DPI presentation to EDIC Inquiry into greenfields mineral exploration and project development in Victoria

14 December, 2011

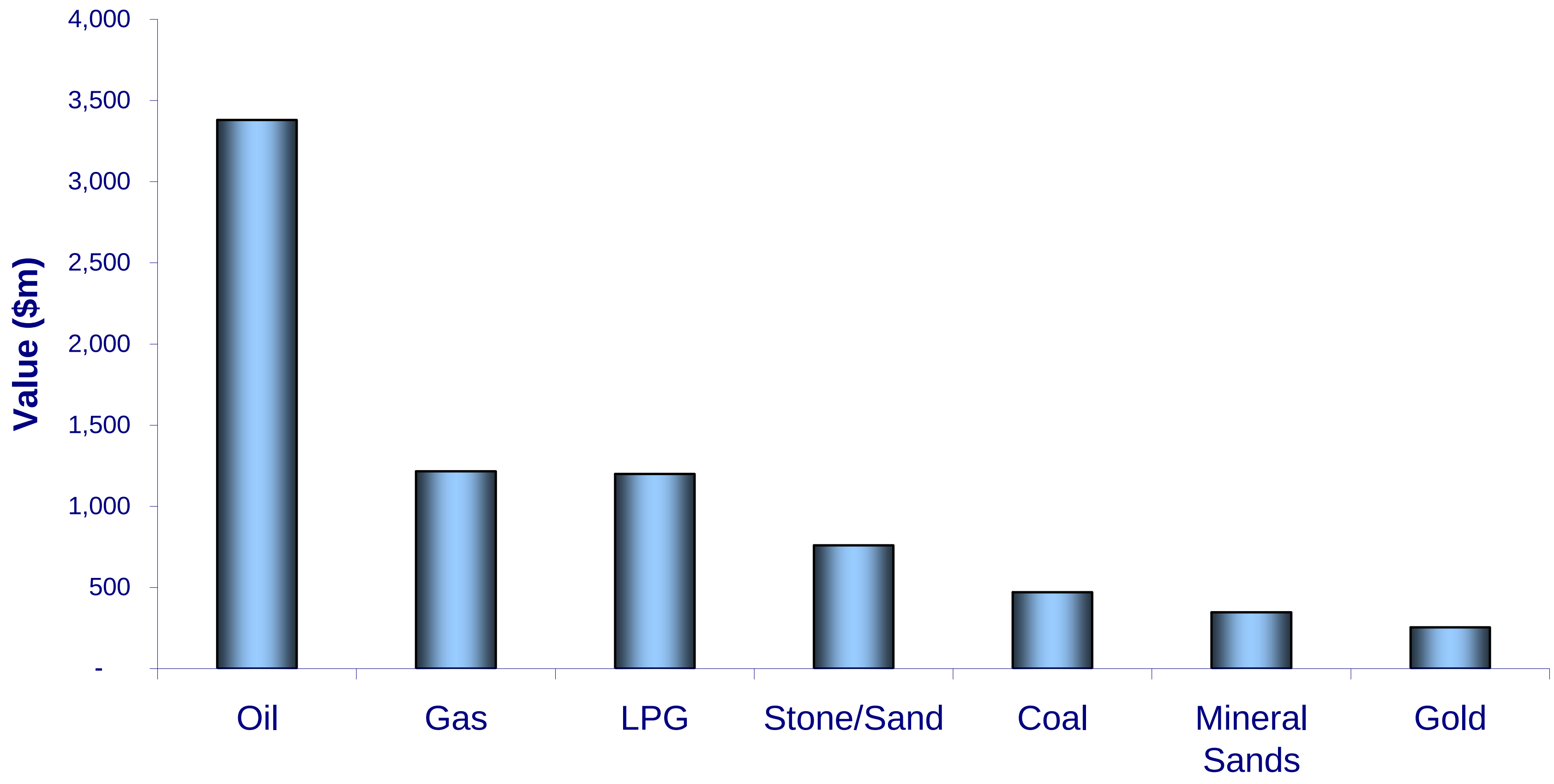
Victoria

DEPARTMENT OF PRIMARY INDUSTRIES

Overview

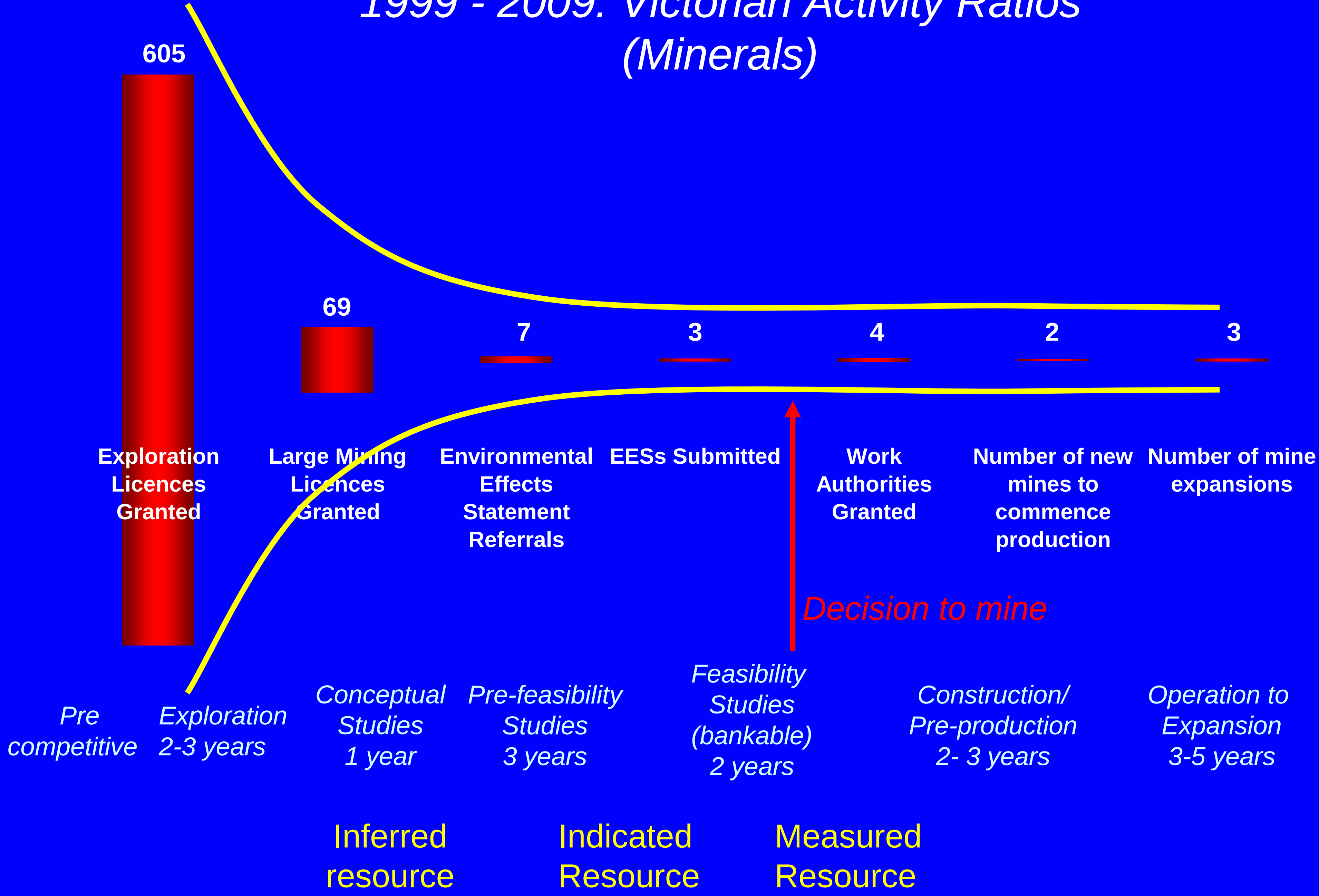
Victoria's challenges	*DPI's approaches*	*Prospectivity*	*Regulation/ reform*	*Opportunities*	*Summary*
Falling value of the sector Low levels of exploration activity Greenfields v brownfields Pipeline of mining projects Virtuous /vicious cycle	Findings of the Allens report Impact of geoscience data SA case study (lessons and insights for Victoria)	Mineral potential Room to improve (regulations)	Victoria's regulatory framework MRSDA phase 1 MRSDA phase 2 Community engagement and landowner rights	Mineral sands Gas Base metals	Summary & Conclusions

Victoria's Earth Resources Commodities by Revenue ($m) 2010-11



Source: DPI

1999 - 2009: Victorian Activity Ratios (Minerals)



Not all "exploration" is discovery oriented

Only "Greenfields" (or "grass roots" or "new deposits") exploration is about new discoveries

Total exploration expenditure" (ABS) includes "brownfields":

"Existing deposits" – delineating or proving up **an existing resource**

Expenditure/activity includes anything for an **already discovered** resource

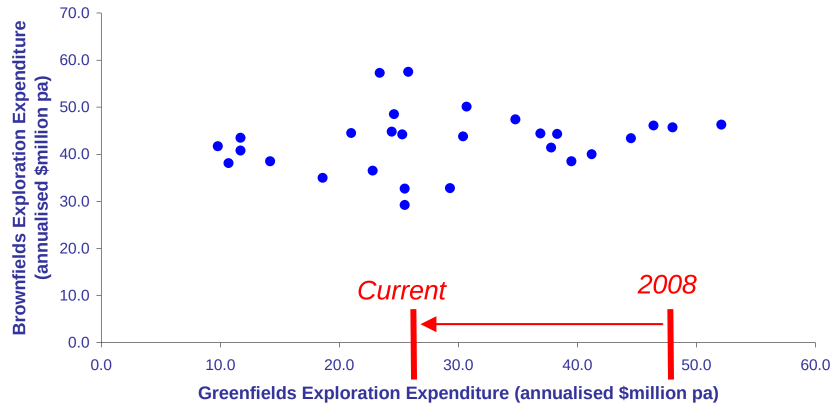
- to inferred standard or above
(i.e. discovery long past)
- in existing mines
- in in-fill drilling
- for mine planning

Globally, on average, total exploration expenditure is about 2.5 times greenfields expenditure

Greenfields (mostly unsuccessful) is "pure discovery" – the primary source of future mines.

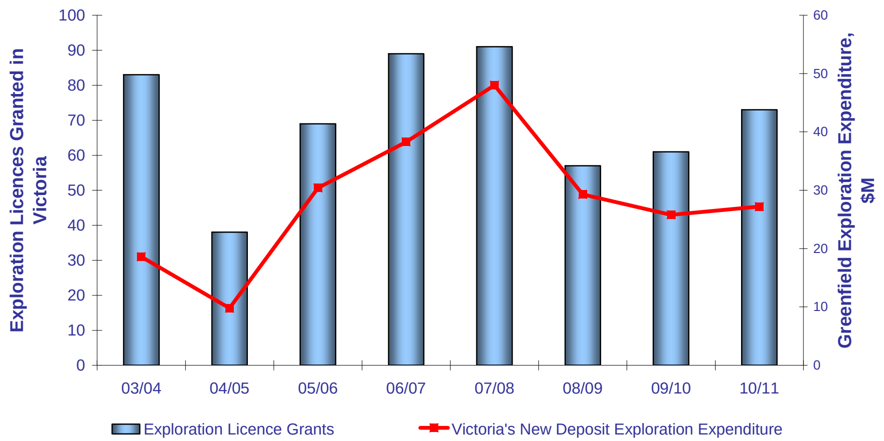
Victoria: Brownfields exploration - unrelated to discovery activity

2003-2011 quarterly 4 pt moving average



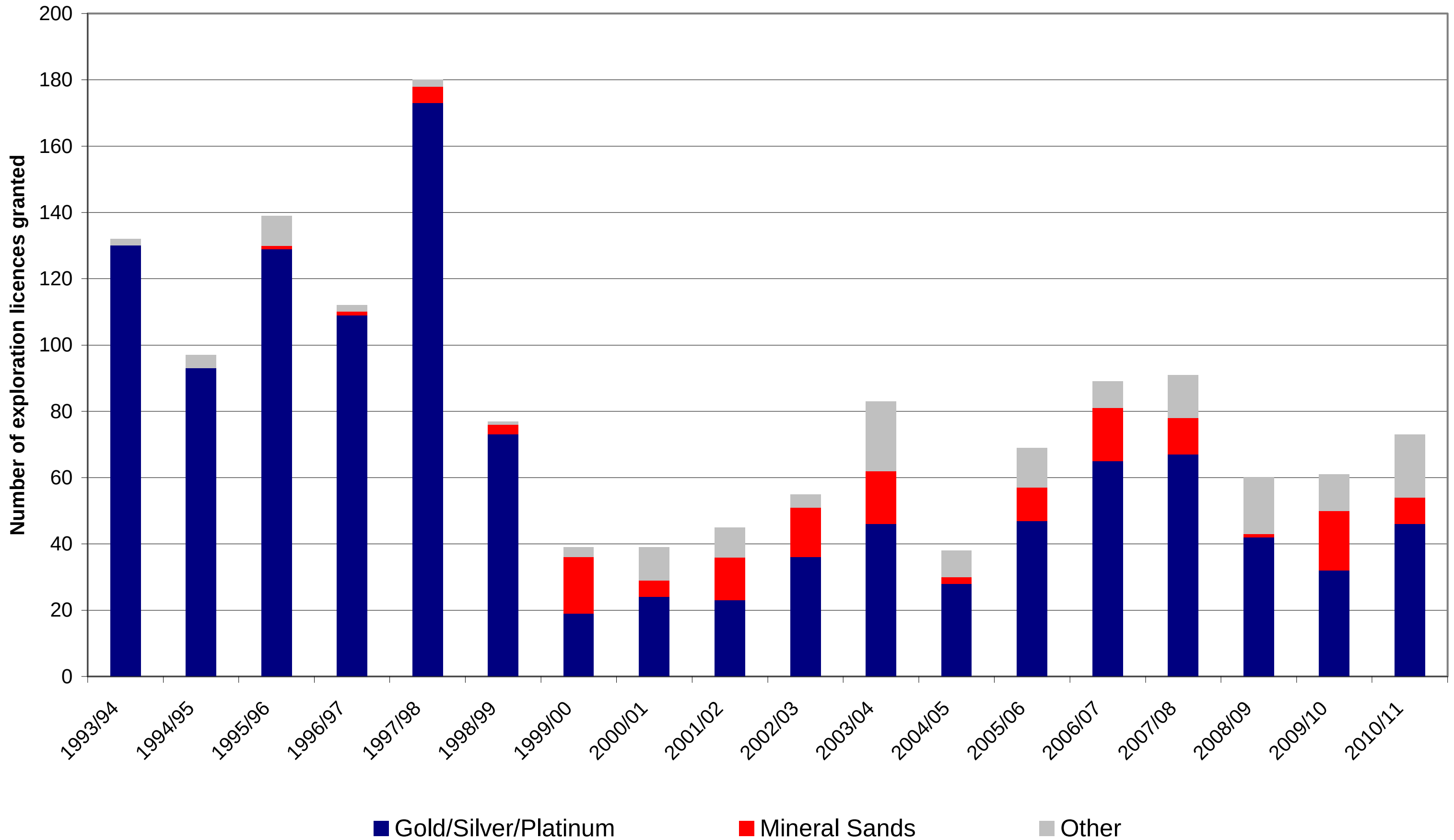
Source: ABS CAT# 8412, March 2011 Release

Exploration licence grant rate correlates with greenfield exploration expenditure

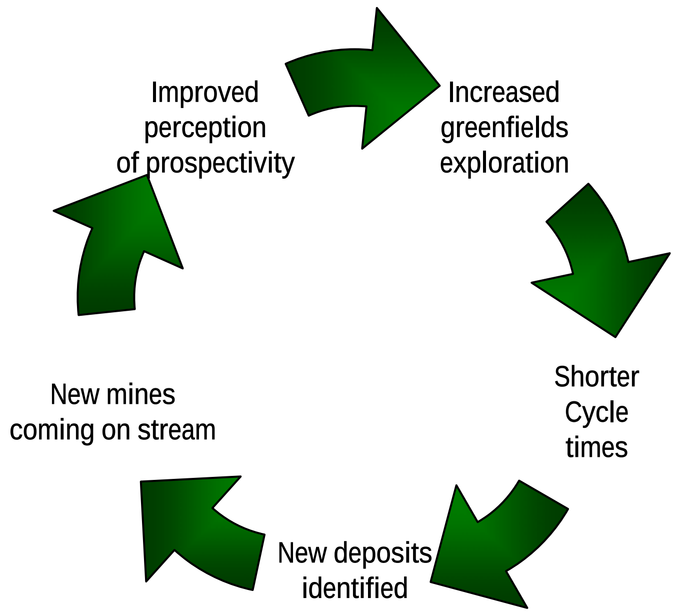


Source: DPI for Licence Data and ABS Report 8412, Jun 2011

Minerals Greenfields Exploration Activity (Victoria) – Insufficient to sustain activity



300 licences = 1 (small) mine 10-15 years later



Virtuous Cycle

Exploration cost of new mines (35 year history):

Tier 1 (World class mine):

$2.6 billion ($ of the day) per mine – total exploration (including delineation)*

@40% greenfields: > $1.0 billion to find a tier 1 (world class) mine

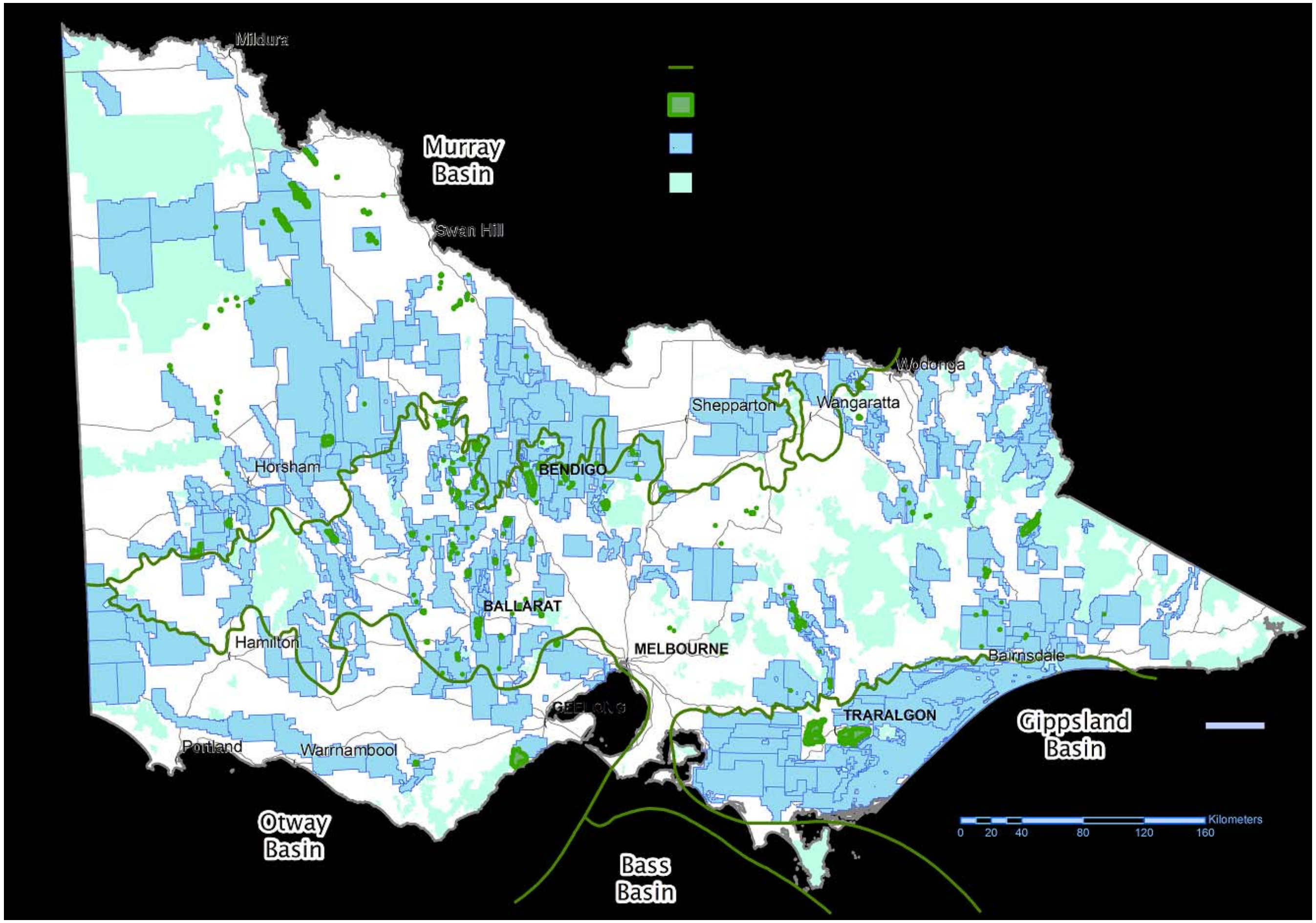
Victorian greenfields exploration rate: $25 million pa

Small mine (Victoria):

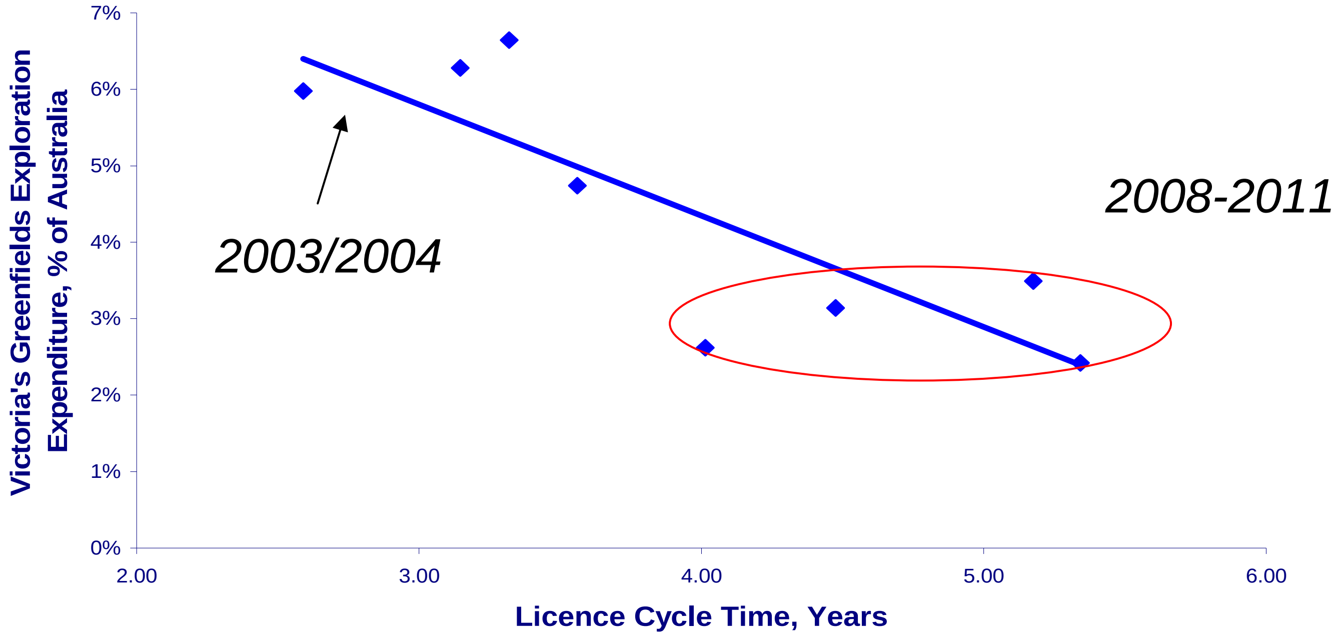
$150 million (current dollars) greenfields exploration costs

** Basis: Tier 1 base metals deposits (14% of deposits accounting for 2/3 of NPV from new mines)*
Source: Richard Schodde (Minex Consulting), Theo Murphy Think Tank 2010

Much available land is subject to licences



Exploration licence cycle time - faster turnover drives greater discovery activity (2003/4 - 2010/11)



Sources: ABS, DPI

… more about driving demand, farm-ins and enabling work than eviction

Allen Consulting Group Report August 2011

Reviewed $46 million of Victorian government programs in pre-competitive geoscience for impact on greenfields exploration activity and improving perceptions of mineral prospects in the jurisdiction.

"Victoria's earth resources programs have produced high quality, world class outputs"

"… the reason that these programs may have been ineffective in stimulating greenfields exploration is because the principal source of market failure is not missing information"

"…. an analysis of the impact of geological data stocks on perceived prospectivity (contained in a report by the Fraser Institute) also proved uncompelling"

The earth resources programs were not materially affected by either:

- the quality of products, or systematic failures in the way programs were delivered, or
- exceptionally burdensome aspects of Victoria's regulatory or policy environment.

Allen Consulting Group Report August 2011

Recommendations:

***Objectives**:* "articulate clear objectives from the start"

Measures: "KPIs for determining success or otherwise"

Evaluation: needed, "after an appropriate length of time"

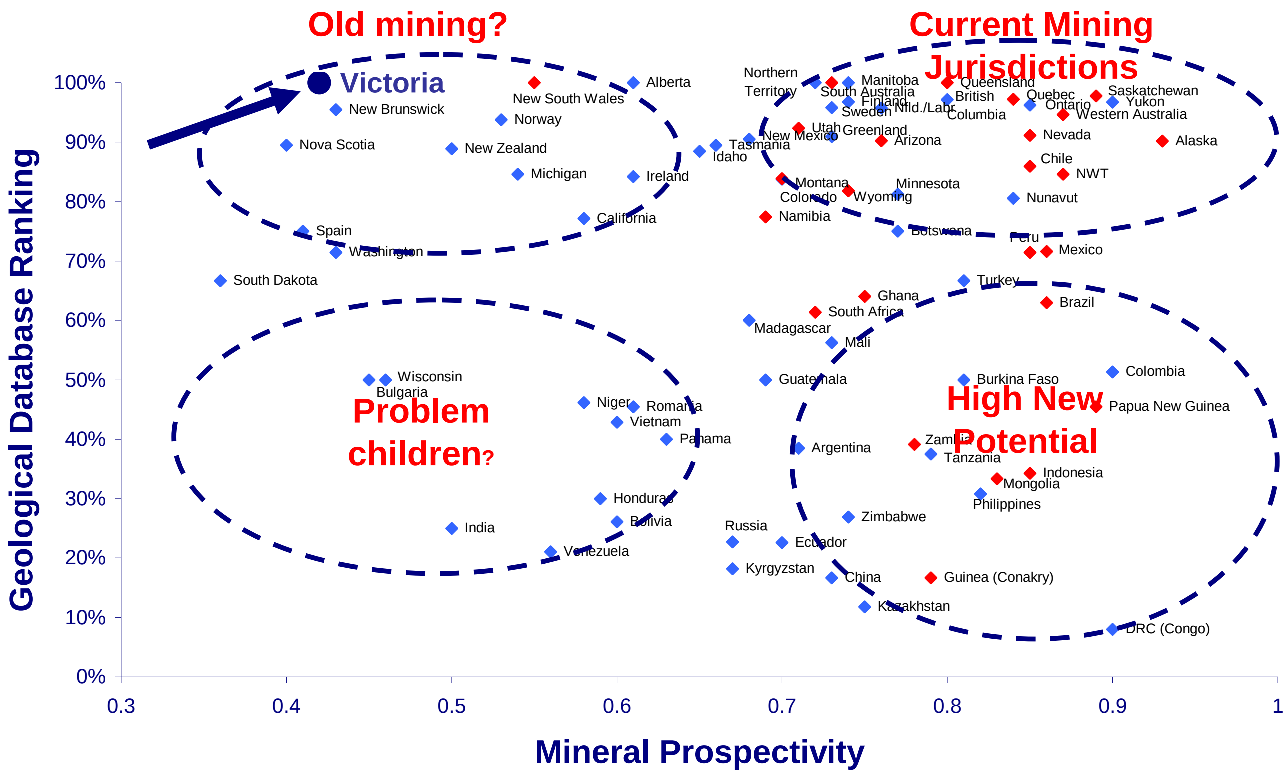
Focus: "build on what has been achieved"

Leverage: "company generated data …. publicly accessible sooner …. by voluntary disclosure"

Industry consultation:

"consult with parties outside Australia, or outside Victoria"

Fraser Survey: Data availability isn't enough



Source: Fraser Institute Survey of Mining Companies 2010/2011 Jurisdictions marked red are known to host iconic mines / deposits

What are we doing? – Ongoing Support

Providing for a well fed pipeline

Geological and resource information (GeoVic)

- closing critical data gaps
- tenement data (licences)
- Commonwealth (and State) acreage release

Targeted engagement focused on potential

Maintaining an engaged, aligned & positive industry

Industry level engagement – *reform alignment, monthly meetings, roadshows*

Regulatory alignment & streamlining
- identifying future pathways & policy options
- legislative reforms
- administrative reforms
- whole of government scanning & networking

General information
- DPI website
- Resources Roundup,
- Discovery periodical

Assisting projects to emerge from the pipeline

Coordinating efficient approvals across government (scaled facilitation)

Understanding Victoria's competitive potential & endowments

Targeted engagement – relevant developers (case by case, e.g. mineral sands, gas)

Maintaining informed, engaged & positive communities

Community engagement framework (see later)

Public meetings (emerging issues)

Ensuring rights are clarified

Regional offices

Working with DPI Regional Directors

What are we doing? – Initiatives

Initiatives

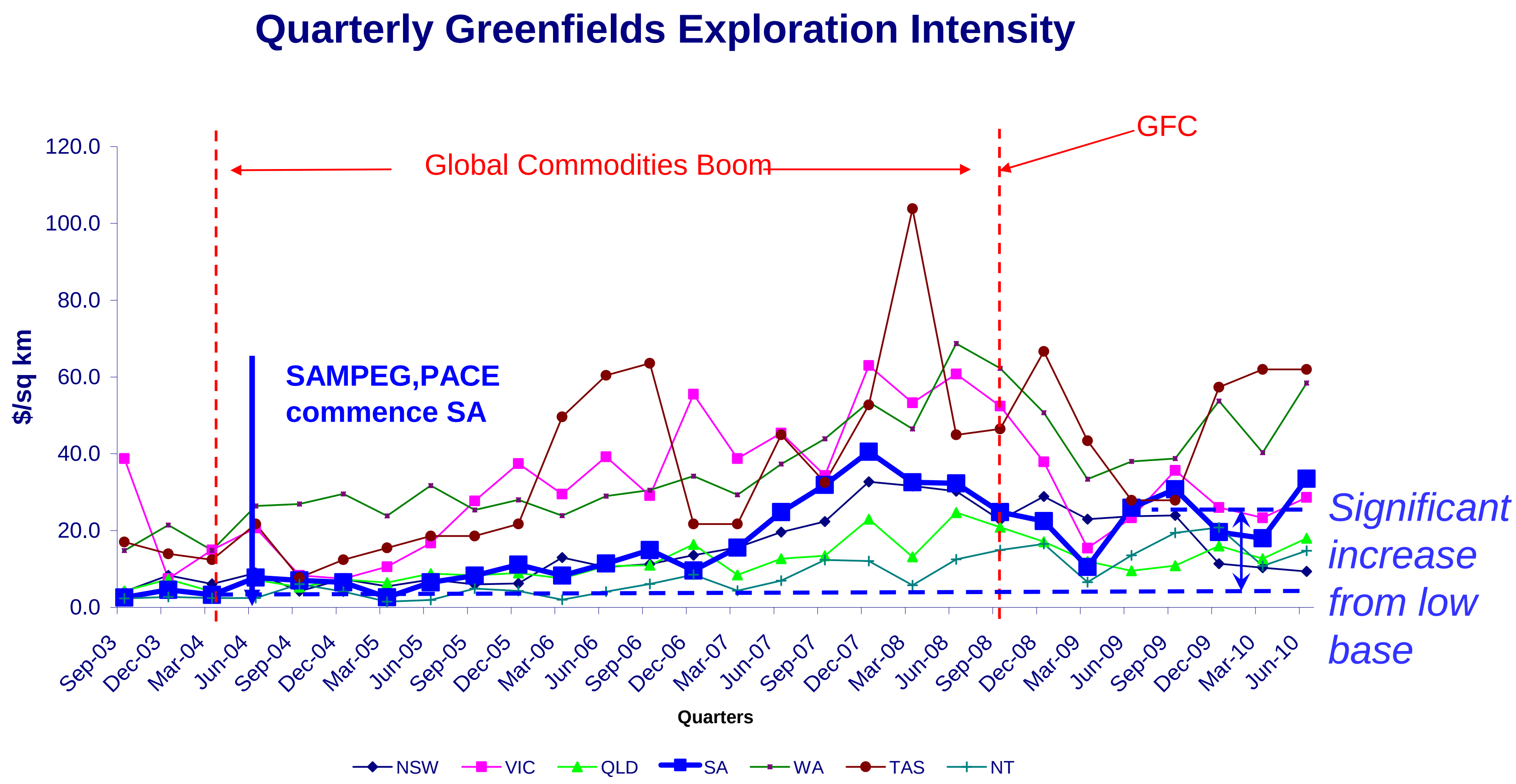
- *Rediscover Victoria – supporting geological data availability & modelling*
- *VicGCS – Gippsland basin wide models/geophysics for geological carbon dioxide storage potential*
- *Clean Coal Victoria – planning and community engagement for coal's long term future*

Plus:

- *ETIS, CarbonNet*
- *VGBO (DBI)*
- *Case by case infrastructure support*
- *Policy support (e.g. with Cth)*

South Australia: A case study in success

South Australia engaged with industry from a standing start – improved alignment, improved promotion, improved support



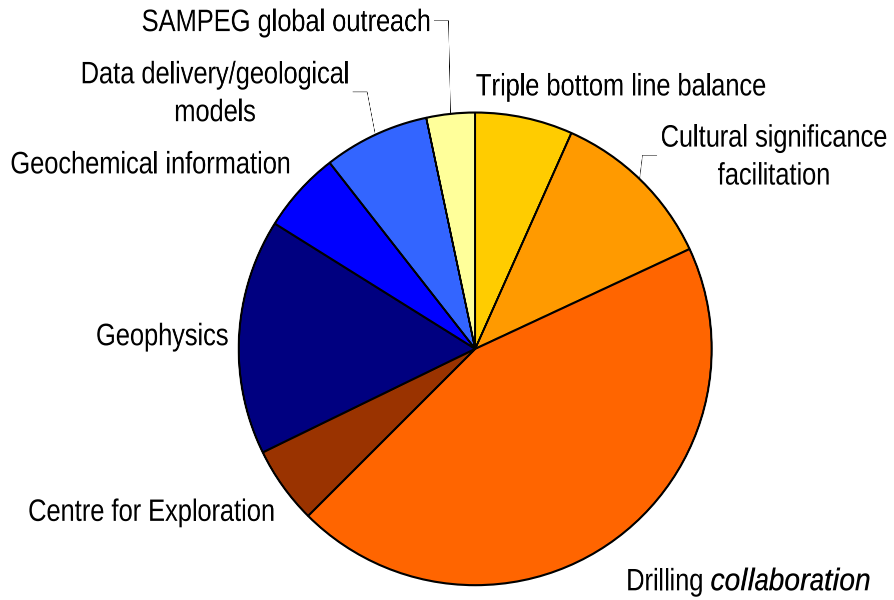
PACE/SAMPEG

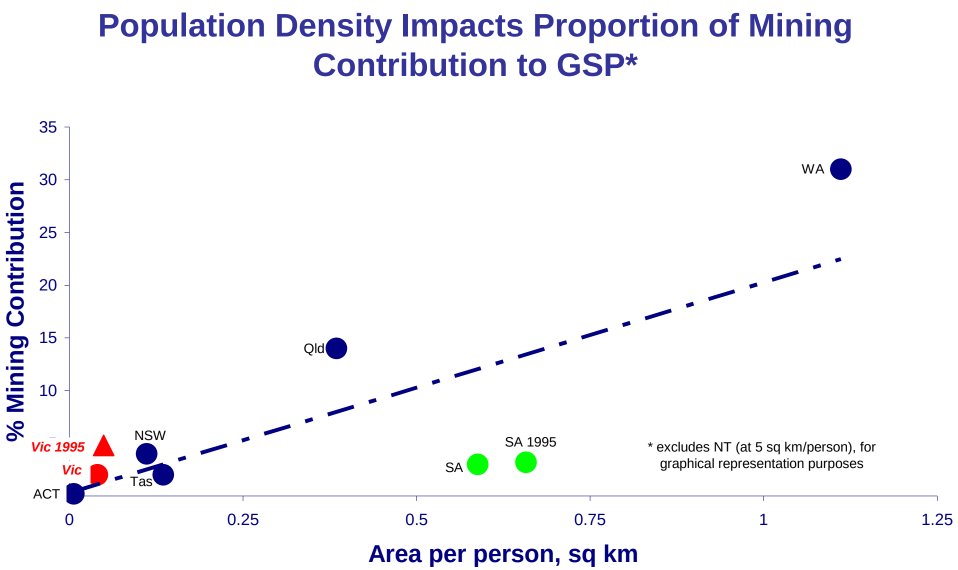
Strong outreach/engagement focus (25% geosurvey)

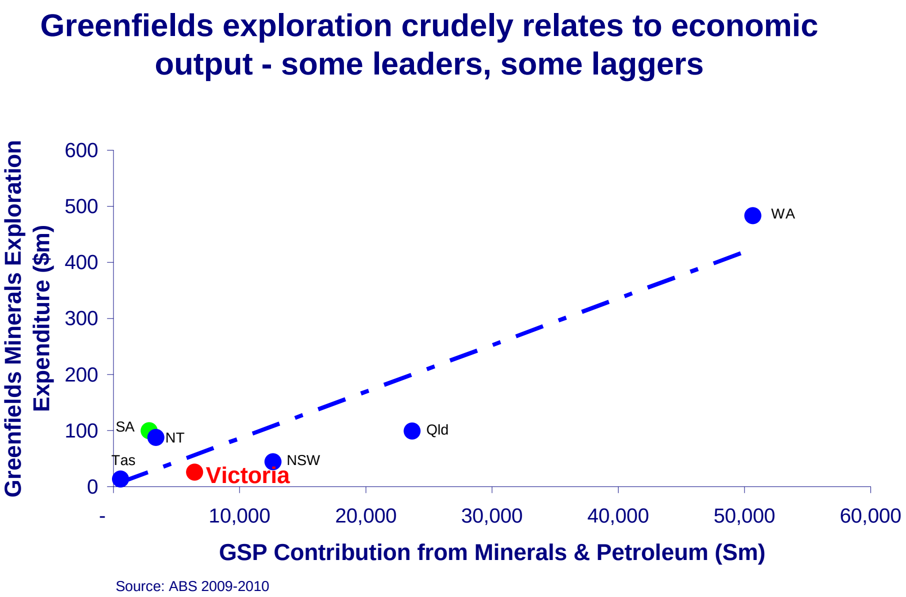
Government expenditure on collaborative drilling 11% of total state ***greenfields*** *exploration + government geologists on the rigs as outreach (Rediscover Victoria = 3%, no outreach)*

Systems approach - leveraged

> *Data and assistance was provided to progress companies & projects to the feasibility stage to* ***ensure “a constant supply of projects in the pipeline”***
>
> *Allen Consulting Group 2011*



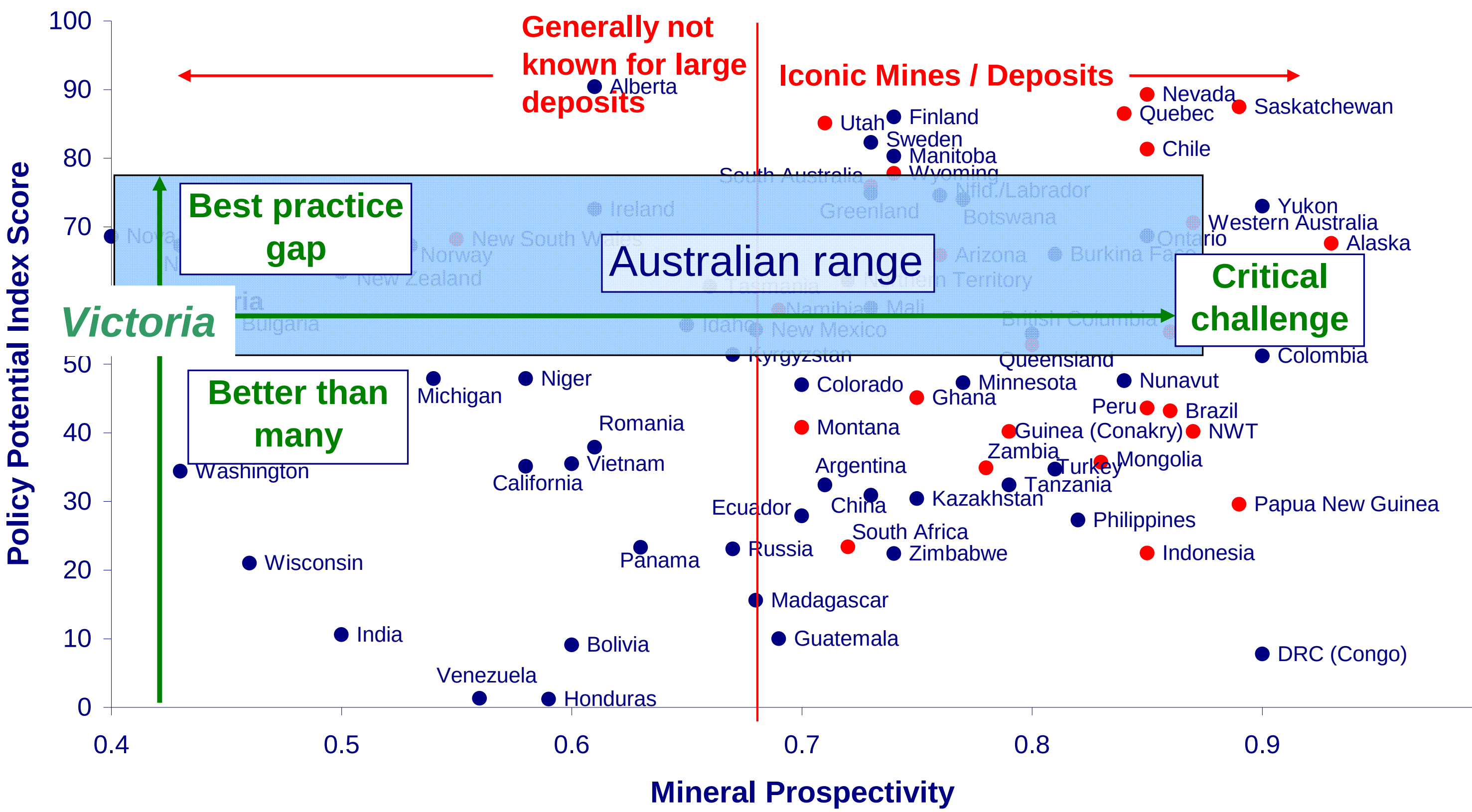




Cause and effect are separated:

"In South Australia they have been plugging away for a long time, but the new mines are still really few and far between" Tim Goldsmith (Global Leader, Mining, PWC, EDIC submission August 2011.

Perceived prospectivity a major challenge (& streamlining needs work)



Source: Fraser Institute Survey of Mining Companies 2010/2011

Perceptions, based on success, are the key

Victoria ranked lowest "room to improve" from changing policy settings in Australia (Fraser Institute global survey), 9/79 globally.

*"If there is no geological endowment or you think it is a long shot, **it does not matter how good we make the rules and regulations**, people are not going to bother coming here".*

Tim Goldsmith, Global Leader, Mining, PWC, EDIC submission August 2011

"The best indicator of prospectivity is a recent success"
Richard Schodde, EDIC presentation August 2011

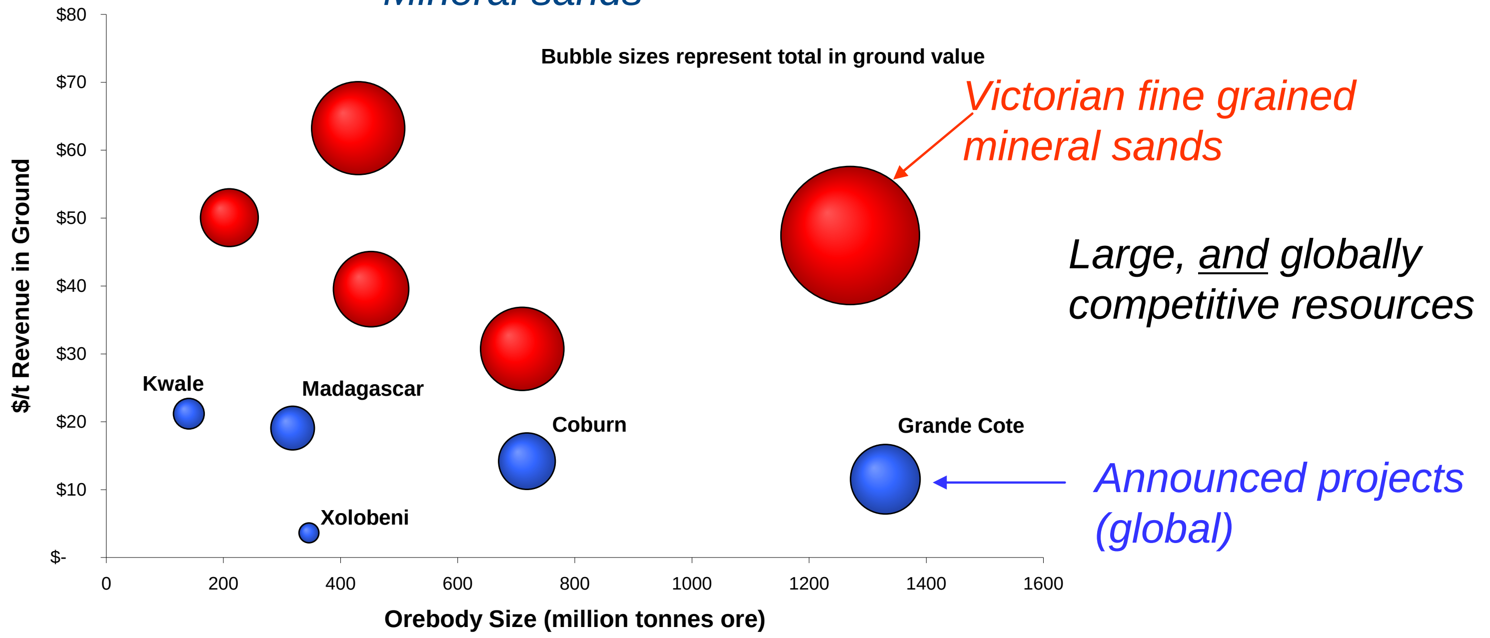
Distinctive endowment v competitive endowment

World Class Resources:

"Giant deposits are of academic interest…, may not necessarily be economic. …What you are really looking for are things that can be turned into mines of large size and long life, and can actually have an impact on society."

Richard Schodde, Theo Murphy Think Tank 2010 proceedings. The future of Australian resource discovery and utilisation.

Mineral sands



Large, and globally competitive resources

In summary, an outward and systematic approach seems to work best

- *Geological data and information relevant to competitive potential*

- *Competitive, coordinated and accessible regulatory and approvals regime*

Plus *(most importantly)*

- *Outreach into the (global) industry* – Understand Victoria's competitive position (& risks) in earth resources & develop policies & programs to attract appropriate explorers and developers

- *Outreach into the community* – active engagement based on benefits and rights, build community confidence

- *Effective use of land area* – maximise value by ensuring active & financially capable tenure holders

Whole of government regulatory environment

Step One
Licence Approval

Exploration Licence
- Exclusive rights to explore for minerals
- Right to apply for mining licence

Mining Licence
- Exclusive rights to mine
- Transfers ownership of minerals when extracted from land

Registration
- Proprietary interest in land for purpose of licence

Step Two
Approval to Undertake Work

Exploration Authorisation
- Approved work plan
- Rehabilitation bond
- Public liability insurance
- Other consents and approvals

Low impact exploration

Mining Licence (Work Authorisation)
- Approved work plan including rehabilitation plan and community engagement plan
- Rehabilitation bond
- Public liability insurance
- Planning approval
- Other consents and approvals

Authorisation of exploration/ mining

Victoria's Regulatory Framework

Mineral Resources (Sustainable Development) Act 1990 *DPI*
To encourage economically viable mining and extractive industries which make the best use of resources in a way that is compatible with the economic, social and environmental objectives of the State.

Environmental Effects Act 1978 *DPCD*
To set out the approval process for public works (including mining) that require assessment of the environmental effects.

Planning and Environment Act 1987 *DPCD*
To establish a framework for planning the use, development and protection of land in Victoria in the present and long-term interests of all Victorians.

Environment Protection Act 1970 *DSE, EPA*
To create a legislative framework for the protection of the environment in Victoria having regard to the principles of environmental protection.

Occupational Health and Safety Act 2004 *DTF, VWA*
To secure the health, safety and welfare of employees and other persons at work; to eliminate, at the source, risks to the health, safety or welfare of employees and other persons at work; to ensure that the health and safety of members of the public is not placed at risk by the conduct of undertakings by employers and self-employed persons; and to provide for the involvement of employees, employers, and organisations representing those persons, in the formulation and implementation of health, safety and welfare standards.

Aboriginal Heritage Act 2006 *DPCD, AAV*
To provide for the protection of Aboriginal cultural heritage in Victoria.

Traditional Owners Settlement Act 2010 *DOJ*
To advance reconciliation and promote good relations between the State and traditional owners and to recognise traditional owner groups based in their traditional and cultural associations to certain land in Victoria.

National Parks Act 1975 To make provision, in respect of national parks, State parks, marine national parks and marine sanctuaries for preservation, protection, study and effective management, and to make further provision in respect of designated water supply catchment areas and wilderness parks. *DSE, PV*

Crown Land (Reserves) Act 1978 *DSE*
To provide for the Reservation of Crown Lands for certain purposes and for the management of such Reserved Lands and for other purposes.

Conservation Forest & Land Act 1987 *DSE*
To make provisions with respect to creation of a body corporate called the Director-General of Conservation, Forests and Lands; to define its powers; to provide a framework for a land management system and to make necessary administrative, financial and enforcement provisions; and to establish a system of land management co-operative agreements.

Climate Change Act 2010 To establish a framework for the treatment of climate change issues and actions in Victoria. *DSE*

Flora and Fauna Guarantee Act 1988
To establish a legal and administrative structure to enable and promote the conservation of Victoria's native flora and fauna and to provide for a choice of procedures which can be used for the conservation, management or control of flora and fauna and the management of potentially threatening processes. *DSE*

Water Act 1989 To establish the regulatory arrangements relating to water in Victoria. *DSE, DPI*

Plus, Commonwealth legislation, e.g. Native Title Act, Environmental Protection & Biodiversity Conservation Act
Plus, regulatory instruments such as the Victorian Planning Provisions (VPP) and the State Planning Policy Framework (native vegetation, administered by DSE)

Regulatory reform

Principal Act - MRSDA

"To encourage economically viable mining and extractive industries which make the best use of resources in a way that is compatible with the economic, social and environmental objectives of the State".

Main approaches:

Licensing, work authorities & compliance

Encourage active development within limited condition forming powers of the Act

MRSDA Review

- The Review of the *Mineral Resources (Sustainable Development) Act 1990* (MRSDA) is a major reform activity
- Phase 1 of the review has resulted in the MRSDA Amendment Act 2010 – focused primarily on modernisation of licensing to align with industry practices.
- Phase 2, targeting a further set of amendments in 2012 to streamline approvals processes, improve planning and address inefficiencies is in progress, with policy position in late stage development (target end 2012).

MRSDA Review Phase 1

The new arrangements have been designed to:

- clarify purpose of licences (exploration, evaluation, mining)
- align to today's industry (development sequence, commitment rises with certainty, time provided for evaluation)
- add virtually no regulatory burden
- improve security of tenure when a resource is identified
- encourage development of Victoria's resources (development obligation, relinquishment),
- ensure that land not being explored or mined becomes available to others

http://www.dpi.vic.gov.au/earth-resources/about-earth-resources/news-and-events/minerals-and-extractive-industries-stakeholder-information-days-presentations/mrsda-review-phase-1-presentation

MRSDA Review Phase 2

We are currently testing policy positions after consultation across industry and government. Some important areas of discussion (legislative & administrative) are:

- A lead agency approach – whole of govt advocacy and navigation
- Work plan requirements
- Work approvals processes across Government
- Planning matters and resource stewardship
- Rehabilitation bonds
- DPI's enforcement tools
- Low impact exploration (native vegetation, cultural heritage)

http://www.dpi.vic.gov.au/earth-resources/about-earth-resources/legislation-and-regulation/discussion-papers/review-of-the-mineral-resources-sustainable-development-act-1990

Community engagement & land access

- *Unique legislated requirement for licensees to engage (Victoria only)*
- *Community engagement plans required for work plan approval*
- *Training & advice to licensees, made accountable (audits)*
- *Clarification of rights & response to complaints*
    - *Communication: resources belong to Crown*
    - *Clarification: exploration rarely leads to mining*
    - *Negotiated consent, or in accord with compensation (VCAT decision if necessary)*
- *Two stage approvals process (licence, then work)*

Consultation guidelines for licensees:
http://www.dpi.vic.gov.au/earth-resources/community-information/guidelines-exploration

DPI consultation/ communication example (council & community group focus):
http://www.dpi.vic.gov.au/earth-resources/community-information/landholders-info/coal-seam

Commodity Opportunities (Minerals & Energy)

Commodities of relevance to Victoria

Highest market/resource potential

Oil	*Unconventional gas*
Conventional gas	*Mineral sands*
Gold	*Coal*
Geothermal	*Base metals*

Mineral Sands – a $1 billion pa opportunity (16% of GSP M&P)

Stars are lining up

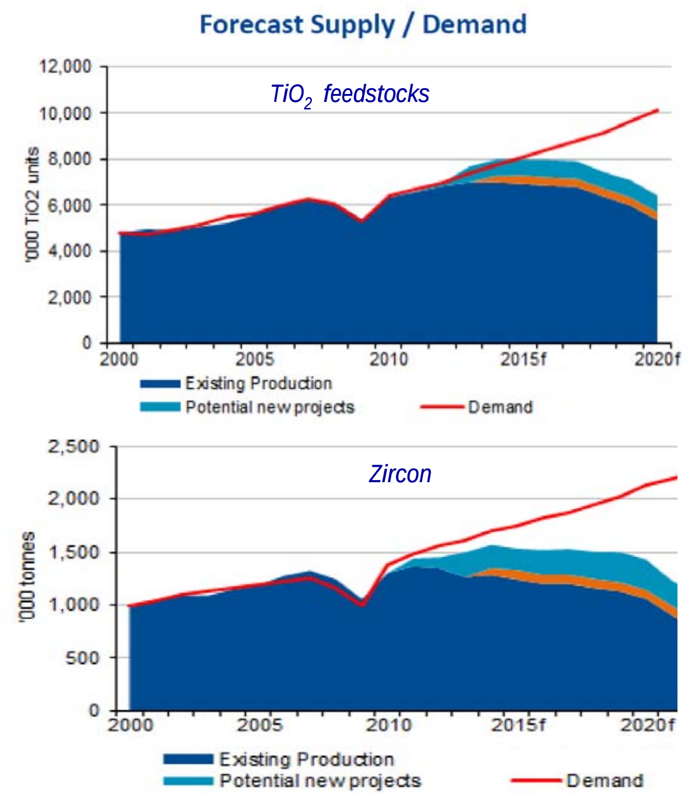
"Where will supply come from....."?

Matched to current global needs – no need to explore

Murray Basin - Large, high grade (excellent assemblage), *unconventional* resources - opportunity

Regulatory environment provides security, requires development – farm-in opportunities

Activity responding: flotation developments, piloting, ilmenite upgrading, zircon specification ....



"There's been little new capacity investment over the past decade. Major ore bodies are nearing depletion, and bringing new ore bodies on line will not happen overnight".

Jean-Francois Turgeon
CEO, Rio Tinto Iron & Titanium

"Much of the new capacity will only cover the growth in demand from China alone, not other growing markets such as Indonesia and India".

David Robb
CEO, Iluka

Gas – Victoria's resource position

Victoria's gas demand is expected to double by 2030

Current gas sources will be depleted somewhere between 2025 and 2030

There are three possible new sources of local supply which need to be investigated:

- conventional gas offshore (limited)
- shale gas and tight gas onshore
- biological coal seam gas onshore

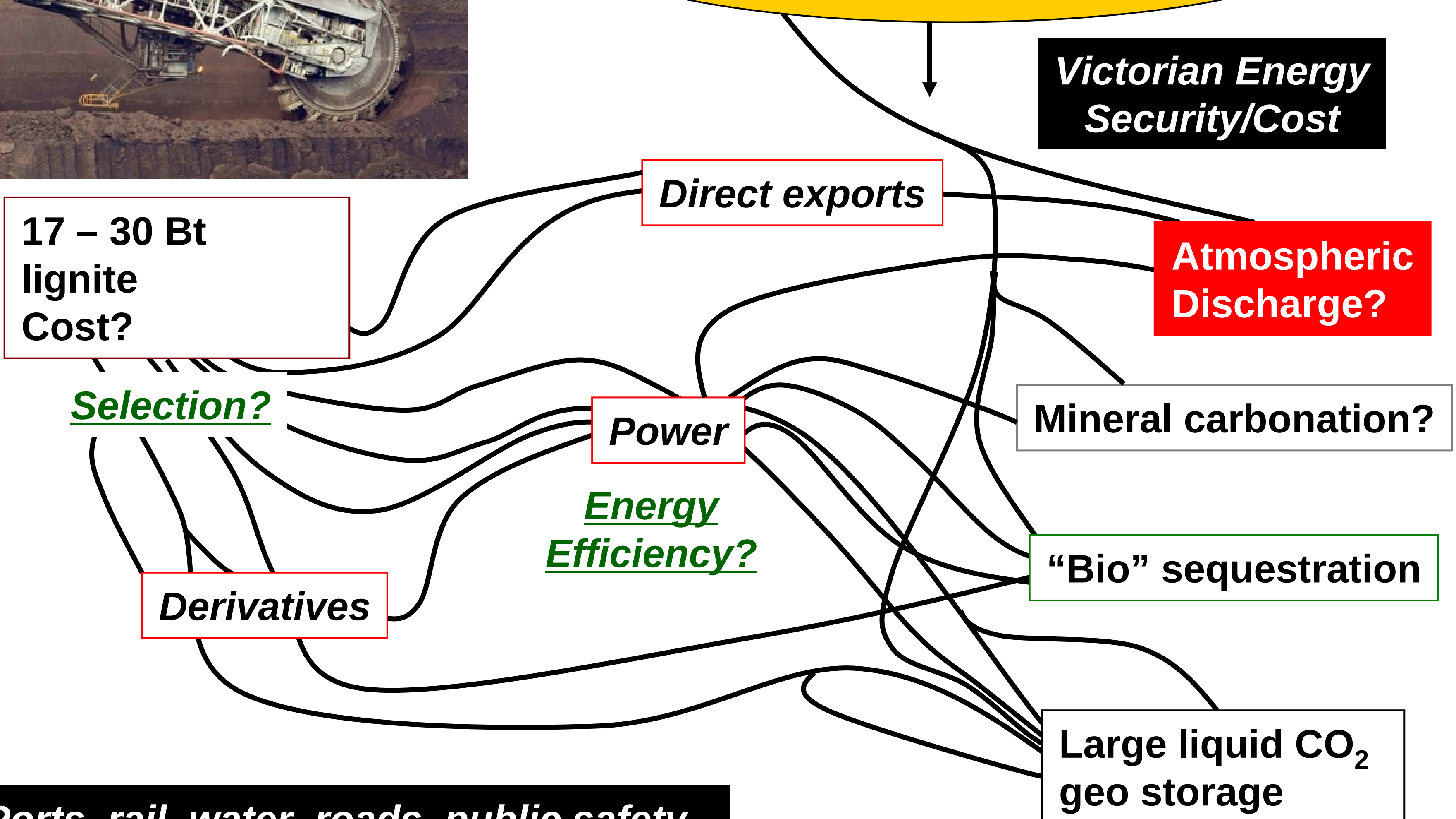
Some publicly reported intersections, but no reported reserves

Sources: AEMO Gas Statement of Opportunities

DPI Annual Statistical Review

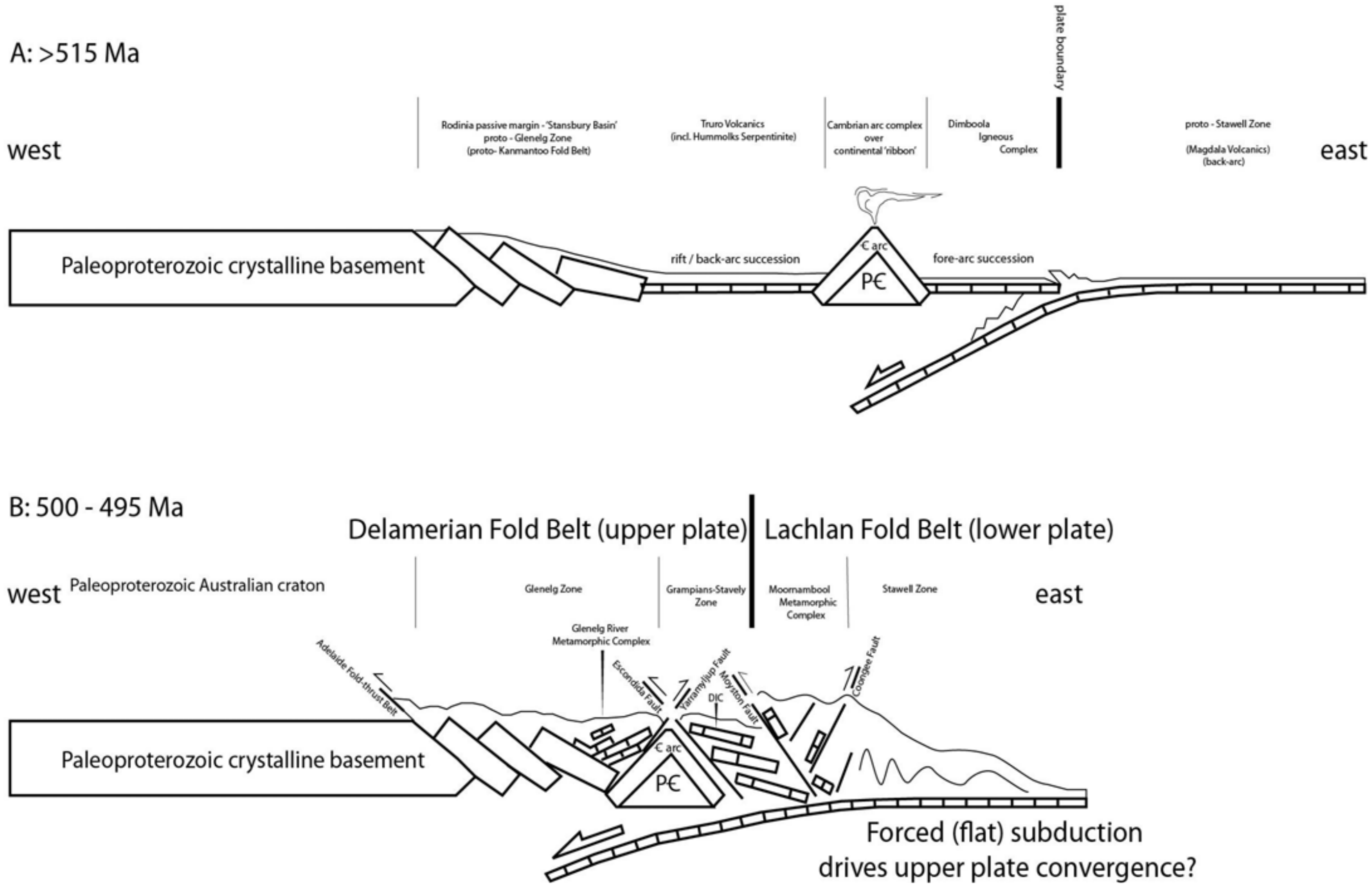
'http://www.lakesoil.com.au/assets/Uploads/Announcements11/Clean-Onshore-Gippsland-Gas.18072011.pdf'

Michael Yeager, CEO BHP Petroleum, "Price pressure rising as Bass gas exported", The Australian, 16 November 2011



Ports, rail, water, roads, public safety

Base Metals Porphyry in the MIGA ARC? – new ideas about evolution



Summary

Earth resources is a small but valuable part of Victoria's economy

High use of products within Victoria itself – competitive influence

Sector has overall declined – depleted resources not replaced

Greenfields exploration remains subdued – area is at a premium, cycle time reflects low ranking for spending (some recent improvement)

Prospectivity is perceived as low

Leveraging already best in class geological data availability to exploration success is a key challenge

There is active regulatory reform

Promotion requires active engagement focused on competitive potential

Victoria has significant endowments and potential for development

Active working of licences is a critical need

Community engagement is acknowledged as critical for success

For reference if needed

Main Provisions of (Amended) MRSDA

The Crown owns all minerals (some term based exemptions)

Stone on or below the surface of any private land is the property of the owner of the land.

Consistency with the Native Title Act 1993 of the Commonwealth and the Land Titles Validation Act 1994.

Exemptions to a licence or other authority under this Act- *(National Parks, Aboriginal Heritage protection, Ministerial exemption)*

Royalties (ad valorem or in case of coal energy based, can set to any level by regulations except coal)

Licences – exploration, retention, mining

Advertising requirements – licence grant (14 days)

Mining economic benefit compared with agriculture, and excision.

Publication of reasons for granting or refusal to grant

Main Provisions of (Amended) MRSDA (Continued)

Scope of licence conditions

Licence transfer, cancellation of licence

Objections processes (21 days from notification)

Mine stability levy (technical review board)

Authority to enter land (in absence of consent – Dept Head), with notice

Work plan and work plan approval, work authority

Obligation (on licensee) to consult with affected communities

EES exempts need for planning permit

Statutory endorsement of approvals

Compensation – all loss or damage, solatium, negotiated prior to access, appeals

Mining warden & powers

Inspection & enforcement powers

Administrative processes

MRSDA Review Phase 1

The new arrangements have been designed to:

- clarify purpose of licences (exploration, evaluation, mining)
- align to today's industry (development sequence, commitment rises with certainty, time provided for evaluation)
- add virtually no regulatory burden
- improve security of tenure when a resource is identified
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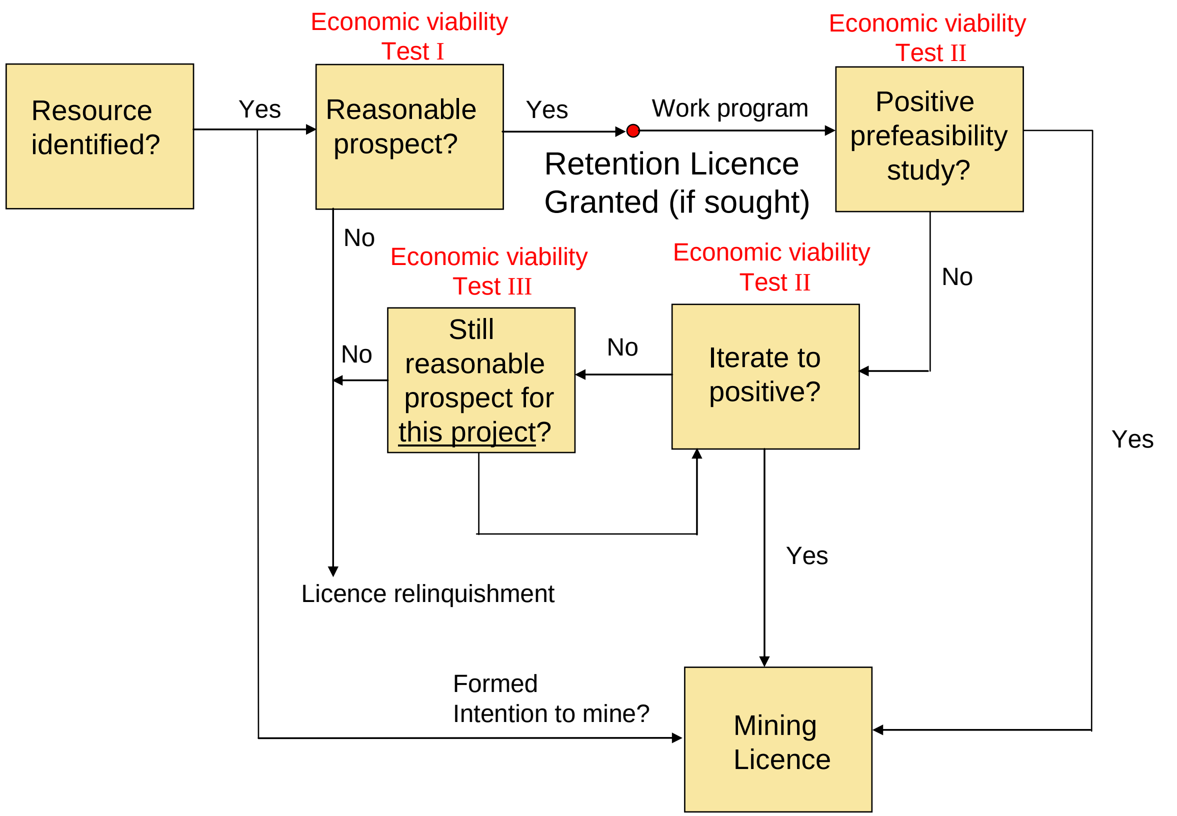
MRSDA Review Phase 1 – Retention licences

An integrated new licensing system is being introduced that includes a new Retention Licence

- Retention licence is an **optional** licence between exploration and mining stages, for the purposes of development and evaluation of economic viability
- Provides secure tenure, around an identified resource, in the absence of mining, with no compulsory area relinquishments
- Requires compliance with an agreed work program - work towards defining economic reserves and establishing economic viability
- Encourages farm-ins where commercially appropriate
- Can still choose exploration licence (with relinquishments) or mining licence (with commitment to mine)

Package of reforms includes changes to exploration and mining licences complementary to introduction of the retention licence.

Retention licences: Strong alignment with industry evaluation processes



Strong security of tenure, with high incentive to partner where needed for active development

Changes to Exploration Licences

- Exploration Licences are for ‘**greenfields’ exploration**, not resource evaluation – need to make space for retention licences
- Transparent tenure limits (5 years, 1 renewal – not as right, 1 further renewal under exceptional circumstances, with relinquishments)
- Additional relinquishments (relinquishment to 75%, 40%, 20% and 10% at 2, 4, 7 and 10 years, assuming licence still valid)
- New work program expectations (e.g. when on a known resource endowment)
- Fair transitional arrangements for existing exploration licences (2 year renewal possible at term for those already renewed once to enable bridge to retention licence - but with relinquishments as above)

MRSDA Review Phase 1 – Mining Licences

Changes to Mining Licences

- Mining licences are for mining only (compliance expected)
- Prior to grant - Identification of a mineral resource, mineralisation report (unless already mining) and demonstration that a resource and project will be economically viable
- Expectation of mining within 2 years of grant
- While mining has not commenced an appropriate program of work is required
- Transitional arrangements: for 12 months following commencement, existing licensees can apply for a retention licence – once only

MRSDA Review Phase 1 – Prospecting Licences

Introduction of a Prospecting licence

- The new licensing system may not complement prospectors and small scale miners who request tenure to small areas for their activities
- The New Prospecting Licence allows exploration and/or mining activities with lower entry and work requirements (no resource identification, no need for prefeasibility study on licence).
- Is limited in size (5 Ha)
- Is limited to 5 years and is not renewable
- Provides an exclusive right to apply for a mining licence during the life of the licence.

MRSDA Review Phase 1 – Statutory Endorsement

Statutory Endorsement of Work Plans

- Give legislative effect to current administrative practice of endorsing work plans prior to planning permit applications
- Process: work plan to referral authorities for 30 days comment; DPI Head must consider comments prior to endorsement
- Intended to streamline work approvals by reducing or eliminating duplication of referrals to other agencies (e.g. in approving planning permits)
- Only applies where a planning permit is required for a work plan or work plan variation

MRSDA Review Phase 2

Policy position yet to be finalised, discussion papers available

- A lead agency approach – whole of govt advocacy and navigation
- Work plan requirements
- Work approvals processes across Government
- Planning matters and resource stewardship
- Rehabilitation bonds
- DPI's enforcement tools
- Low impact exploration (native vegetation, cultural heritage)
- A variety of other matters

http://www.dpi.vic.gov.au/earth-resources/about-earth-resources/legislation-and-regulation/discussion-papers/review-of-the-mineral-resources-sustainable-development-act-1990

MRSDA Review Phase 2

DPI’s Proposed Lead Agency Role

Victoria is unique – not “one stop shop” preference in approvals

Clarity on facilitation services provided & navigation aids – standard decision trees and Gantt charts

Project management based approach

Scaled approach to facilitation

Clearly available information & measures

Single point of information

Efficient government decision making

Web based application procedures (RRAMS)

Monitoring of approval timeframes

Advocate for industry interests

Example – Infrastructure support

Minister for Public Transport Terry Mulder has welcomed today's commencement of Iluka Resources Limited's trial mineral sands trains from Hopetoun in northwest Victoria to Iluka's Hamilton Mineral Separation Plant.

"This $9 million Iluka Resources rail freight project involves Iluka providing $5 million and the Victorian Government $4 million, the latter largely through Regional Development Victoria.. The project consists of a rail loading facility at Hopetoun, together with rail sidings and an unloading facility at Iluka's Hamilton Mineral Separation Plant," Mr Mulder said.

Iluka's General Manager, Australian Operations, Mr Steve Wickham said that the rail freight project was another sign of Iluka's investment in Victoria.

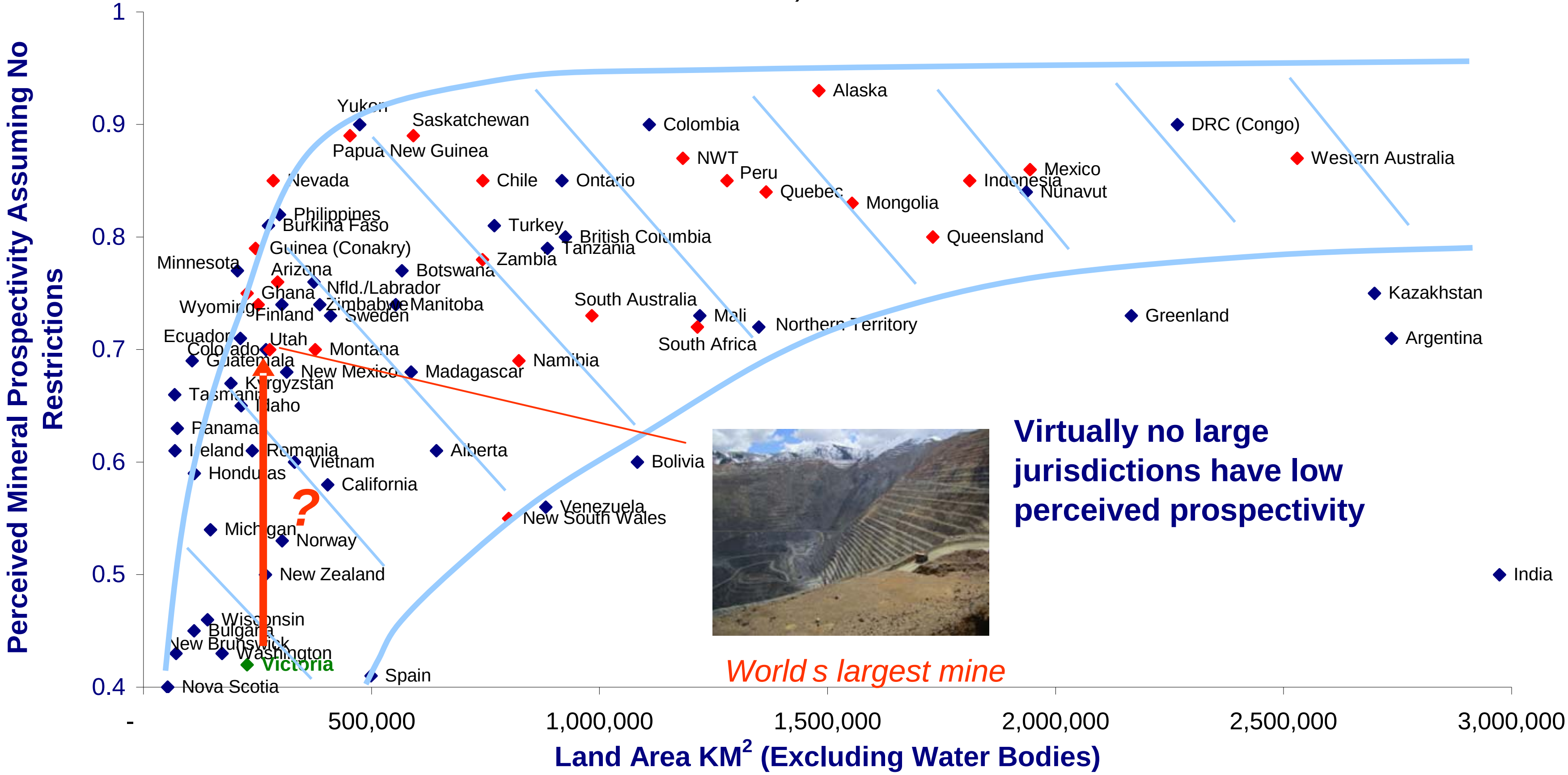
Premier's Office, Friday 18 November, 2011

Engaging & attracting relevant explorers

Relevant Explorers	#	Global Greenfield Exploration Budgets (2010)
Total	108	$950.8m
Overseas only	71	$303.1m
Active in Australia	37	$647.7m
Active in Victoria	2	$6.0m

Perceptions of Prospectivity are Related to Land Area (With Upwards Scatter Related to Iconic Mines)

Victoria is not "on the radar", even for its land area



Source: Fraser Institute Survey of Mining Companies 2010/2011

Jurisdictions marked red are known to host iconic mines / deposits