Energy in Mining

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CEEC - A not-for-profit company, supported by industry donations
www.ceecthefuture.org
Mining Life Cycle

- Exploration
- Mining
- Processing Ore
- Smelting
- Refining
- Recycling
- Product Manufacture & Use

Major activities in Australia

Images and links:
- hydraulics.eaton.com
- www.eurozinc.com
- www.hardwaresource.com
- www.corrosion-doctors.org
- images.jupiterimages.com
- www.cardiff.gov.uk
Mining

Open Cut Mine


Underground Mine

Net Energy Usage

Australia’s domestic energy consumption 4,139 PJ in 2012-13, an increase of 57 PJ from 2011-12.

Figure 1.5 - Domestic net energy use, by industry, Australia, 2008-09 to 2012-13

Footnote(s): (a) Includes Forestry and Fishing; (b) Includes Gas supply, Water supply and Waste services; (c) Includes Agriculture, Forestry and Fishing, Mining, Manufacturing, Construction, Retail, Commercial & Services and Households. Energy use in the commercial and services sector increased by 10 PJ (12%) from 2011-12 to 2012-13.

Energy Usage

From http://www.ceecthefuture.org/why-smart-companies-are-focusing-on-comminution/
Crushing and grinding energy for copper and gold

Energy Curve methodology

Case study: Barrick Gold

CEEC energy curve profile

As at 13/10/2015
Iron Ore & Coal Production

Total Australian Production = 1,044 million tonnes (est. 2012/2013)

- Iron ore: 51%
- Thermal coal: 23%
- Metallurgical coal: 16%
- Bauxite: 7%
- Alumina: 2%
- Other: 1%

90% of production but much lower energy intensity

From http://www.minerals.org.au/focus/minerals_economy
Energy Initiatives in Mining

Rio Tinto forms new team to step up energy and climate initiatives

A key focus will be to ensure energy and climate decisions. The strategy team will support the Group’s energy and sustainability strategy initiatives.

BHP Billiton And University College London Launch Natural Resources Initiative

10 June 2011

BHP Billiton and University College London today announced an agreement to establish an Institute for Sustainable Resources in London, UK and an International Energy Policy Institute in Adelaide, Australia.

From http://www.minerals.org.au/focus/sustainable_development/enduring_value