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## **Grange Resources Limited** *Australia's leading magnetite producer*

### **Southdown Magnetite Project one step closer with completion of Definitive Feasibility Study**

Grange Resources Limited ("Grange" or the "Company") is pleased to announce that the development of the Southdown Magnetite Project has moved one step closer following the successful completion of the Definitive Feasibility Study (DFS).

Just 90km from Albany in Western Australia's Great Southern region, the Southdown Magnetite Project ("Southdown") is a joint venture (JV) between Grange (70%) and Japan's Sojitz Resources & Technology Pty Ltd (SRT) (30%). SRT is jointly owned by the Sojitz Corporation, a Japanese global trading company, and Kobe Steel, the fourth largest Japanese steel maker.

Grange, which owns the Savage River magnetite project in Tasmania and which has run for more than 40 years, brings a wealth of expertise and knowledge to the Southdown project.

Managing Director Russell Clark says the study's results confirm Southdown is one of Australia's foremost magnetite projects, with significant potential to boost the regional and state economy.

"Situated in the south-west of Australia, near Albany, Southdown is a robust, practical and financially attractive project with all the necessary infrastructure and port access that large projects like this need," Mr Clark says.

"The project will employ an estimated 2000 people during construction and provide ongoing work for 600 once fully operational. It will not be dependent on a fly-in, fly-out workforce like many of the projects currently being developed elsewhere in Western Australia. Instead, most of the workforce will be recruited locally, providing the project with some insulation from the skills shortages affecting other areas of Western Australia."

Mr Clark says the Southdown pre-feasibility study (PFS) was completed in April 2011 with a level of accuracy of +/- 20%. Over the past twelve months further engineering, land acquisition, permitting, drilling and test work have been undertaken to complete the DFS with an improved +/-15% level accuracy.

“We have firmed up many important aspects of this project during the DFS phase,” Mr Clark says.

“Environmental permitting is all but finalised, land purchases have been advanced, native title and community consultation is progressing well, mineral resources and ore reserves have been significantly increased, metallurgical test work has been completed and commercial agreements with the Port of Albany and Western Power are reaching a positive conclusion.”

“The capital costs estimates are in line with expectations and the operating cost forecast remains very attractive. Southdown will produce some of the best quality concentrate in the market with high iron levels and low contaminants. Kobe Steel has recently shown its confidence in the quality and the value of the project, buying an indirect 10% stake in it in March 2012.”

The Southdown project has been designed to produce 10 million tonnes per annum of high grade, quality magnetite concentrate that will command a premium price in the iron pellet feed market. It comprises a number of components, all of which have been advanced through the DFS stage. These include:

- Open cut mine;
- Concentrator;
- Transmission line for power supply;
- Desalination plant for water supply;
- Slurry pipeline and return water line; and
- Albany Port expansion to treble its current capacity.

The project partners are now considering the findings of the study and are expected to make a final investment decision when finance is in place, expected by the end of the year and subject to broader global credit conditions.

In the meantime, engineering work continues, securing long lead items and compiling tender packages, to maintain the targeted commissioning date of 2015.

## Highlights

- Southdown is an advanced project with in excess of A\$150m spent to date on drilling, test work, land acquisition, permitting and engineering studies.
- JORC compliant mineral resources of over 1.2 billion tonnes at 34.1% DTR with over 510 million tonnes in the measured and indicated categories.
- Ore reserves of 397 million tonnes at 35.69% DTR.
- DFS confirms a mine life of 14 years, mining 387 million tonnes of reserve (see Table 2) within the current permitted area, generating an NPV<sub>10%</sub> of A\$1,008 million and an ungeared IRR of 16.6%.
- Preliminary modelling of the total 1.2 billion tonne resource, using similar price and cost assumptions, indicates a potential mine life greater than 30 years, resulting in an NPV in excess of \$1,800 million and an IRR of greater than 20%. Note that an extended mine life would use existing infrastructure (port, power line, concentrator, desalination plant etc). An additional drill program will improve the confidence of the resource on the

eastern side. Resource continuity and quality of product have already been determined. (see Note 1, Page 11, Economic Evaluation)

- Initial capital expenditure is estimated at A\$2.885 billion including EPCM, owners' costs and contingency of A\$0.535 billion.
- Operating costs are estimated at A\$58.5 per tonne of concentrate delivered at the ship's rail in Albany, (excluding royalties).
- Final Investment Decision (FID) targeted for the end of 2012, following successful establishment of necessary debt and equity.
- Project commissioning targeted for 2015.
- Metallurgical test work completed and the process flow sheet finalised.
- Final concentrate product confirmed to be premium quality with 68.6% Fe content and low contaminants, ideal for blast furnace pellet feed.
- Engineering has been advanced with formal tenders received for long lead major items including AG mills, ball mills, IsaMills™, primary crusher, gearless drives, HV motors, ship loader and desalination plant.
- Mine and port environmental permits are in place.
- Desalination water permit has been recommended for Ministerial approval by the Board of the Environmental Protection Authority (EPA).
- The majority of the land required for the project site, slurry and water pipe lines has been secured.
- Commercial agreements with Albany Port Authority and Western Power are well advanced.
- Transmission line design finalised and the majority of line route regulatory approvals in place.
- Albany port geotechnical investigations completed.
- Aboriginal heritage issues have been successfully addressed with minor follow up work in progress.

## Detailed Project Information

### Project Overview

Located approximately 90 kilometres northeast of the Port of Albany on the south coast of Western Australia (Figure 1), the Southdown magnetite deposit is approximately 12 km in length and represents one of the best premium quality magnetite deposits currently under development in Australia. With a location near existing port facilities, an ore body close to surface and near the regional population centre of Albany, the deposit is favourably placed.



**Figure 1: Location of Southdown Joint Venture Project including power and pipeline routes**

### Key Project Components

- A 1.221 billion tonne JORC compliant resource with a 397 million tonne JORC compliant reserve;
- A large open pit mining operation;
- A concentrator capable of producing 10 million tonnes per annum of premium quality magnetite concentrate;
- An 11 gigalitre per annum desalination plant located on the coast, 25 kilometres from the mine;
- A 278 kilometre electricity transmission line from Collie to the mine site;
- A 110 kilometre concentrate slurry pipeline from the concentrator to the Port of Albany, with a second pipeline returning water to the mine site;
- A dewatering facility at the Port of Albany to prepare the concentrate for storage and shipping;

- A magnetite concentrate storage shed, reclaimer and ship loading facility at the Port of Albany;
- A new berth and expanded channel at the Port of Albany, with capacity for cape sized vessels;

## Geology

The Southdown deposit occupies the core of a gently east plunging, overturned tight isoclinal syncline with a steeply south dipping axial surface. The deposit is offset by moderately north-east dipping dextral reverse faults and subsidiary steeply south-east dipping sinistral faults. Currently the resource extends for 11 kilometres of the 12 kilometre strike length of the deposit, with variable depths ranging from a surface outcrop in the west, to 480 metres below surface in the east.

An \$8 million drilling and assay program was completed during the DFS, which has significantly increased the size and improved the confidence of the resource, and has also increased the confidence of the ore reserves.

## Resources and Reserves

Grange announced a substantial increase in the mineral resource at the Southdown Joint Venture Project in February 2012. The mineral resource and ore reserves at Southdown are shown in Table 1 and Table 2:

**Table 1: Southdown mineral resource estimate as at February 2012**

	Tonnes (Mt)	Grade (% DTR)
Measured	423.0	37.6
Indicated	87.4	38.4
Inferred	710.6	31.5
<b>Total</b>	<b>1,221</b>	<b>34.1</b>

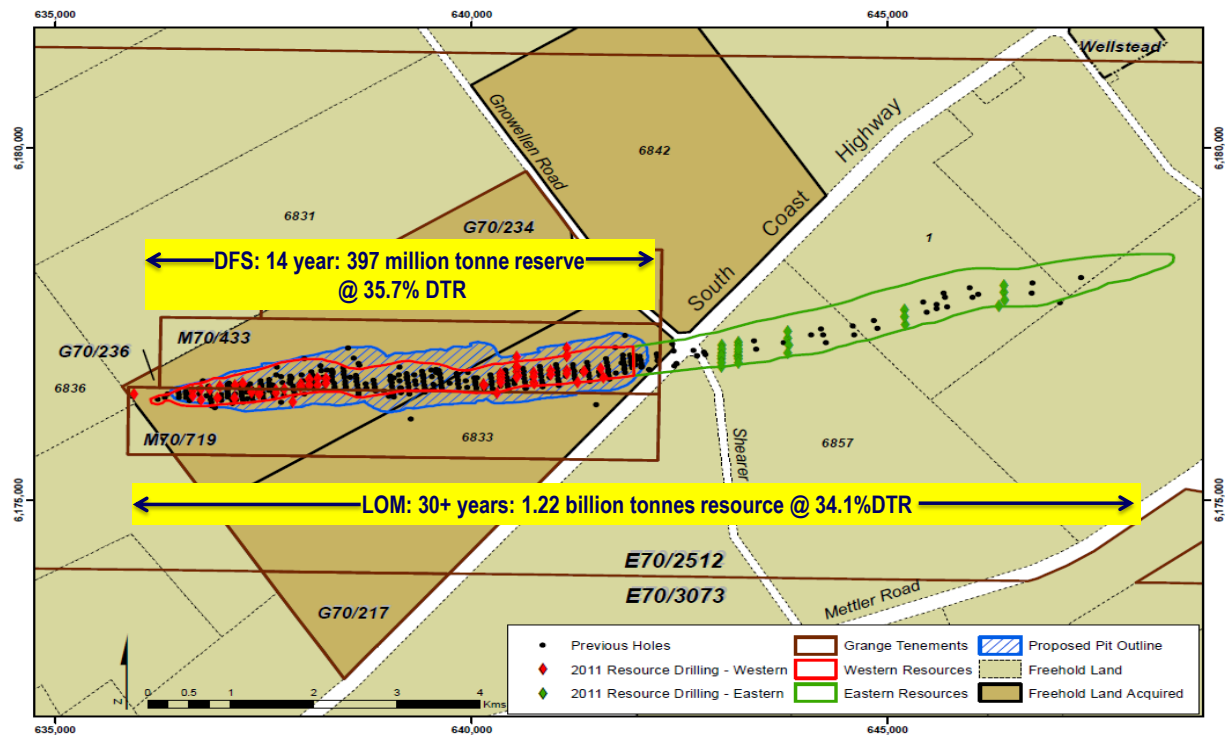
**Table 2: Southdown ore reserves as at February 2012**

	Tonnes (Mt)	Grade (%DTR)	Concentrate Fe (%)
Proven ore	221	35.5	68.5
Probable ore	176	35.9	68.6
<b>Total</b>	<b>397</b>	<b>35.7</b>	<b>68.6</b>

Figure 2 outlines the deposit location, comprising the western and eastern tenements. The western portion is covered by mining leases and the eastern portion is covered by an exploration licence. Only the western portion has been considered in this DFS, representing a



14 year mine life. The eastern portion has the potential to increase the mine life to over 30 years (LOM).



**Figure 2: Map showing the Southdown mining leases, exploration lease, the magnetite mineralisation and drill holes**

### Competent Person Statements

The information in this report which relates to the Mineral Resources of the Southdown Project is based on information compiled by Mr Michael Everitt who is a full-time employee of Grange Resources Limited and a Member of the Australasian Institute of Mining and Metallurgy. Michael Everitt has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity for which he is undertaking to qualify as a Competent Person as defined in the JORC Code (2004). Michael Everitt consents to the inclusion of this information in this statement of Mineral Resources in the form and context in which it appears.

The information in this report which relates to the Ore Reserves of the Southdown Project is based on information compiled by Mr Ross Carpenter who is a full-time employee of Grange Resources Limited and a Member of the Australasian Institute of Mining and Metallurgy. Ross Carpenter has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity for which he is undertaking to qualify as a Competent Person as defined in the JORC Code (2004). Ross Carpenter consents to the inclusion of this information in this statement of Ore Reserves in the form and context in which it appears.

### Mining

The mine will be an open pit, with modern large scale open pit mining methods employed. Mining will be a conventional hydraulic face shovel and diesel dump truck operation. The shovel size will be 650 tonnes with trucks sized to match (220 tonne payload).

Detailed mine design and schedules for the DFS have been constrained to the ore reserve west of the South Coast Highway. To achieve 10 million tonnes per annum of concentrate

production a material movement in the mine averaging 110 million tonnes per annum is required.

### Processing

Samples from numerous drilling programs have been used for comprehensive metallurgical test work. Pilot test work has also been completed and the processing flow sheet is finalised.

The concentrator design and equipment selections are based on a targeted production rate of 10 million tonnes per annum of premium quality magnetite concentrate.

The process flow sheet includes:

- Primary crushing
- Coarse ore stockpile
- AG milling in closed circuit with two-stage screening
- Rougher magnetic separation
- Ball milling in closed circuit with cyclones
- Intermediate magnetic separation
- Fine grinding using IsaMills™
- Hydro-separation
- Cleaner magnetic separation
- Flotation
- Thickened tailings slurry disposal to the Tailings Storage Facility (TSF)
- Thickening of magnetite concentrate
- Transportation of concentrate via a pipeline to the dewatering plant at the Port of Albany
- Magnetite concentrate dewatering at the port
- Return of filtered water to the mine site for re-use
- Magnetite concentrate storage and out-loading onto cape size vessels.

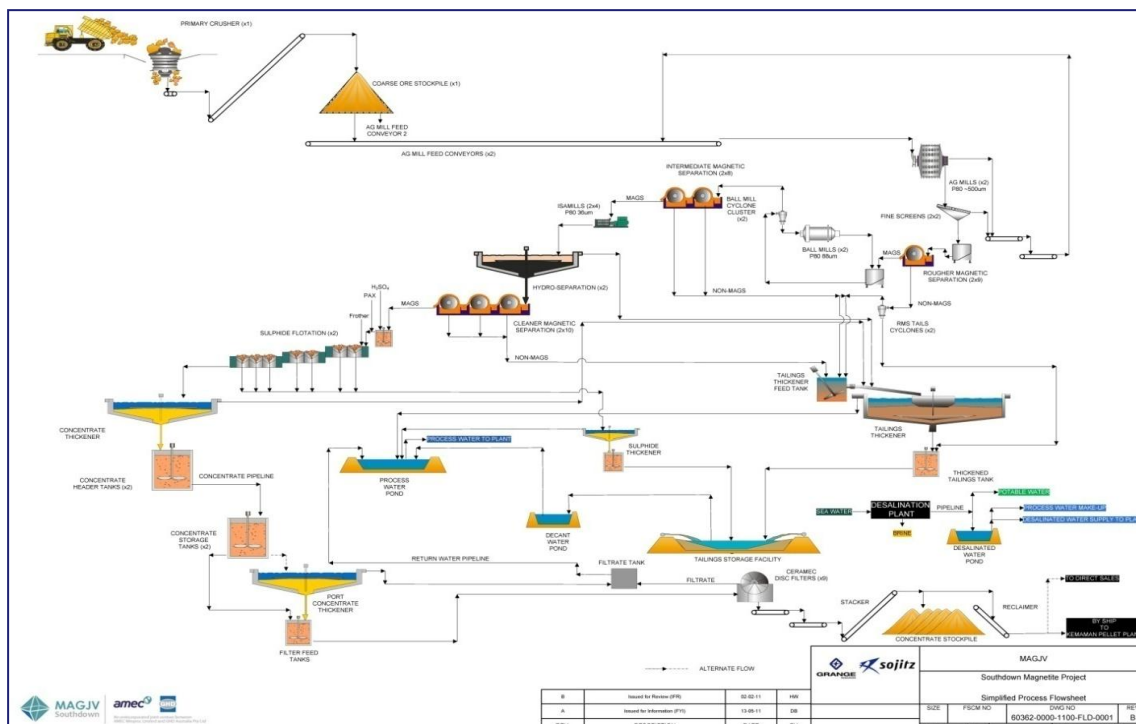


Figure 3: Processing flow sheet

## Product Quality and Offtake Customers

The concentrate produced from the Southdown project will be premium blast furnace quality, with higher iron content and lower silica and phosphorus levels than other Australian concentrates either produced or planned for production in the next year. Test work has resulted in the concentrator plant being designed to produce product specifications as shown in Table 3:

**Table 3: Southdown Magnetite Concentrate Specifications**

	%
<b>Total Fe</b>	<b>69.5</b>
<b>SiO<sub>2</sub></b>	<b>1.50</b>
<b>Al<sub>2</sub>O<sub>3</sub></b>	<b>1.48</b>
<b>TiO<sub>2</sub></b>	<b>0.38</b>
<b>P</b>	<b>0.04</b>
<b>S</b>	<b>0.08</b>
<b>LOI (Loss of ignition)</b>	<b>-3.15</b>

Southdown continues to receive strong interest in relation to the potential sale of its iron ore concentrate. The proximity of the project to established infrastructure, the size of the resource and relative ease of ore extraction, combined with Australia's stable political and regulatory environment means that the project offers the potential for steel groups to enter into long term offtake agreements, with a view to ensuring a secure source of iron ore concentrate supply.

As part of its merger with Australian Bulk Minerals in 2009, Grange agreed to supply Shagang Steel with 56% of the Southdown production (5.6 million tonnes per annum) at market prices. As a 30% JV partner, Sojitz will take and market 30% of the product (3 million tonnes per annum, of which Kobe Steel will take 1.5 million tonnes), leaving just 1.4 million tonnes per annum to be placed with customers. Offtake agreements will be finalised during 2012.

## Slurry and Return Water Pipelines

The magnetite concentrate will be transported as slurry via a 110 km pipeline to a dewatering and storage facility at the Port of Albany. Grange operates a similar pipeline at the Savage River mine in Tasmania. Water recovered from the slurry will be returned to the mine site for re-use, via a pipeline buried beside the slurry pipeline. The pipelines make three river crossings, three highway crossings and two railway crossings. The majority of the land required for the pipeline route is secured.

## Water

A seawater desalination plant is the only reliable water source that can deliver the quantity of water required for the project. An 11 gigalitre per annum plant will be located near the coast approximately 25 kilometres from the mine site. A storage dam at the mine site will have a minimum of two days storage capacity. A shoreline intake system will transfer seawater to the



desalination plant located approximately 5 kilometres inland. Brine generated by the plant will be discharged back in to the ocean at a different location to the intake, to minimise the impact on the intake seawater quality.

The environmental permit required for the desalination permit has recommended to the State Minister for the Environment by the Board of the Environmental Protection Agency. The permit is expected to be issued in Q2, 2012.

### Power Supply

Power to the mine is expected to be provided via a new Western Power transmission line from Collie to the mine site. The 330 kilovolt (kV) transmission line, with a line length of 278 kilometres, will become part of the South West Interconnected System (SWIS) and will have the capacity to supply in excess of the project's maximum demand of 180 megawatts.

Permits for the transmission power line corridor have been or are in the process of being established by Western Power.

Engineering work is completed with tenders for construction of the transmission line due to be issued in Q2 2012.

In Albany, a new 22 kV connection at the Western Power Albany 132/22 kV substation will service the port infrastructure.

### Albany Port

Magnetite concentrate will be delivered as slurry to a concentrate export facility built on reclaimed land at Albany Port, immediately east of the existing woodchip terminal site. The facility will incorporate a dewatering plant, concentrate storage shed, and a new wharf and ship loading facility. Widening, deepening and extending the existing shipping channel and berthing pocket will enable up to 203,000 DWT cape size vessels to use the port. The development will more than treble Albany's port capacity from 4 million tonnes per annum to 14 million tonnes per annum.

During the summer of 2011/2012 seagrass was harvested from an area to be impacted in the future and was successfully translocated into a one hectare site within Princess Royal Harbour, satisfying one of the environmental permit conditions.



**Figure 4: Albany port site**

## Environmental Approvals

The Southdown mine and pipeline environmental approval was received from the West Australian Minister for the Environment in November 2009. Land offsets are being negotiated with the Commonwealth Department of Sustainability, Environment, Water, Population and Communities for Carnaby's Black Cockatoo habitat.

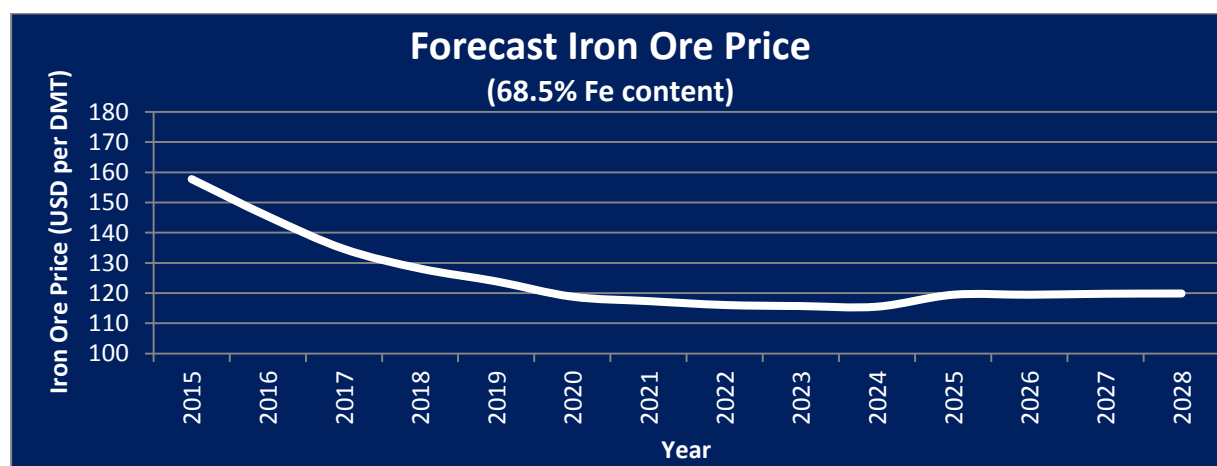
In June 2010, the Albany Port Authority received Commonwealth approval for the port expansion project. In November 2010, the West Australian Minister of the Environment approved the environmental permit allowing the expansion of the Albany Port, encompassing the building of a new berth suitable for cape sized vessels and the widening and deepening of the channel into the Port to allow passage of these bigger ships.

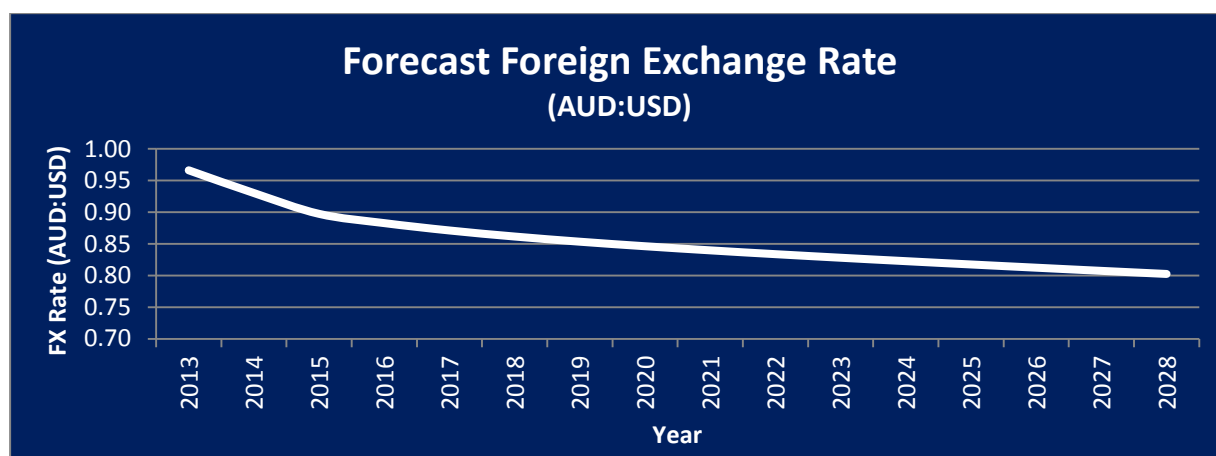
An environmental permit for the desalination plant has been recommended to the State Minister of the Environment by the Environmental Protection Authority (EPA), with approval expected in Q2 2012.

Work has commenced on secondary approvals.

## Economic Evaluation

A base case financial model has been developed with inputs generated from first principles and the findings of the DFS. A detailed mine schedule has been developed for the fully permitted western zone and has resulted in a 14 year mine plan that will become the basis of securing debt finance. Revenues have been estimated using the average of forecast iron ore prices provided from commissioned research from leading independent third party experts. The project free cash flows (after tax), were subjected to a discounted cash flow analysis (DCF) using a discount factor of 10% real. The net present value (NPV) of project Free Cash Flow for the 14 year plan is estimated at \$1.008 billion as at the feasibility study date, generating an internal rate of return (IRR) of 16.4% per annum. This is represented by some \$5.6 billion of Free Cash Flow over this plan. For the 14 year mine plan the average concentrate price assumed is US\$125/tonne at a AUD:USD exchange rate of \$0.85.





**Figure 5: Concentrate and FX assumptions**

While DFS economics are based on a mine life of 14 years within the current permitted area, the recently updated total mineral resources of 1.2 billion tonnes provides potential for a significant extension of the life of mine. Preliminary modelling of the total 1.2 billion tonne resource, using similar price and cost assumptions, indicates a potential mine life greater than 30 years resulting in an NPV in excess of \$1,800 million and an IRR of approximately 20%.

*Note 1: The DFS has considered the mining of proven and probable reserves within Mining Leases on the western side of the Great Southern Highway, with environmental approval granted. To extend the mine life to 30 years or more will require the mining of what is currently an inferred resource, on the eastern side of the Great Southern Highway. Environmental permitting will be required, Exploration Licences will need to be converted to Mining Leases, sufficient additional drilling will be required to improve confidence in the resource to enable reserves to be established, and the Great Southern Highway will have to be relocated around the resource. A detailed mine plan with associated metallurgical test work will establish a greater degree of accuracy for the modelling. The preliminary modelling undertaken has extended the DFS model, allowing for increased mining and rehabilitation costs, the highway relocation and the additional drilling, test work and permitting required. The environmental permit and lease requirements, and the mining, metallurgical and geology technical work required are similar to those undertaken for the DFS work and are regarded as achievable, and not critical at this stage of the project. Please note that the work required to extend the mine life beyond that considered in the DFS relates to future events and expectations and, as such, involve known and unknown risks and uncertainties and results cannot be guaranteed.*

### Capital Cost Estimate

The capital cost estimate for the Project is A\$2.885 billion, with estimate accuracy level of  $\pm 15\%$ .

**Table 4: Southdown Project Capital Cost Estimate**

Description	Total Cost (A\$ M)
Mine & Concentrator	1,330
Desalination Plant, Pipelines and Transmission Line	640
Albany Port Works, Berth, Storage Facilities	380
<b>Sub-total</b>	<b>2,350</b>
Owners Costs, EPCM and Contingency	535
<b>Total Estimate Project Costs</b>	<b>2,885</b>

## Operating Cost Estimate

The Southdown operating cost for concentrate delivered over the ship rail is A\$58.5 per tonne (excluding royalties).

**Table 5: Southdown Operating Cost Summary**

Operating Costs	A\$/t Concentrate
Mining	24.4
Concentrator	24.6
Pipeline, Filtration and Port	5.7
Overheads	3.8
<b>Total Operating Costs</b>	<b>58.5</b>

The estimate includes all anticipated operating costs directly associated with mining, operation and maintenance of ore processing facilities, with associated material transport and infrastructure. Mining and operating the concentrator contributes 84% of the operating expenditure.

## Project Schedule

The project master schedule has been developed for all major activities from project approval through to commissioning and hand-over to operations. The schedule acknowledges current manufacturing periods for major equipment.

The project implementation phase will be executed over a period of two years and will commence final project approval (FID). With production targeted to begin in 2015, a number of early engineering and construction activities are in progress to ensure a smooth transition from the feasibility study to the implementation phase and assist with an expeditious construction. Tendering of long-lead items of equipment for the operation such as mills, crusher, ship loader, mining equipment and construction contracts is in progress. The desalination facility which will supply water to the mine is on the final stages of tendering with the selection of contractor imminent, while the transmission line engineering has been completed by Western Power and construction contract will soon be issued for pricing. The in-house expertise and experience of Grange Resources operation at Savage River will augment the implementation and ramp-up of the operation at Southdown thus contributing a swift transition to full production.

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