

## Driving industry best practice, Industry perspectives

**John Watson**

Environment and Climate Change Manager, Glencore

# GLENCORE



NSW Clean Air Summit  
June 2017



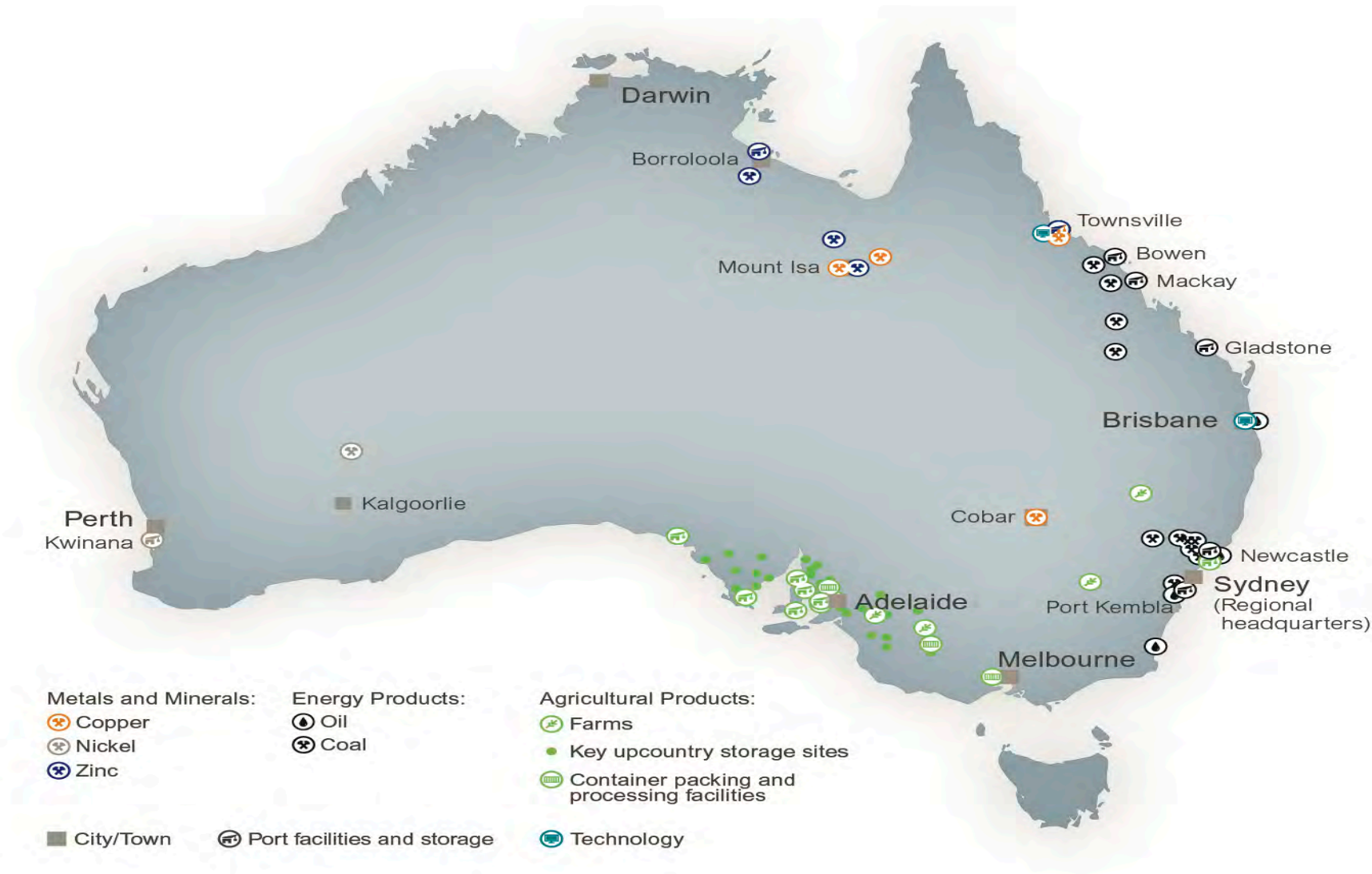
Glencore has a global workforce of 154,000 people at 150 assets in more than 50 countries. We produce and trade more than 90 commodities. We are listed on UK, HK & Jo'burg stock exchanges and 14<sup>th</sup> on Forbes 500.

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Australia is an important part of our global business. We are Australia's largest coal producer; 2<sup>nd</sup> largest grain exporter; producer of Cu, Zn, Ni.  
We employ 16,000 people; spend \$9billion; pay \$1.3Bn in taxes & royalties.

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## Our contribution to Australia

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During 2016 in Australia, we contributed more than \$12 billion to the regional, state and national economies.

### JOBS

15,700



DIRECT EMPLOYMENT  
ACROSS AUSTRALIA

### TAXES & ROYALTIES

\$1.3 b



PAID TO STATE AND  
FEDERAL GOVERNMENTS

### WAGES

\$1.7 b



ANNUAL WAGES AND  
SALARIES PAYMENTS

### CAPITAL INVESTMENT

\$895 m



ON SUSTAINING AND EXPANSIONARY  
INVESTMENT ACROSS OUR AUSTRALIAN  
BUSINESSES

### SPEND

\$8.2 b



ON GOODS AND SUPPLIERS, INCLUDING  
SUPPORTING OUR LOCAL SUPPLIES

### COMMUNITIES

\$8 m

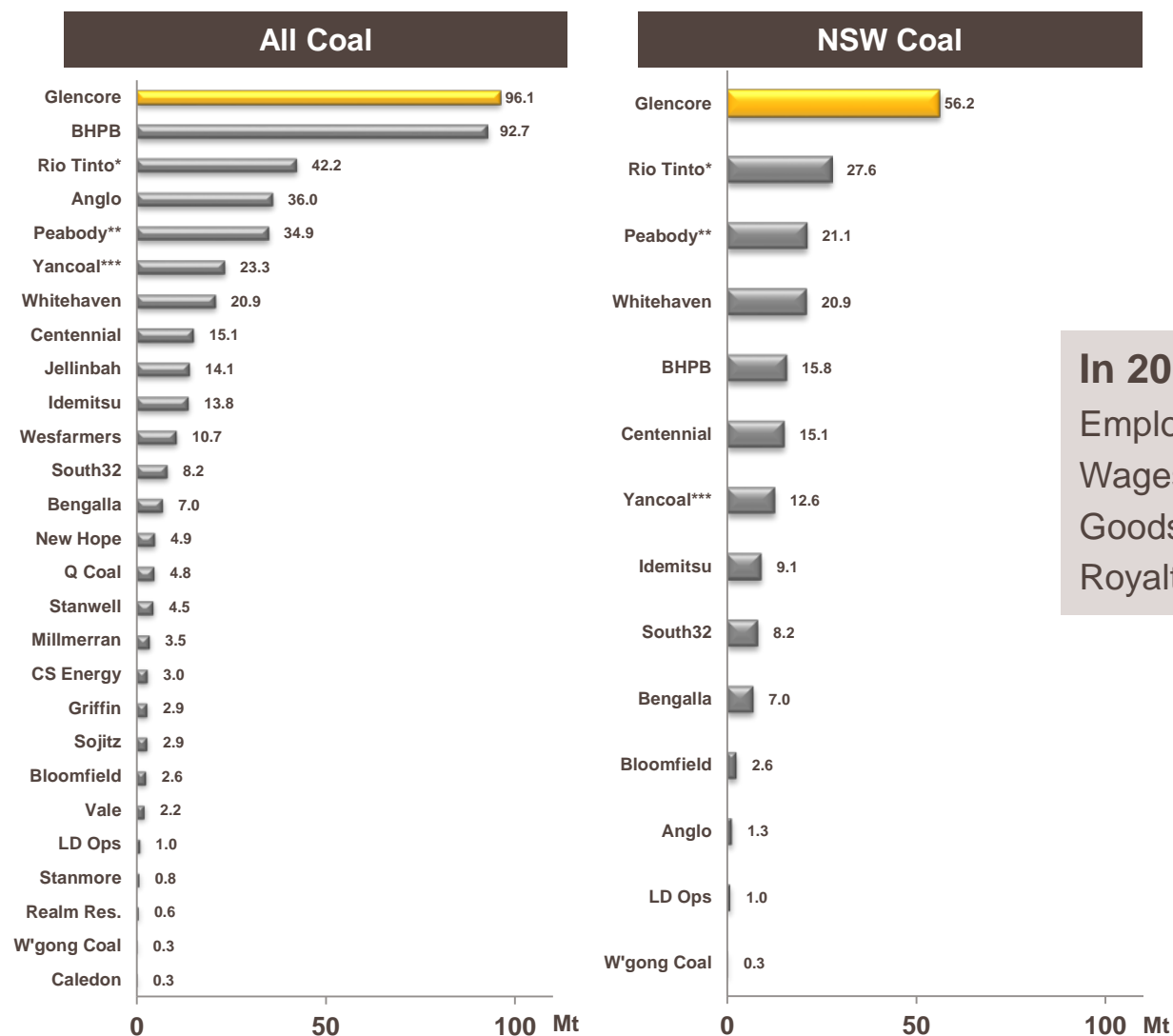


REGIONAL COMMUNITY INVESTMENT  
INITIATIVES, IN ADDITION TO OUR VOLUNTARY  
PLANNING AGREEMENTS WITH LOCAL  
COUNCILS

# Coal: New South Wales



# Australian coal supply rankings 2016



**In 2016**

Employed	4,474
Wages	\$540m
Goods & Services	\$1.14b
Royalties	\$329m

Source: Glencore, data presented on a managed basis;

\*Bengalla exports are reported separately from 2016; \*\*Includes Peabody's 50% interest in Middlemount; \*\*\*Includes Yancoal's 50% interest in Middlemount



## Sustainability Policy

*We are committed to creating value for all of our stakeholders in a manner that is responsible, transparent and respects the rights of all. Our approach is risk and materiality based and is applicable to all of our managed assets.*



### Our people

Our people are fundamental to our success. We believe that a diverse workforce is essential for a successful business. We treat our people fairly and with respect, and ensure they have the opportunity to develop their careers to match their potential. We are committed to upholding the International Labour Organisation Declaration on Fundamental Principles and Rights at Work.



### Health and safety

The safety of our people is our number one priority. We believe that all fatalities, occupational diseases and injuries are preventable and that we must all take responsibility for maintaining a safe and healthy workplace. Our ambition is to become a leader in the field of health and safety and to create a workplace free from fatalities, injuries and occupational diseases. Our aim is to maintain a health and safety culture where everyone proactively supports the Glencore health and safety objectives and commitments.

*This policy is aligned with our Code of Conduct, values and HSEC policies. Our approach is supported by explicit verifiable outcomes to which we hold all of our managed operations accountable.*

### Environment

In everything we do, we seek to minimise any negative impact on the environment and to comply with applicable laws, regulations and other environmental management requirements. We conserve and protect environmental resources through a broad range of proactive initiatives, including our planning, management systems and day-to-day activities. We demonstrate active stewardship of the land, freshwater and biodiversity systems with which we interact.

### Community

We believe that our operations have a predominantly positive impact on the communities in which we operate. We aim to build lasting relationships with our neighbours by identifying and addressing their concerns, and by contributing to activities and programmes designed to improve their quality of life. Throughout the lifecycle of our activities, we conduct ongoing consultations with local communities and other stakeholders to ensure that we operate in a manner that is appropriate.

### Human rights

We support and respect human rights in a manner consistent with the Universal Declaration of Human Rights. We uphold the dignity, fundamental freedoms and human rights of our employees, contractors and the communities in which we live and work, and others affected by our activities.

In our relationship with local communities we respect and promote human rights within our area of influence. This includes respect for the cultural heritage, customs and rights of those communities, including those of indigenous peoples.



### Our values

- Safety
- Responsibility
- Entrepreneurialism
- Openness
- Simplicity

Ivan Glasenberg  
Chief Executive Officer



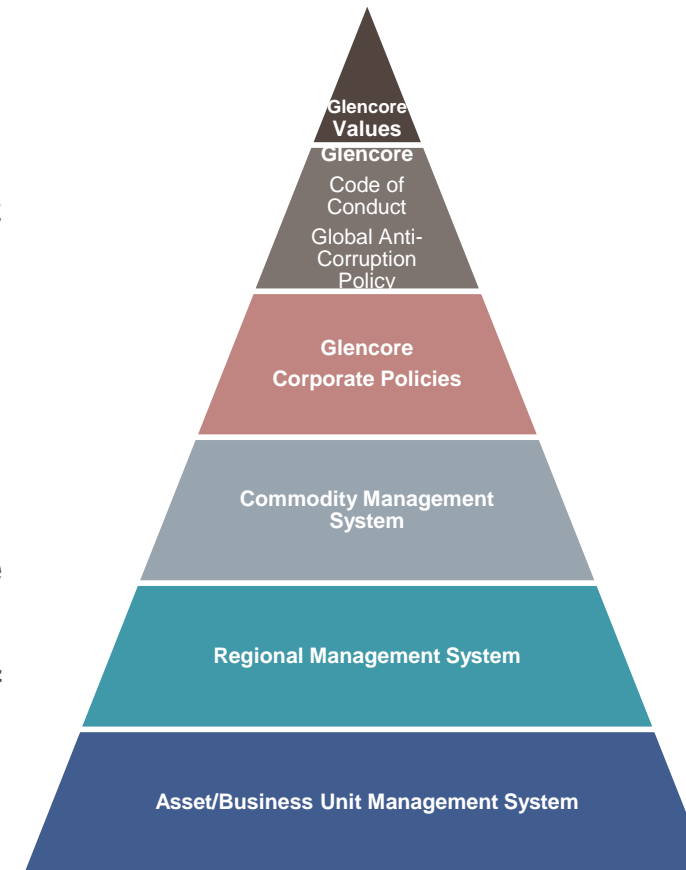
# GCAA Environment and Community Structure

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Expectations are set by GCAA HSEC System Documents and the Annual HSEC Plan

GCAA E&C System Documents have been developed to:

- Provide guidance for the implementation of Glencore HSEC Policies and other Glencore Corporate Practice Documents
- Assist with meeting relevant legislative requirements
- Manage key risks identified in the GCAA Environment and Community Risk Assessment
- Promote consistent performance across the GCAA business, taking into account the variance in risk profile in some aspects e.g. air quality
- Provide clarity on the expected outcomes and areas of responsibility between GCAA and sites
- Provide guidance on the use of GCAA systems e.g. CMO, GIS, EMD





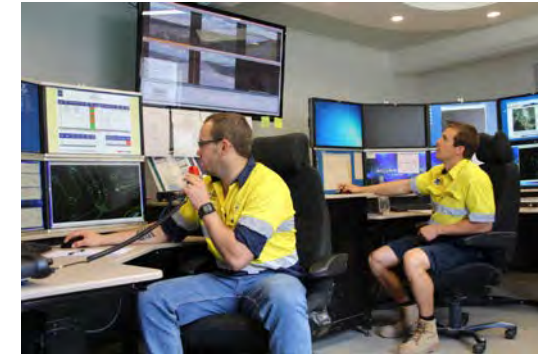
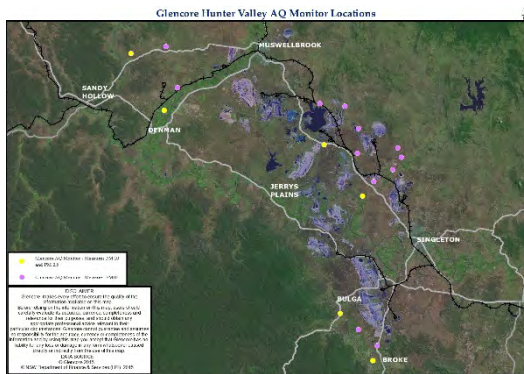
**Air Quality Management**



# GCAA – Air Quality Management

## Managing air quality impacts

- Glencore acts at all times to mine responsibly and to identify, reduce and, if possible, eliminate potential impacts arising from our coal mining operations.
- To effectively manage air quality issues, we use real-time monitoring, transparent reporting and emerging technologies to assess our actions and performance.





# 2010 Air Quality Improvement Project

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- In 2010 the Hunter Valley Coal industry was under considerable focus due to the cumulative impacts of the expansion of the industry during the boom
- The Air Quality Improvement Project was identified by Glencore (Xstrata) during 2010 as an important project for the 2011 SD Strategy
- A direction was given to commence the project for the NSW Coal Operations during 2010
- The key deliverables were
  - Conduct a review of current site/industry dust management practices, sources, controls, modelling and monitoring
  - Development of Minimum Requirements Technical Guideline Document to drive leading practice in air quality management across the NSW Coal business
- The project was conducted over 2010 and 2011 in parallel with other initiatives such as the EPA Dust Stop PRP process



## Key benefits of the project

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- The project has assisted with raising the awareness and understanding of air quality management across the business
- The Air Quality Management Protocol will improve the consistency of approach across operations
- The work assisted with driving the importance of other areas such as proactive mine site rehabilitation
- The analysis of the implementation of the project indicates an annual reduction of PM10 emissions by 30%
- The was used as the basis for developing a global approach for the then Global Coal business

# GCAA – Air Quality Management

## Purpose:

The primary objectives of the protocol are to achieve a consistent approach towards air quality management in order to:

- As a minimum achieve compliance with regulatory standards, conditions and commitments, and
- Mitigate air quality related risks and complaints from the regulators, community and / or other stakeholders.

Provides guidance on minimum requirements for GCAA sites for dust management and a framework for coordinated dust management including:

- Mine planning
- Effective dust management measures
- Automated system for adverse weather
- Training





# GCAA – Air Quality Management

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## Key initiatives:

- Mine Planning - Minimising our active mining footprint to the smallest area practicable by promptly rehabilitating disturbed areas
- Development of Air Quality Management Plans:
  - Risk register
  - TARPS
  - Monitoring/Forecast systems
- Regular watering of unpaved roads
- Managing vehicle speeds
- Altering or stopping operations at open cut mines in adverse weather conditions
- Water sprays on conveyors and stockpiles
- Covering our conveyors



# GCAA – Air Quality Management

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## Key initiatives:

- Using water trucks, wheel washers, road sweepers, dust suppressants
- Using appropriate equipment that is regularly maintained
- Minimising double handling of material
- Minimising drop heights and over loading
- Restricting vehicle access to formed roads
- Dust extraction systems on drills
- Coarse gravel for stemming in blast holes
- Water sprays at rail load out points



# GCAA – Air Quality Management

## Managing air quality impacts

- Management of dust generated from mining activities applies to all levels of our workforce.
- We train our people to take proactive steps to manage dust within our operations, before it becomes a problem for those outside our operations.
- Simulator training on air quality and dust management initiated in 2010: employees **must** be able to identify Level 1 and Level 2 dust events and respond appropriately.



*Simulator training (left and right).  
Below, modules showing dust levels and the response required from our operators.*



Normal Conditions



Level 1 – Dust  
•Slow down/ Call for watercart



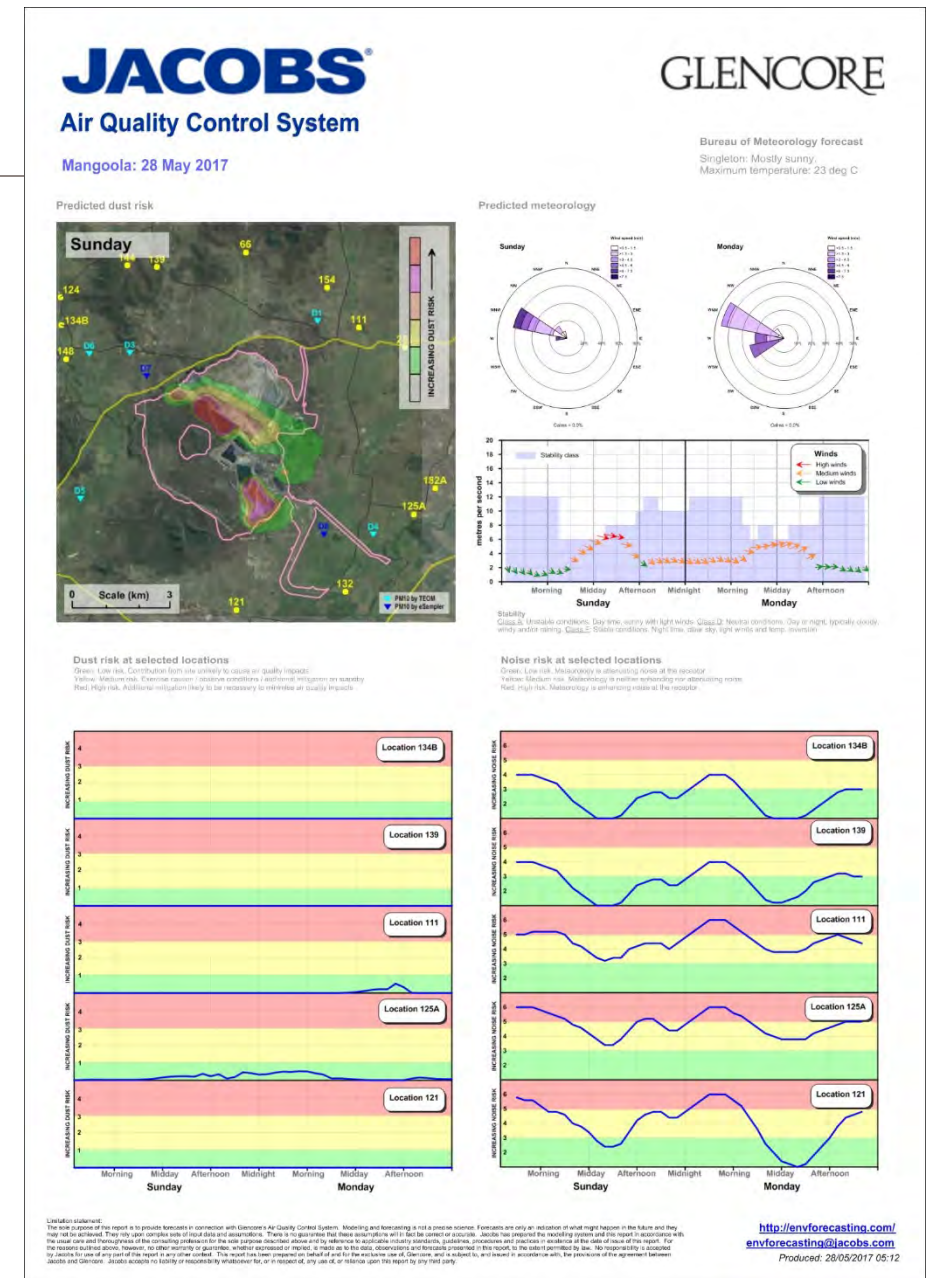
Level 2 – Dust  
•Slow down/stop  
•Call for watercart/Notify supervisor



## GCAA – Air Quality Management

# GCAA Air Quality Control System

- Believed to be a first for the NSW Hunter Valley coal mining industry and 2013 Environmental Excellence Award winner.
- Environmental forecast summaries emailed daily to hundreds of operational people at our open cut mines.
- Includes general 5-day weather forecasts, wind conditions for the next two days, predictions of daily dust risk and predicted noise risks at specific locations.
- Provides each site with information used in conjunction with extensive air quality and noise monitoring to plan daily mining activities.
- Helping minimise impacts from blasting, air quality and noise.



# GCAA – Air Quality Management

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## Other key initiatives:

- Building mine infrastructure away from sensitive community and public areas
- Installation of almost 100 real-time air quality monitoring and noise monitors, both on-site and within our neighbouring communities
- Using continuous dust monitors, with pre-determined levels triggering an alarm to notify mine supervisors to review operations
- Using environmental cameras to monitor operations and dust levels
- Running 24-hour hotlines for residents to report concerns
- Initiating immediate investigations into each complaint received



## GCAA – Air Quality Management

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- We are also playing a leading role in work with our neighbouring communities, peak industry groups and regulatory authorities to study, respond and plan to minimise the cumulative air quality impacts on the regions in which we operate.





# Glencore is committed to sustainable mining practices - Rehabilitation

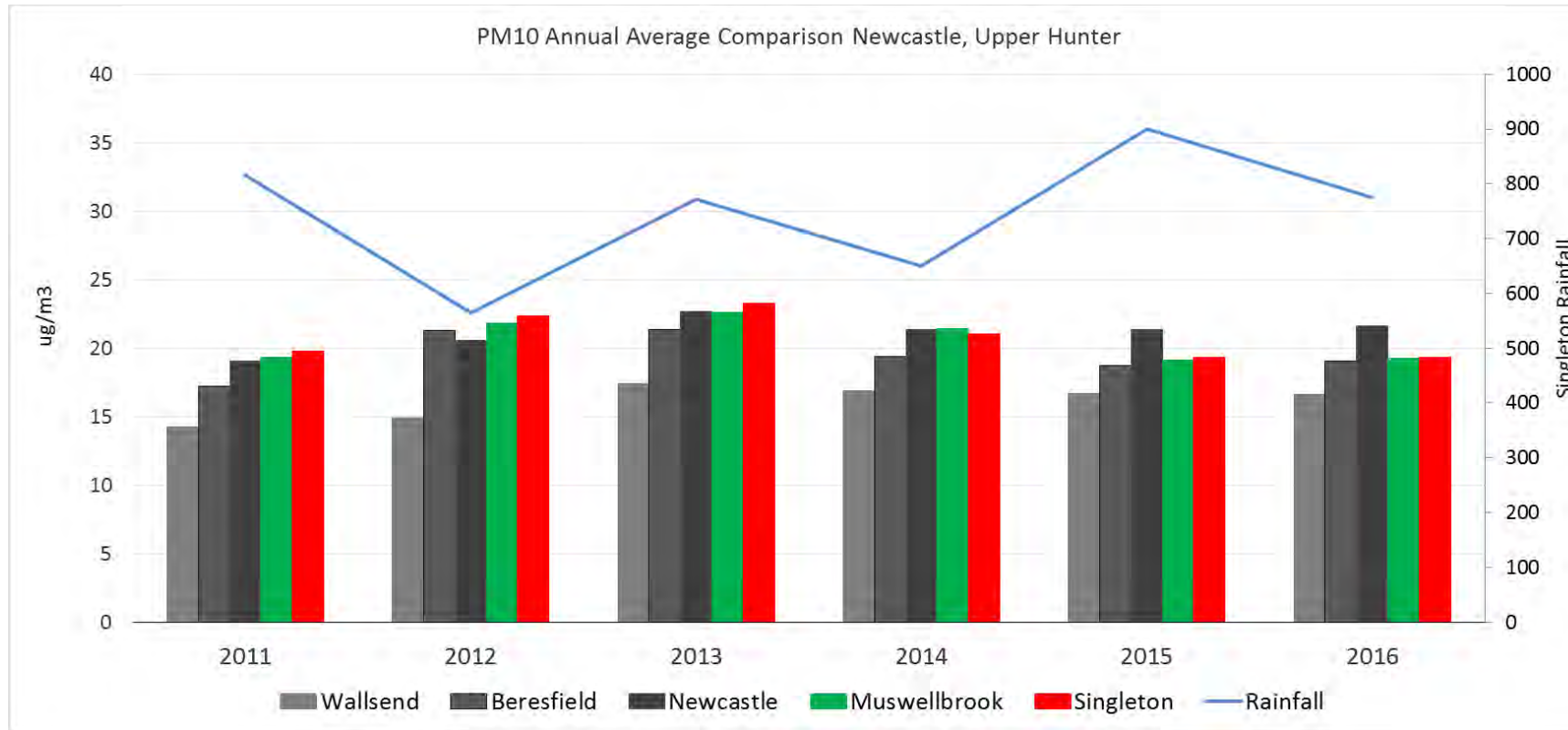
- Glencore is committed to rehabilitating and restoring land progressively during the mine life
- We aim to return the land to either self-sustaining native ecosystems, agricultural use or other suitable purposes that meet the requirements set down by Government and the expectations of our communities
- Up to 1 January 2017, over 11,500ha of mined land has been rehabilitated across our mining operations, comprising approximately 4,740ha in NSW and 6,800ha in Queensland



*Clockwise from top left is mine rehabilitation work at GCAA's Liddell, Westside, Ulan, Clermont, Rolleston and Mangoola open cut operations.*



# GCAA – Air Quality Management



- Encouraging trends in data from Upper Hunter Air Quality Monitoring Network
- Reduction in in annual average since 2013
- Comparable air quality to Beresfield at Singleton and Muswellbrook over 2015 and 2016
- Data sources: <http://www.environment.nsw.gov.au/aqms/aqitable.htm> , <http://www.bom.gov.au>





Non Road Diesel

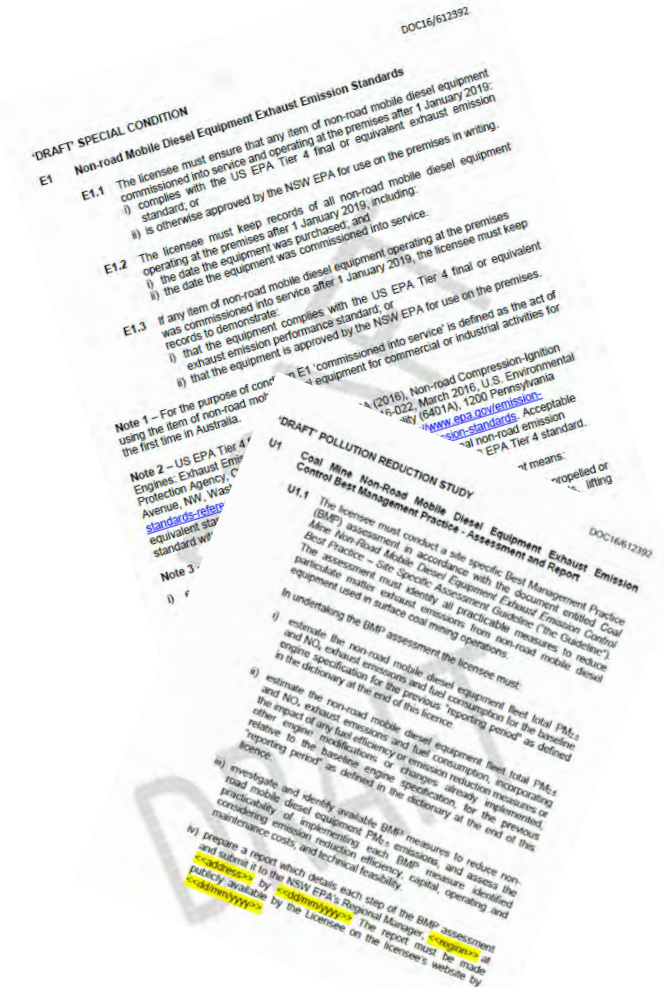


# GCAA – Non Road Diesel, EPA Draft Conditions (2017)

Following an industry workshop held in June 2016 and subsequent industry submissions a revised approach to draft licence conditions was provided to the industry for consultation.

The proposed approach consists of:

1. From 2019 new non-road diesel equipment commissioned into service is to comply with US EPA Tier 4 exhaust emission performance standards, unless otherwise approved in writing by NSW EPA, and
2. A phased pollution reduction process, with the initial step being a Pollution Reduction Study (PRS) seeking detailed information from each licensee on the non-road mobile diesel equipment fleet used in coal mining surface operations.



## GCAA – Non Road Diesel

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Whilst the revised draft is an improvement on previous proposals, with the removal of a blanket 25% reduction target in-service fleet, there are still issues that will require further industry consultation such as:

- Separate consideration of newly commissioned fleet as opposed to existing in-service vehicles
- Timeframe required to complete the Pollution Reduction Study (PRS) and the reliance on OEMs for the required information
- Materiality of including all diesel engines contained within the scope of the PRS and the definition of non road diesel equipment
- Certainty around the process for exemptions of new non Tier 4 equivalent equipment

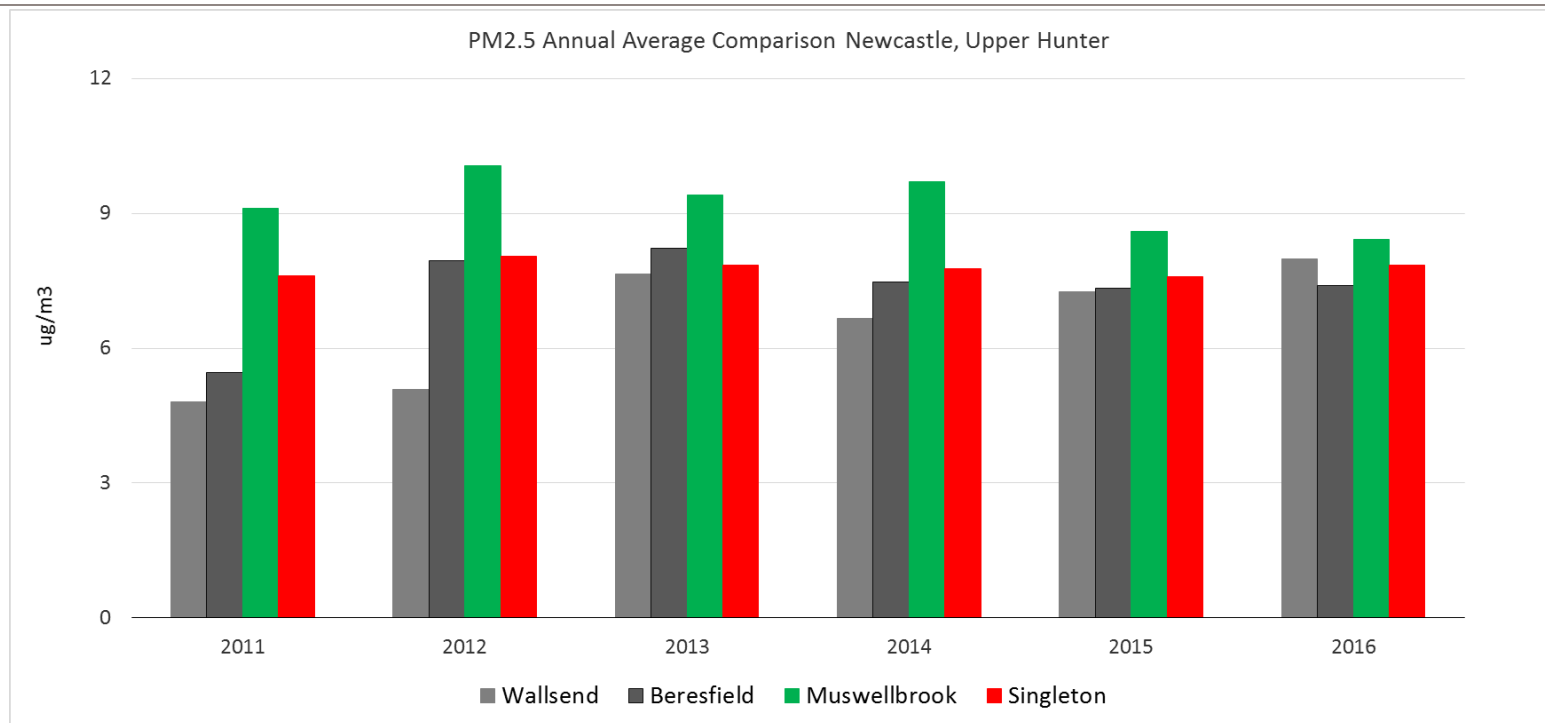
## GCAA – Non Road Diesel

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- Refining contractor exemptions around material diesel consumption rather than time spent on site
- Alignment of Tier 4 implementation with US requirements allowing greater certainty around equipment availability and data integrity
- Availability of certification documentation to verify emissions from OEMs for engines below 30L
- Commercial in confidence material and the requirement to publish such data



## GCAA – Air Quality



- Well documented wood fire smoke influence at Muswellbrook
- Comparable air quality to Beresfield at Singleton for the last 5 years
- Validated EPA Upper Hunter Air Particle Model, predicts that PM<sub>2.5</sub> contributions from non-road diesel equipment at only 4.2% and 5.4% in Singleton and Muswellbrook respectively.
- Analysis of CBA is not sufficiently robust to proceed with regulation
- Data source: <http://www.environment.nsw.gov.au/aqms/aqitable.htm>



## Upper Hunter Mining Dialogue

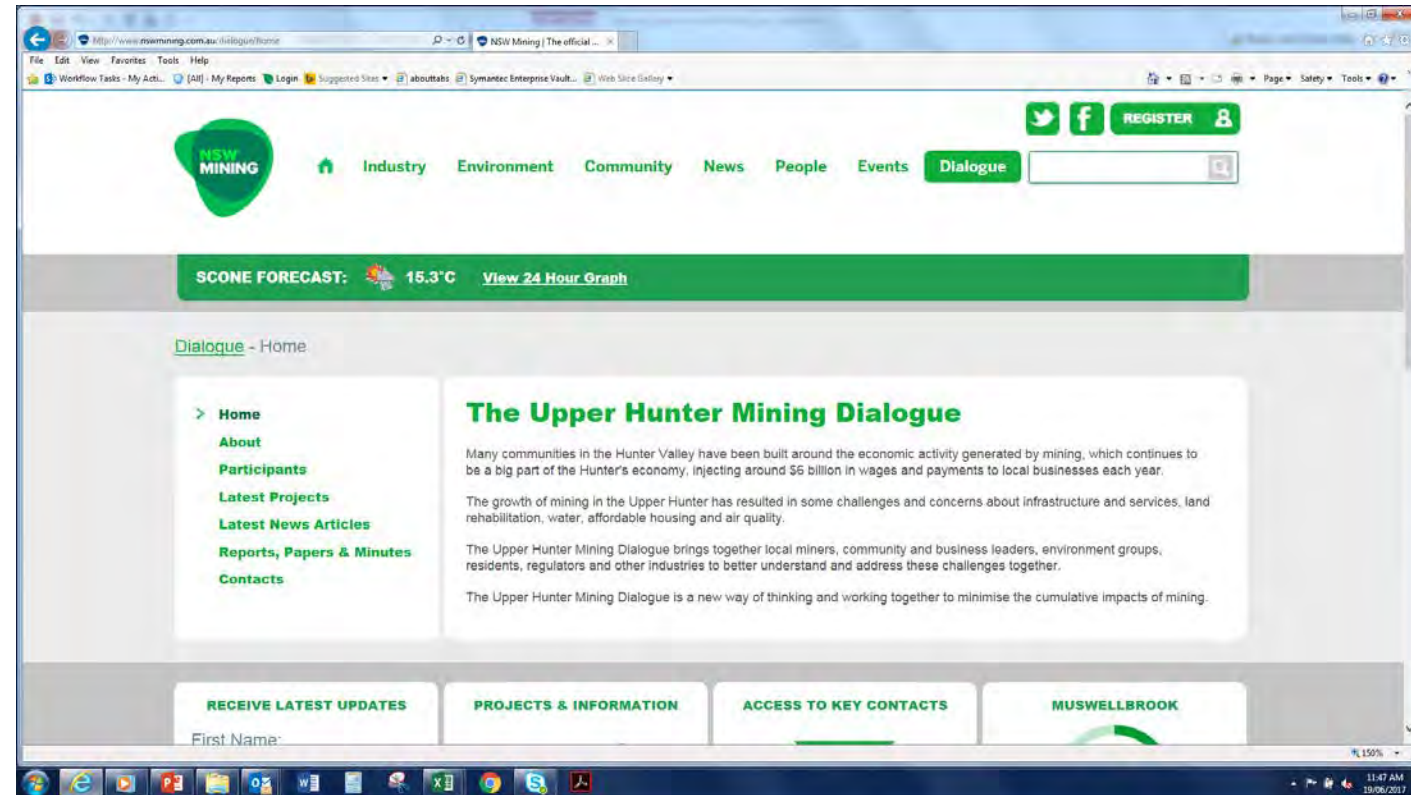


# Upper Hunter Mining Dialogue

The Upper Hunter Mining Dialogue was established in 2010 by the region's miners, in coordination with the NSW Minerals Council, to address concerns in parts of the community about pressure on infrastructure and services, land rehabilitation, water, affordable housing and air quality.

There are around 70 community and environmental groups, local government, regulators, local mine operators, government agencies, unions and business chambers involved in the Upper Hunter Mining Dialogue.

<http://www.nswmining.com.au/dialogue/home>





## UHMD – Emission and Health Working Group

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- Weather forecasting project
- Community sessions held in Singleton and Muswellbrook
- Short video (2.5 mins) providing community with information on what happens at a mine site when adverse weather is forecast
  - Intended to share via social media, UHMD website and company sites
- Joint Working Group Presentations from EPA, OEH, Hunter New England Health, ACARP Research Project leaders undertaking research into Air Quality, etc.
- *Mine Dust & You Factsheet* – review completed, engagement with NSW Health and EPA.
- Written to Minister for the Environment advocating for expansion of air quality forecasts to the Upper Hunter.
- Clean Air for NSW Consultation Paper – What started as a conversation within the Dialogue has evolved into a documented commitment from the NSW government to progress weather forecasting initiatives.



Thank you



# Clean Air Summit

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**John Watson**

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