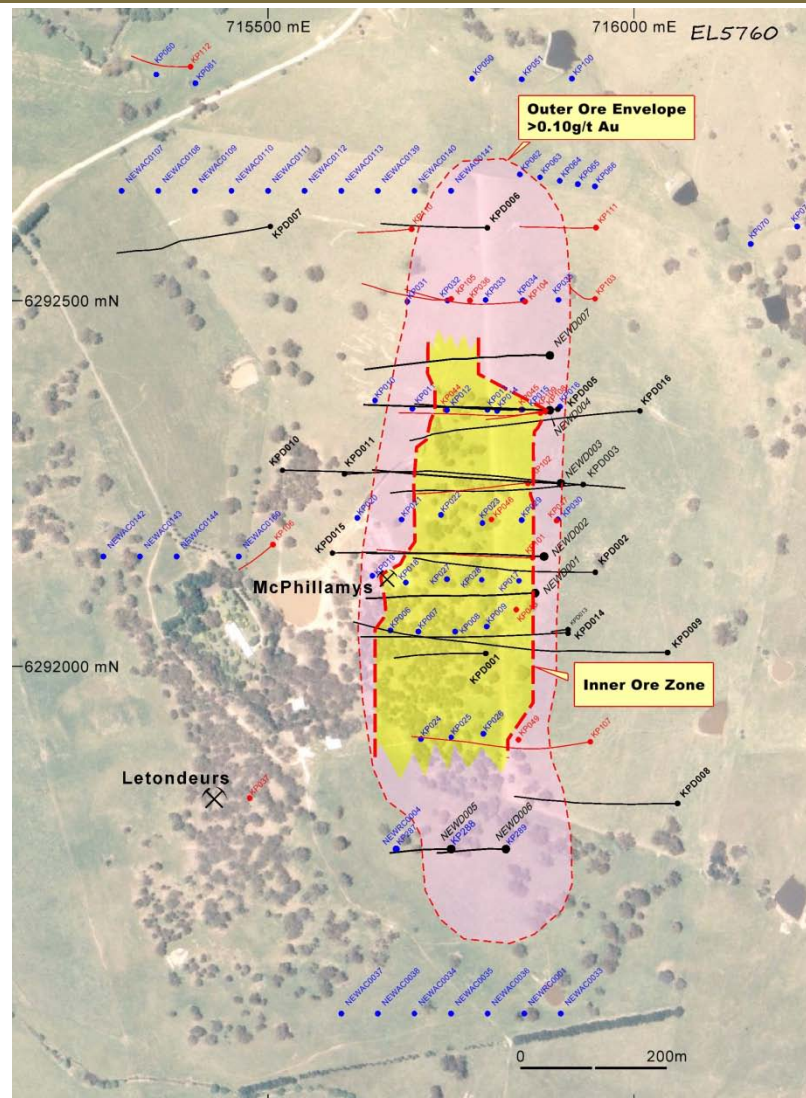
### TWO FOCUS AREAS:



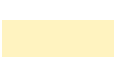



- **Molong**
  - targeting copper-gold porphyry-style gold mineralisation (Ridgeway-type) and Carlin style
- **Moorilda**
  - drilling confirms a major gold system @ McPhillamy's
- Newmont have earned 51%, to go to 75% by carrying all expenditures through to completion of final BFS

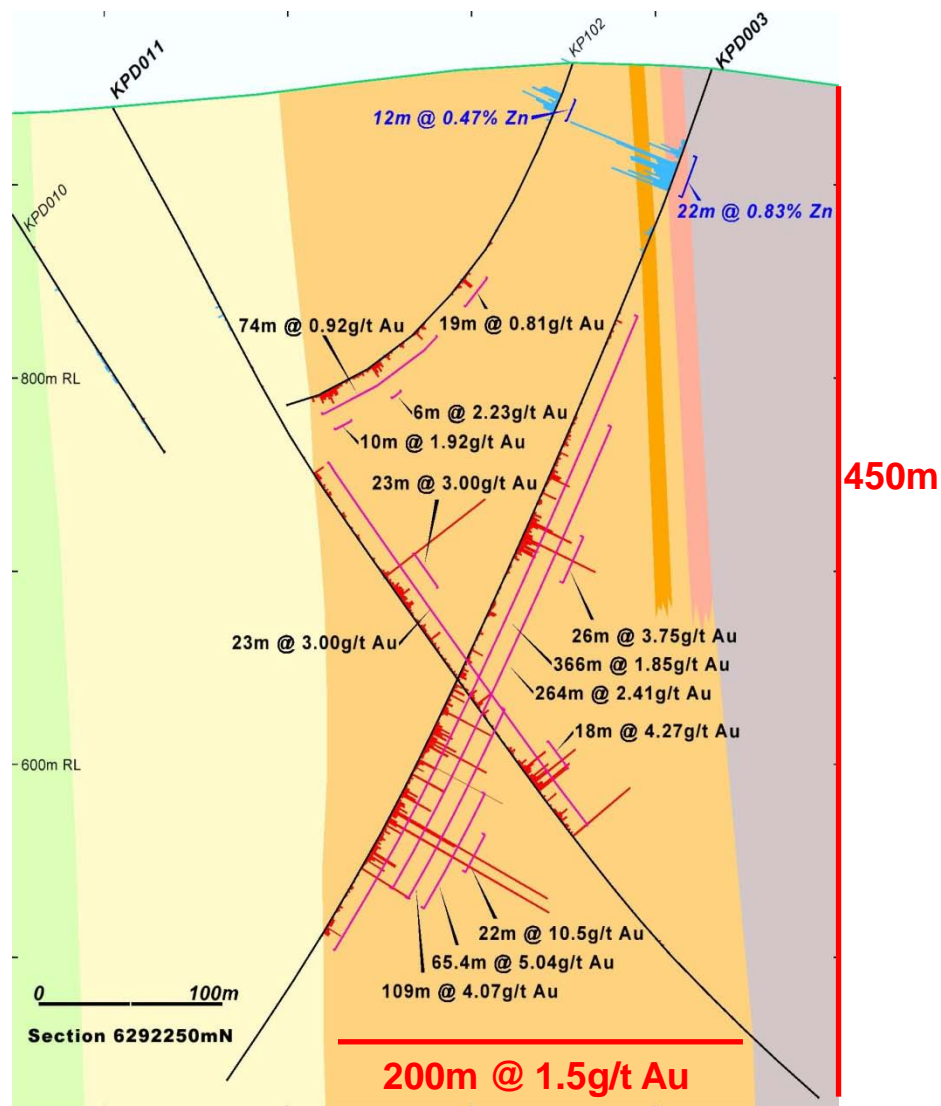
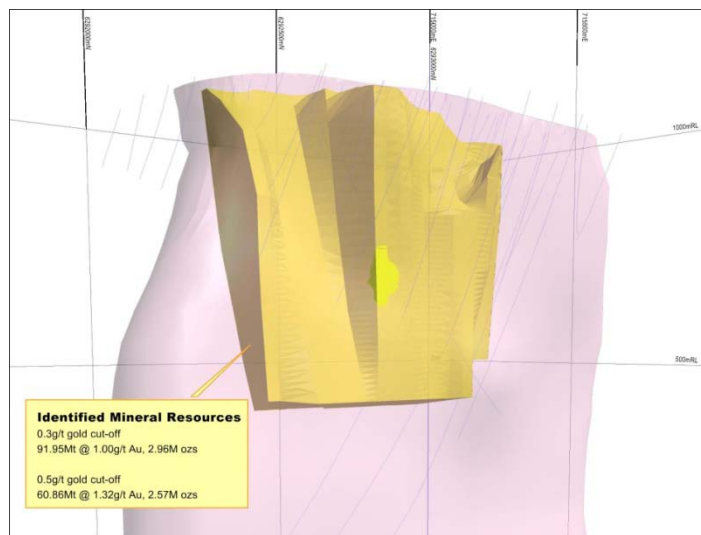
*...significant upside + 4moz system*

## Project Highlights

- Joint venture – Newmont has 51% but may go to 75% by completing a bankable feasibility study
- Resource (0.3g/t cut) – 92Mt @ 1.0g/t gold (3.0Moz)
- Resource (0.5g/t cut) – 61Mt @ 1.3g/t gold (2.6Moz)
- Copper credits (<0.1%)
- Mining method – open cut or block cave
- Recoveries – +90% from CIL (preliminary metallurgy)
- Strip ratio – low
- Exploration – upside (open at depth)
- McPhillamys dimensions:
  - Outer ore envelope 1,000m x 260m 0.1g/t Au
  - Inner ore zone 600m x 200m to 450m depth
- Comparison with Barrick's "Cowal Gold Mine":
  - 64Mt @ 1.2g/t gold at start up
  - 8Mtpa for ~ 250,000ozpa currently



-  Strongly foliated dacitic schist
-  Med-coarse grained dacitic volcaniclastic
-  Coarse grained volcaniclastic conglomerate (Epiclastic)
-  Intensely sericite-altered schist
-  Gold histogram
-  Zinc histogram



**VMS - orogenically modified deposit??**

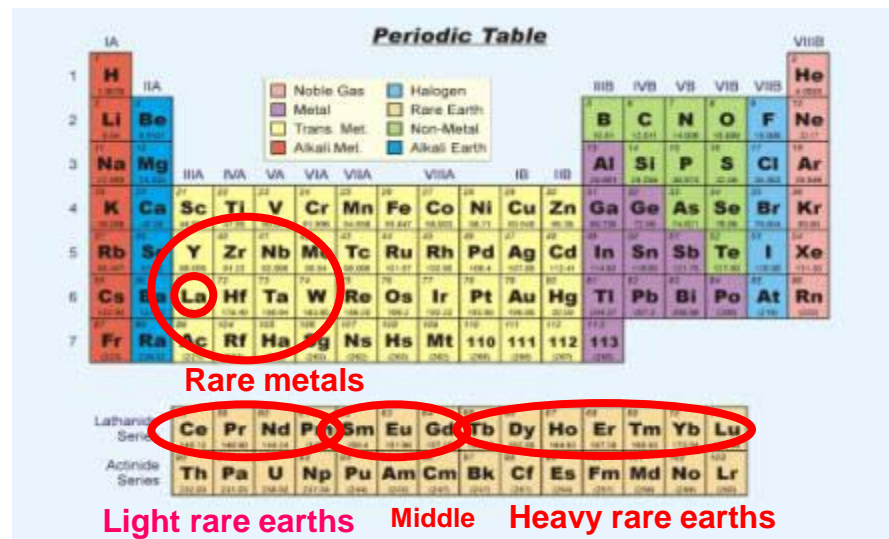


**Demonstration Pilot Plant at ANSTO (2008)**

## Rare Metals – Rare Earths

- China produces 90% of world downstream zirconium chemicals
- China currently produces 95% of world REE output
- China is limiting the export of raw rare earths materials
- Brazil produces 90% of world niobium

**Periodic Table**



**Rare metals**

**Light rare earths**    **Middle**    **Heavy rare earths**



- ◆ **Green technology** is dependent on *rare metals and rare earths*
- ◆ **Increased demand** also driven by **changes in legislation**
- ◆ China has dominant position

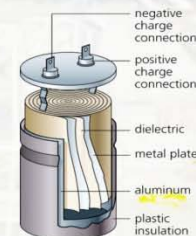
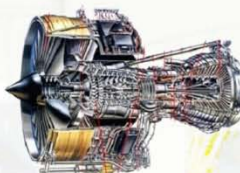
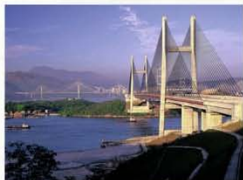
*...not so rare, but increasingly valuable*





**Ford 500**

Green: HSLA 330  
 Blue: HSLA 380  
 Yellow: HSLA 500  
 Red: DP 600  
 Purple: DP 980 / Bottom  
 DP 980 / Top DP980 / Bottom  
 HSLA 380



## Alloys

## Capacitors

## Glass

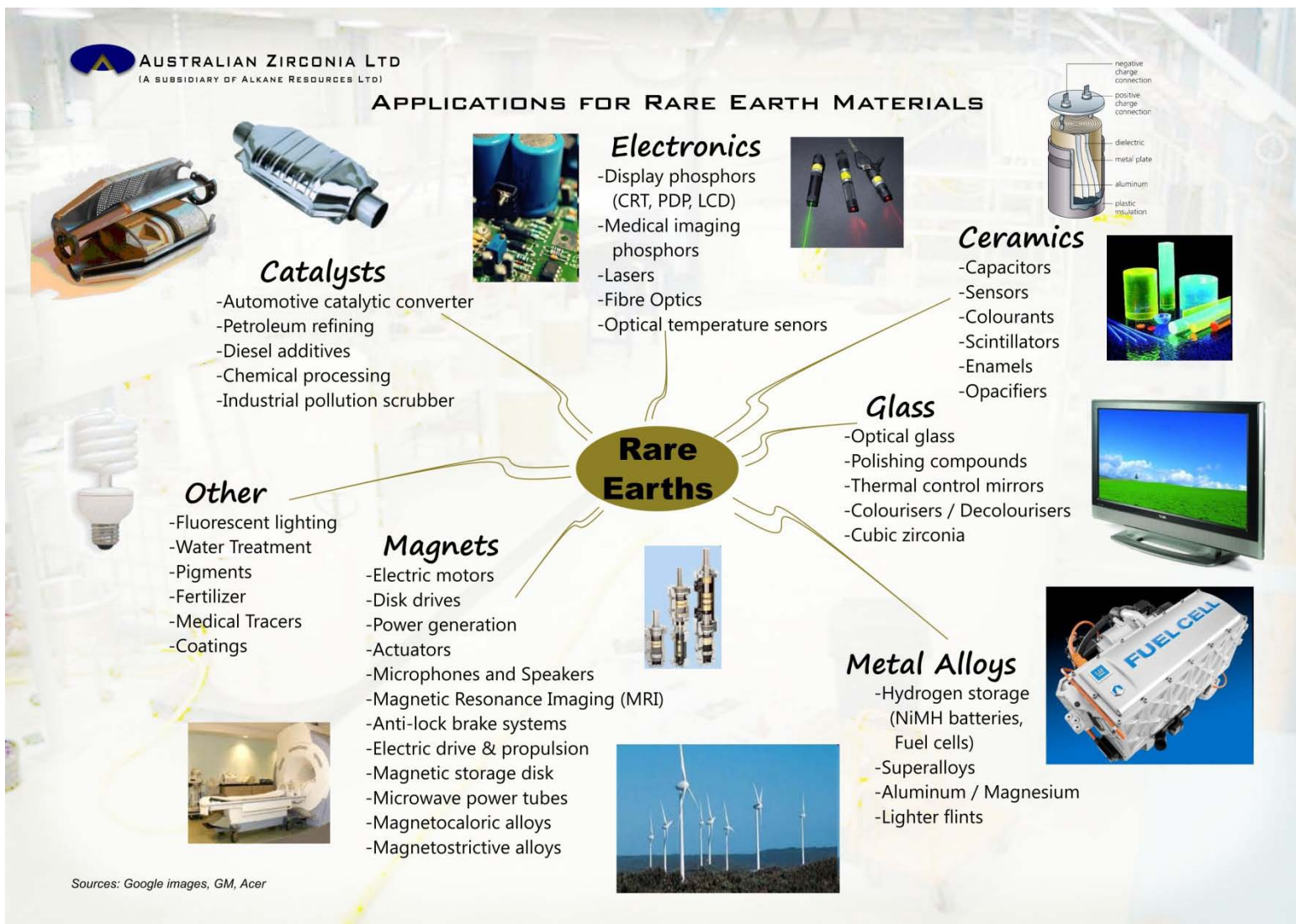
## Jewellery

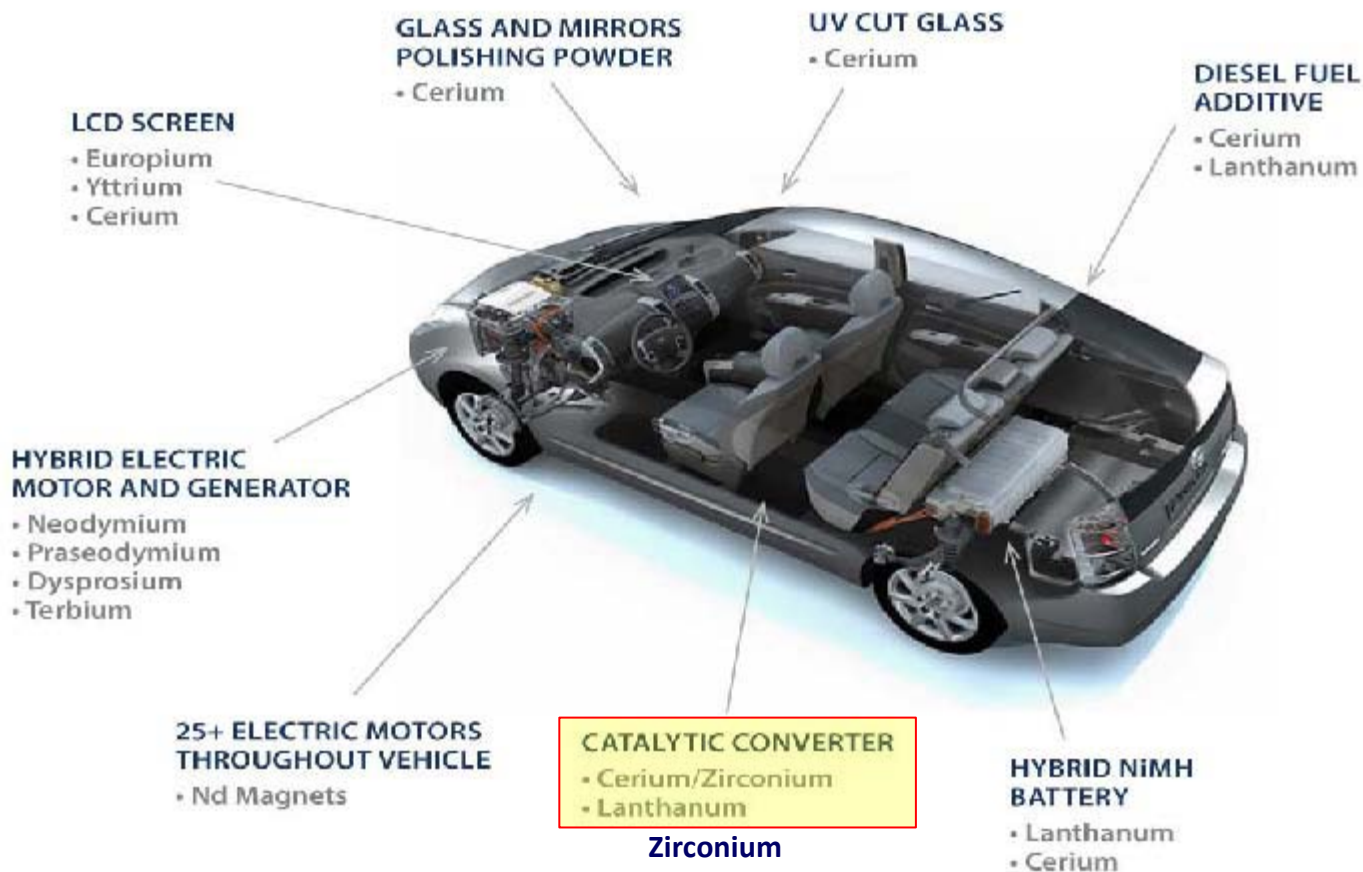
## Coinage

## Superconducting Magnets

- Particle accelerators
- Maglev transport
- Magnetic Resonance Imaging

Sources: Ford MC, CBMM, Google images  
\* (High Strength Low Alloy)



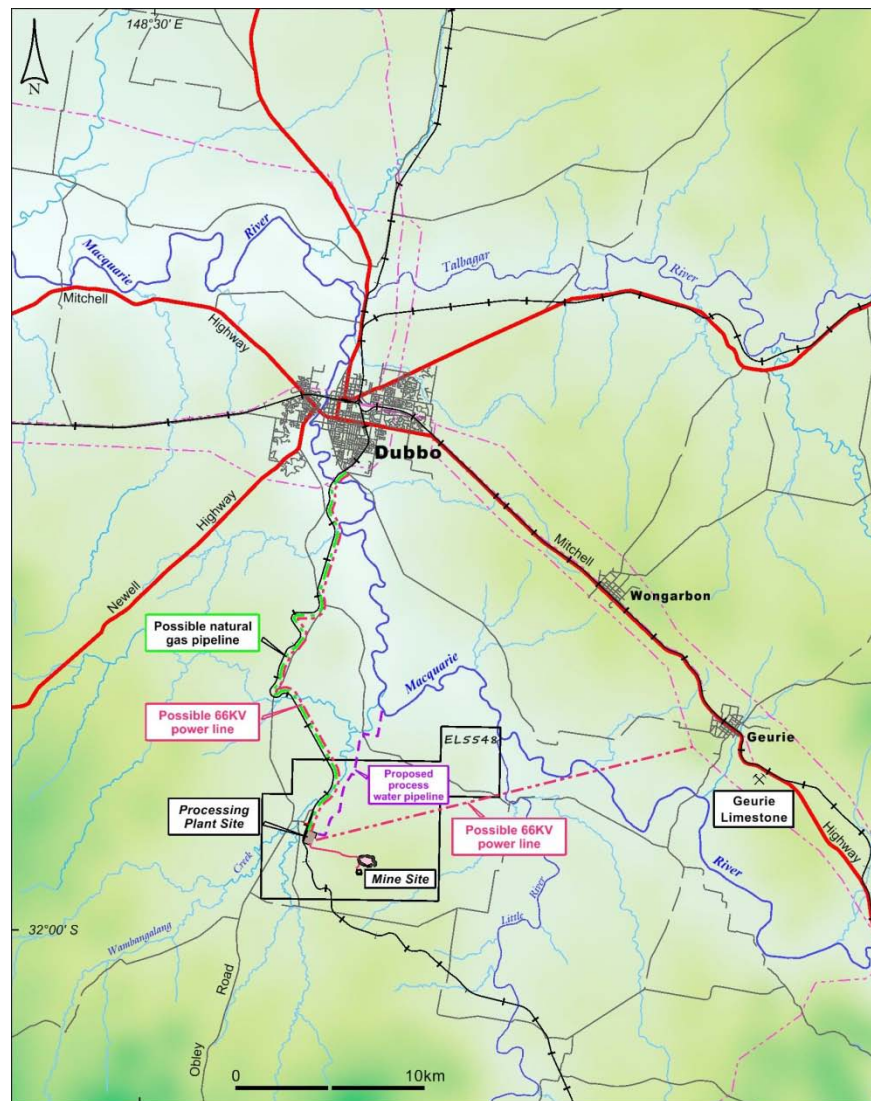


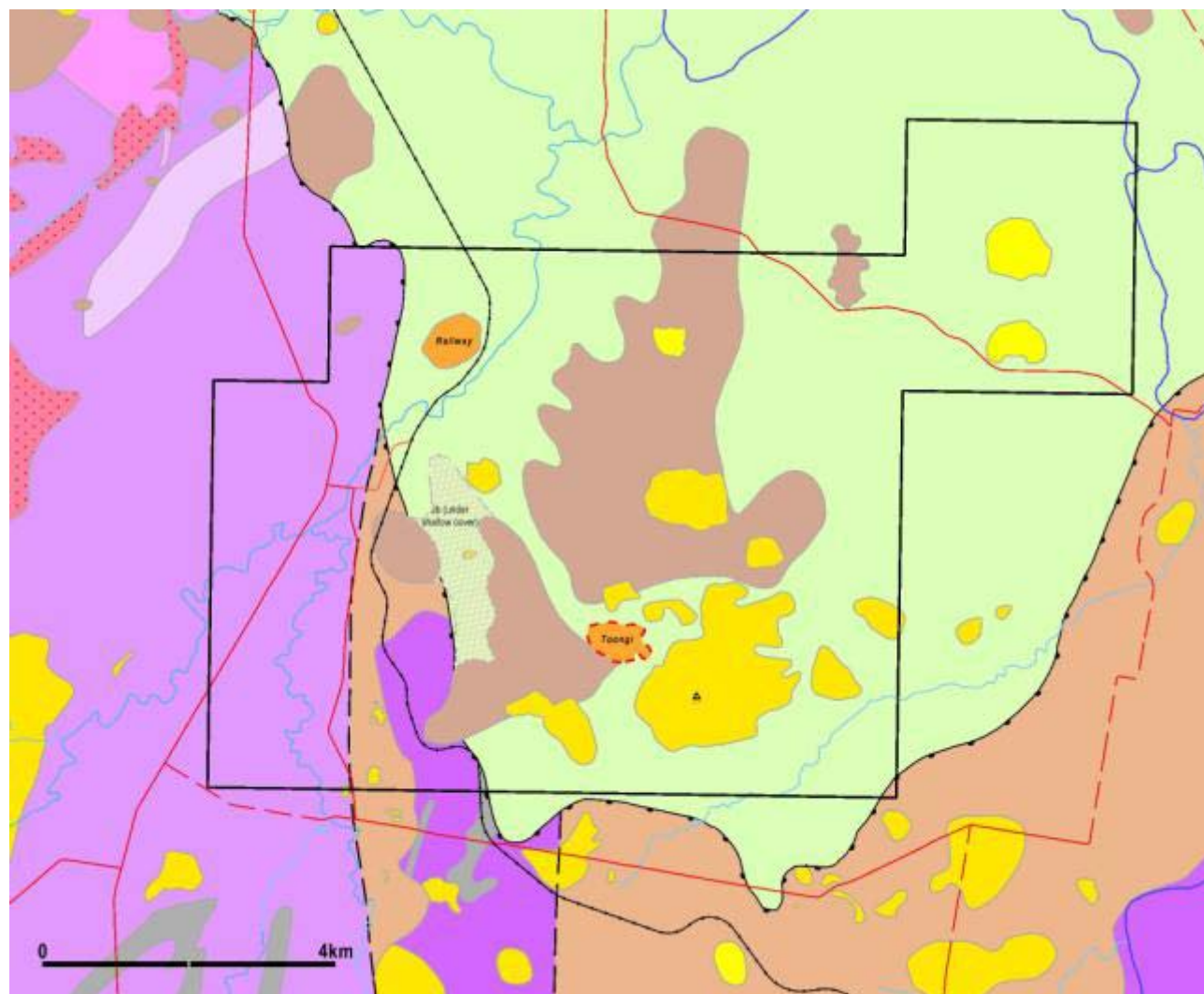
Small content of niobium in chassis steel can lighten vehicle by 10% - fuel efficiencies; emissions minimisation

Potential for solid oxide fuel cells power plant which use zirconia ceramic (+ yttrium and cerium)

## Infrastructure

- Population – 80,000 Dubbo regional
- Rail – railway hub
- Road – major highways intersection/hub
- Water – numerous sources
- Electricity – NSW State power grid
- Gas – NSW State gas grid
- Industrial – substantial light industry
- Agriculture – major agricultural hub
- Process chemicals available from multiple sources in eastern Australia
- Limestone available at Geurie





## Regional Geology

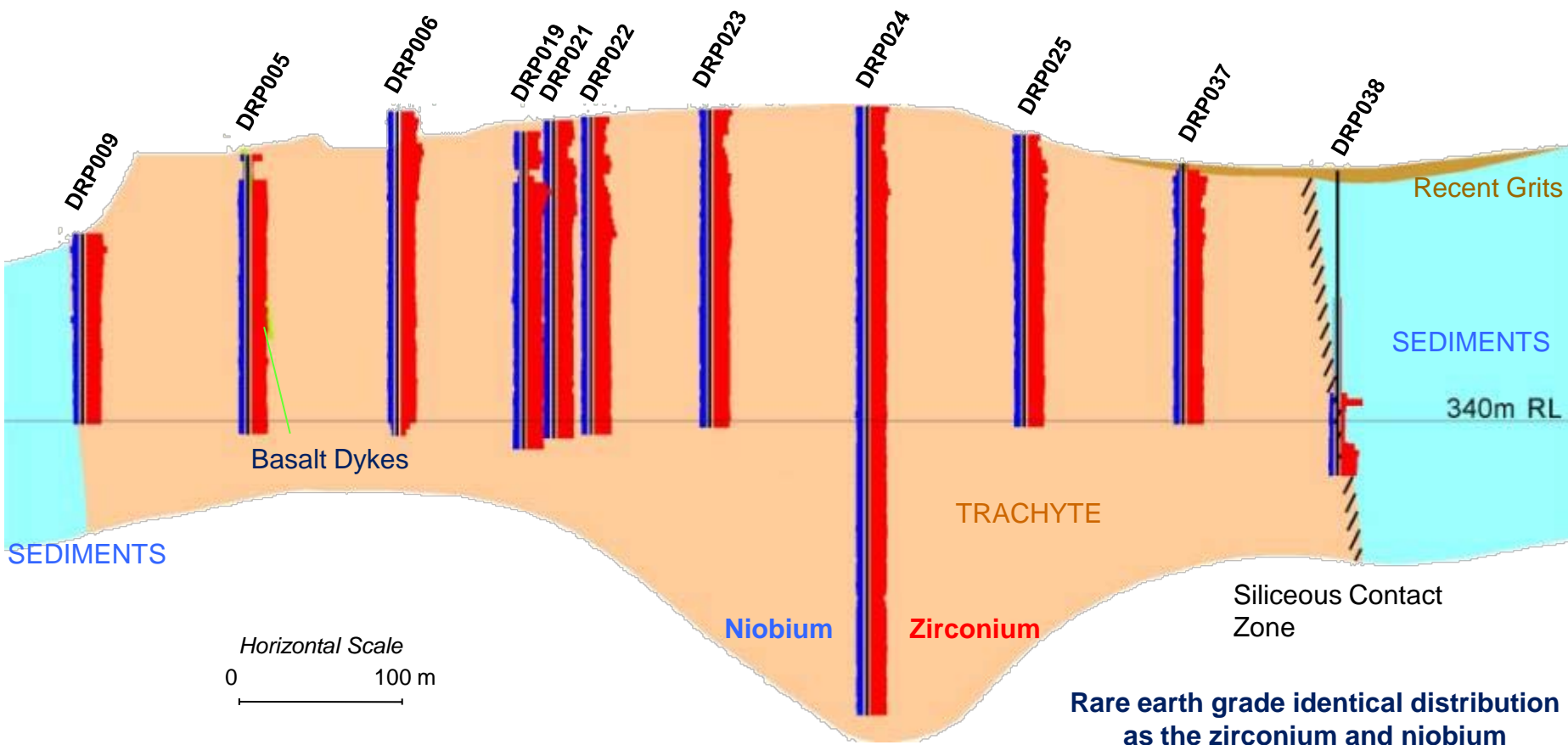




- Mineralised Trachyte
- Basalt
- Napperby Formation
- Drill hole collar

**Jurassic aged trachyte intrusive or  
lava flow**

## East-west cross section through centre of deposit



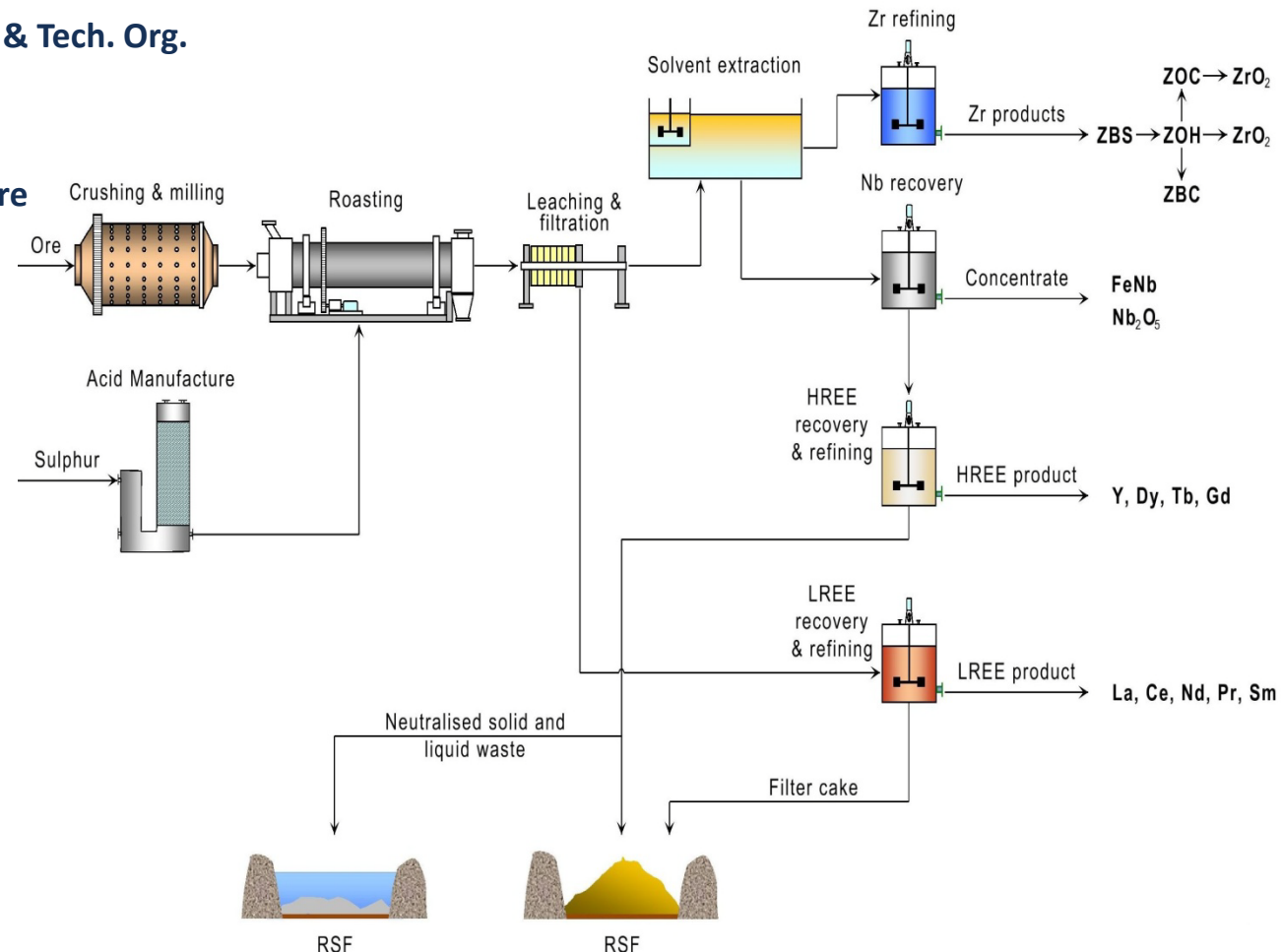
## Resources & Reserves

- Resources & Reserves – open at depth
- Life – +20 years but can support longer life and higher production rates
- Major world resource - zirconium, hafnium, niobium, tantalum, yttrium & rare earth elements
- Important heavy rare earth distribution of 25% of total rare earth content

Resources	Depth (m)	Tonnes (Mt)	Grade
Measured	0-55	35.7	1.94% ZrO <sub>2</sub> , 0.04%HfO <sub>2</sub> , 0.46% Nb <sub>2</sub> O <sub>5</sub> , 0.03% Ta <sub>2</sub> O <sub>5</sub> , 0.14% Y <sub>2</sub> O <sub>3</sub> , 0.74% REO (0.9% TREO)
Inferred	55-100	37.5	As above
Total	0-100	73.2	As above
<b>Reserves</b>			
Proven	0-26	8.1	1.93% ZrO <sub>2</sub> , 0.04%HfO <sub>2</sub> , 0.46% Nb <sub>2</sub> O <sub>5</sub> , 0.03% Ta <sub>2</sub> O <sub>5</sub> , 0.14% Y <sub>2</sub> O <sub>3</sub> , 0.75% REO (0.9% TREO)
Probable	26-45	27.9	As above
Total	0-45	35.9	As above

## Processing

- Demonstration Pilot Plant – established 2008
- ANSTO – Aust. Nuclear Science & Tech. Org.
- Process – unique & advanced
- Optimization – ongoing
- Sulphuric acid leach whole of ore
- Solvent extraction, separation & refining
- Chemical precipitation
- Zirconium products
- Niobium products
- Heavy RE product
- Light RE product



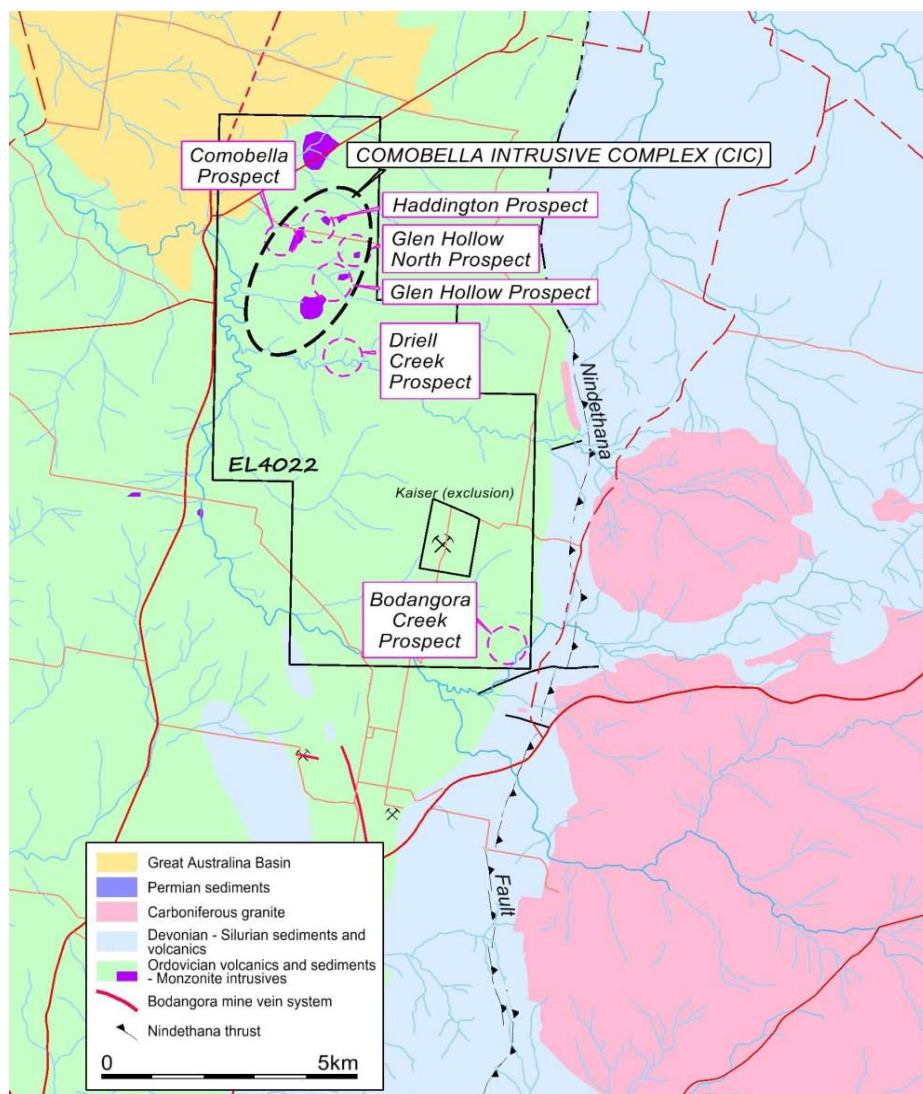
## Off-take

- Zirconium (39% of revenue) – 100% under MOU
- Niobium (22% of revenue) – 100% under MOU
- LREE (21% of revenue) – advanced negotiations
- YHREE (18% of revenue) – advanced negotiations
- Throughput – there are four MOU's which virtually guarantee production at 1Mtpa
- Revenue update in progress, which will see shift in % distribution

Memorandums of Understandings (MOU's)			
MOU	Date Announced	Product	Details
1	16 May 2011	Zirconium	Leading chemical company & trading company to produce zirconium oxychloride
2	26 July 2011	Zirconium	JV with Australia's Mintech Chemical Industries to produce zirconium oxychloride
3	15 August 2011	Zirconium	JV with leading European manufacturing / trading company to market DZP products
4	26 October 2011	Niobium	European company to produce and market ferro-niobium

- Primary filter cake contains ~ 200ppm Ta<sub>2</sub>O<sub>5</sub>. At 1Mtpa this equates to about 200tpa (>400,000lbs pa ).  
A program has commenced to review recovery of this valuable Ta<sub>2</sub>O<sub>5</sub> product





**Comobella Intrusive Complex**  
4km x 3km monzonite intrusives /  
skarn / hydrothermal breccias

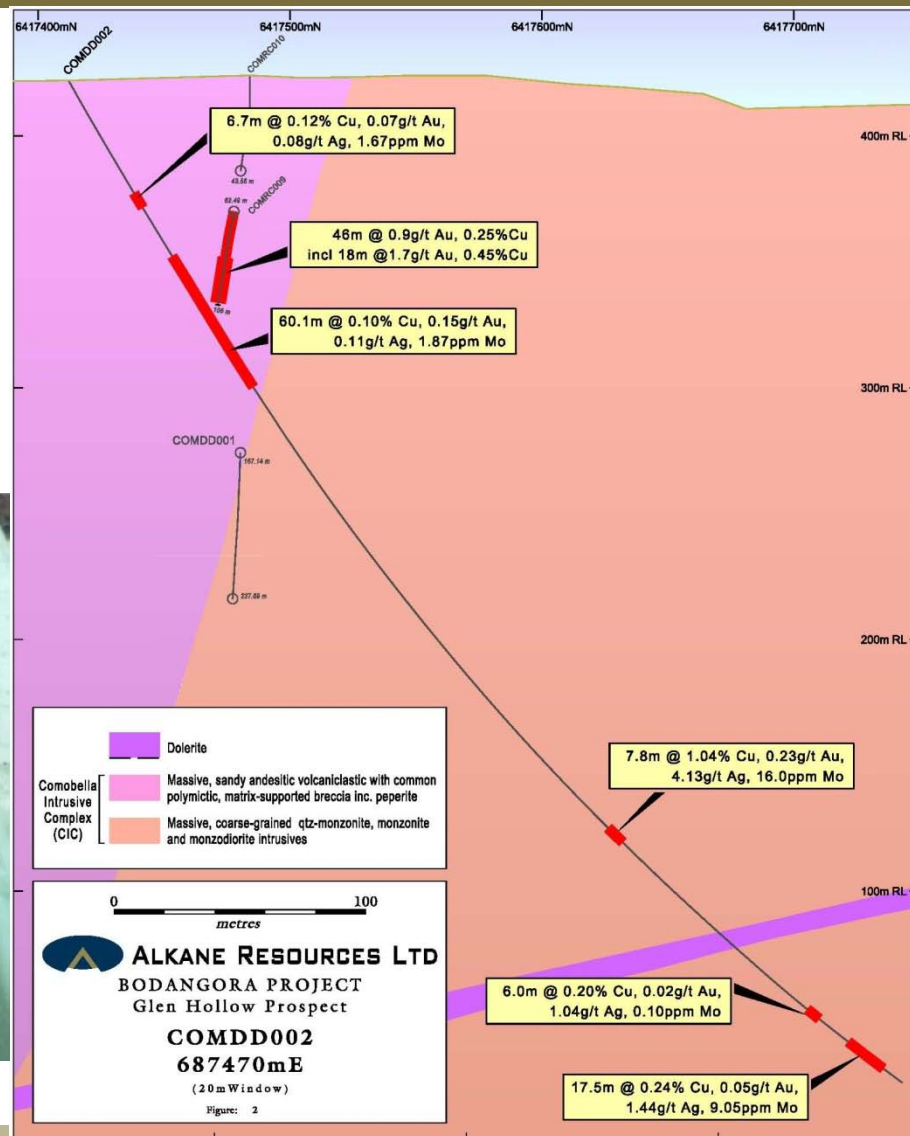
**Comparable to Cadia – Ridgeway**  
(Newcrest) system near Orange

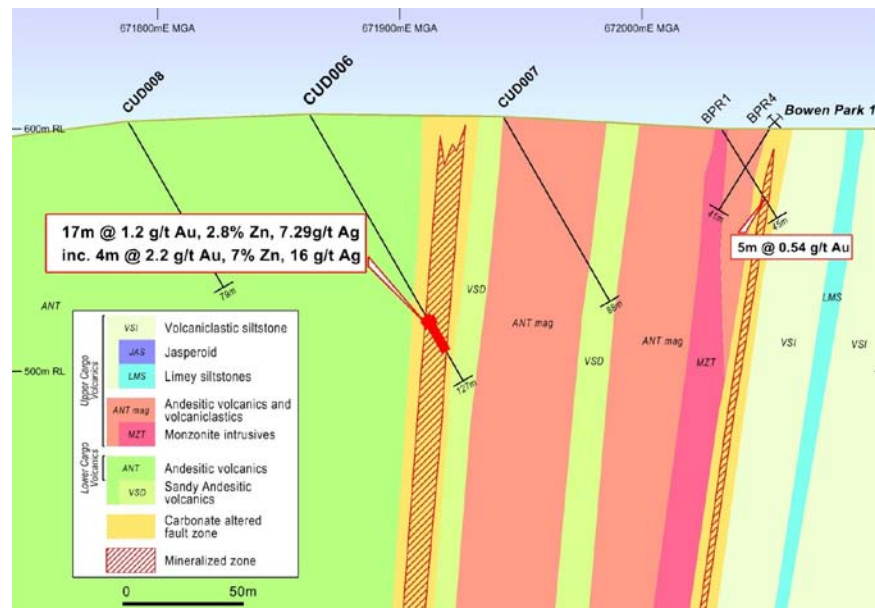
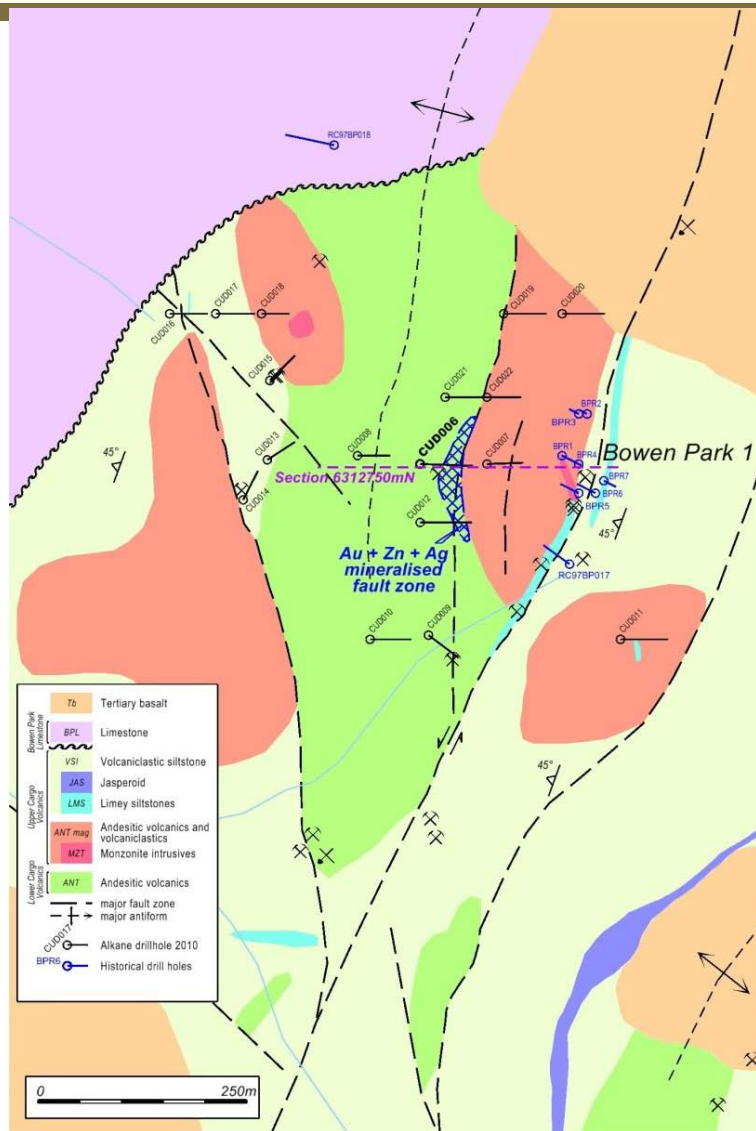
**Intensely hematite altered**  
monzonite intrusives with  
disseminated chalcopyrite, bornite  
and native copper

**Other targets outside of the CIC**

## Glen Hollow recent intercepts

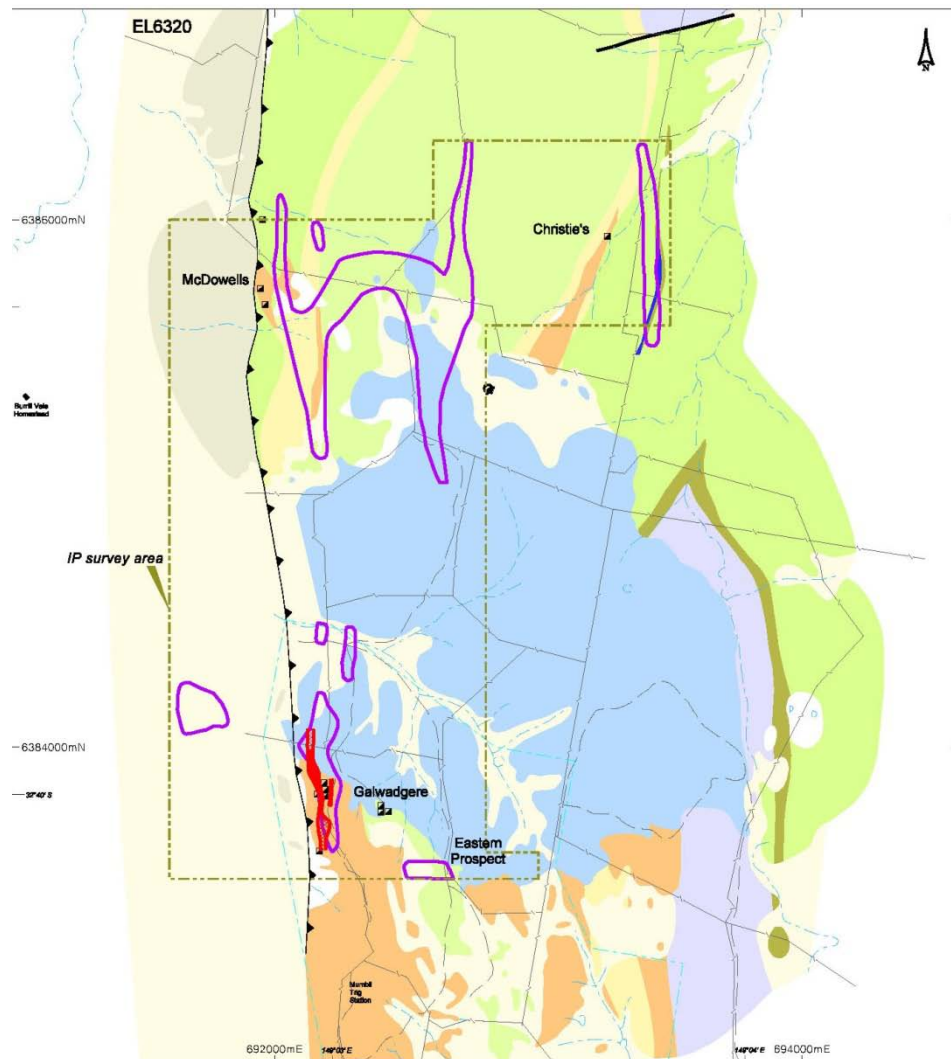
- 46m @ 0.9g/t gold & 0.25% copper
- 18m @ 1.7g/t gold & 0.45% copper
- 7m @ 0.23g/t gold & 1.04% copper





**New (?) style of mineralisation  
– structural / replacement**

**Many exploration targets to be tested**



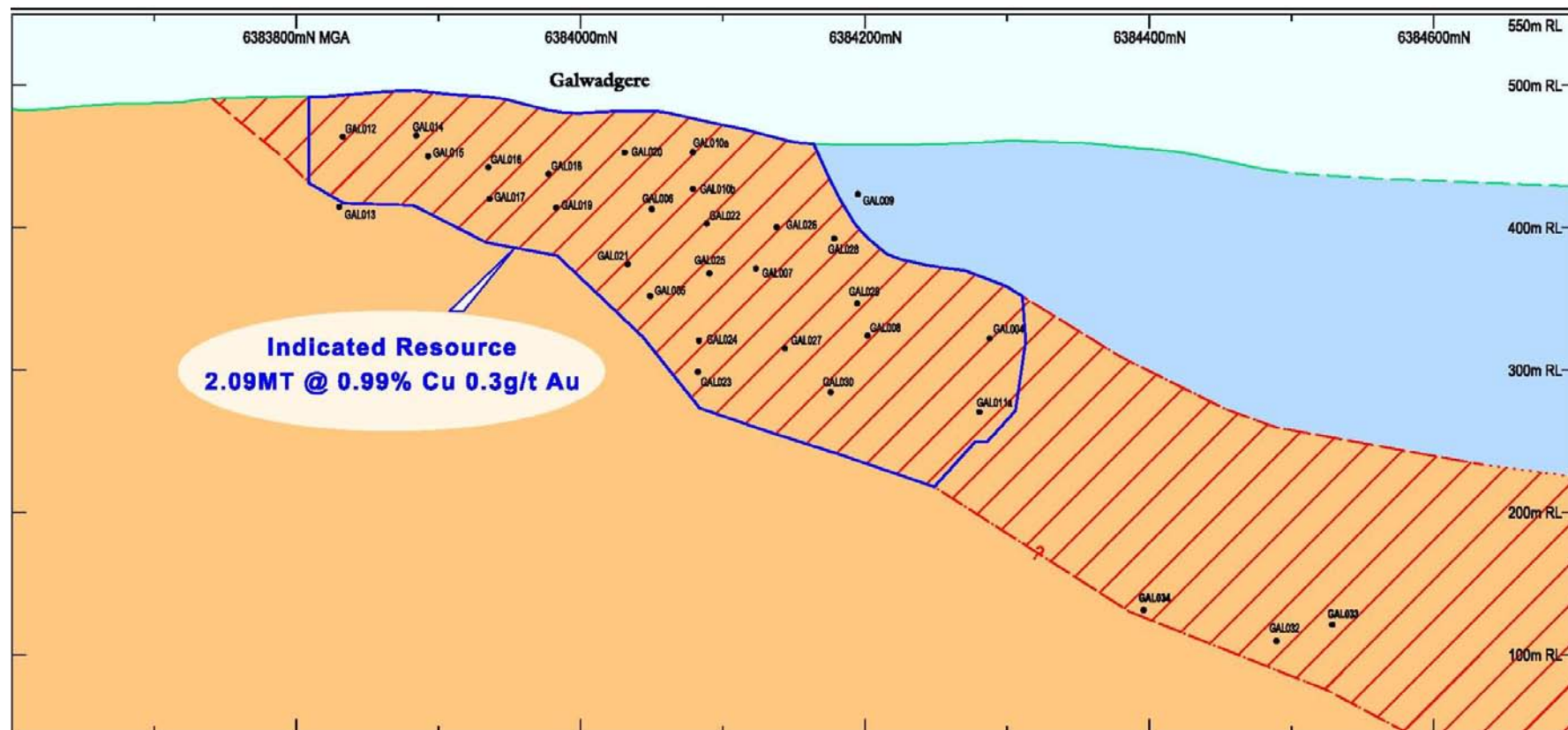
**Silurian Felsic Volcanic**

**VMS style Cu-Pb-Zn mineralisation  
with structural Au overprint**

**Indicated Resource defined 2004**

**2.09Mt @ 0.99% Cu and 0.3g/t Au**

**Potential to open pit mine bulk of  
existing resource to produce 27%  
Cu and 3g/t Au clean concentrate**



**Long Section**    **GAL032 intersection 14m @ 1.13 g/t Au, 0.94% Cu + 0.89% Zn**  
**Incl 4m 0.94g/t Au, 1.69% Cu + 2.98% Zn, 200m down plunge and has**  
**potential to double existing defined resource**

## Disclaimer

This presentation contains certain forward looking statements and forecasts, including possible or assumed reserves and resources, production levels and rates, costs, prices, future performance or potential growth of Alkane Resources Ltd, industry growth or other trend projections. Such statements are not a guarantee of future performance and involve unknown risks and uncertainties, as well as other factors which are beyond the control of Alkane Resources Ltd. Actual results and developments may differ materially from those expressed or implied by these forward looking statements depending on a variety of factors. Nothing in this presentation should be construed as either an offer to sell or a solicitation of an offer to buy or sell securities.

This document has been prepared in accordance with the requirements of Australian securities laws, which may differ from the requirements of United States and other country securities laws. Unless otherwise indicated, all ore reserve and mineral resource estimates included or incorporated by reference in this document have been, and will be, prepared in accordance with the JORC classification system of the Australasian Institute of Mining, and Metallurgy and Australian Institute of Geosciences.

## Competent Person

The information in this presentation that relates to mineral exploration, mineral resources and ore reserves is based on information compiled by Mr D I Chalmers, FAusIMM, FAIG, (director of the Company) has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as Competent Person as defined in the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Ian Chalmers consents to the inclusion in the presentation of the matters based on his information in the form and context in which it appears.



## Tomingley (TGP) – Mineral Resources

DEPOSIT	MEASURED		INDICATED		INFERRED		TOTAL		
Top Cut	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Gold
2.5x2.5x5.0m model	(t)	(g/t)	(t)	(g/t)	(t)	(g/t)	(t)	(g/t)	(koz)
<b>Wyoming One</b>	2,316,550	2.2	890,340	2.2	3,117,350	1.7	6,324,240	1.9	392.4
<b>Wyoming Three</b>	642,470	2.0	63,225	2.0	102,820	1.3	808,510	1.9	49.9
<b>Caloma</b>	2,690,530	2.3	567,860	2.1	2,194,490	1.9	5,452,870	2.1	369.4
<b>Total</b>	<b>5,649,550</b>	<b>2.2</b>	<b>1,521,420</b>	<b>2.1</b>	<b>5,414,660</b>	<b>1.8</b>	<b>12,585,630</b>	<b>2.0</b>	<b>811.7</b>

These Mineral Resources are based upon information compiled by Mr Richard Lewis MAusIMM (Lewis Mineral Resource Consulting Pty Ltd) who is a competent person as defined in the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Richard Lewis consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. The full details of methodology are given in the ASX Reports dated 25 March 2009, 2 October 2010 and 29 March 2012.

## Tomingley (TGP) – Ore Reserves

DEPOSIT	PROVED		PROBABLE		TOTAL		
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Ounces
	(t)	(g/t)	(t)	(g/t)	(t)	(g/t)	
<b>Wyoming One</b>	1,700,000	1.6	200,000	1.3	1,900,000	1.6	94,500
<b>Wyoming Three</b>	500,000	1.6	0	0.0	500,000	1.6	28,100
<b>Caloma</b>	1,100,000	2.3	100,000	1.7	1,200,000	2.2	86,500
<b>Total</b>	<b>3,300,000</b>	<b>1.8</b>	<b>300,000</b>	<b>1.5</b>	<b>3,600,000</b>	<b>1.8</b>	<b>209,100</b>

These Ore Reserves are based upon information compiled under the guidance of Mr Dean Basile MAusIMM (Mining One Pty Ltd) who is a competent person as defined in the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. The Reserves and Resources are estimated at an effective A\$1,540 per ounce gold price. Dean Basile consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.

## Peak Hill – Mineral Resources

DEPOSIT	MEASURED		INDICATED		INFERRED		TOTAL		
0.5g/t gold cut off	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	k Ounces
	(t)	(g/t)	(t)	(g/t)	(t)	(g/t)	(t)	(g/t)	
<b>Proprietary</b>			<b>9,440,000</b>	<b>1.35</b>	<b>1,830,000</b>	<b>0.98</b>	<b>11,270,000</b>	<b>1.29</b>	<b>467.4</b>
3.0g/t gold cut off	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	k Ounces
	(t)	(g/t)	(t)	(g/t)	(t)	(g/t)	(t)	(g/t)	
<b>Proprietary P</b>					<b>810,000</b>	<b>4.40</b>	<b>810,000</b>	<b>4.40</b>	<b>114.6</b>

These Mineral Resources are based upon information compiled by Mr Terry Ransted MAusIMM (Principal, Multi Metal Consultants Pty Ltd) who is a competent person as defined in the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Terry Ransted consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. The full details of methodology were given in the 2004 Annual Report.

## Dubbo Zirconia Project – Mineral Resources

Toongi Deposit	Tonnage (Mt)	ZrO <sub>2</sub> (%)	HfO <sub>2</sub> (%)	Nb <sub>2</sub> O <sub>5</sub> (%)	Ta <sub>2</sub> O <sub>5</sub> (%)	Y <sub>2</sub> O <sub>3</sub> (%)	REO (%)	U <sub>3</sub> O <sub>8</sub> (%)
Measured	35.70	1.96	0.04	0.46	0.03	0.14	0.75	0.014
Inferred	37.50	1.96	0.04	0.46	0.03	0.14	0.75	0.014
<b>Total</b>	<b>73.20</b>	<b>1.96</b>	<b>0.04</b>	<b>0.46</b>	<b>0.03</b>	<b>0.14</b>	<b>0.75</b>	<b>0.014</b>

These Mineral Resources are based upon information compiled by Mr Terry Ransted MAusIMM (Principal, Multi Metal Consultants Pty Ltd) who is a competent person as defined in the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Terry Ransted consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. The full details of methodology were given in the 2004 Annual Report.

## Dubbo Zirconia Project – Ore Reserves

Toongi Deposit	Tonnage (Mt)	ZrO <sub>2</sub> (%)	HfO <sub>2</sub> (%)	Nb <sub>2</sub> O <sub>5</sub> (%)	Ta <sub>2</sub> O <sub>5</sub> (%)	Y <sub>2</sub> O <sub>3</sub> (%)	REO (%)
Proved	8.07	1.91	0.04	0.46	0.03	0.14	0.75
Probable	27.86	1.93	0.04	0.46	0.03	0.14	0.74
<b>Total</b>	<b>35.93</b>	<b>1.93</b>	<b>0.04</b>	<b>0.46</b>	<b>0.03</b>	<b>0.14</b>	<b>0.74</b>

These Ore Reserves are based upon information compiled by Mr Terry Ransted MAusIMM (Alkane Chief Geologist) who is a competent person as defined in the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. The reserves were calculated at a 1.5% combined ZrO<sub>2</sub>+Nb<sub>2</sub>O<sub>5</sub>+Y<sub>2</sub>O<sub>3</sub>+REO cut off using costs and revenues defined in the notes in ASX Announcement of 16 November 2011. Terry Ransted consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

## Wellington – Galwadjere – Mineral Resources

DEPOSIT 0.5% Cu cut off	Tonnage	MEASURED Grade	Grade	Tonnage	INDICATED Grade	Grade
	(t)	(% Cu)	(g/t)	(t)	(% Cu)	(g/t)
Galwadjere	-	-		2,090,000	0.99	0.3

These Mineral Resources are based upon information compiled by Mr Terry Ransted MAusIMM (Principal, Multi Metal Consultants Pty Ltd) who is a competent person as defined in the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Terry Ransted consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. The full details of methodology were given in the 2005 Annual Report

## Moorilda – McPhillamys – Mineral Resources

DEPOSIT McPhillamys	INDICATED			INFERRED			TOTAL				
	Tonnage	Grade	Grade	Tonnage	Grade	Grade	Tonnage	Grade	Grade	k Ounces	tonnes
0.3g/t Au cut-off	(t)	(g/t)	% Cu	(t)	(g/t)	% Cu	(t)	(g/t)	% Cu	gold	copper
Inner Ore Zone	51,650,000	1.10	0.07	23,504,000	1.19	0.07	75,154,000	1.13	0.07	2,723.6	55,091
Outer Ore Envelope	9,624,000	0.44	0.04	7,167,000	0.43	0.03	16,791,000	0.43	0.03	234.7	5,729
<b>Total</b>	<b>61,274,000</b>	<b>0.99</b>	<b>0.07</b>	<b>30,671,000</b>	<b>1.01</b>	<b>0.06</b>	<b>91,945,000</b>	<b>1.00</b>	<b>0.07</b>	<b>2,958.3</b>	<b>60,820</b>

DEPOSIT McPhillamys	INDICATED			INFERRED			TOTAL				
	Tonnage	Grade	Grade	Tonnage	Grade	Grade	Tonnage	Grade	Grade	k Ounces	tonnes
0.5g/t Au cut-off	(t)	(g/t)	% Cu	(t)	(g/t)	% Cu	(t)	(g/t)	% Cu	gold	copper
Inner Ore Zone	41,260,000	1.27	0.08	16,097,000	1.57	0.09	57,357,000	1.36	0.08	2,499.9	46,933
Outer Ore Envelope	2,169,000	0.69	0.03	1,338,000	0.62	0.03	3,507,000	0.66	0.03	74.6	1,170
<b>Total</b>	<b>43,429,000</b>	<b>1.24</b>	<b>0.08</b>	<b>17,435,000</b>	<b>1.50</b>	<b>0.08</b>	<b>60,864,000</b>	<b>1.32</b>	<b>0.08</b>	<b>2,574.5</b>	<b>48,104</b>

*These Mineral Resources are based upon information compiled by Mr Richard Lewis MAusIMM (Lewis Mineral Resource Consulting Pty Ltd) who is a competent person as defined in the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Richard Lewis consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. The full details of methodology were given in the ASX Announcement 5 July 2010. Totals may not tally due to rounding.0*