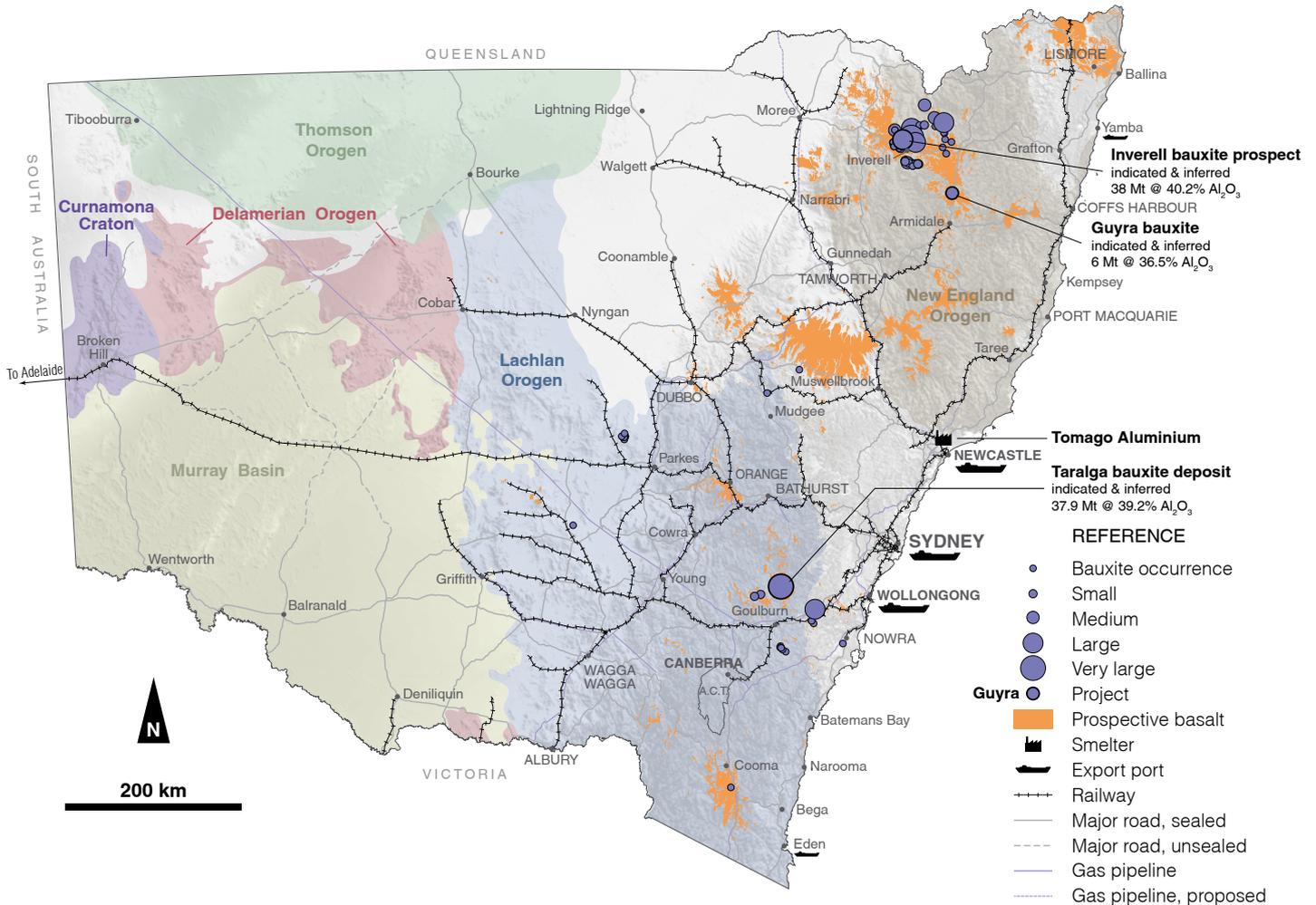


Bauxite

Opportunities in New South Wales, Australia



FEBRUARY 2015



Overview

- New South Wales (NSW) has outstanding potential for the further discovery of large bauxite deposits associated with extensive Tertiary basalts in the eastern part of the state.
- Low cost exploration strategies involving ASTER and hyper-spectral analysis have been very successful in NSW.
- Access to infrastructure is excellent.
- The highest bauxite grade recorded in the state is 53.9% Al₂O₃, from a deposit at Sutton Forest, in the Southern Highlands.

Geological setting

Bauxite is the world's main raw material for commercial production of alumina (Al₂O₃) and aluminium metal and consists mostly of the minerals gibbsite (Al₂O₃·3H₂O), boehmite (Al₂O₃·H₂O) and diaspore (Al₂O₃·H₂O).

A wide range of Al-rich rocks are protoliths to bauxite; especially those with Al₂O₃/ΣFe₂O₃ > 1. Bauxite forms by the gradual enrichment of aluminium through development of stable aluminium hydroxides during climatic weathering.

Deposit types

- Prospective rocks in NSW include weathered Tertiary (Paleogene–Neogene) basalts in the northern New England Orogen and around Goulburn in the Lachlan Orogen.
- Bauxite deposits in NSW typically formed by weathering during warm and wet climatic periods in the Cenozoic, to produce a porous friable layer on basalt. Many have been protected from erosion by a thin, overlying layer of basalt.
- Commercial concentrations of bauxite can occur as blanket deposits (the most common type in NSW), interlayered deposits, pocket deposits and detrital deposits.
- The Hylogger™ at the WB Clarke Geoscience Centre in Londonderry effectively identifies aluminium-rich minerals in bauxite and also clay minerals which can adversely affect the ore grade.

Project highlights

Taralga (near Goulburn)

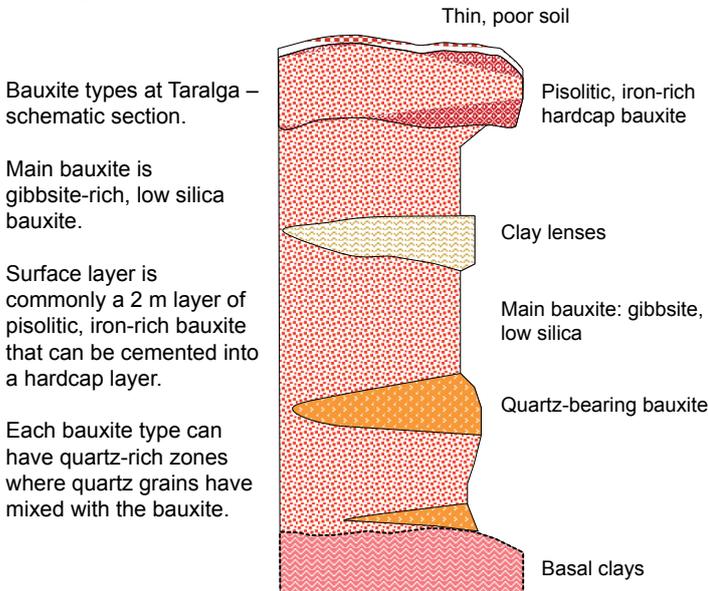
- Inferred resource is 37.9 Mt @ 39.2% Al₂O₃ and 53% of the resource is suitable for direct shipping.
- A 38 m-thick continuous bauxite intersection occurs at Mount Rae.
- Similar to the world-famous Darling Ranges bauxite deposits, including quartz-rich, low-reactive-silica bauxite zones.

Inverell

- Resources were upgraded to 38 Mt in 2012.
- Prior to the discovery of the Weipa deposits in Queensland, the Inverell district NSW hosted Australia's largest combined bauxite reserves.

These medium-quality, low-silica, gibbsite-rich bauxite deposits are suitable for low-temperature alumina refineries and for abrasives.

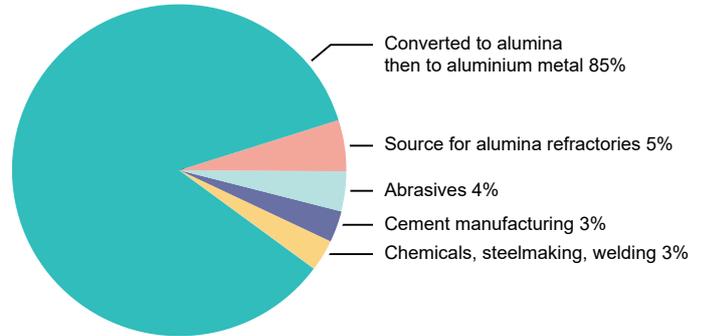
Taralga bauxite types



Typical bauxite profile of deposits in the Taralga area.

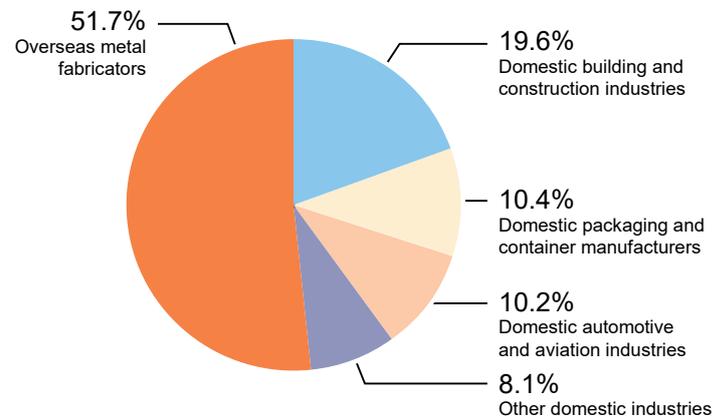
Source: ABx ASQ Announcement 12 May 2011

Domestic uses for bauxite, 1999



Source: Whitehouse J. et al. 2006. Industrial Mineral Opportunities in New South Wales. *Geological Survey of New South Wales, Bulletin 33*.

Markets for aluminium metal smelted within Australia 2013-14 based on revenue data



N.B. 73.5% of bauxite industry revenue is derived from within Australia through alumina processing subsidiaries, and 74% of alumina revenue is gained through exports mainly to foreign aluminium smelters.

Source: <http://www.ibisworld.com.au>
 Bauxite: IBISWorld Industry Report B0802
 Alumina: IBISWorld Industry Report C2131
 Alumina: IBISWorld Industry Report C2132



Small bauxite workings near Taralga (courtesy of Australian Bauxite (ABx) Limited).

Contact: mra.info@geoscience.nsw.gov.au | +61 2 4063 6500

Disclaimer: The information contained in this publication is based on knowledge and understanding at time of writing (February 2015), using publicly available information. Because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date. The information contained in this publication may not be or may no longer be aligned with government policy nor does the publication indicate or imply government policy. No warranty about the accuracy, currency or completeness of any information contained in this document is inferred (including, without limitation, any information in the document provided by third parties). While all reasonable care has been taken in the compilation, to the extent permitted by law, the State of New South Wales (including the NSW Department of Planning, Industry and Environment) exclude all liability for the accuracy or completeness of the information, or for any injury, loss, or damage whatsoever (including without limitation liability for negligence and consequential losses) suffered by any person acting, or purporting to act, in reliance upon anything contained herein. Users should rely upon their own advice, skills, interpretation and experience in applying information contained in this publication. The product trade names in this publication are supplied on the understanding that no preference between equivalent products is intended and that the inclusion of a product name does not imply endorsement by the Department over any equivalent product.