



# Australian Tin Industry

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# Australia in the World of Tin con Prod



	2009	2010e	Reserve
<b>Australia</b>	<b>5,900</b>	<b>6,500</b>	<b>125,000</b>
Bolivia	19,600	20,000	400,000
Brazil	10,400	9,500	590,000
China	86,900	95,600	1,500,000
Congo (Kinshasa)	13,600	13,000	-
Indonesia	94,900	92,700	800,000
Malaysia	2,400	3,500	250,000
Peru	37,500	33,800	710,000
Russia	600	600	350,000
Thailand	200	300	170,000
Other Africa	3,000	3,700	-
Other countries	3,800	4,000	180,000
<b>World total</b>	<b>278,800</b>	<b>283,300</b>	<b>5,495,000</b>

# Australia in the World of Tin



Bluestone Mines Tasmania JV is continuing to rebuild Australia's tin industry

Mine Production	2006	2007	2008	2009	2010e
Tonnes Sn	2,000	2,200	2,800	5,900	6,500
<b>% World</b>	<b>0.7%</b>	<b>0.6%</b>	<b>1.0%</b>	<b>2.1%</b>	<b>2.3%</b>

- Australia has produced approximately 55,000 tonnes of tin over the last 10 years which is approximately 50% less than the previous decade.
- Over 90% of the production from Australia during the last 5-10 years has been from the Renison and Collingwood tin operations.
- Renison is the only large scale tin mine currently operating in Australia supplying 2.5% of global tin in concentrate.
- Australia has no tin smelters and only produces concentrate for export and the last de-tinning plant was closed several years ago.

# Australian tin industry today



**There are 29 companies listed on the ASX that are active in tin compared to 40 companies 12 months ago.**

Queensland 8 (12)	Tasmania 6 (11)	New South Wales 8 (10)	Western Australia 1 (3)
Anchor Resources	Clancy Exploration	Australian Oriental Minerals	Talison (not listed)
Planet Metals	Minemakers	YTC Resources	Victoria 1 (1)
RMA Energy	Venture Minerals	Central West Gold	Iluka Resources
Auzex	Stellar Resources	Cluff Resources Pacific	Northern Territory 2 (1)
Orion Metals	Metals X	Malachite Resources	Outback Metals
Consolidated Tin Mines	Gippsland Resources	Paradigm Metals	Epic Resources
Conquest Mining		Carpentaria Exploration	
Independence Group		Taronga Mines	Off shore 3 (3)
			Crusader Holdings / BBX
			Kasbah Resources
			Wolf Minerals

# Australian tin industry today



**Only 15 of these companies have a stated tin resources many of which are not JORC and two are offshore.**

Queensland 7 (12)	Tasmania 6 (11)	New South Wales 8 (10)	Western Australia 1 (3)
Anchor Resources	Clancy Exploration	Australian Oriental Minerals	Talison (not listed)
Planet Metals	<b>Minemakers</b>	YTC Resources	Victoria 1 (1)
RMA Energy	<b>Venture Minerals</b>	Central West Gold	Iluka Resources
<b>Auzex</b>	<b>Stellar Resources</b>	<b>Cluff Resources Pacific</b>	Northern Territory 2 (1)
Orion Metals	<b>Metals X</b>	<b>Malachite Resources</b>	Outback Metals
<b>Consolidated Tin Mines</b>	<b>Gippsland Resources</b>	<b>Paradigm Metals</b>	Epic Resources
<b>Conquest Mining</b>		Carpentaria Exploration	
<b>Independence Group</b>		<b>Taronga Mines</b>	Off shore 3 (3)
			Crusader Holdings / BBX
			<b>Kasbah Resources</b>
			<b>Wolf Minerals</b>

# Australian tin industry today



**Only 2 of these companies are in production.**

Queensland 7 (12)	Tasmania 6 (11)	New South Wales 8 (10)	Western Australia 1 (3)
Anchor Resources	Clancy Exploration	Australian Oriental Minerals	Talison (not listed)
Planet Metals	Minemakers	YTC Resources	Victoria 1 (1)
RMA Energy	Venture Minerals	Central West Gold	<b>Iluka Resources</b>
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# Australian Tin Industry Resources (Estimate only)



## Identified Mineral Resources

Category	Million Tonnes	% Sn	Metal
Measured	21.5	0.53	114,172
Indicated	33.3	0.48	159,254
Inferred	208.6	0.22	462,006
<b>Total</b>	<b>263.3</b>	<b>0.28</b>	<b>735,432</b>

## Mining Reserve Estimate Metals X has the only published tin mining reserve

Category	Tonnes	% Sn	Metal
Proved	0.03	1.01	303
Probable	24.1	0.52	124,776
<b>Total</b>	<b>2410</b>	<b>0.52</b>	<b>125,079</b>

# Over 36% of the Australian resources are controlled Metals X Bluestone JV



	Million Tonnes	% Sn	Tonnes Tin	% of Total
<b>Metals X JV</b>	10.98	1.44	158,621	<b>22%</b>
Outback	1.86	1.38	25,674	3%
Steller / Gippsland	4.36	1.10	47,960	7%
Consolidated Tin	7.38	0.60	44,260	6%
Independence Group	6.70	0.80	53,600	7%
<b>Metals X Rentals</b>	19.33	0.44	85,056	<b>12%</b>
Cluff Resources	3.03	0.42	12,726	2%
YTC Resources	7.81	0.28	21,868	3%
Venture	43.00	0.20	86,000	12%
Conquest	5.48	0.20	10,964	1%
Malachite	3.15	0.21	6,651	1%
Minemakers	12.40	0.19	23,780	3%
Taronga	37.60	0.15	56,400	8%
Others	100.00	0.10	100,000	14%

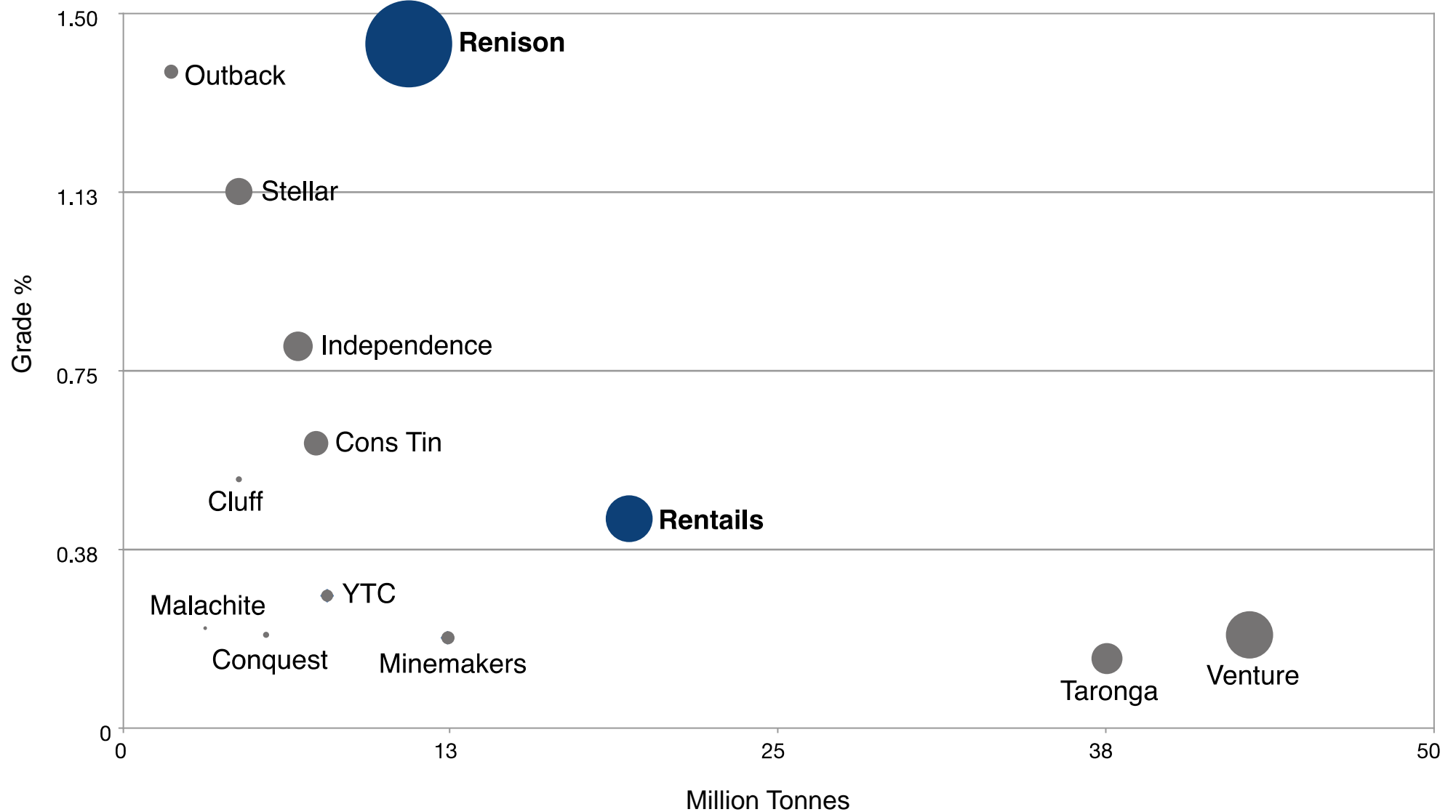
# To encourage development prices will need to be maintained at current levels

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<b>Hard Rock U/G</b>		<b>Cost Est</b>				
Underground mining \$/t	\$55	Tin Price	40,000	30,000	20,000	10,000
Processing \$/t	\$35	Recovery	75%	75%	75%	75%
Admin and services \$/t	\$15	Mine dilution	5%	5%	5%	5%
Marketing, Sales and roy	\$5					
Capital MD and P&E \$/t	\$10					
Capital invest plant and i	\$15					
Return on capital	\$5					
<b>Total</b>	<b>\$140</b>	Cut off grade	0.49%	0.65%	0.98%	1.96%
<b>Open Pit</b>						
Mining	\$15					
Processing	\$35					
Admin and services	\$15					
Marketing, Sales and roy	\$5					
Capital invest plant and i	\$15					
Return on capital	\$5					
<b>Total</b>	<b>\$90</b>	Cut off grade	0.32%	0.42%	0.63%	1.26%

Indicative estimates only, will vary with volumes, grades, ore characteristics and by-product credits

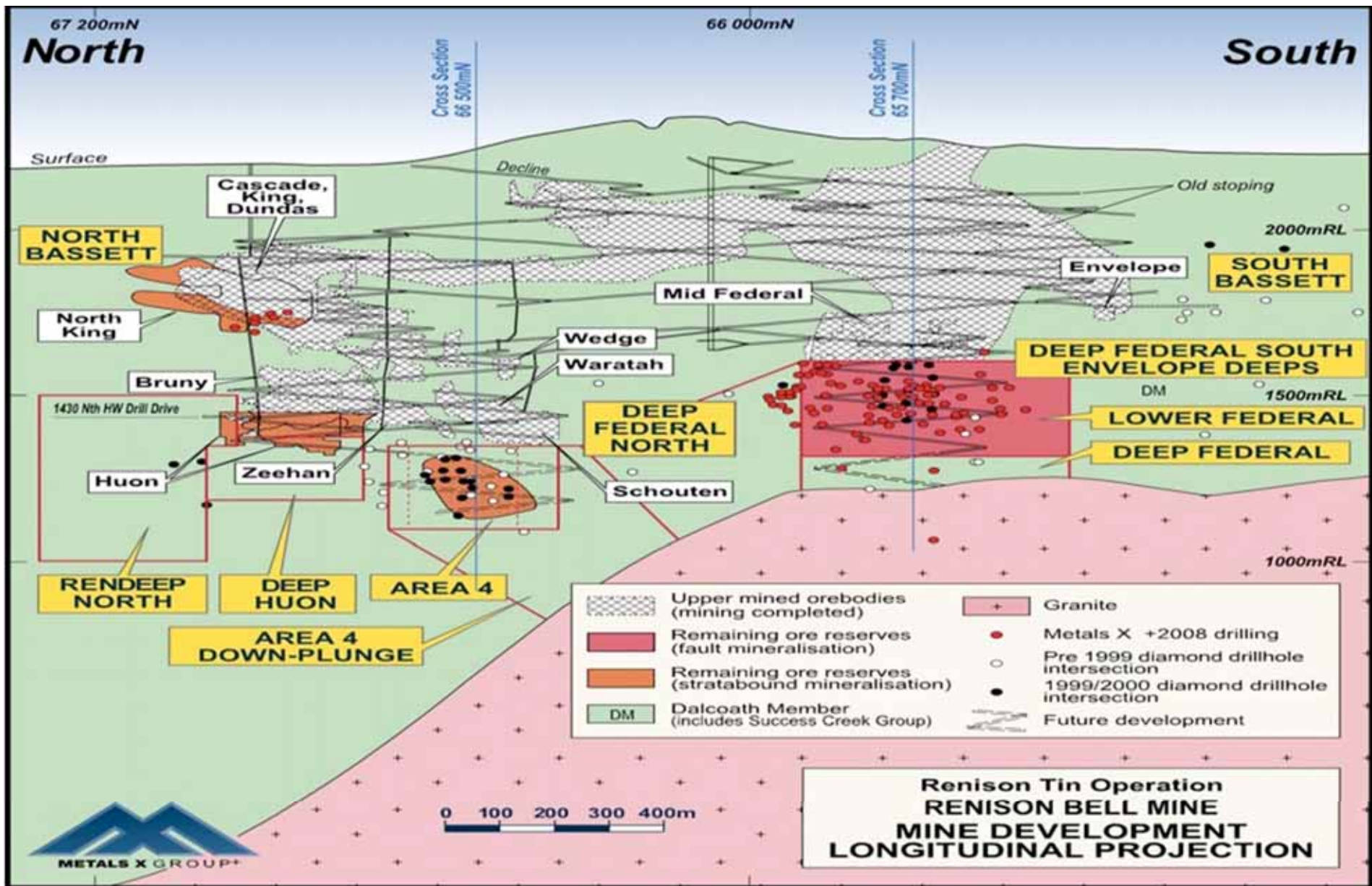
# Future projects will be lower grade



# Renison Tin Operations

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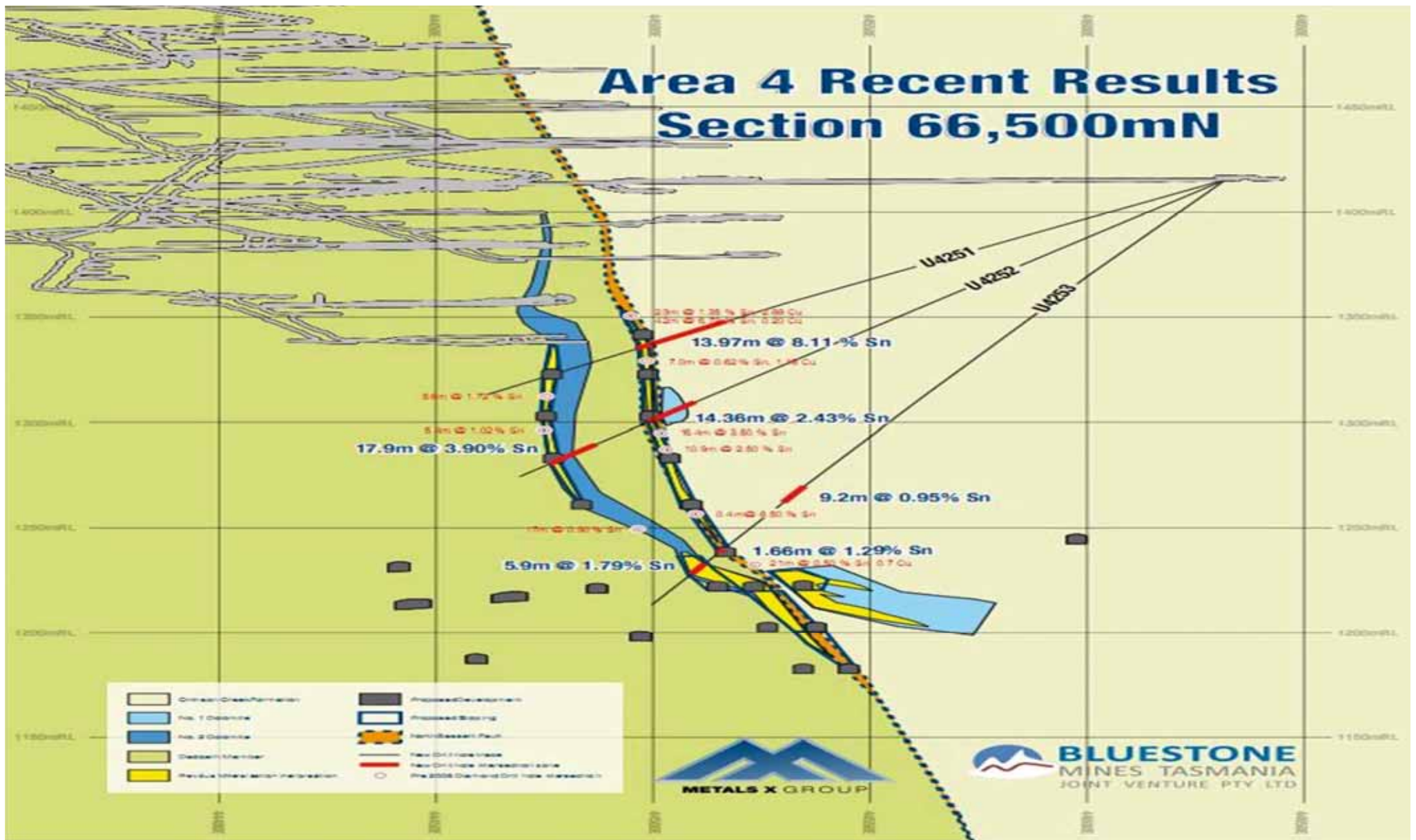
- **Bluestone Mines Tasmania Joint Venture is the only major tin producer in Australia and produces around 2.5% of the global supply of tin.**
- **Produces 8,000 tonnes per annum.**
- **Cash Operating Cost (expected average): \$10,000/tonne.**
- **Indicative EBITDA margin: \$A20,000/tonne, A\$170Mpa at current spot prices.**
- **Leveraging Sunk Capital: ~A\$100M spent on refurbishment. Replacement cost of capital over A\$250M.**
- **Copper Production: 1,000 – 2,000 tonnes per annum.**
- **Significant Exploration Potential: Recent new lodes discovered and further tin and copper reserves upgrades in a massive system.**



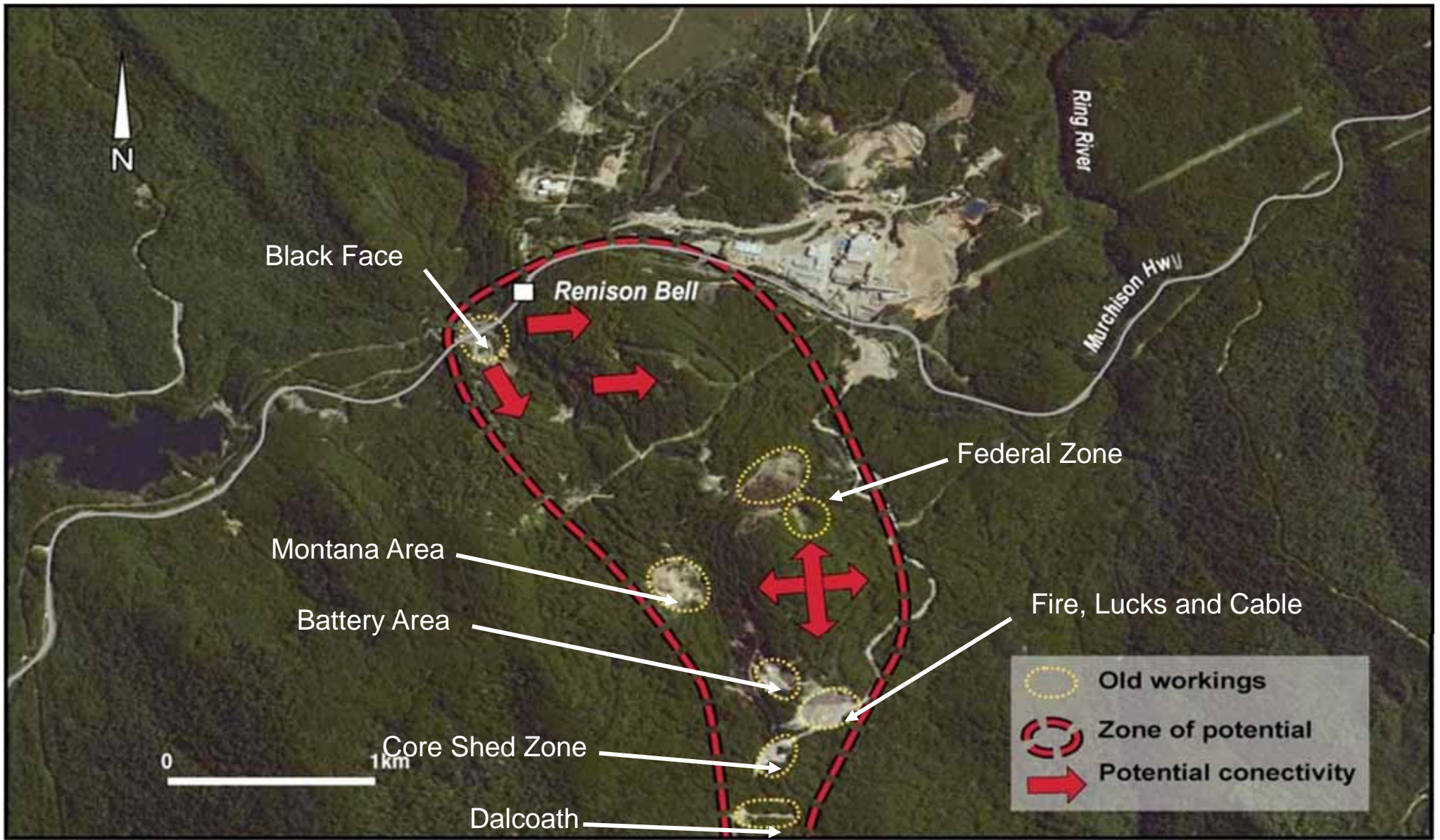
# Underground Layout



# Area 4 Recent Results Section 66,500mN



Recent success



# Surface targets

# Tin Expansion Project (Rentails)

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- **The Rentails Project is the application of new technology for the treatment of over 19Mt of historical tailings from the Renison Tin Concentrator.**
- **Measured & Indicated Resource:** 18.95Mt of ore at 0.44% tin, 0.21% copper.
- **Annual Production:** 4,500 - 5,500 tonnes of tin and 1,500 - 2,500 tonnes of copper.
- **Indicative Operating Cost:** A\$11,500/tonne of tin (after copper credits).
- **Indicative EBITDA Margin:** A\$18,500/tonne at recent spot prices.
- **Indicative Capex:** A\$120 - A\$200M depending on final path to production.
- **Feasibility Completed:** Commitment by JV end of Qtr 2 2011.

# Project Pipeline

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Exploration

Development

Production

**Tasmanian Tin Operations (8,000 tpa Tin)**

**Tasmanian Tin Expansion (5,000 tpa tin)**

**Resource Extension- Renison Deeps/Open Pits**

**Bischoff extensions and UG feasibility**

**Regional- Mt Ramsay and other opportunities**

# What has changed since 2008/2010?

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- **Sorry still Not Much!!**
- Tin assets becoming more consolidated – fewer companies with larger holdings.
- Closed /disbanded operations - Stonehenge and Van Dieman Mines.
- Bluestone's Rentails next producer – 5,000tpa tin.
- Still a low level of exploration compared to other commodities – Venture minerals and Consolidated Tin Mines have made most progress in defining their projects although still in pre-feasibility stage.
- Increased environmental regulation continues to eliminate alluvial mining and dredging.
- Next tier of projects lower grade which will require higher capital investment per tonne of tin – will need high tin prices and large reserve base to justify.
- Tin is starting to get some attention from investors.



Thanks!



Metals X an emerging Nickel Major