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Preface



It is an exciting era in the development of BHP Billiton's Olympic Dam mine.

The release of the Supplementary Environmental Impact Statement (Supplementary EIS) is a major step towards establishing Olympic Dam as one of the world's premier mining operations.

For BHP Billiton, the project has the potential to become one of the Company's largest single investments, and will put billions of dollars into the South Australian economy for decades to come. BHP Billiton, as the world's largest mining company, is well placed to develop a project of this importance and magnitude while ensuring best practice in health, safety, environmental management and community engagement.

Ultimately our aim is to help supply the world's population with the vital resources it needs to power homes, build cities and grow communities.

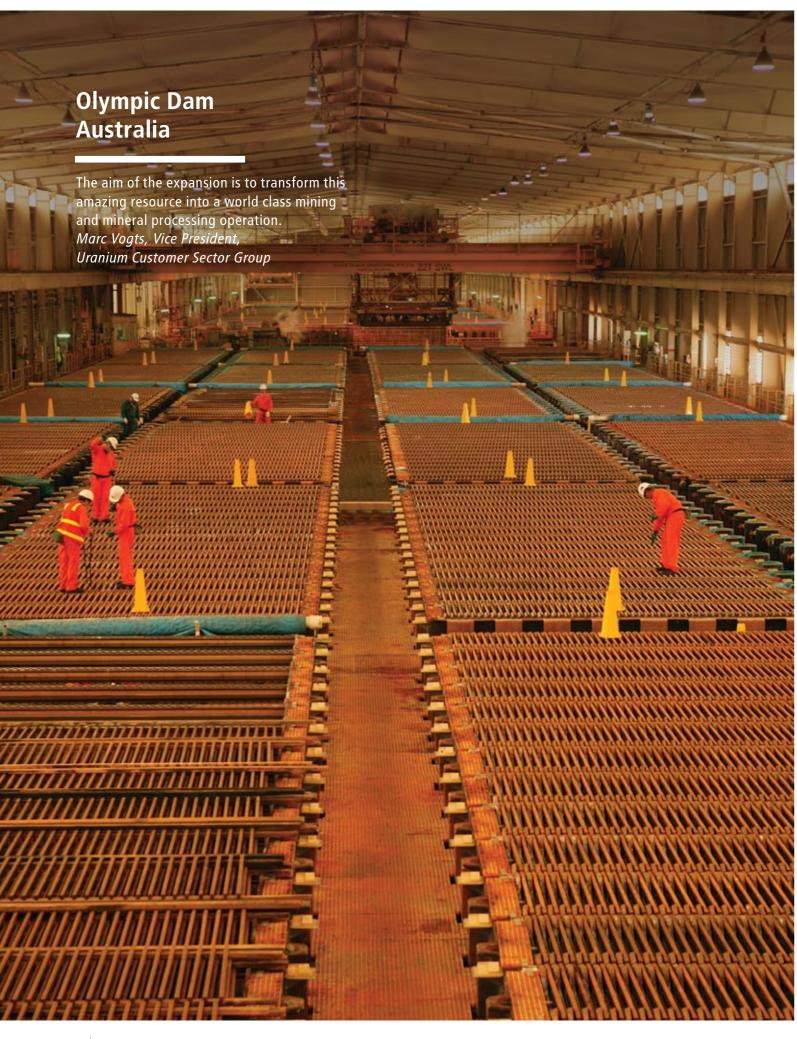
The planning for this expansion is a culmination of more than five years work by hundreds of engineers, scientists, consultants and industry leaders across a broad range of expertise. I'm personally very proud of the extraordinary detail and commitment that has been invested in making sure this is a viable project with the least environmental impact possible.

The Supplementary EIS contains responses to more than four thousand submissions received on the Draft Environmental Impact Statement which was open to the public for feedback for a 14-week period in 2009. We have addressed the environmental, social, cultural and economic issues raised in those submissions and in doing so we have ensured the project will deliver the most advanced and responsible outcomes.

Expanding Olympic Dam will ensure a great future for South Australia and Australia. We look forward to sharing our progress on this journey with you.

11/2/

Dean Dalla Valle
President
Uranium Customer Sector Group



Introduction

The proposed expansion

BHP Billiton is seeking the approval of the Australian, South Australian and Northern Territory Governments for a significant expansion of its existing mining and processing operation at Olympic Dam in northern South Australia, 560 kilometres north of Adelaide. The orebody at Olympic Dam is the world's fourth largest copper resource, the largest known deposit of uranium and also has rich deposits of silver and gold.

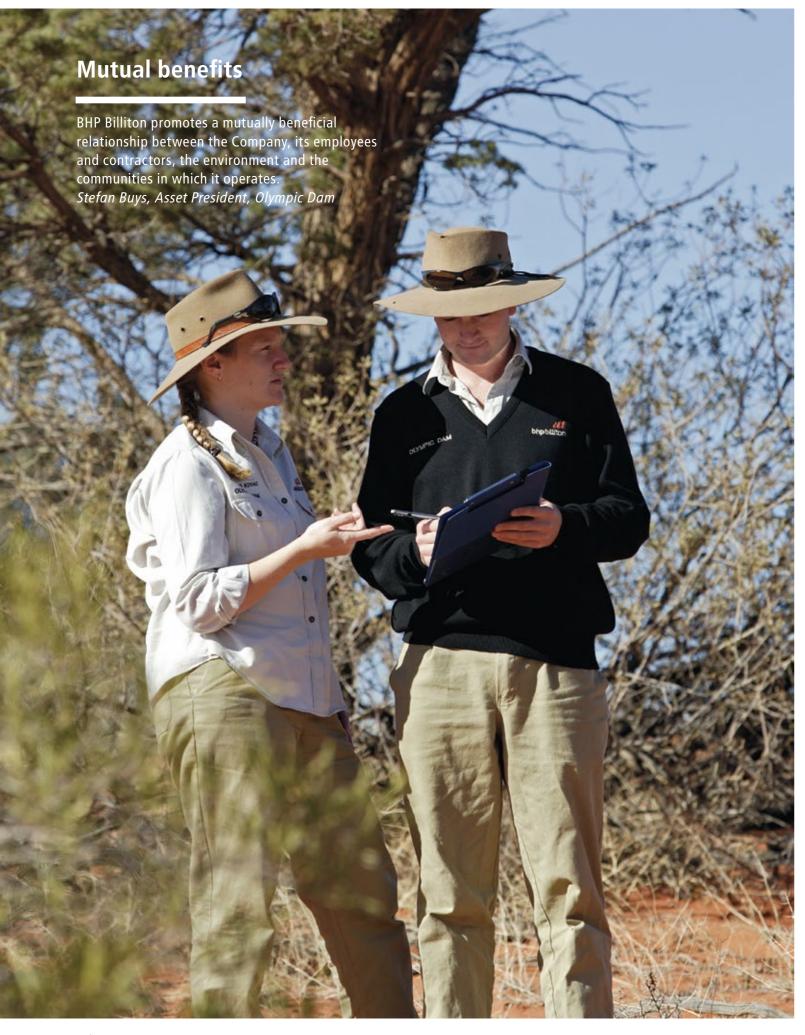
The proposed Olympic Dam Expansion is centred on the creation of a new open-pit mine that would operate simultaneously with the existing underground mine. The proposed expansion would be built progressively over several stages and lift ore production. The existing smelter at Olympic Dam would be expanded and new concentrator and hydrometallurgical plants would be built to process the additional ore and generate additional concentrate.

The major items of infrastructure required over time to support the expansion include:

- A 200 megalitre per day coastal desalination plant at Point Lowly and 320 kilometres of pipeline with associated pumping stations to deliver the water to Olympic Dam.
- An additional 270 kilometre electricity transmission line from Port Augusta to Olympic Dam; or a gas pipeline from Moomba and a new gas-fired power station at Olympic Dam; or a hybrid solution that is a combination of these two supply methods.

- When volumes justify, a 105 kilometre rail line to connect Olympic Dam with the national rail network near Pimba.
- Additional port facilities at Outer Harbor in South Australia as well as at the Port of Darwin in the Northern Territory.
- A new airport at Olympic Dam to cater for large commercial jets and the increase in passengers and air traffic.
- A landing facility and access corridor at Port Augusta to unload and move equipment from barges to Olympic Dam.
- A new accommodation village for workers at Olympic Dam.
- Expanding the Roxby Downs township to provide additional services and accommodation so the town's population can grow to around 10,000.

The proposed expansion would be a progressive development. The project schedule will ultimately depend on the timing and nature of government approvals and the final investment decision of the BHP Billiton Board.



Current operations

Mineral processing at Olympic Dam began in 1988, initially producing 45,000 tonnes per annum of copper plus associated products of uranium oxide, gold and silver. Between 1997 and 1999 there was a major expansion of the mine and minerals processing plant. In recent years annual copper production has averaged about 180,000 tonnes, with 4,000 tonnes of uranium oxide, 80,000 ounces of gold and 800,000 ounces of silver.

Copper produced at Olympic Dam is sold to global and domestic markets. The uranium oxide is sold to power stations for baseload power generation. All of the gold and silver is sent to the Australian Mint in Perth.

EIS process

Given the size and complexity of the proposed Olympic Dam Expansion, a detailed and technical Draft Environmental Impact Statement (Draft EIS) was prepared to comply with the guidelines set by the three governments and to explain the impacts and benefits of the proposed actions. In May 2009, BHP Billiton released the Draft EIS for a 14 week public consultation period. A Supplementary Environmental Impact Statement (Supplementary EIS) has been prepared to respond to the submissions received during that period.

Community and stakeholder consultation

In preparing the Draft EIS, BHP Billiton consulted with more than 8,300 people, 38 government departments and service providers, 55 non-government organisations and 60 industry groups.

Following the publication of the Draft EIS the South Australian Government received a total of 4,197 submissions related to the proposed expansion and provided these to BHP Billiton for review and response. All of the issues raised in these submissions have been addressed in the Supplementary EIS.

The EIS has been prepared by:

- Up to 20 environmental, social, economic and cultural specialists working full-time for more than four years as an Adelaide-based core EIS team.
- Many hundreds of individuals from more than 100 consulting companies from around Australia and overseas undertaking specialist studies.
- More than 20 internationally recognised experts conducting peer reviews of the studies undertaken.
- More than 200 BHP Billiton staff who have worked to incorporate environmental, social, economic and cultural factors into project decisions, plans and designs.

Mining

Open-pit

The planned open-pit mine would operate simultaneously with the existing underground mine. By 2050 the size of the pit would grow to be 4.1 kilometres long, 3.5 kilometres wide and 1 kilometre deep. Eventually, mining the planned open-pit would produce 60 million tonnes per annum (mtpa) of ore, equivalent to an additional annual rate of refined copper production of 515,000 tonnes.

When viewed from above, the Olympic Dam orebody is shaped like a frying pan. The proposed open-pit would mine the 'pan' and the underground operation would continue to take ore from the 'handle'.

It would take about six years of mining to remove the 350 metre thick layer of overburden and expose the upper surface of the orebody. During this time, material would be moved from the open-pit to the rock storage facility. The rock storage facility would cover approximately 6,720 hectares, and it would eventually be about 150 metres high.

Key commitments:

- BHP Billiton would implement pre-emptive controls and a real-time response system to manage dust impacts from the open-pit operation.
- BHP Billiton would implement mitigation measures to reduce noise impacts of the open-pit operation.





Processing

Ore processing facilities

Processing for the expanded mine would build on the 20 years experience gained by operating the existing Olympic Dam processing plant.

The expansion would require the following additional ore processing facilities:

- A new concentrator to grind the ore, then extract the minerals by flotation to produce:
 - a copper-rich concentrate containing recoverable quantities of uranium oxide, gold and silver
 - a uranium-rich tailings, which contains the majority of the uranium and the remainder of the copper, gold and silver.
- A new hydrometallurgical plant to extract the uranium from the concentrator tailings.
- Upgrades to the existing electro-refinery and smelter, which would continue processing ore from either the existing underground operation or the open-pit.
- The proven metallurgical processes used in the existing plant would continue to be used for the expansion.

Tailings storage facility

The expansion would generate approximately 58 mtpa of tailings at full production, and would require up to eight storage cells in addition to the existing storage cells that receive approximately 10 mtpa of tailings.

The tailings would be deposited into the storage cells from a pipeline that would circle the walls of each cell. Each section would be allowed to dry and consolidate before receiving more tailings. The perimeter wall would be progressively raised as each cell filled with tailings. Process fluids would be recovered and recycled for use in the process plant. Ultimately these cells are capped with the hard rock extracted from the open-pit to ensure a long-term stable structure.

Key commitment:

 BHP Billiton would commit to changes to processing and tailings management to increase recycling and water efficiency.



Water supply

Preferred option

Olympic Dam operates in an arid, isolated area and providing it with a reliable, long-term water supply is a major challenge. Both Olympic Dam and the township of Roxby Downs currently use water piped from two well fields in the Great Artesian Basin under licence issued by the South Australian Government.

To develop the orebody at Olympic Dam the proposed new mine and the expanded Roxby Downs township would require an additional 200 megalitres per day. The two existing well fields supplying the current operation could not sustain the additional demand.

The proposed coastal desalination plant at Point Lowly in Upper Spencer Gulf is BHP Billiton's preferred option for the primary supply of water. This also creates a potential water supply for towns in the Upper Spencer Gulf and Eyre Peninsula regions that currently draw water from the River Murray.

Location of the desalination plant

BHP Billiton considered 20 sites for the location of the desalination plant including Port Augusta, Whyalla, Port Pirie, Point Lowly, Ceduna, Elliston, Point Drummond and Port Lincoln.

Each of the locations were examined and assessed based on the following criteria:

- · Environmental impacts.
- · Water depth and speed.
- Accessibility and constructability of the plant and the associated pipeline.

Based on these criteria and on the studies conducted by some of the world's leading experts, Point Lowly was determined as the best location for a desalination plant.

The current speeds at the top of Spencer Gulf are some of the fastest in South Australia. These currents are at their greatest speed between Point Lowly and Ward Spit, where BHP Billiton proposes to operate its desalination plant.

Because of these fast flowing currents, the return water from the desalination plant would be dispersed at maximum levels.

In addition to these fast flowing currents at Point Lowly, there is a natural movement of water that moves up the western side of Spencer Gulf, around the top of the Gulf, and then flushes back down its eastern side. Research and modelling undertaken for the Draft EIS shows that seawater seasonally flushes through Upper Spencer Gulf ensuring no build up of salt in the Gulf.

Water supply

Return water

The return water would be discharged at sea under pressure through a purpose designed and built diffuser which would be located in the area of highest tidal currents, which is 800 metres from the shore.

The outfall pipe would be built through a tunnelling process, rather than the traditional trenching method. This would ensure the seabed and the marine environment is protected from any damage during construction and avoids the cuttlefish habitat. The intake pipe would be constructed through a trenching process because the alignment of the pipe is through soft, sandy areas rather than the rocky reef cuttlefish breeding habitat. Therefore, minimal, if any, blasting would be required for the intake pipe.

The fast flowing currents at Point Lowly will ensure that the return water from the plant will be dispersed rapidly, even during dodge tides.

Marine life

The world's largest known aggregation of the Giant Australian Cuttlefish occurs annually in Upper Spencer Gulf. Cuttlefish like shallow, rocky outcrops to breed and lay their eggs, and these areas are close to the shore between Whyalla and Backy Point.

Extensive modelling of Spencer Gulf and the area around Point Lowly has shown that the return water would disperse rapidly.

If the return water dispersion from the desalination plant did not meet the regulatory levels or monitoring identified unacceptable impacts, BHP Billiton would stop discharging return water until the issue was resolved. BHP Billiton is reliant on a long-term reliable water supply to expand Olympic Dam to its full potential. It is therefore in BHP Billiton's interest to ensure the desalination plant can be operated responsibly in relation to the marine environment.

BHP Billiton would undertake annual surveys of the Australian Giant Cuttlefish population at Point Lowly prior to construction and throughout the life of the desalination plant.

Key commitments:

- The desalination plant and associated pumping to Olympic Dam would be powered by 100 per cent renewable energy.
- Monitoring of the desalination plant would be in 'real-time'. Salinity levels in Upper Spencer Gulf would be monitored, as would the activity of the Australian Giant Cuttlefish in the area.
- If the return water dispersion did not meet the regulatory levels or monitoring identified unacceptable impacts, BHP Billiton would stop discharging return water from the desalination plant in the Gulf until the issue was resolved.



Materials handling and transport

The existing operation requires supplies and product to be transported primarily by road to and from Olympic Dam. These are mainly copper cathodes, sulphur, diesel and various reagents used in the metallurgical plant.

The proposed expansion would increase transport volumes. The materials handling and transport method chosen for the expansion would utilise the transport of materials by rail when volumes justified it, with some transport to continue by road.

Rail

Rail would eventually be the primary mode for transporting goods and products to and from Olympic Dam. A 105 kilometre rail spur would be built to link Olympic Dam to the existing interstate rail line near Pimba. Once the rail line was operational the bulk of materials (which would include concentrate, sulphur and diesel) would be transported by rail, providing a reduction in road traffic for the operation.

Road transport

The Stuart Highway between Port Augusta and Pimba, and Olympic Way between Pimba and Olympic Dam, would be used to carry oversized loads that could not be carried by rail. BHP Billiton would implement measures such as specific traffic management plans, constructing 15 passing bays between Port Augusta and Olympic Dam and traffic control measures in Roxby Downs to minimise the inconvenience to the public.





Materials handling and transport Materials handling and transport



The materials handling and transport method chosen for the expansion would maximise the bulk transport of materials by rail with some transport to continue by road.

Landing facility – Port Augusta

Some components of the expansion would be prefabricated as modules in other parts of Australia or overseas. Because of their bulk and irregular dimensions (up to 15 metres wide by 15 metres high and 500 tonnes in weight), a landing facility would need to be constructed to enable these modules to be unloaded prior to transporting them by road to Olympic Dam.

The preferred location for the landing facility is about 12 kilometres south of Port Augusta on the western shore of Upper Spencer Gulf at Snapper Point, north of O'Connell Court. The site would be linked to a preassembly yard at Port Augusta by a dedicated access corridor.

Outer Harbor

Additional materials would be imported through Adelaide's Outer Harbor, which already receives these commodities for the existing operation. Outer Harbor has access to rail and can receive the Panamax-class vessels required for the large shipments of sulphur. Additional product (refined copper and a portion of uranium oxide) would be exported via existing facilities at Outer Harbor.

Olympic Dam airport

Development of the new rock storage facility would encroach on the existing airport at Olympic Dam Village, requiring it to be moved. A new airport to cater for commercial and company flights would be built about 17 kilometres east of Roxby Downs on the Andamooka Road. A new all-weather runway would handle larger jet aircraft than the current airport and would support both day and night flights.

Port of Darwin

The Port of Darwin (East Arm) is already used by BHP Billiton to export a portion of the uranium oxide produced at Olympic Dam. The expanded operation would construct facilities at East Arm to export additional uranium oxide and up to 1.6 Mtpa of copper concentrate containing uranium, gold and silver (concentrate).

Dedicated rail wagons fitted with waterproof lids would transport the concentrate from Olympic Dam to the Port of Darwin using the existing rail line and the proposed spur linking the operation to Pimba.

A closed system would prevent the release of dust during transportation and at the storage and handling facility at East Arm. The concentrate would be transferred from the storage facility to dedicated export vessels in enclosed conveyors and a dedicated BHP Billiton ship loader to be installed on the East Arm wharf.

Key commitments:

- · A 'best practice' closed system of transport for copper concentrate containing uranium would be used for all rail transport from Olympic Dam to the ports of Adelaide and Darwin.
- Inconvenience to the general public due to the transport of over-dimensional loads and preassemblies between Port Augusta and Olympic Dam would be managed by regular community announcements and by aiming to transport over-dimensional loads out of peak transport periods.



Energy supply and greenhouse gases

Energy requirements

The proposed construction and operation of the new open-pit mine and metallurgical plant would result in a significant increase in energy consumption, particularly electricity and diesel. The major contributors to this would be the addition of haul trucks and other heavy vehicles, electric shovels and additional primary crushers to extract and process about six times more ore than the current operations.

In order to maintain commercial and technological flexibility, BHP Billiton is seeking approval for two proven primary electricity supply options:

- A new 275 kilovolt transmission line between Port Augusta and Olympic Dam, a distance of 270 kilometres.
- A 600 megawatt combined cycle gas turbine power station at Olympic Dam to be supplied by a gas pipeline from Moomba.

The ultimate arrangement could comprise of either option or a hybrid of both and would permit the future adoption of renewable energy supplies should they prove viable.

Reducing electricity demand

The key commitments to reduce energy demand for the proposed expansion include:

- Constructing an on-site cogeneration plant at
 Olympic Dam to capture waste heat generated by
 the production of sulphuric acid required for the
 new hydrometallurgical plant. Over time, and as the
 operation reached full capacity, this waste heat could
 be used to generate up to 250 megawatts.
- Sourcing the energy required for the desalination plant and pump stations from renewable energy sources.

BHP Billiton recognises the potential of local solar energy, regional geothermal, and the state's wind resources and has had discussions with many specialist renewable energy companies.

Key commitment:

 A 60 per cent reduction in greenhouse gas emissions by 2050, matching the South Australian Government's target.

An annual 'road map' would be produced that quantifies emission reduction opportunities and achievements.

Workforce

Constructing the various elements of the proposed expansion would require a construction workforce averaging 4,000, with a peak of about 6,000 people until full production is reached. Over the long-term a doubling of the existing operational workforce to 8,000 people is expected and it is estimated that an additional 15,000 jobs would be created in South Australia to support the expansion.

To accommodate this workforce Roxby Downs would be expanded to facilitate a population of 10,000 people and Hiltaba Village would be built midway between Roxby Downs and Andamooka.

Key commitment:

 BHP Billiton would develop Hiltaba Village with on-site entertainment, recreation and sports facilities.



Roxby Downs

The expanded mine would see Roxby Downs grow. This would bring changes to Roxby Downs and northern regional communities and increase the demand for accommodation and services.

The Roxby Downs Draft Master Plan has been developed with input from residents of the town, service providers and others with an interest in the future of the town and provides a framework for managing the growth of Roxby Downs over the next ten to twenty years.

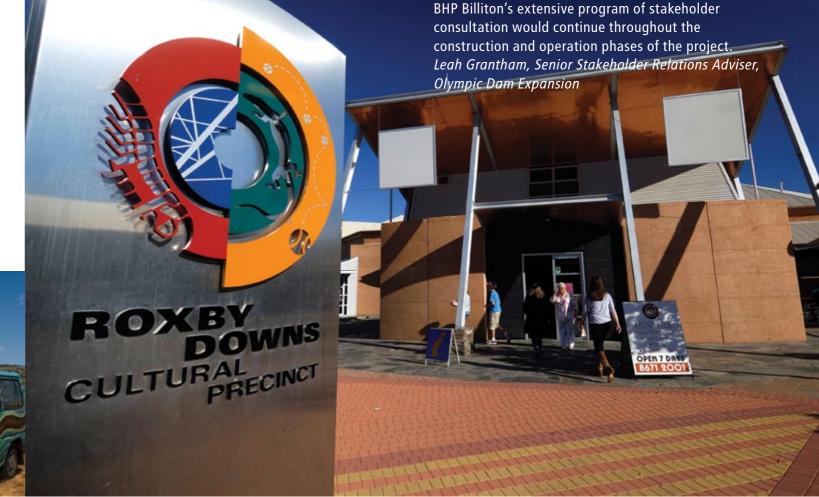
A range of measures to promote sustainability were guiding principles in the development of the Roxby Downs Draft Master Plan which includes new civic, community, commercial and retail infrastructure.

BHP Billiton would work with local communities and relevant government and non-government agencies to develop social indicators to address emerging issues and measure the effectiveness of programs intended to reduce the potential social impacts and maximise the predicted benefits.

Key commitments:

- · Operating the new mine would rely heavily on a healthy and balanced community, therefore a social management plan would be introduced in collaboration with the South Australian Government. The aim would be to provide social cohesion that recognises the relationship between local residents, nearby towns, and the construction workforce.
- · In line with BHP Billiton's commitments under the Olympic Dam Agreement, a series of benefits would be provided for Aboriginal communities to guarantee their involvement with Olympic Dam into the future. This commitment would create employment opportunities for indigenous communities, offer training and education initiatives, and provide improved health services and housing.
- · Globally, BHP Billiton invests 1% of its pre-tax profits in community programs.

BHP Billiton would work with local communities and relevant government and non-government agencies to develop social indicators to address emerging issues and measure the effectiveness of programs intended to reduce the potential social impacts and maximise benefits.



Stakeholder involvement

24 OLYMPIC DAM EXPANSION 2011 OLYMPIC DAM EXPANSION 2011 25

Economic impact

National, State and regional economic impacts

Developing Olympic Dam would underpin South Australia's economy in many ways — particularly through employment. Constructing the various elements of the proposed expansion would require a construction workforce averaging 4,000, with a peak of about 6,000 people until full production is reached. Over the long term a doubling of the existing operational workforce to 8,000 people is expected.

The new mine would need the skills and services of businesses across South Australia and it is estimated that this would create an additional 15,000 jobs in the State.

The new mine would provide billions of dollars to the South Australian economy over the first 30 years of its operation.

Government revenues and expenditure

Substantial additional government revenue would be generated at both the national and state levels as a result of the proposed expansion. For example, over the past three years, royalty revenue to the South Australian Government from the existing operation has averaged nearly A\$60 million per year. This is predicted to increase more than four-fold on completion of the expanded operation.

Local business opportunities and employment

The existing operation places contracts in South Australia with a total value of more than half a billion dollars each year. Through tendering procedures for construction of the expansion and ongoing operational activities, BHP Billiton would continue to maximise local industry participation consistent with commercial practice. BHP Billiton would continue to work with the Industry Capability Network and industry organisations to ensure South Australian and Australian companies remained aware of opportunities provided by the expansion and the ongoing operation.

Key commitment:

 BHP Billiton would continue to work with government, suppliers and other stakeholders to support local business opportunities and to enable local, regional or state suppliers to maximise their participation in the project.





Next steps

BHP Billiton has formally lodged both the Draft EIS and the Supplementary EIS with the Australian, South Australian and Northern Territory Governments.

If the three governments grant approval, an investment decision regarding the proposal to expand and develop Olympic Dam and Roxby Downs would be considered by the Board of BHP Billiton who will take the prevailing economic conditions into consideration when making their decision.

BHP Billiton's extensive program of stakeholder consultation will continue throughout the construction and operational phases of the project.

Further information

The Draft EIS and the Supplementary EIS are available to view at <www.bhpbilliton.com/odxeis>.

OLYMPIC DAM TIMELINE

1956

1975

1979

1982

1983

Livestock watering dam located on the Roxby Downs pastoral lease named Olympic Dam after the Melbourne Olympic Games Olympic Dam mineral deposit discovered by WMC Joint venture partnership formed with WMC and BP Minerals Indenture Agreement signed by JV Partners and SA Government

Whenan Shaft completed (named after driller Ted Whenan)

Municipality of Roxby Downs established Olympic Dam Project receives EIS approvals to produce 150,000 tonnes per annum of copper

1986 1987 1989 1992 1995 1988 First gold and silver Optimisation Number 2 **Production commenced Optimisation Number 1** for 45,000 tonnes mine and connection to with first uranium bars poured at the – expansion to 66,000 – expansion to 84,000 per annum copper the State Electricity oxide concentrate refinery tonnes per annum of tonnes per annum of operation Grid via 132 kilovolt packed and electrocopper copper power line refined cathode copper Roxby Downs produced at the population Roxby Downs Area refinery approximately 450 School opened The mine was also officially opened Roxby Downs township opened to support Olympic Dam The Roxby Downs Sun newspaper established

Announcement of major expansion to

1996

take production to 200,000 tonnes per annum of copper

Roxby Downs population approximately 2700 1997

EIS approval for 350,000 tonnes per annum of copper

275 kilovolt power line from Port Augusta completed

Construction commenced for 200,000 tonnes per annum copper operation

Ecosystem restoration initiative, Arid Recovery established

1998

500th gold bar poured at the Olympic Dam refinery

Official opening of the Roxby Downs Hospital

First baby born in Roxby Downs Hospital 2000

First full year of production at 200,000 tonnes per annum of copper

St Barbara's Parish School opened 2002

production capacity increased to
 235,000 tonnes per annum of copper

Optimisation Number 3

2003

Interim Roxby Downs Community Board established

RoxFM Community Radio goes to air

The Monitor newspaper established

2005

2006-09

2008

2009

2010

2011

Olympic Dam acquired by BHP Billiton

Community Board established

Draft EIS developed

Around 4,500 people to expand Olympic Dam reside in Roxby Downs

Draft EIS to expand Olympic Dam released for public display

New Roxby Downs Police Station opened

Supplementary EIS to expand Olympic Dam submitted to Australian, South Australian and **Northern Territory** governments for assessment



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