Recent trends in Australian exploration

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Overview

1. Australia’s share of world exploration spend
2. Trends in commodity mix and country focus
3. Trends in Juniors vs Majors, Brownfields versus Greenfields
4. Discovery rates – when, where and what cost ?
5. The need to improve our game

Background

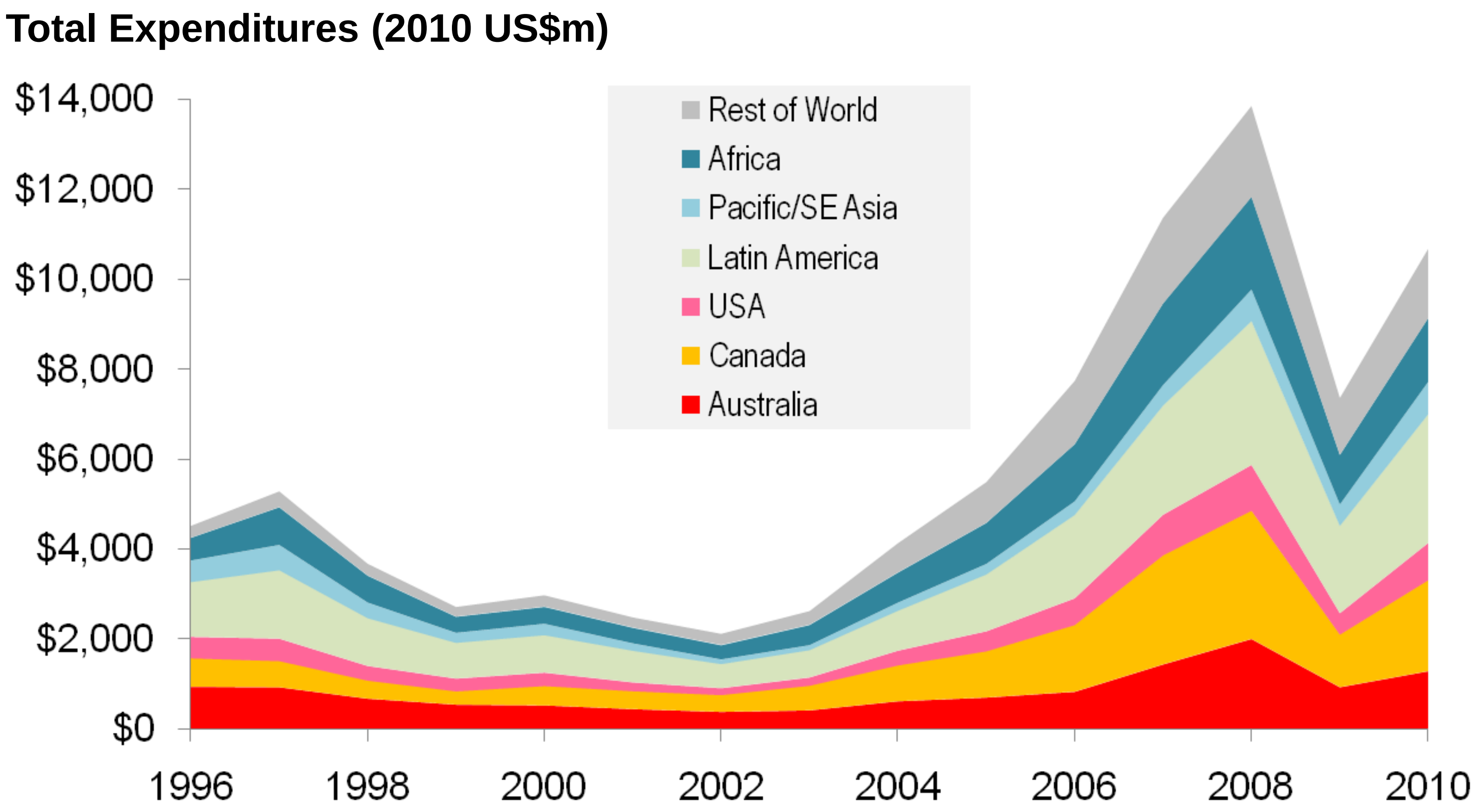
The analysis:

- Covers the period 1975-2010, with forecasts for 2011
- Excludes Bulk Minerals (such as iron ore, coal and bauxite)
- Focuses on deposit quality ….
  - Tier 1 , 2 & 3 mines
- All expenditures are in constant June 2010 dollars (A$ and US$)

EXPLORATION EXPENDITURES

World exploration expenditures

Exploration expenditures by Region: 1996-2010

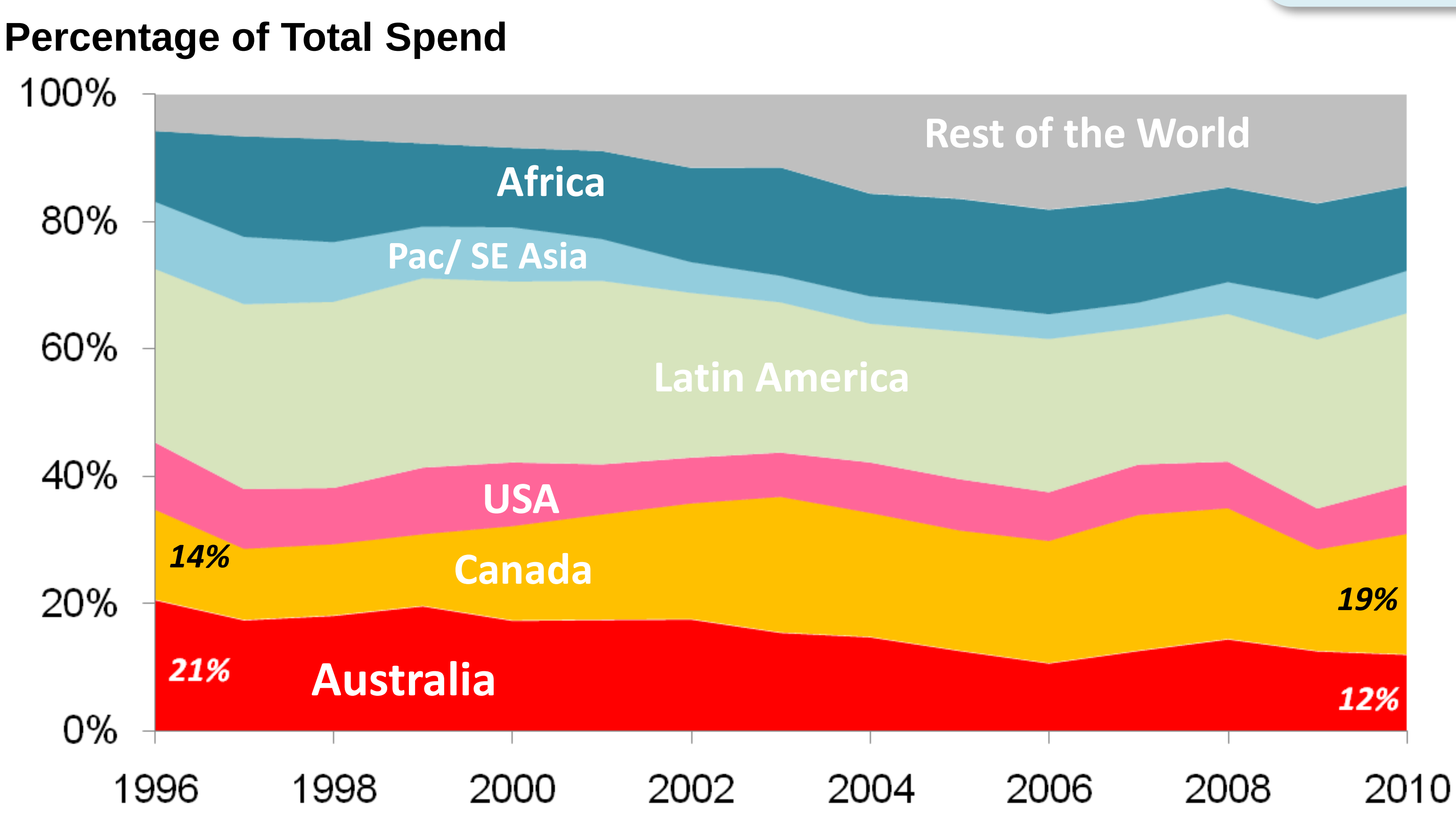


Note: Excludes exploration on Bulk Minerals (such as coal, iron ore and bauxite) and Uranium

World exploration expenditures

Exploration expenditures by Region: 1996-2010

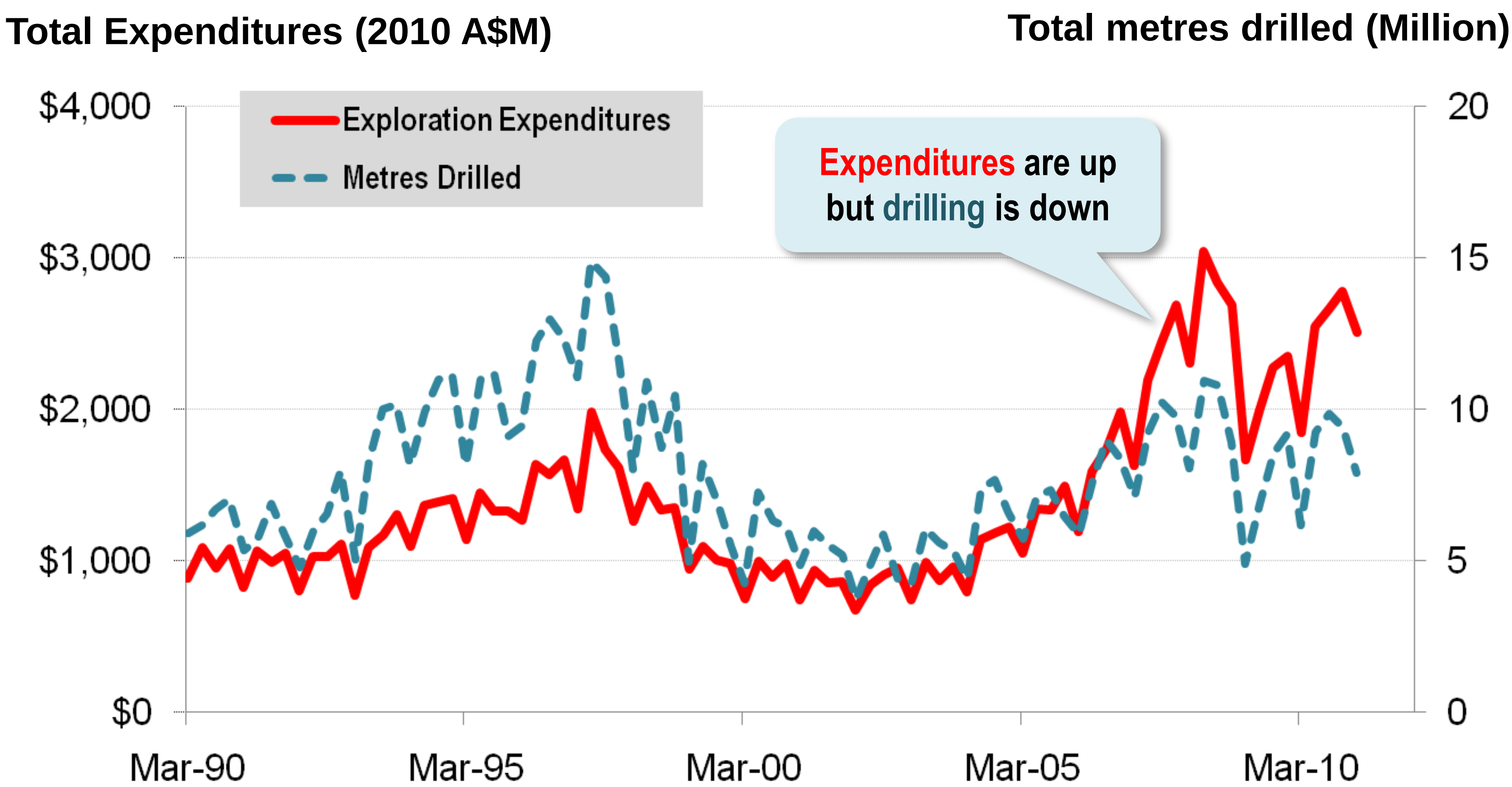
Australia's share has **nearly halved** over the last 14 years



Note: Excludes exploration on Bulk Minerals (such as coal, iron ore and bauxite) and Uranium

The industry has gone through a major boom-bust

Level of exploration in Australia: March 1990-March 2011

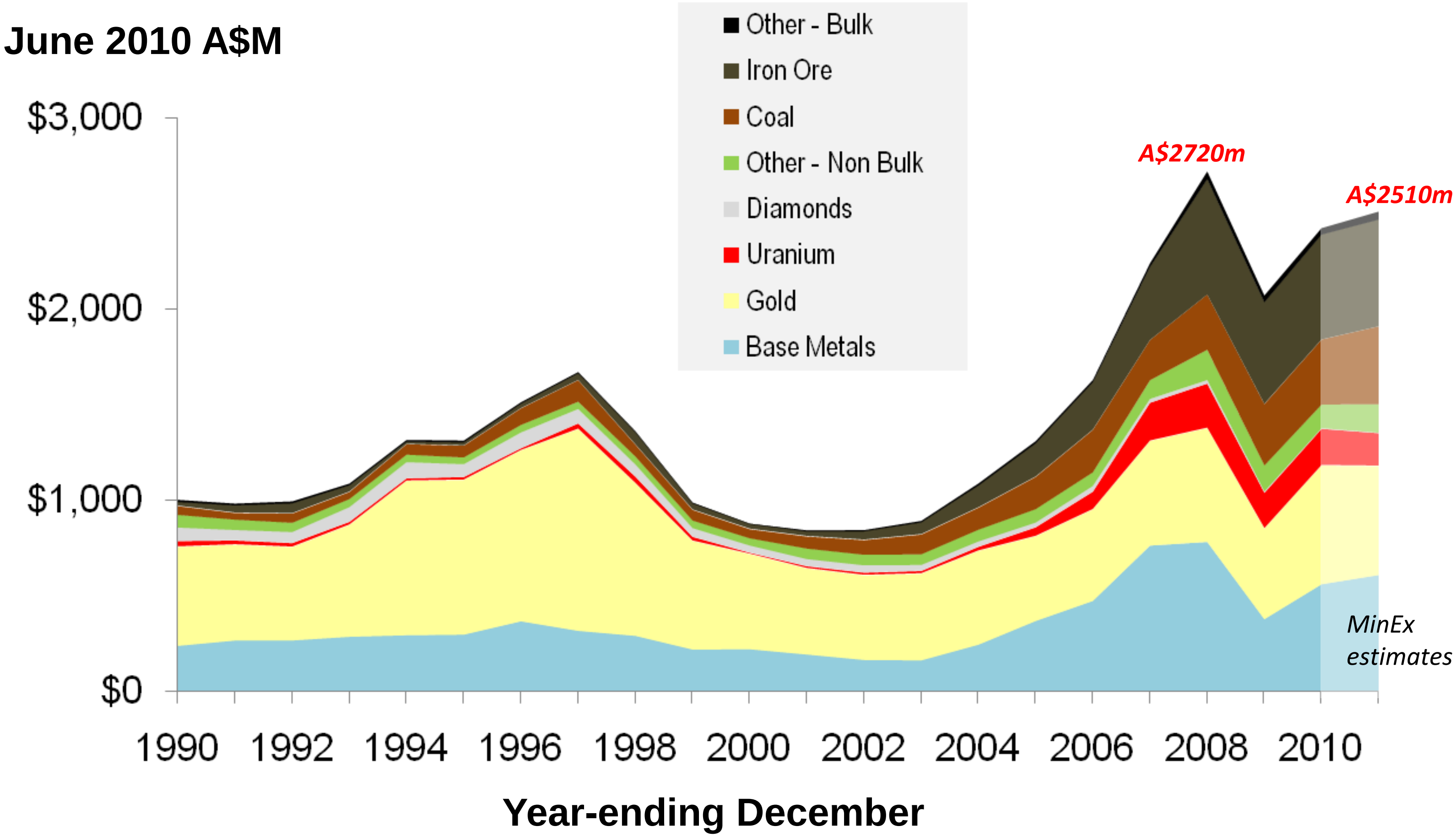


Note: Includes exploration expenditures on Bulk Minerals (such as coal, iron ore and bauxite) and Uranium
Data reported on an annualised basis

Source: ABS Cat No. 8412.0

Increased focus on exploring for bulk minerals

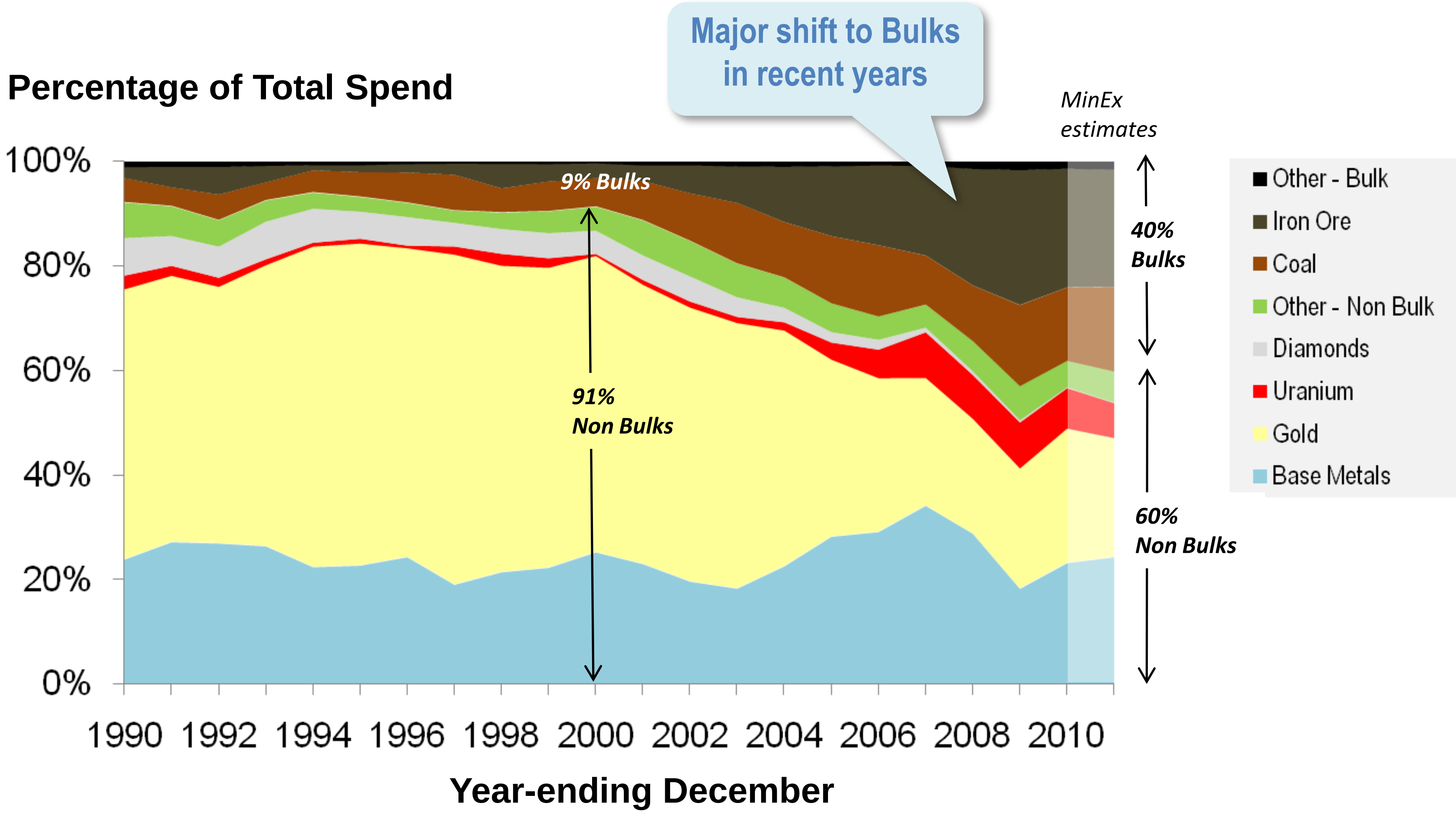
Exploration expenditures by commodity type in Australia: 1990-2011 est



Sources: ABS Cat No. 8412.0
MinEx estimate for 2011

Increased focus on exploring for bulk minerals

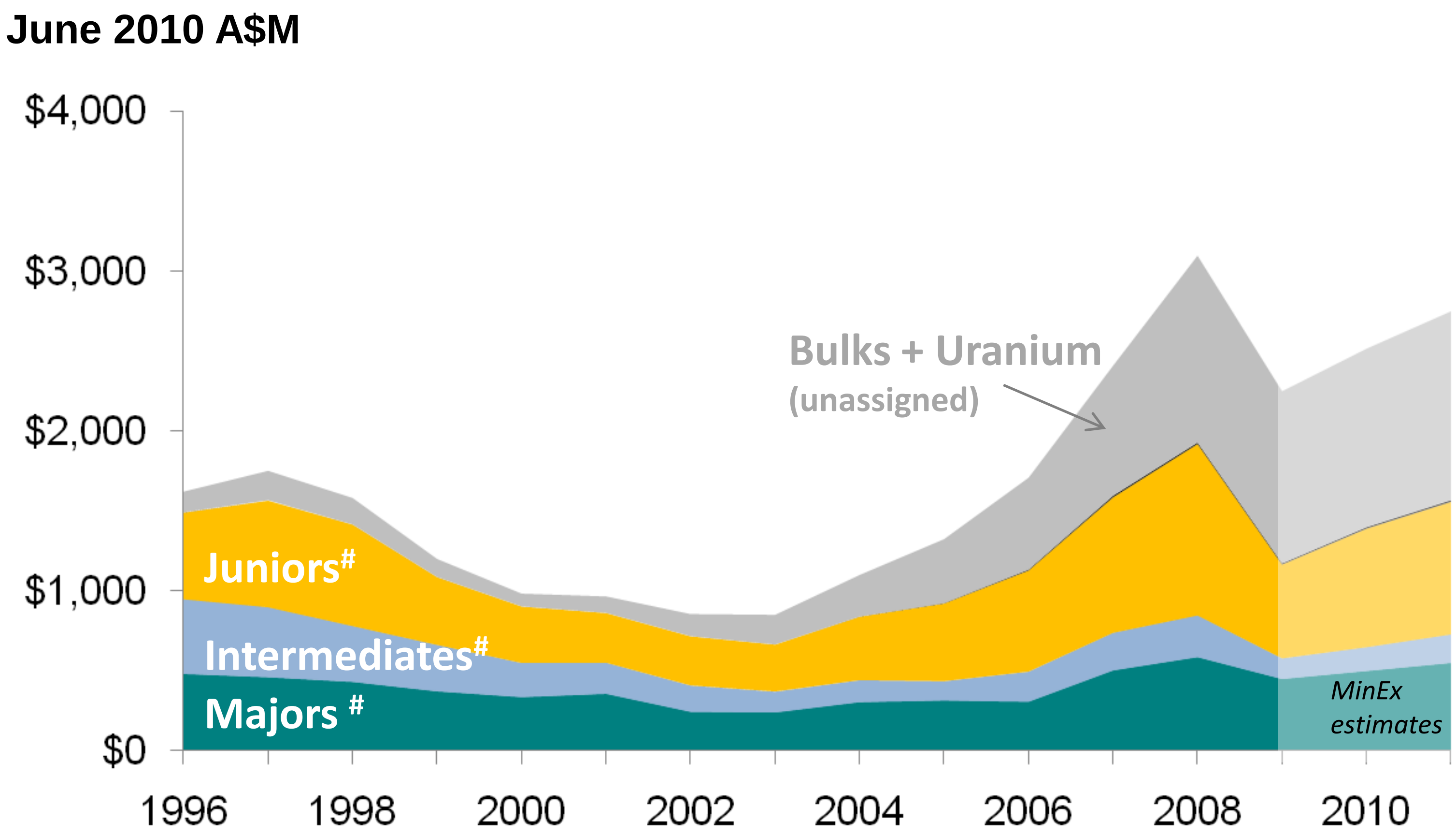
Exploration expenditures by commodity type in Australia: 1990-2011 est



Sources: ABS Cat No. 8412.0
MinEx estimate for 2011

Exploration expenditures by Company Type

Exploration expenditures in Australia

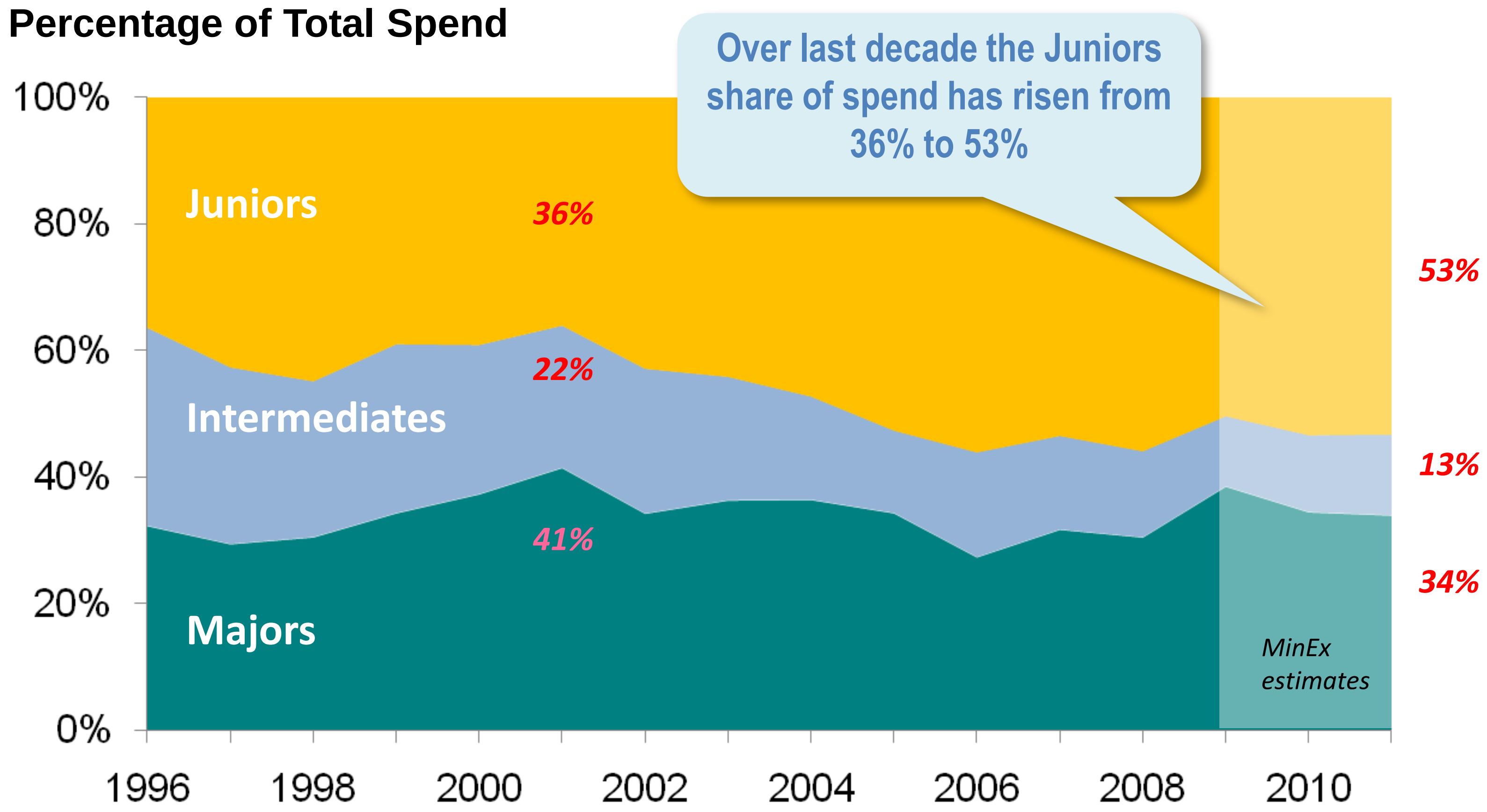


MEG data excludes Bulk Minerals and Uranium

Sources: Derived from MEG 2010 with MinEx estimates for 2010-11 and ABS (for Bulks and Uranium)

Over half of all exploration is Australia is now done by the Junior Sector

Exploration expenditures by All Companies in Australia

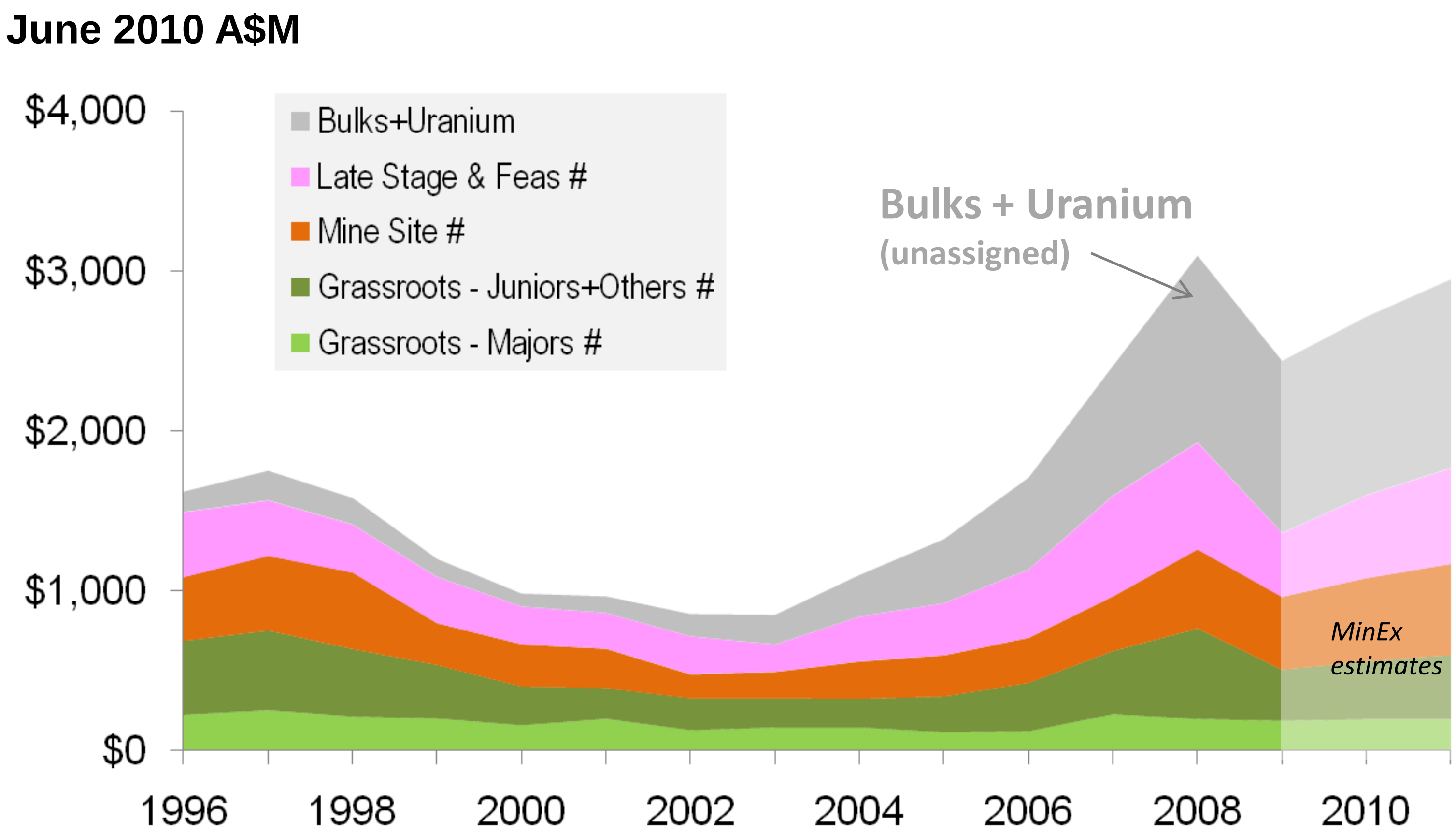


Note: Excludes exploration on Bulk Minerals (such as coal, iron ore and bauxite) and Uranium
Detailed breakdown for 2009-2011 are MinEx estimates

Source: Derived from MEG 2010

Split between Grassroots, Advanced and Mine Site Exploration

Exploration expenditures by All Companies in Australia

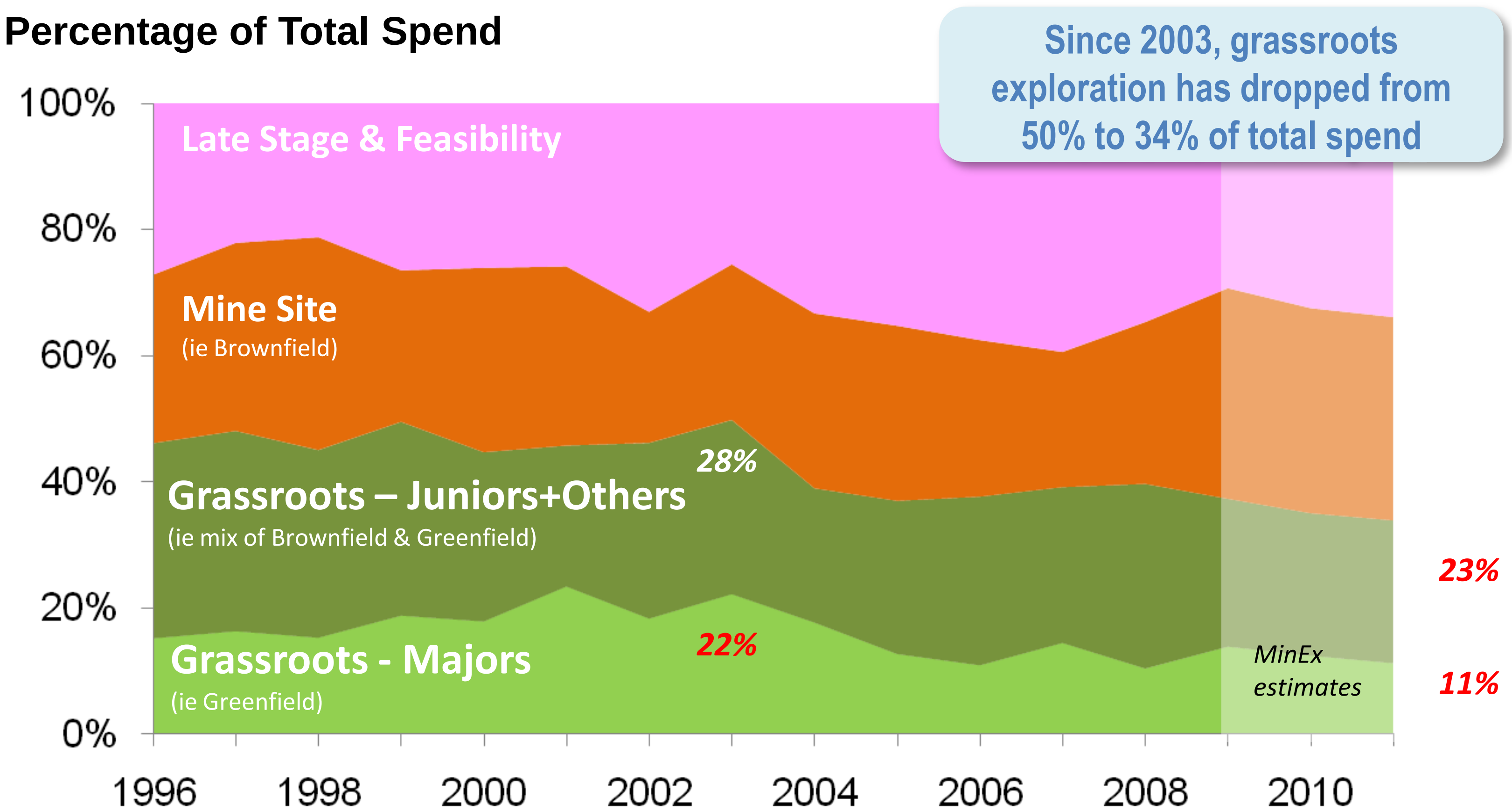


MEG data excludes Bulk Minerals and Uranium

Sources: Derived from MEG 2010 with MinEx estimates for 2009-11 and ABS (for Bulks and Uranium)

In percentage terms, grassroots exploration is now at an all-time low

Exploration expenditures by All Companies

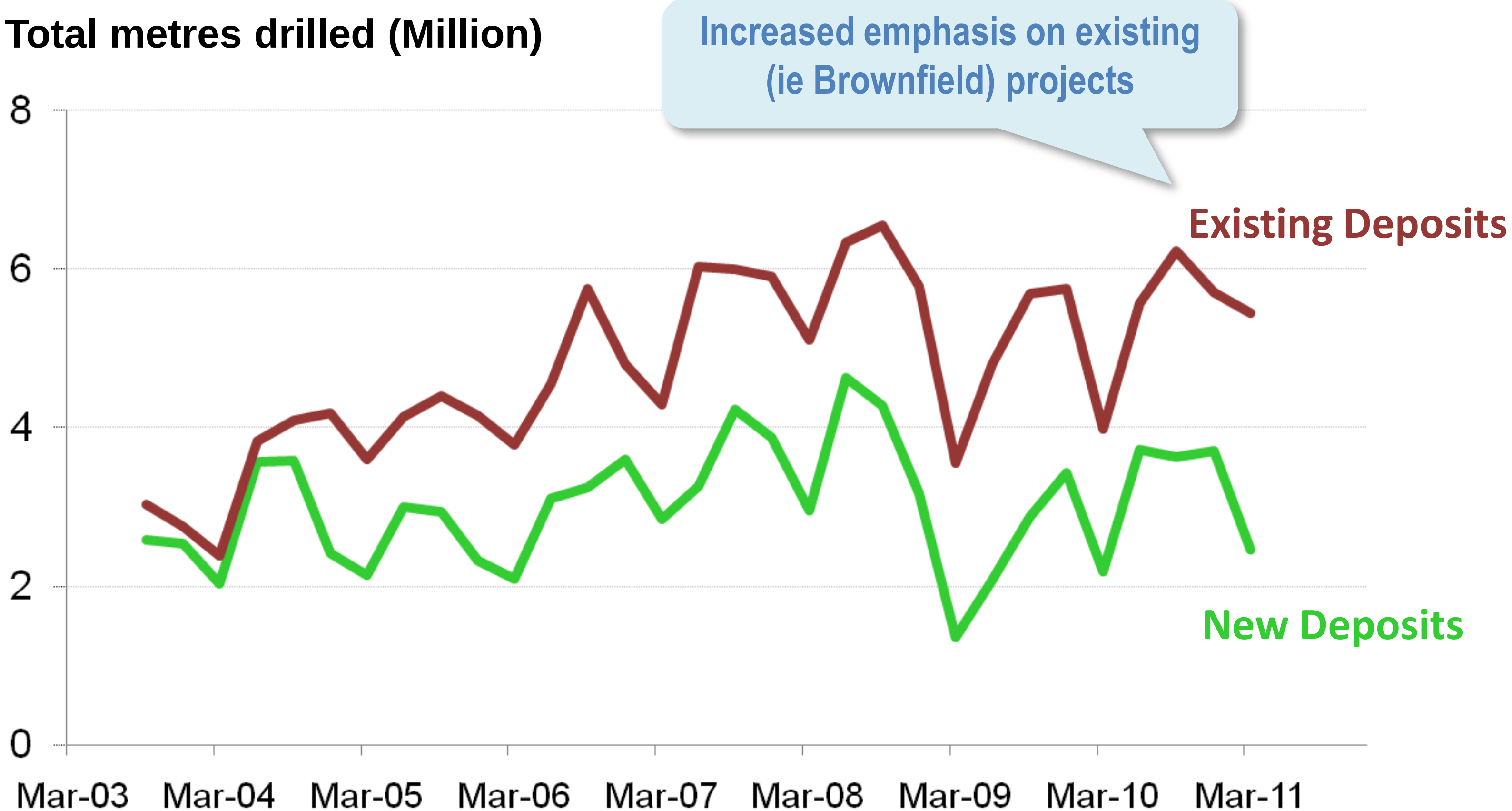


Note: Excludes exploration on Bulk Minerals (such as coal, iron ore and bauxite) and Uranium
Detailed breakdown for 2009 & 2010 are MinEx estimates

Source: Derived from MEG, 2010

The amount of drilling on new deposits has declined in recent years

Level of exploration drilling in Australia: Sept 2003-March 2011



Note: Includes exploration expenditures on Bulk Minerals (such as coal, iron ore and bauxite) and Uranium
ABS only started the data series in September 2003
Data reported on an annualised basis.

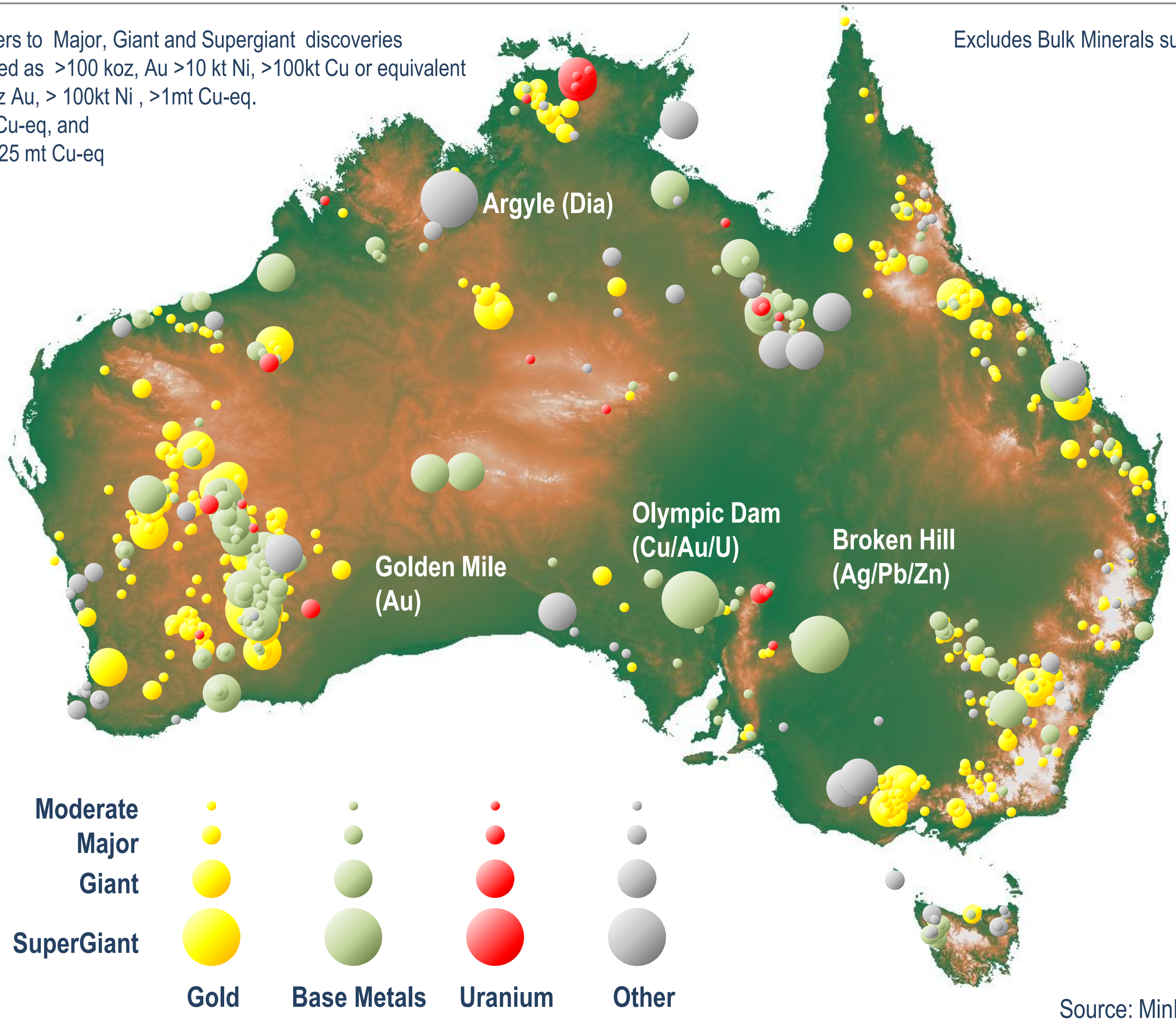
Source: ABS Cat No. 8412.0

DISCOVERIES

Discoveries – All Years

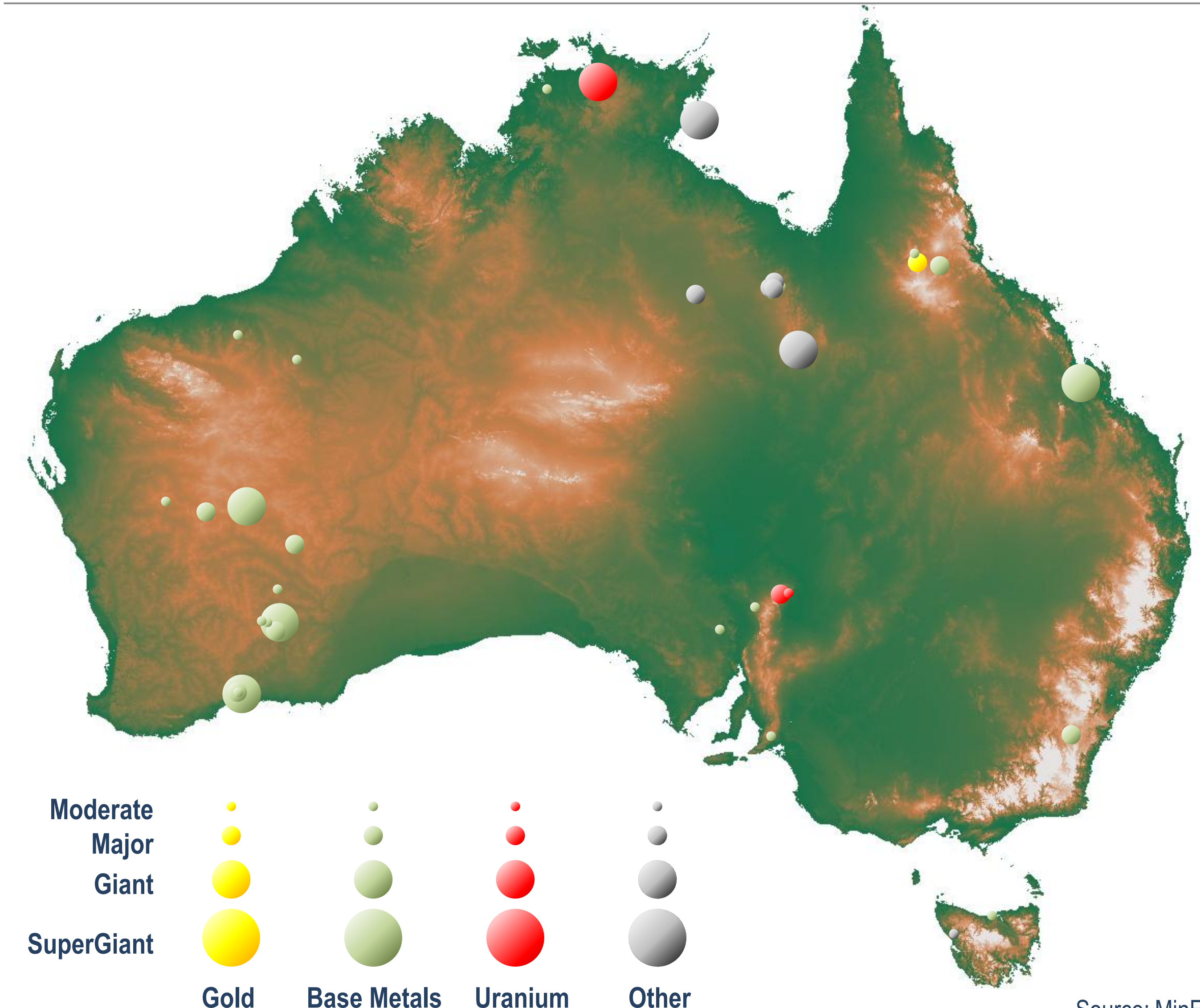
Note: Bubble size refers to Major, Giant and Supergiant discoveries
Moderate defined as >100 koz, Au >10 kt Ni, >100kt Cu or equivalent
Major is >1 moz Au, > 100kt Ni , >1mt Cu-eq.
Giant is >5 mt Cu-eq, and
Supergiant is >25 mt Cu-eq

Excludes Bulk Minerals such as coal, bauxite and Iron ore



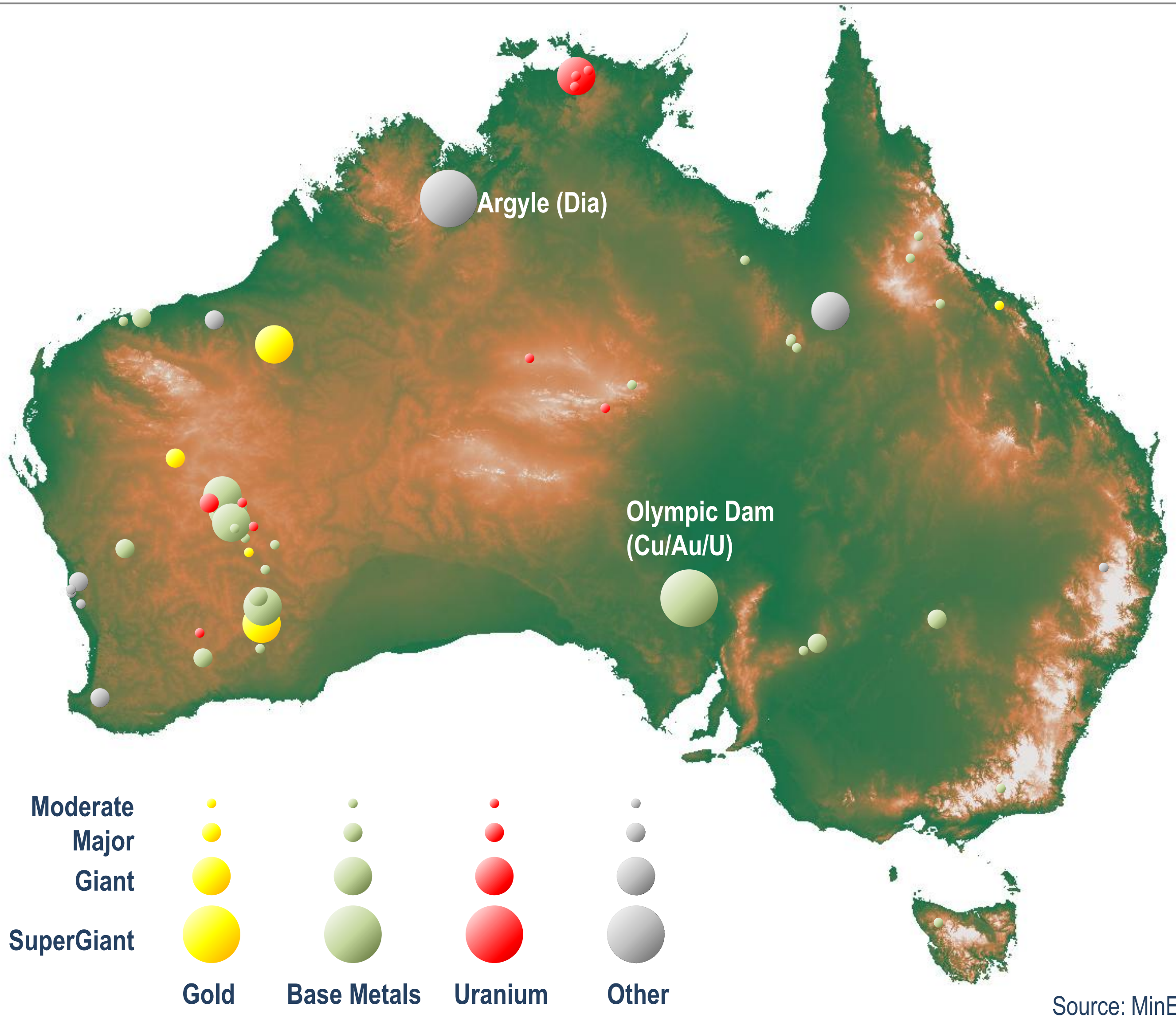
Source: MinEx Consulting June 2011

Discoveries: 1960-69



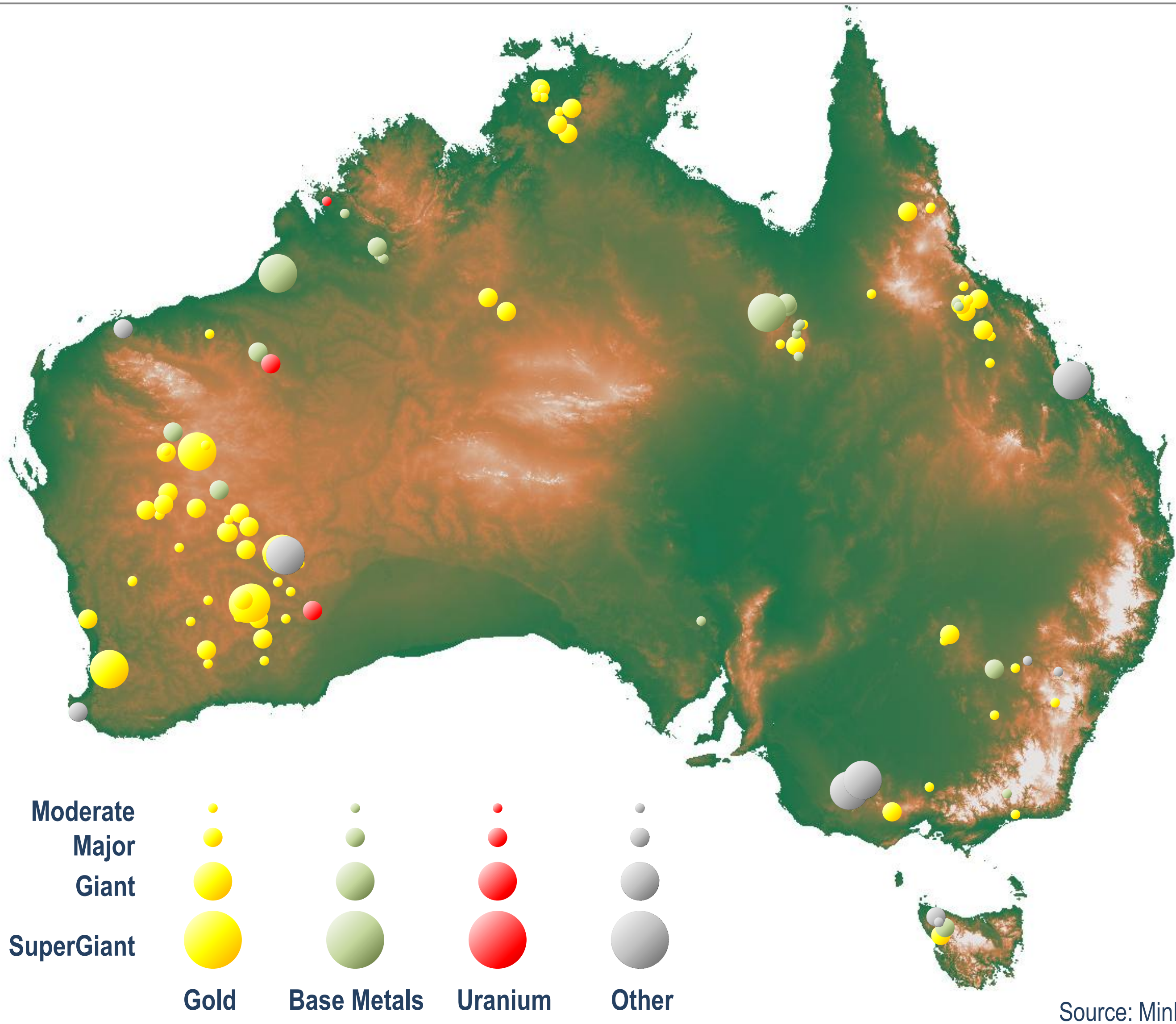
Source: MinEx Consulting June 2011

Discoveries: 1970-79



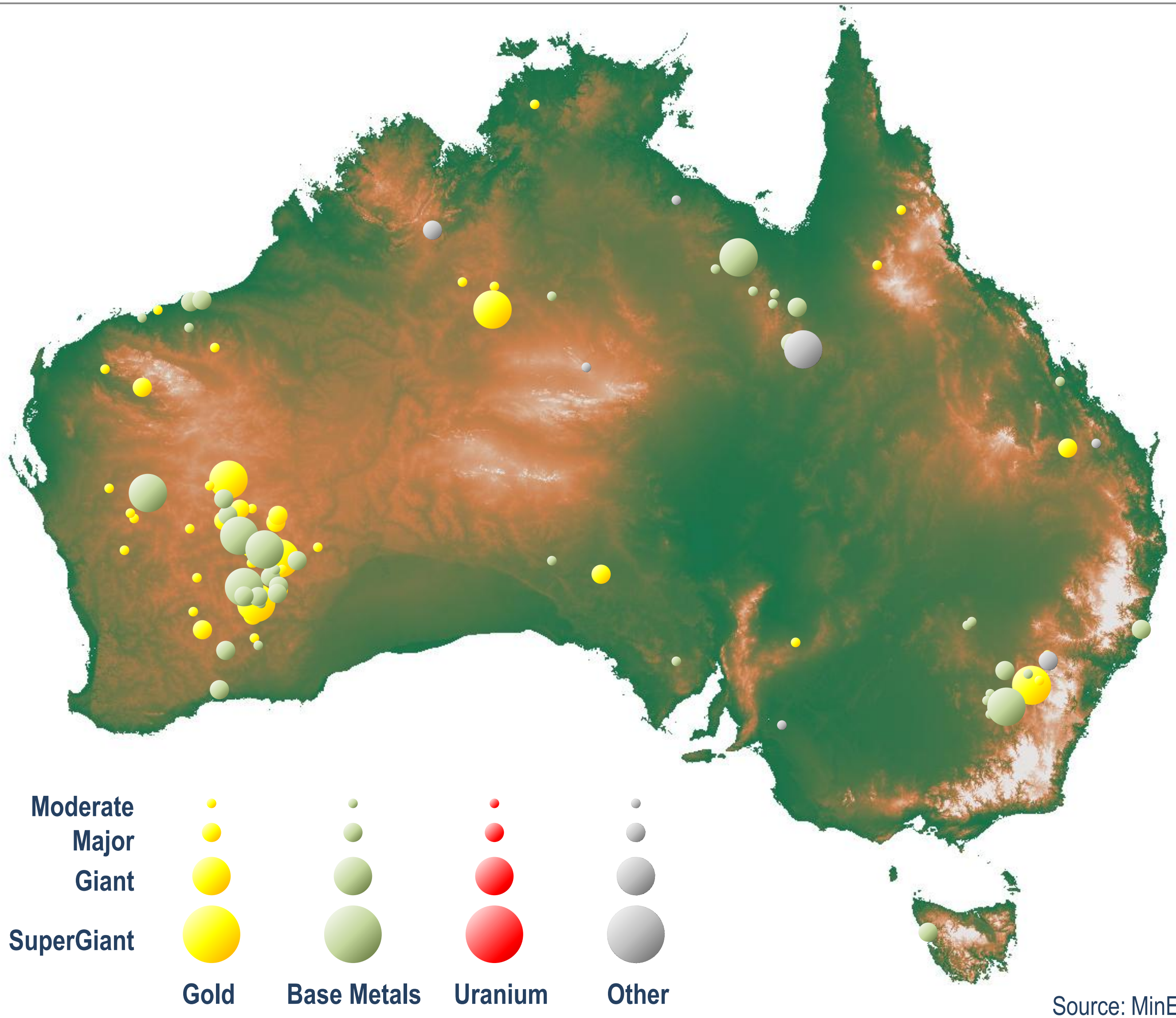
Source: MinEx Consulting June 2011

Discoveries: 1980-89



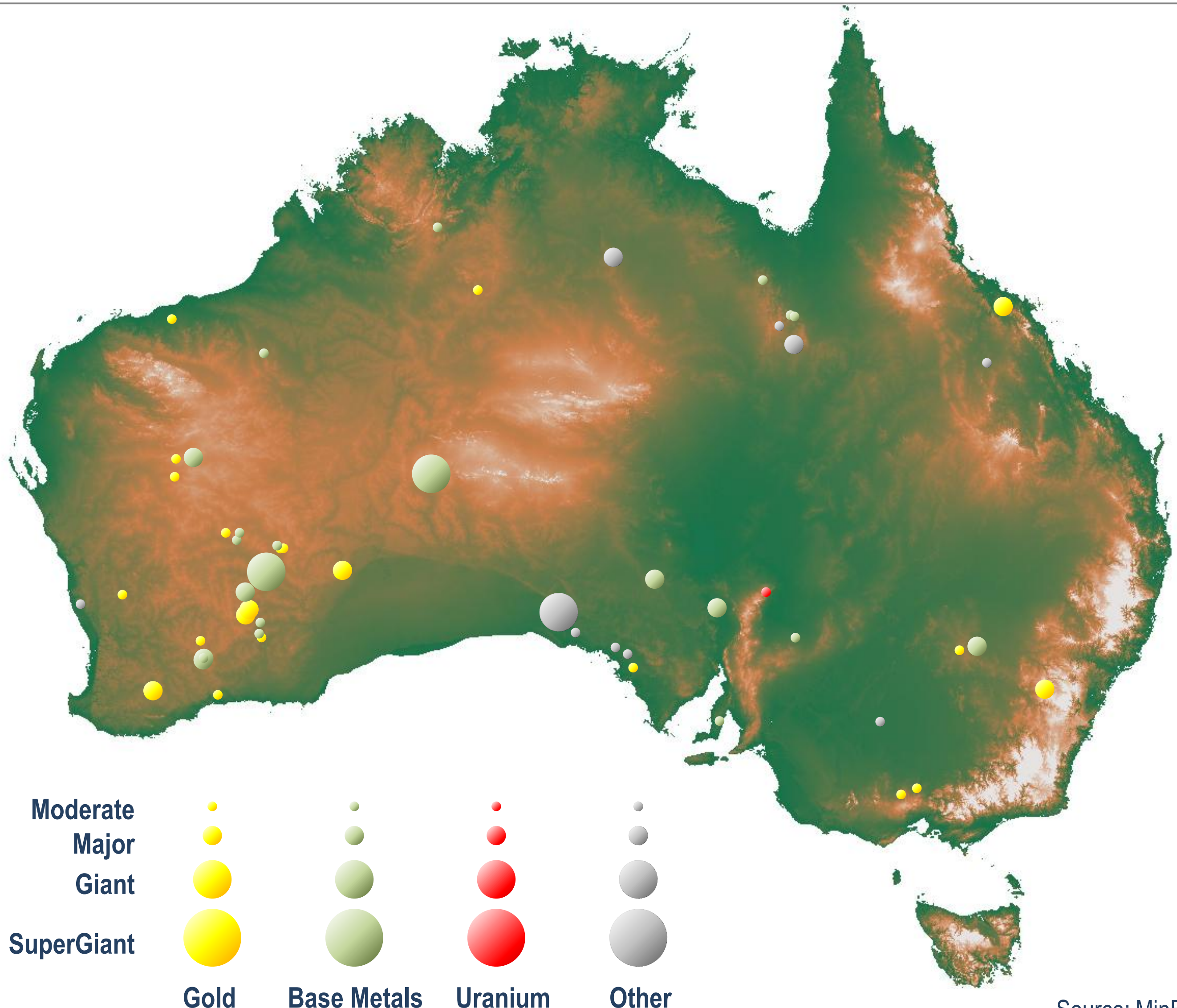
Source: MinEx Consulting June 2011

Discoveries: 1990-99



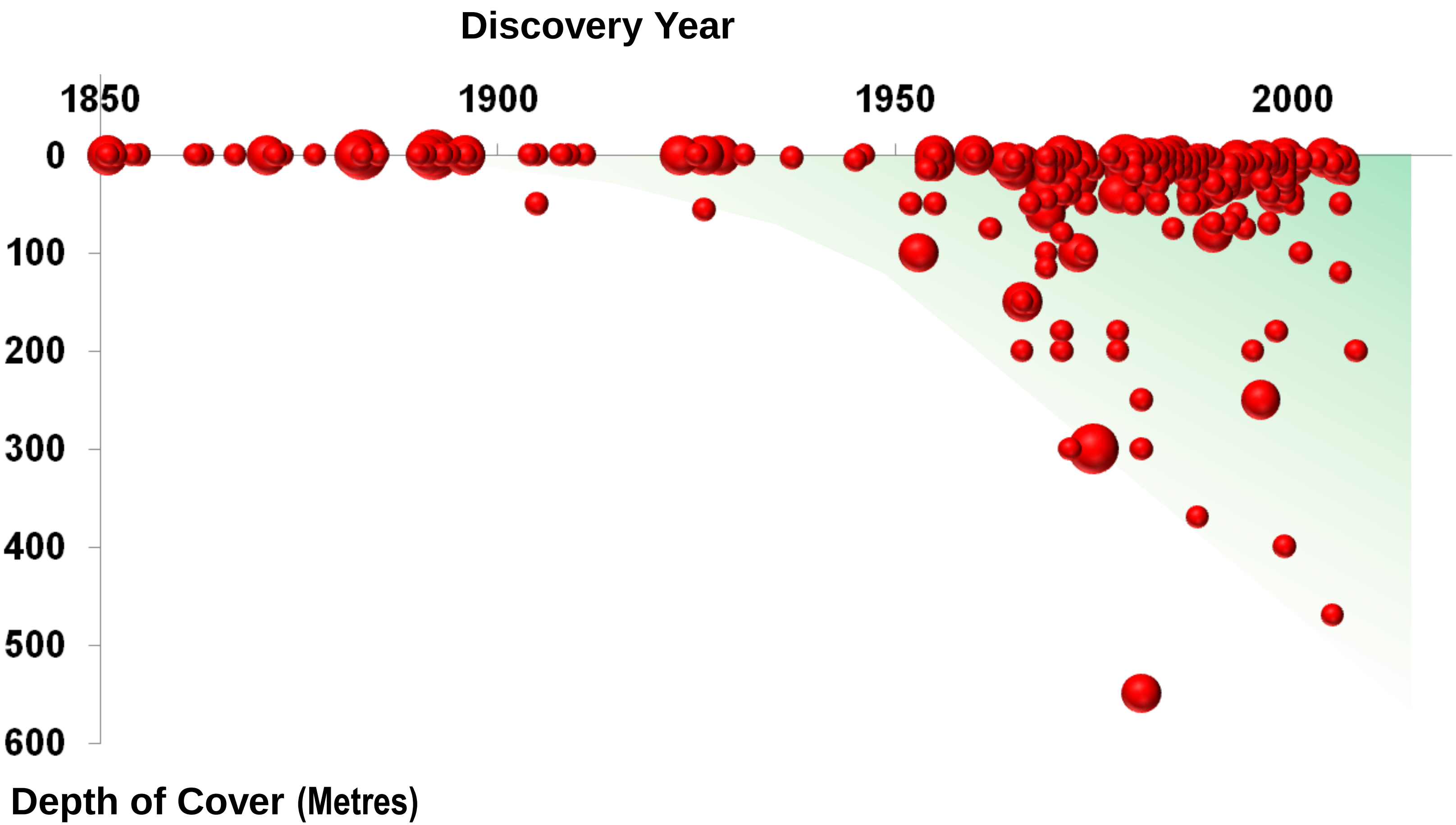
Source: MinEx Consulting June 2011

Discoveries: 2000-10



Source: MinEx Consulting June 2011

Depth of cover for major mineral discoveries in Australia: 1850-2010



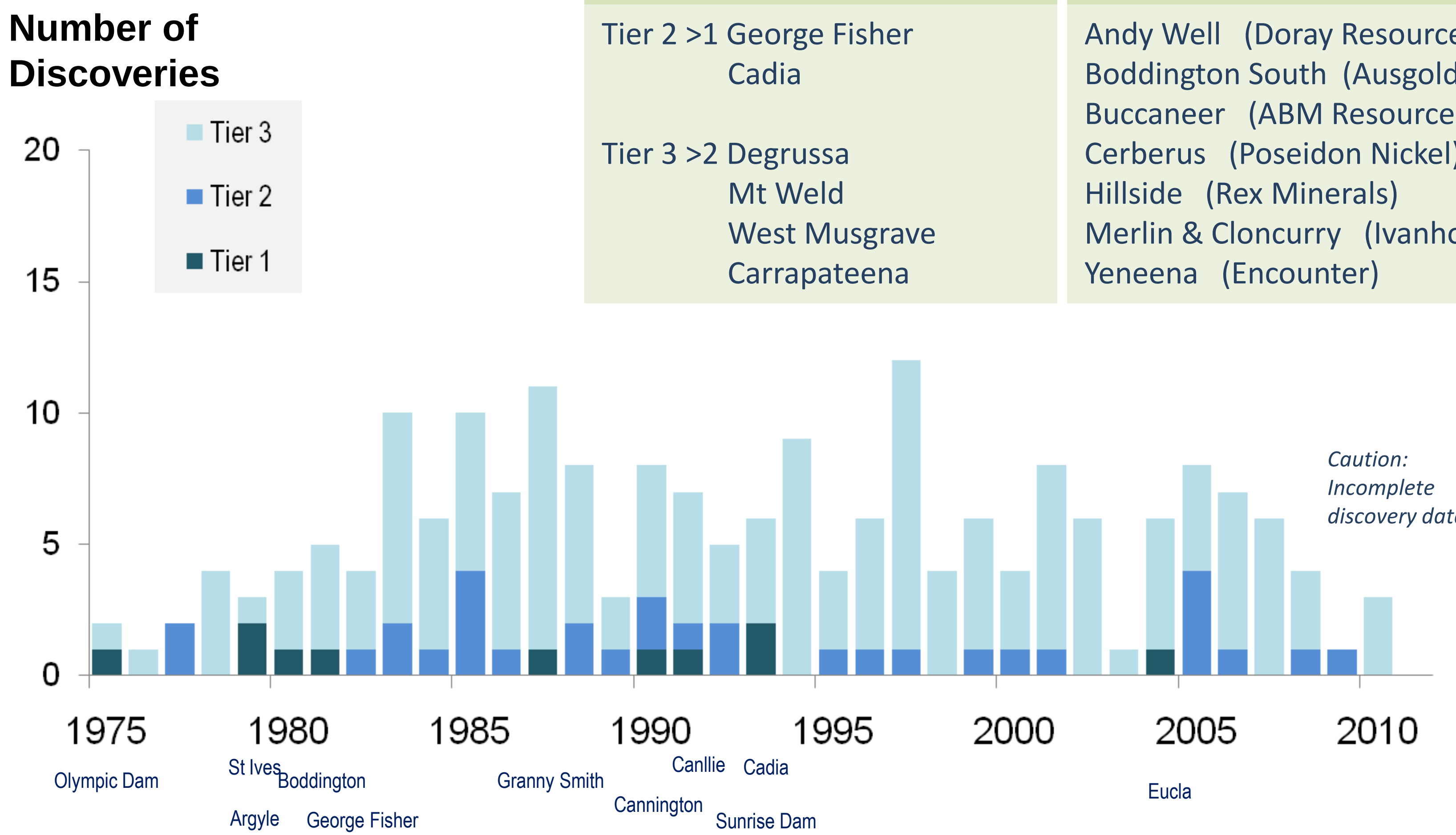
Note: Bubble size refers to Major, Giant and Supergiant discoveries
Major defined as >1 moz Au, > 100kt Ni , >1mt Cu or equivalent. Giant is >5 mt Cu-eq and Supergiant is >25 mt Cu-eq
Excludes Bulk Minerals such as coal, bauxite and Iron ore

Source: MinEx Consulting August 2010

DISCOVERY PERFORMANCE AND COSTS

Discoveries : Australia

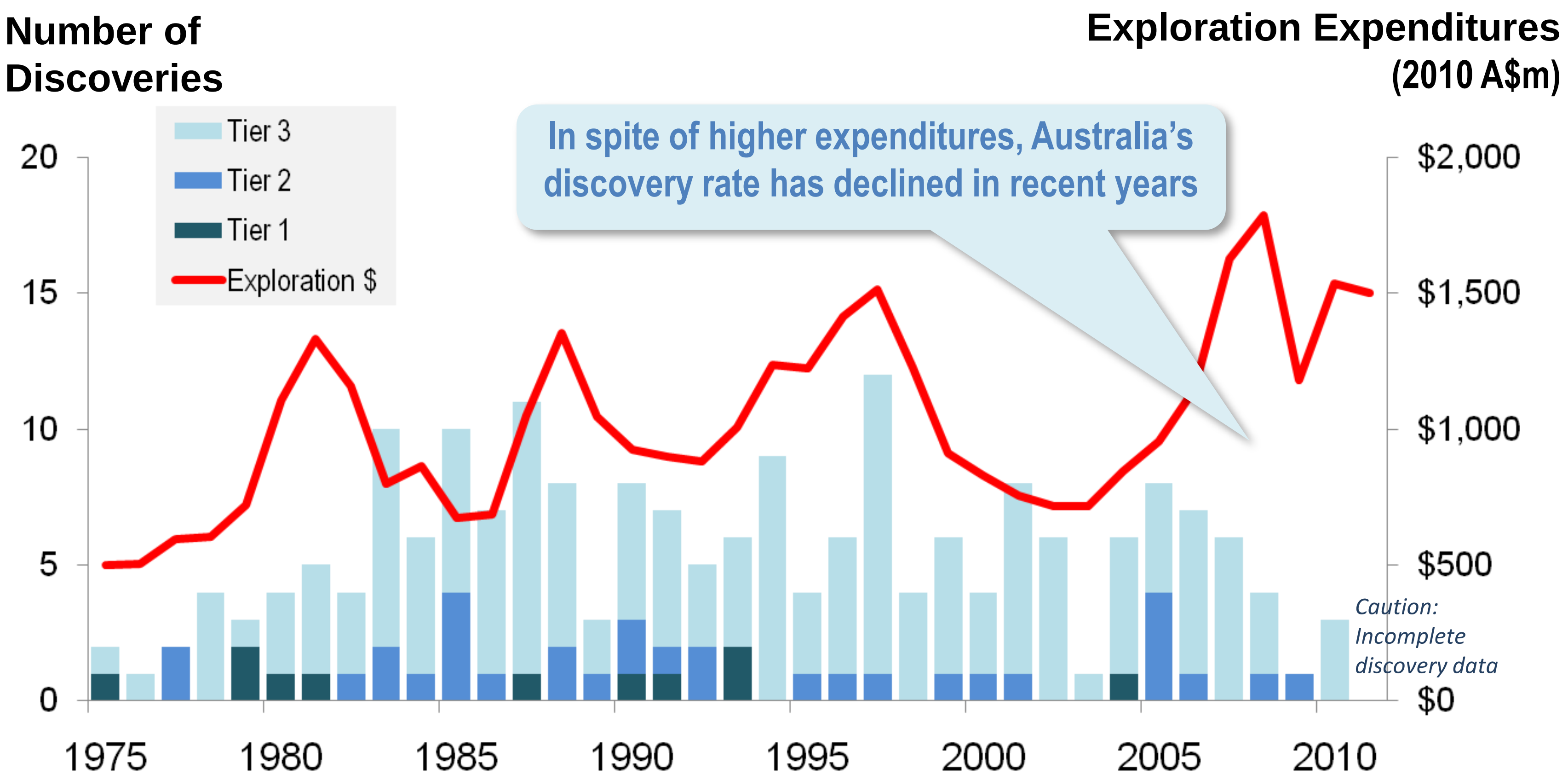
Promotions (since June 2010)	… and up-and-coming
Tier 2 >1 George Fisher Cadia Tier 3 >2 Degrussa Mt Weld West Musgrave Carrapateena	Andy Well (Doray Resources) Boddington South (Ausgold) Buccaneer (ABM Resources) Cerberus (Poseidon Nickel) Hillside (Rex Minerals) Merlin & Cloncurry (Ivanhoe) Yeneena (Encounter)



Discoveries and expenditures exclude Bulk Minerals (such as coal, iron ore and bauxite)

Sources: ABS and MinEx Consulting June 2011

Discoveries & Expenditures : Australia



Discoveries and expenditures exclude Bulk Minerals (such as coal, iron ore and bauxite)

Sources: ABS and MinEx Consulting June 2011

Average Discovery costs are rising

Non-bulk exploration and discoveries in Australia

	1980-89	1990-99	2000-09
Exploration Spend (\$2010 A\$m)	*\$10,077*	*\$11,249*	*\$10,565*
No of Discoveries			
Tier 1	3	4	1
Tier 2	12	9	9
Tier 3	53	54	41
Average Cost (A\$2010m per Discovery)			
Per Tier 1	\$3,359	\$2,812	\$10,565
Per Tier 1+2	\$672	\$865	\$1,056
Per Tier 1+2+3	\$148	\$168	\$207

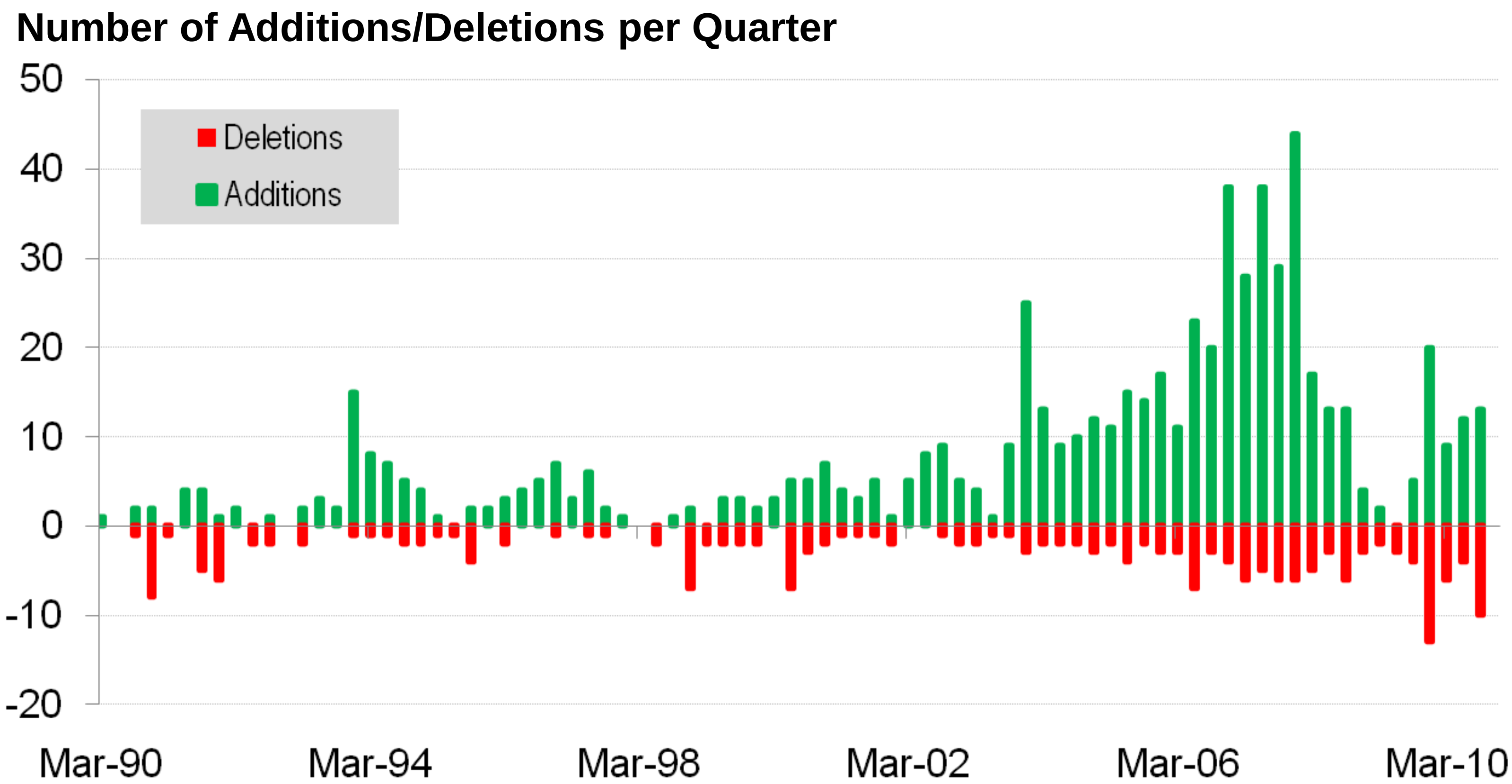
Tier 1 = "Company Making" Mines. They are large, long life and low cost
Tier 2 = "Significant" Deposits. Has some, but not all, of the characteristics of a Tier 1
Tier 3 = "Modest" deposits. May be small and profitable or large but low grade/high cost

Sources: ABS and MinEx Consulting June 2011

Discoveries and expenditures <u>exclude</u> Bulk Minerals

SOURCE & DISTRIBUTION OF AUSTRALIA'S EXPLORATION FUNDS

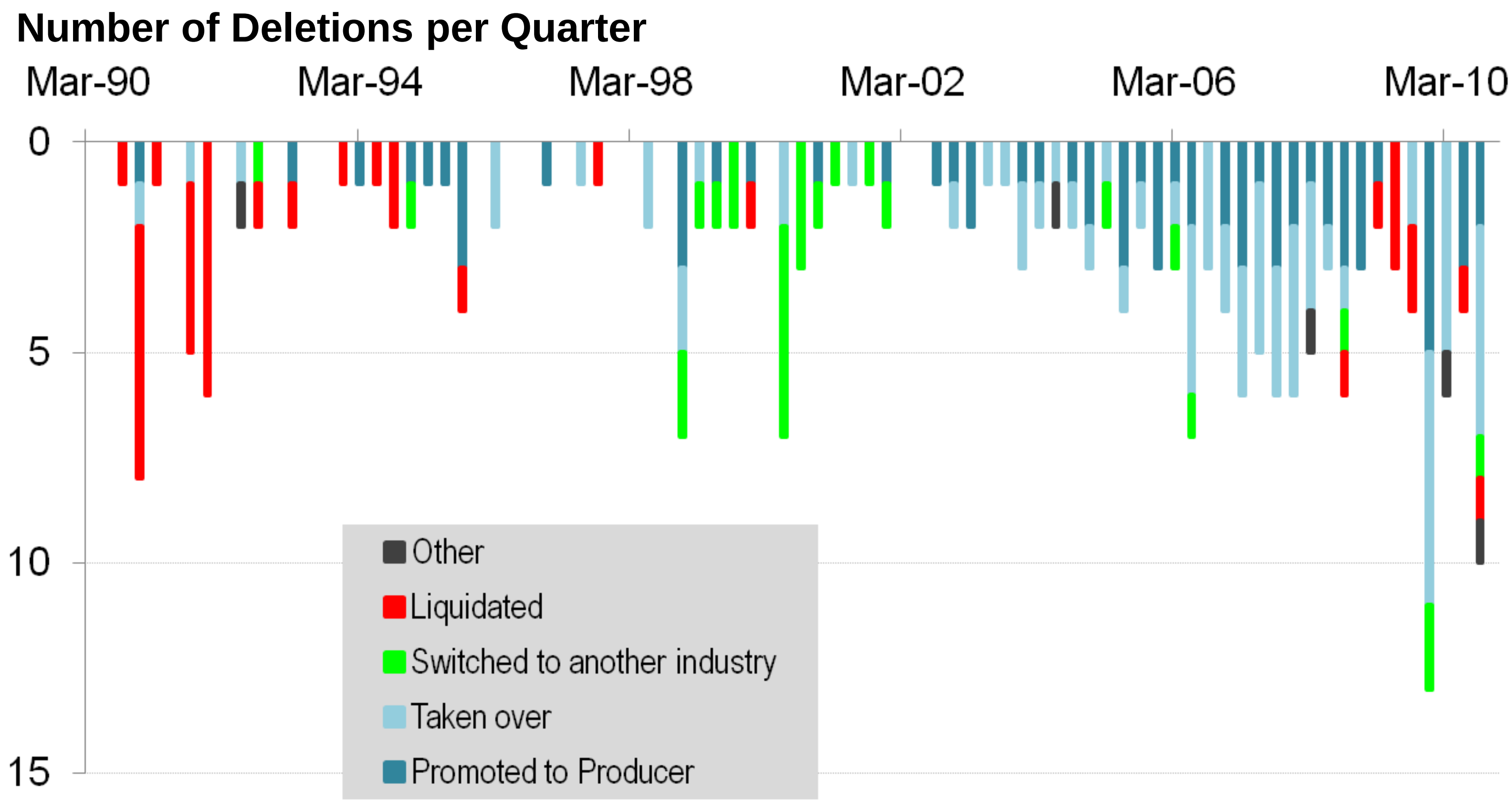
In recent years a large number of Junior Explorers have entered the Australian market



Note: Additions exclude IPOs for Producers
Deletions includes Junior Explorers promoted to Producer status

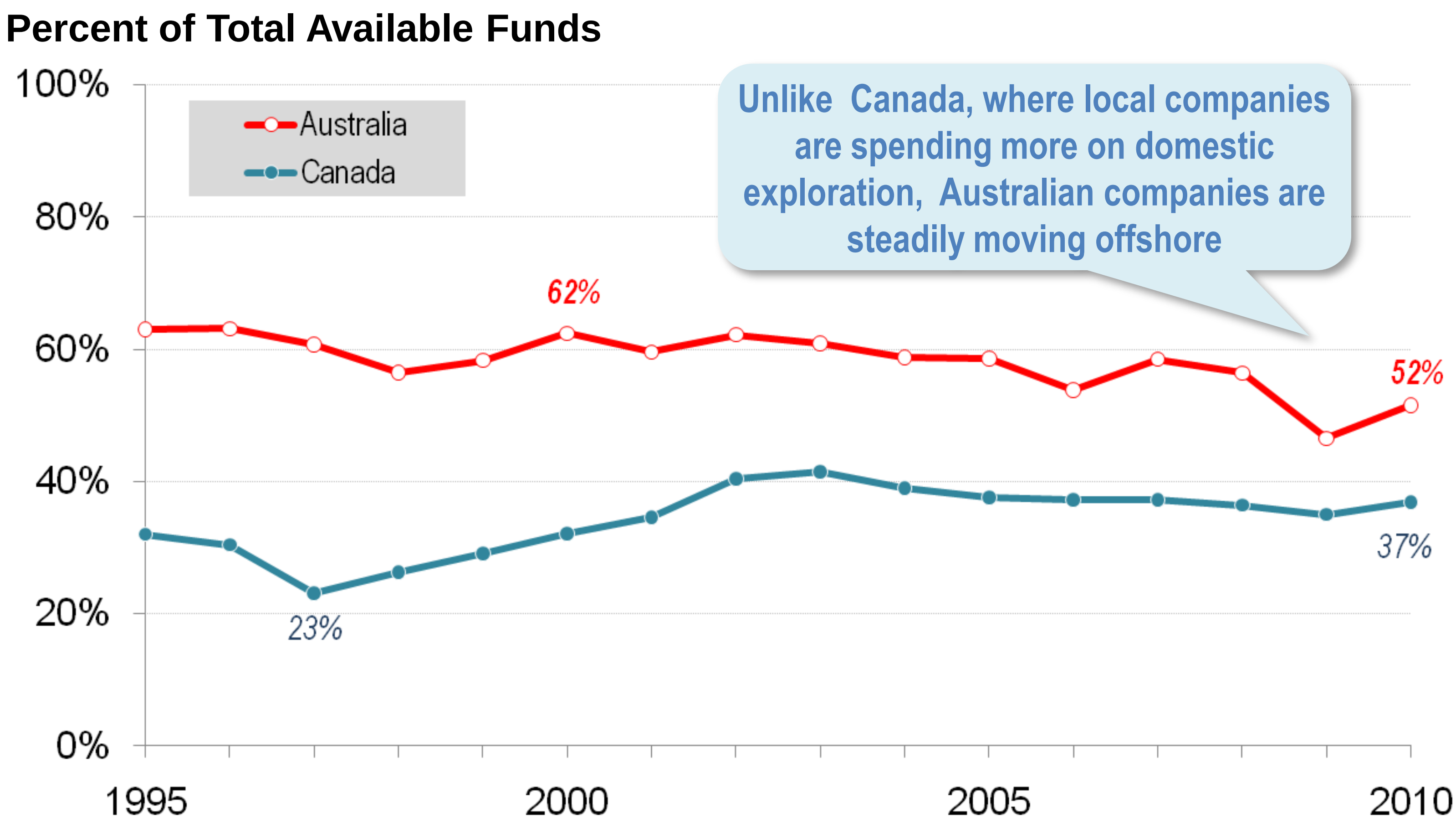
Source: MinEx Consulting based on ASX data to Sept 2010

The majority of the deletions were associated with take overs and promotion to producer status



Source: MinEx Consulting based on ASX data to Sept 2010

Percentage of exploration budgets allocated to domestic exploration by location of corporate headquarters: 1995-2010

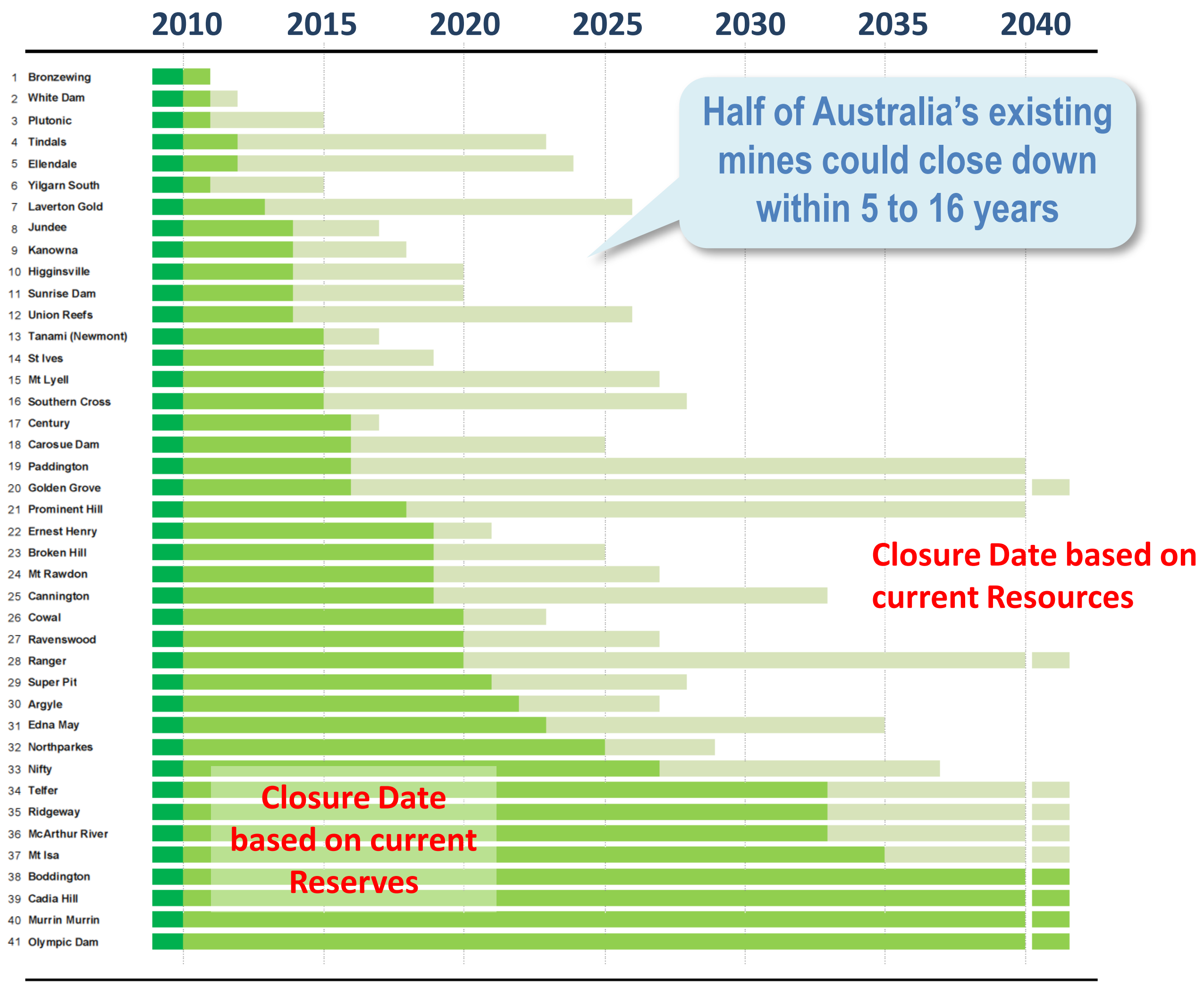


Note: Analysis excludes Bulk Minerals (such as coal, iron ore and bauxite)

WHY WE NEED TO IMPROVE OUR PERFORMANCE

Estimated Remaining life for Major Australian Mines

(based on all operations mining >1 Mt ore in 2010. Excludes Bulk Minerals)



Estimated Mine Lives are approximate only and are based on dividing the current P&P Reserves and MI&I Resources by the production rate reported for 2010

Source: MinEx Consulting June 2011

Summary

- ✓ In terms of global exploration spend, Australia is losing market share … now only 12% of total
- ✓ Half of all locally-sourced funds is now spent offshore
- ✓ Industry is cyclical, and currently strong. Of concern though is the current modest level of drilling
  … if we don't drill we don't find !
- ✓ Huge switch to bulks
  … now account for 40% of exploration spend
- ✓ Juniors now account for over half of all exploration spend
  … major companies have "lost the leadership". It's a global issue

Summary … continued

- ✓ Focus is on brownfield exploration
  … but this won't deliver Tier 1 mines
- ✓ The industry needs to find new deposits and prove up additional reserves
  … half of our mines could close down within 5-16 years. The challenge is that takes 1-2 decades to find and develop new mines
- ✓ Next generation of discoveries will be under deeper cover
  … Industry needs skills (and persistence) to do this well

Contact details

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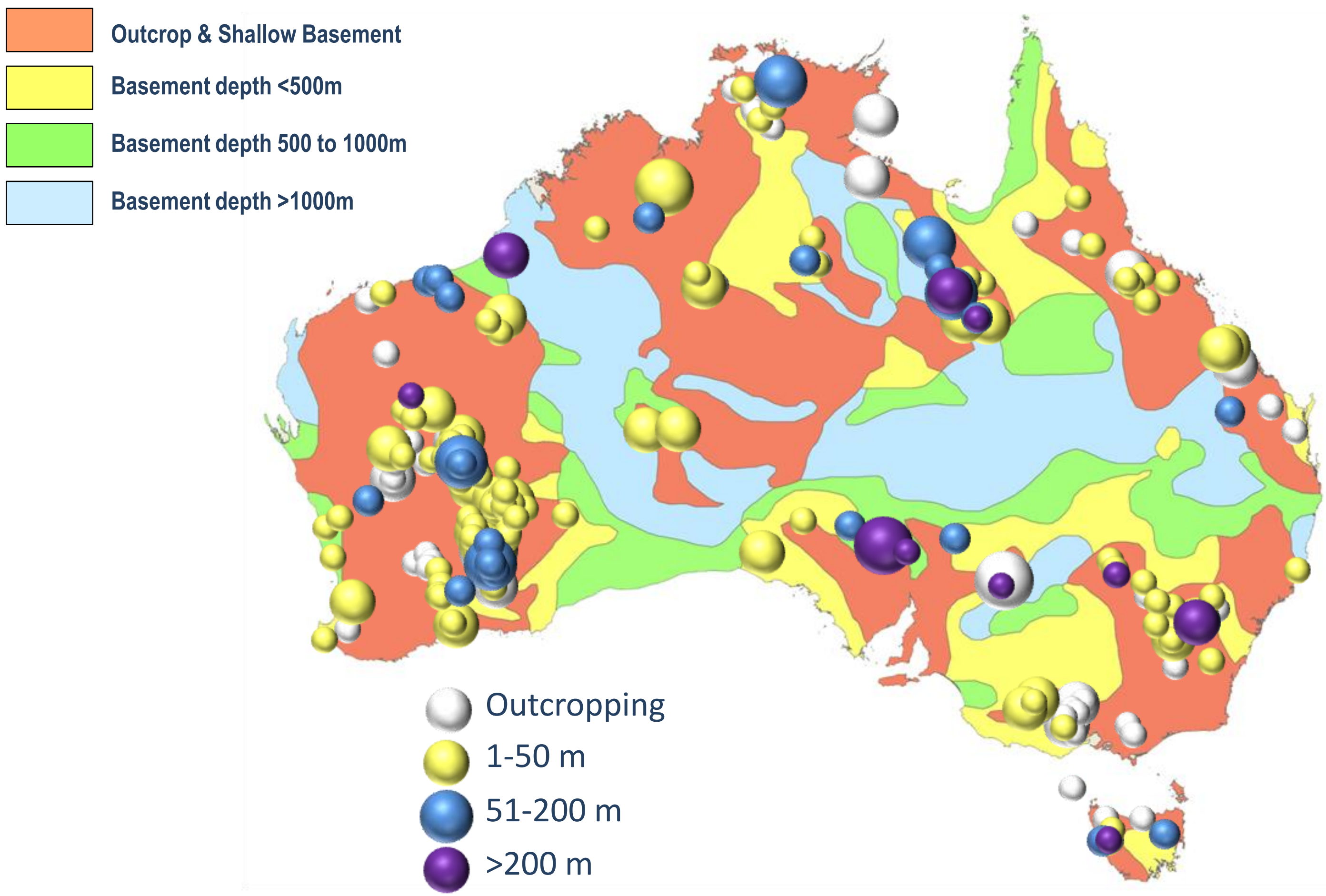
BACKUP SLIDES

Major mineral deposits in Australia

Depth of cover

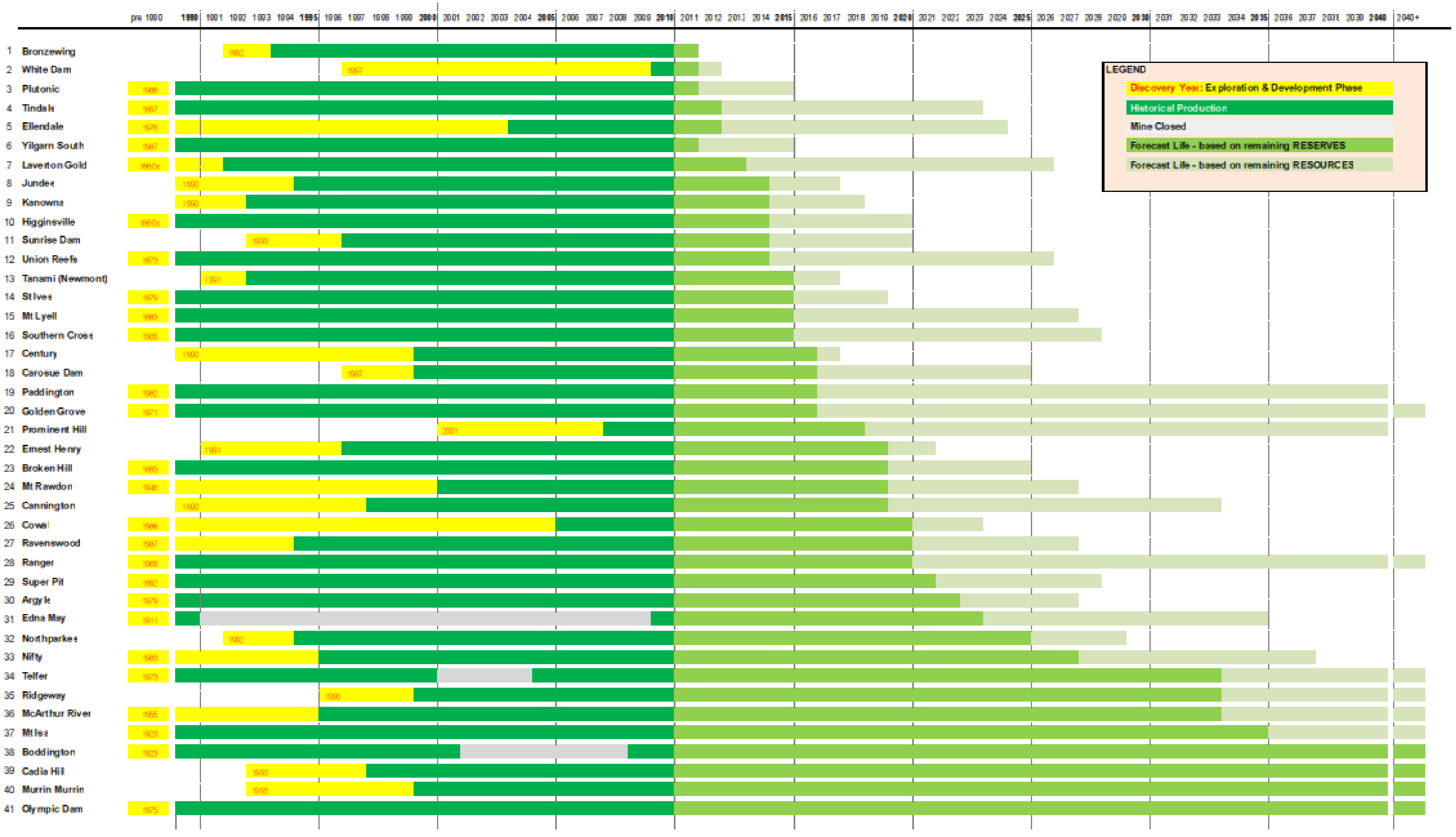


Note: Major defined as >1 moz Au, >1mt Cu, > 100kt Ni or equivalent
Excludes Bulk Minerals such as Coal, Bauxite and Iron Ore

Sources: MinEx Consulting August 2010
Geoscience Australia

Remaining life for Major Australian Mines …. DETAILS

(based on all operations mining >1 Mt ore in 2010. Excludes Bulk Minerals)



CAUTION: THE ESTIMATED MINE LIVES ARE INDICATIVE ONLY. They were based on dividing the current P&P Reserves and MI&I Resources by the production rate reported for 2010
Source MinEx Consulting, June 2011