

Galaxy Resources

Company overview

Cash flow generation at Mt Cattlin

Galaxy Resources (GXY) has exposure to both hard rock lithium assets (Mt Cattlin, James Bay) and brine-based lithium assets (Sal de Vida). After the takeover of General Mining (GMM), Galaxy now has 100% of these assets. The Mt Cattlin project will begin shipments during December 2016, after its reopening, capitalising on current high lithium prices.

Year end	Revenue (A\$m)	PBT* (A\$m)	EPS* (c)	DPS (c)	P/E (x)	Yield (%)
12/14	0.2	(18.9)	(1.8)	0.0	N/A	N/A
12/15	0.1	(11.9)	(1.1)	0.0	N/A	N/A
12/16e	18.0	(6.5)	(0.4)	0.0	N/A	N/A
12/17e	147.3	68.6	3.8	0.0	8.7	N/A

Note: *PBT and EPS are normalised, excluding amortisation of acquired intangibles, exceptional items and share-based payments.

Mt Cattlin: Cash flow accelerated by prepayments

The Mt Cattlin hard rock project has already generated first cash flows through offtake prepayments. GXY expects the first shipment of spodumene concentrate to occur during December 2016. It will sell the first 45,000 tonnes of concentrates to offtake customers in China at the 2016 contract price of US\$600/t, with the same customers indicating demand for 120,000 tonnes in 2017. Initial production guidance is 160,000 tonnes for 2017. Cash flow will be used to assist with the funding of GXY's next project, the Sal de Vida lithium brine project in Argentina. GXY is expecting to begin commissioning Sal de Vida in 2019 with a nameplate lithium carbonate production capacity of 25,000tpa.

Energy storage needed as power generation changes

In the past 12 months, there has been a step change in lithium's forward momentum. Coal-powered generation is under pressure and solar generation is beginning to emerge as a serious green alternative to wind. Utilities are now beginning to offer energy storage solutions to their customers. Electrical vehicles (EV) are gaining credibility with a number of expected commercial manufacturers and likely price points. These developments will all require energy storage and most of these will be based on lithium for its high-energy density and the lack, so far, of an efficient substitute. In response, new battery plants are being built. Lithium prices may remain high, while demand growth rates are elevated.

Valuation: Leveraged to the LCE price, exploration

We have valued GXY using NPV₁₀ methods for Mt Cattlin and Sal de Vida under a base case (conservative) and two scenarios, Case 1 and Case 2 (more bullish). With resource similarities between the Mt Cattlin operation and the James Bay project, we have also determined an indicative valuation for James Bay. After completion of the GXY takeover of GMM with 1,807m issued shares, our valuation for GXY's assets is A\$0.51/share (base), A\$0.56 (Case 1) and A\$0.68 (Case 2). Exploration potential at both Mt Cattlin and James Bay could lift the valuation – a three-year extension at both properties would lift the valuation to A\$0.58/share (base), A\$0.63 (Case 1) and A\$0.76/share (Case 2). Valuations will increase with time as capital is spent and projects developed.

Metals & mining

17 October 2016

Price **A\$0.33**

Market cap **A\$596m**

US\$0.75/A\$

Net debt (A\$m) at 30 June 2016 16.0

Shares in issue at 29 September 2016 1,806.8m

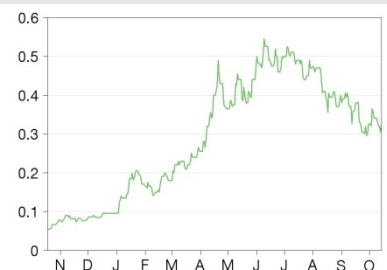
Free float (%) 45.0

Code GXY

Primary exchange ASX

Secondary exchange N/A

Share price performance



% 1m 3m 12m

Abs (8.3) (32.7) 560.0

Rel (local) (11.5) (33.0) 525.5

52-week high/low A\$0.50 A\$0.07

Business description

Galaxy Resources (GXY) is a producer and developer of lithium feedstocks, both hard rock spodumene and from lithium brine. Mt Cattlin has commenced (160,000tpa spodumene) with planning for its Sal de Vida brine project (25,000tpa lithium carbonate) at an advanced stage.

Next events

Annual financial report March 2017

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Investment summary

Company description: Lithium-focused international assets

GXY is a lithium-focused company listed on the ASX. It has exposure to both hard rock lithium assets through its Mt Cattlin 160,000tpa spodumene project in Western Australia and its James Bay spodumene project in Quebec, Canada and lithium brine assets through its Sal de Vida lithium and potash brine project in Argentina. GXY is expecting to begin commissioning of Sal de Vida in 2019 with a nameplate lithium carbonate capacity of 25,000tpa. The balance sheet has been considerably strengthened by a series of financial restructuring initiatives, including the 2015 sale of its 100%-owned Jiangsu lithium plant. Mt Cattlin has already generated first cash flows through offtake prepayments. GXY expects the first shipment of concentrate to occur during December 2016. On 30 May 2016, GXY and GMM entered into a definitive takeover bid implementation agreement to merge. Compulsory acquisition of remaining shares was completed on 29 September 2016.

Valuation: Exploration upside and sensitivity to LCE price

We have valued GXY using NPV₁₀ methods for Mt Cattlin and Sal de Vida under a base case (conservative) and two scenarios, Case 1 and Case 2 (more bullish). With resource similarities between the Mt Cattlin operation and the James Bay project, we have also determined an indicative valuation for James Bay. Based on 1,807m issued shares after the GMM acquisition, our valuation for GXY's assets is A\$0.51/share (base), A\$0.56/share (Case 1) and A\$0.68 (Case 2). Exploration potential at both Mt Cattlin and James Bay could lift the valuation – a three-year extension at both properties would lift the valuation to A\$0.58/share (base), A\$0.63/share (Case 1) and A\$0.76/share (Case 2). The valuation is sensitive to the long-term lithium carbonate equivalent (LCE) price – the base case valuation would change by c A\$250m or A\$0.14/share for every US\$1,000/t change in the assumed price. Valuations will increase with time as capital is spent and projects developed.

Financials: Restructured, low debt, GMM takeover

GXY has low net debt, with the majority relating to the refinancing of outstanding convertible bonds. After the takeover of GMM, GXY has 1,806.8m shares on issue. The balance sheet will be strengthened with the receipt of cash flow from the Mt Cattlin project.

Drawdowns of debt to fund 60% of capital expenditure for the Sal de Vida project are incorporated in our projections. We have not incorporated any further equity raisings into our projections, but additional equity is a possible further funding mechanism for Sal de Vida.

Sensitivities: LCE prices and demand

- **Lithium prices:** lithium is a very opaque market. There is evidence of very high lithium prices at the moment and we may be underestimating the lithium market's strength.
- **Supply, demand:** with possible delays to new projects, prices are sensitive to tightness, which may continue until supply catches up with demand.
- **Demand growth:** this may vary with the rate of application of lithium-based transport and energy storage solutions, the strength of underlying economies and technological advances.
- **Funding:** availability of funding may determine GXY's interests in Sal de Vida and James Bay.
- **Project development:** risks of deferrals of project schedules and commissioning delays.
- **Capital and operating costs:** could differ from those used in our forecasts.

Lithium market

Lithium has a number of unique properties and a broad range of applications. While its use in batteries has gained prominence because of the high growth in lithium-ion batteries (LIB), only about 40% of lithium produced is currently used in batteries, with around 60% of production used in glass making, ceramics, lubricating greases, continuous casting powders, aluminium smelting and medical uses. However, we forecast that batteries will account for over 50% of demand by 2020. We estimate global demand for lithium (lithium carbonate equivalent or LCE basis) in 2016 at approximately 210,000 tonnes.

Lithium used in batteries is processed from brine or lithium ore such as spodumene to produce lithium carbonate or hydroxide. Lithium carbonate and lithium hydroxide contain 18.8% Li and 29.0% Li respectively. These are then converted to cathode and other lithium battery component materials used in the manufacture of batteries. These are higher value-add products.

Lithium is an industrial mineral rather than a commodity. There is no terminal market – prices are often set between producer and customer.

Lithium demand growth

The key drivers of LCE demand growth are electric vehicles (EVs) and grid scale batteries, the latter off a lower base. Estimates of demand growth vary widely. For the purposes of our model, we assume both EVs and grid scale batteries experience annual demand growth of 25% over the period to 2020. Given the disruptive and far reaching demand potential of lithium-ion batteries, this could prove to be conservative. EVs also include buses and trucks, which can use six and 10 times the weight of lithium of a conventional car respectively. The take-up of grid scale batteries could be far greater than we assume given the pace of change in global power generation.

After taking into account an assumed 3.5% GDP/industrial production (IP) growth rate for most non-battery applications and much slower growth rates for PCs, tablets (c 2.5% pa), cell phones and cameras (c 5% pa), we generate an average weighted compound LCE growth rate over the period to 2020 of around 16% for LIB applications and around 9% overall if industrial applications are included (Exhibit 1). This implies additional demand of just over 100kt LCE to 2020 bringing total demand to around 300kt LCE.

Exhibit 1: Lithium carbonate (LCE) demand scenarios (kt)

	Year	Industrial	Lithium ion batteries (LIBs)				Total LIB	Indus + LIB	Increase	Split	
			EVs	Grid scale	PCs, tab	Phones, cam				Industrial	LIB
	2015	120	30	5	25	15	75	195		62%	38%
	2016	124	38	6	26	16	85	209	14	59%	41%
	2017	129	47	8	26	17	97	226	17	57%	43%
	2018	133	59	10	27	17	113	246	20	54%	46%
	2019	138	73	12	28	18	131	269	23	51%	49%
	2020	143	92	15	28	19	154	297	28	48%	52%
Demand growth pa 2015-20		3.5%	25.0%	25.0%	2.5%	5.0%	16%	9%			
Case 1	2025	169	147	25	28	19	219	389	92	44%	56%
Demand growth pa 2020-25		3.5%	10.0%	10.0%	0%	0%	7%	6%			
Case 2	2025	169	279	47	32	24	382	552	255	31%	69%
Demand growth pa 2015-20		3.5%	25.0%	25.0%	2.5%	5.0%	20%	13%			

Source: Edison Investment Research

For the period 2020-25, we have considered two cases:

- **Case 1:** assumes EV and grid scale battery demand growth slows from 25% pa to 10% pa. In this case, LCE demand for LIB applications grows by around 65kt to 219kt and total LCE demand for all applications rises by around 92kt to 389kt over the five years to 2025.
- **Case 2:** assumes EV and grid scale battery demand growth stays elevated at 25% over the following five years. In this case, LCE demand rises by a further 255kt to 552kt by 2025.

Lithium supply growth

Lithium is mainly produced from lithium brines as lithium carbonate or from hard rock as a spodumene ($\text{LiAlSi}_2\text{O}_6$) concentrate. Brine projects tend to have longer lead times, are more capital intensive but have lower operating costs. Hard rock projects can generally be brought into production more quickly at a lower capital cost but have higher operating costs. Spodumene is mainly shipped to converters in China that produce lithium carbonate or hydroxide. Approximately 8 tonnes of spodumene concentrate are required to produce 1 tonne of lithium carbonate.

Given our projected demand scenario relative to new production scheduled to be delivered, we envisage a tight lithium market between 2016 and 2020. Most of the increasing demand is being met from hard rock projects because of shorter lead times. Some projects have been delayed which has exacerbated supply tightness.

Over this period, there are a number of definite lithium projects or expansions. These include GXY's Mt Cattlin mine (20ktpa LCE equivalent), Neometals Mt Marion project (27ktpa LCE equivalent), Albemarle's La Negra expansion in Chile (20ktpa LCE equivalent) and Lithium America's Cauchari Olaroz (20ktpa LCE equivalent). GXY aims to start commissioning its Sal de Vida project in 2019. The DFS for this project has just been updated. There are a number of other potential sources of production. Most of these do not have a definite schedule, will need financing and will also be subject to the normal project lead times such as permitting, construction and commissioning.

Beyond 2020, the supply/demand tightness could ease, as in our Case 1 scenario. In the stronger demand scenario of Case 2, the demand increment over the five years to 2025 is 255kt and it may be difficult for supply to keep up, implying an extended period of supply/demand tightness.

Lithium prices

Spot lithium carbonate prices, generally for small volumes, of up to US\$20,000/t have been reported in China with up to US\$14,000/t in Japan. Some industry commentators are suggesting a price range of US\$11,000-13,000/t for the period to 2020. However, contract prices may be lower with reports of prices of around US\$10,000/t. In reality there is little or no visible exchange or spot trading, and there are only a small number of counterparties. Further, the current nascent electric vehicle sector limits the accuracy of future lithium demand and makes price forecasting difficult.

To give a framework to our valuation, we have developed price scenarios for lithium carbonate and spodumene for the base case and Case 1 demand and Case 2 demand (Exhibit 2). Spodumene prices are derived from lithium carbonate prices after taking into account lithium content, conversion charges and transport charges.

Exhibit 2: Price scenarios for lithium carbonate and spodumene											
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	LT
Base case											
Lithium carbonate (US\$/t)	10,000	10,000	10,000	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Spodumene (US\$/t)	600	750	650	550	550	550	550	550	550	550	550
Case 1											
Lithium carbonate (US\$/t)	10,000	10,000	10,000	10,000	10,000	7,500	7,500	7,500	7,500	7,500	7,500
Spodumene (US\$/t)	600	750	650	650	650	550	550	550	550	550	550
Case 2											
Lithium carbonate (US\$/t)	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	7,500
Spodumene (US\$/t)	600	750	650	650	650	650	650	650	650	650	550

Source: Edison Investment Research

Lithium batteries – why lithium is important

There are strong reasons why lithium is achieving the market penetration it is enjoying and why its market share of a growing market may be unchallenged for some time

- **High-energy density, no efficient substitutes:** lithium-based batteries provide a substantially higher energy density than is possible from most other technologies. Benefits include

compactness and low weight for a given energy density. Under current technology, there are no efficient substitutes. Almost 95% of batteries used in electronic devices are based on lithium. New uses for lithium-based batteries include energy storage.

- **Battery storage advances driven by accelerating demand:** power storage in batteries has been limited by factors such as battery life and speed of recharging. Growing electrical vehicle (EV) use and increases in power generation from non-continuous sources, such as solar and wind, are driving advances in battery technology.
- **Broader range of applications driving demand:** the impact of continuous technological progress and possible step changes is expected to lead to broader applications supportive of rising electric vehicle usage and battery solutions that allow intermittent or unreliable power generation sources, such as wind and solar, to be stored.
- **Advances in battery technology:** includes fast charging and extended life. Various researchers are reporting significant lithium based advances in battery technology, some of which have the potential to be commercialised, with substantial implications for lithium demand. These include fast charging capabilities (battery charging time could be comparable to petrol filling time) and an extended life of up to 20 years.

Sal de Vida

The Sal de Vida lithium and potash brine development is located between the Salta and Catamarca provinces in Argentina in an area known as the Lithium Triangle (Exhibit 1). GXY controls 100% of brine mineral rights over 385 square kilometres for production wells and surface evaporation. The project encompasses the northern and eastern sub-basins of the Salar del Hombre Muerto, one of several lithium-rich brines in the Altiplano of Argentina, Chile and Bolivia.

The project is adjacent to the El Fenix lithium brine operations, owned by Minera del Altiplano, a subsidiary of FMC Corporation (FMC.NYSE), a diversified global chemical company. These operations are located on the western half of the Salar del Hombre Muerto. El Fenix commenced production in 1997 and is understood to have a mine life of 75 years. Current production is around 23,000 tonnes pa lithium carbonate.

GXY acquired its interest in the Sal de Vida project in July 2012 as a result of its merger with Lithium One.

Recent developments

- **Definitive feasibility study (DFS) revision:** the 2013 Sal de Vida DFS has been revised. The new study was released in August 2016. The assumptions of the original DFS have been updated.
- **Macroeconomic policy changes in Argentina:** these include the devaluation of the Argentinean peso and the elimination of export duties and controls on the import of goods.
- **Annual incentive rebate:** In line with recent policy changes announced in 2016 after the change of government in Argentina, the project is expected to receive an annual incentive rebate throughout the life of the project equivalent to 5% of lithium carbonate export revenue.
- **Owners team:** a multi-disciplinary team of specialists is being assembled to lead the project. This team includes personnel with specific experience in South American lithium brine projects.
- **Process development:** pilot plant production facilities from earlier work are to be refurbished, with the objective of constructing a semi-industrial, broader demonstration plant ahead of the main project build-out. This will have the equivalent ponding structure to run as an industrial operation, but at a smaller scale to the main project. The pilot plant is a sensible step to assist in the final design and construction of the main plant.

- **Offtake discussions:** GXY is to commence discussions with strategic offtake partners for future production. GXY has a strong industry network and its discussions will include potential partners from China, Japan and Korea.

Exhibit 3: Location of Sal de Vida project



Source: Galaxy Resources

Resources and reserves

The JORC 2012 guidelines do not address lithium brines specifically in the guidance documents. Consultants Montgomery & Associates (M&A) followed the NI43 43-101 guidelines for lithium brines of the Canadian Institute of Mining, Metallurgy and Petroleum (CIM 2012). M&A considers these comply with the intent of the JORC 2012 guidelines.

The Sal de Vida resource has been updated (Exhibit 4). The total resource is unchanged. However, the update incorporates a partial upgrade of inferred resources to the indicated category.

Exhibit 4: Sal de Vida 2012 resource estimate (cut-off 500mg/l Li)

Resources	Brine (m ³ @ 10 ⁶)	Grade Li (mg/l)	Li In situ (t)	Li ₂ CO ₃ equiv (t)	Grade K (mg/l)	K In situ (t)	KCl equiv (t)
Measured	720	787	565,000	3,005,000	8,695	6,241,000	11,902,000
Indicated	700	712	501,000	2,665,000	8,021	5,641,000	10,757,000
Subtotal	1,420	750	1,066,000	5,670,000	8,361	11,882,000	22,659,000
Inferred	380	764	294,000	1,562,000	8,428	3,237,000	6,174,000
Total	1,800	753	1,360,000	7,232,000	8,377	15,119,000	28,833,000

Source: Galaxy Resources

There has been no change to the mineral reserve estimate (Exhibit 5). This is based on the southwest and east well fields only. The reserves account for anticipated leakage and process losses of lithium and potassium. A continuous average brine extraction rate of 30,000 m³/day is assumed.

Exhibit 5: Sal de Vida proven and probable reserve statement April 2013 (cut-off 500mg/l)

Reserves	Li In situ (t)	Li ₂ CO ₃ equiv (t)	K In situ (t)	KCl equiv (t)
Proven	34,000	181,000	332,000	633,000
Probable	180,000	958,000	1,869,000	3,564,000
Total	214,000	1,139,000	2,201,000	4,197,000

Source: Galaxy Resources

Sal de Vida brine quality

Sal de Vida brine has favourable grades and chemistry. It has a high lithium grade, a high potassium grade (potassium is a saleable by-product) and low Mg:Li and SO₄:Li ratios by industry standards. The advantage of a low Mg:Li ratio is lower cost – high magnesium can increase lithium carbonate production costs. A high SO₄:Li ratio indicates additional chemical treatment.

We have compared Sal de Vida with the adjacent El Fenix resource and other salar deposits (see Exhibit 6). The results are indicative as resource characteristics may vary in each deposit.

In broad terms, the Sal de Vida deposit appears to have very similar characteristics to the adjacent El Fenix project, which has successfully operated since 1997.

Exhibit 6: Comparison of brine grade and quality characteristics

Deposit	Operator	Location	Deposit type	Grade Li (mg/l)	Grade K (mg/l)	Ratio K/Li	Ratio Mg/Li	Ratio SO ₄ /Li
Sal de Vida	Galaxy	Argentina	Na ₂ SO ₄ -K ₂ SO ₄ -Li ₂ SO ₄	782	8,653	11.1	2.2	11.5
El Fenix	FMC Corp	Argentina	Na ₂ SO ₄ -K ₂ SO ₄ -Li ₂ SO ₄	744	7,404	10.0	1.4	13.8
Salar de Atacama	Abermarle (Rockwood)/SQM	Chile	Sulpo-Li ₂ SO ₄ -LiCl-CaCl ₂	1,835	22,626	12.3	6.4	11.0
Silver Peak	Abermarle (Rockwood)	Nevada	Na ₂ SO ₄ -K ₂ SO ₄ -Li ₂ SO ₅	245	5,655	23.1	1.4	30.9
Salar de Olaroz	Orecobre	Argentina	Na ₂ SO ₄ -K ₂ SO ₄ -Li ₂ SO ₆	774	6,227	8.0	2.6	24.1
Salar de Cauchari	Lithium Americas/SQM	Argentina	Na ₂ SO ₄ -K ₂ SO ₄ -Li ₂ SO ₇	618	5,127	8.3	2.9	30.9
Salar de Maricunga	Li3	Chile	KCl-LiCl-CaCl ₂	1,036	8,869	8.6	8.0	1.1
Salar de Uyuni		Bolivia	Sulpo-Li ₂ SO ₄	424	8,719	20.6	18.6	24.4
Salar de Rincon	Rincon Lithium	Argentina	Sulpo-Li ₂ SO ₄	397	7,513	18.9	8.6	30.8
West Tajinaier	Citic	China	Sulpo-Li ₂ SO ₄	256	8,444	33.0	61.5	137.9
Zhabuye Salt Lake		China	Li ₂ CO ₃ -Na ₂ SO ₄	1,217	17,083	14.0	0.0	32.0
Arithmetic average				757	9,665	12.8	10.3	31.7

Source: Signum Box, Edison Investment Research

When compared to other salar deposits in our sample, Sal de Vida ranks highly:

- **Lithium grades:** while close to the arithmetic average, the average grade is skewed by several high-grade deposits. The grades of some of the other deposits are significantly lower than Sal de Vida.
- **Potassium grades:** are at the upper end of deposit ranges, except for the high-grade deposits.
- **Mg:Li ratio:** close to the bottom of the range in our sample. As an observation, the deposits with high Li grades such as Sala de Atacama tend to have higher Mg:Li ratios.
- **SO₄:Li ratio:** close to the bottom of the range in our sample.

Definitive feasibility study (DFS) – updated and revised

Parameters of the revised DFS include:

- **Capital expenditure:** the revised capital cost estimate is US\$376m for the integrated project. This is approximately 2% above the original estimate of US\$369m, after evaluating the impact of inflation and the devaluation of the Argentina peso since 2013. Capital costs that relate to the potash plant and related infrastructure (included in the total estimate) are approximately US\$34m. GXY has the option of deferring the capital commitment on building the potash circuit subject to market conditions for potash pricing.
- **Operating costs:** average operating costs have been estimated at US\$3,369/t before potash credits, which is 17% above the original DFS estimate of US\$2,889/t. The main reasons for the increase are higher inbound and outbound transport costs for raw materials and final products, with government controlled diesel prices almost double Brent or WTI reference values and the impact of AR peso inflation, with a particular impact on salaries.
- **Production:** battery-grade lithium carbonate (Li₂CO₃) output of 25,000tpa and potassium chloride (KCl or potash) co-product of 95,000tpa. While these production rates are unchanged, the revised DFS assumes an initial three-year ramp-up for lithium carbonate production to

achieve full capacity. Potash production is assumed to be deferred by one year with a two-year ramp-up to achieve its planned production capacity.

- **Project life:** operations for 40 years (unchanged).
- **Scope:** the original DFS included extensive hydrology work and modelling, drilling, pump tests, resource development, pilot plant test work, flow sheet development, engineering, logistics and market and financial modelling. These have been reviewed.
- **Project designs:** these include evaporation ponds, a battery-grade lithium carbonate plant and a potash plant.

The main production stages will be:

- **Brine extraction:** pumping from the brine aquifer.
- **Evaporation:** brine evaporation in ponds and concentration of lithium and potash.
- **Production of lithium carbonate:** removal of impurities and purification of lithium carbonate in a battery-grade lithium carbonate plant.
- **Production of potash:** extraction and purification of potash to fertiliser specification.

Brine extraction

There is expected to be a focus on the south-west field (20 wells) and eastern field (30 wells) due to brine quality, extent of the aquifer and ability to pump the brine at a sufficient rate to keep the evaporation ponds at the required level.

The DFS investigated the hydrogeological conditions for the project area. The basin aquifer system was modelled on both the conceptual hydrogeological model and the numerical ground water flow model.

The production rate is dependent on the evaporation rate. The evaporation rate in summer can be twice winter rates. Additional wells can be brought on line in summer.

Evaporation

Halite (NaCl) ponds and muriate (KCl) evaporation ponds are used sequentially to concentrate the lithium and separate the KCl.

- **Halite ponds:** these ponds concentrate limed brine to its KCl saturation point. The NaCl rich crystallised salts accumulate at the base of the ponds and are recovered by harvesting.
- **Muriate ponds:** the concentrated brine from the last halite pond is transferred to the muriate ponds. Here, it is further concentrated to 2% Li while the KCl crystallises along with the halite, gypsum and borate. Muriate salts, rich in KCl and NaCl, accumulate as they crystallise at the bottom of the ponds and are harvested as the raw material for the potash plant.

Lithium carbonate production

The DFS assumes a purification technology similar to the successful process previously adopted at GXY's now sold Jiangsu plant in China. This purification technology was developed and patented by GXY in 2010. It produces a high-quality, battery-grade lithium carbonate with a purity of 99.5% or higher. GXY's strategy is to focus on the production of high-quality material that can be used directly by battery material producers in manufacturing cathode and electrolyte for lithium-ion batteries.

Concentrated brine at a minimum 2% weight per weight (w/w) Li content from the final muriate pond is pumped via a surge pond to the lithium carbonate (LiCO₃) plant. There are a number of process stages:

- **Boron removal:** uses several solvent extraction stages.

- **Calcium and magnesium removal:** this is a precipitation process with calcium and magnesium removed as carbonates.
- **Lithium carbonate precipitation:** after removal of boron, calcium and magnesium, the brine passes through heat exchangers to raise its temperature and then reacts with soda ash (Na_2CO_3) to precipitate lithium carbonate. This is extracted through a bank of centrifuges.
- **Lithium carbonate purification:** GXY's purification technology can be applied to both brine based lithium carbonate production processes and hard rock processes. The technology removes impurities entrained in the lithium carbonate crystal structure. This is achieved by the digestion of the lithium carbonate crystals in the presence of carbon dioxide (CO_2). This produces lithium bicarbonate (LiHCO_3), which is more soluble than lithium carbonate. Excess entrained contaminants are removed in an ion exchange unit. After steam heating, the final lithium carbonate crystals are precipitated from the final pure liquor. These are pumped to the crystalliser thickener where the lithium carbonate is extracted via a bank of centrifuges and dried.

Potash production

The harvested muriate contains approximately 71% NaCl and 25% KCl. The KCl is extracted and purified in the potash plant to a grade of 97% for sale as a potash fertiliser. This is sold as MOP (muriate of potash) fertiliser. The global market for MOP is approximately 55Mtpa.

GXY does not produce SOP (sulphate of potash, K_2SO_4) fertiliser. SOP has a smaller, more specialised global market of around 5.5Mtpa and has historically traded at a price premium of 30-60% to MOP.

Mt Cattlin

The Mt Cattlin hard rock spodumene lithium tantalum project comprises a mine and processing facility. It is located near Ravensthorpe, approximately 430km south-east of Perth, WA.

The Mt Cattlin operation was originally integrated with GXY's now divested Jiangsu downstream lithium plant in China. Delays at Jiangsu created an imbalance between spodumene supply from Mt Cattlin and processing rates at Jiangsu. In early 2013, Mt Cattlin was put on care and maintenance.

Mining and processing operations were restarted in March 2016 by GMM as part of the JV agreement. They were subsequently halted for construction/refurbishment to expand the nameplate capacity to 1.6Mtpa and enhance operational efficiencies. In early September, 2016, GXY announced that the refurbishment and upgrade had passed 80% completion. After the plant modifications and following delays during the refurbishment, wet commissioning commenced and achieved certain milestones ahead of the completion schedule. GXY expects final commissioning and first production during November 2016, with the first shipment in December 2016.

GXY forecasts an increase in the total capital cost to reopen the Mt Cattlin operation to A\$22.4m (previously A\$15m) resulting from the throughput capacity upgrades and other plant modifications.

Mining

The Mt Cattlin mine is an open pit. The pit design incorporates existing measured and indicated resources. The flat lying pegmatite orebody allows mining at a constant strip ratio. Mining is carried out using excavators and trucks with delivery to the three-stage crushing circuit.

With the recommencement of operations at Mt Cattlin, material for processing is being initially sourced from previously blasted ore in the Dowling pit and the recovery of fines material from the tailings storage facility (TSF).

Processing plant

The reopening of the Mt Cattlin operation has provided the opportunity to redesign aspects of the processing plant. To the extent that any cash shortfall is forecast after utilisation of existing cash resources, including the prepayments received from the Chinese customers, some directors of the company have indicated their willingness to assist in arranging the necessary working capital from their own resources until such time as significant cash flow is achieved in 2017.

Outcomes from the redesign include:

- **Plant capacity:** an increase in plant capacity from 1.0Mtpa to 1.6Mtpa ore with a corresponding increase in annual spodumene concentrate production from the previously budgeted 80,000 tonnes to at least 160,000 tonnes and ultimately 200,000 tonnes. GXY's production guidance for 2017 is 160,000 tonnes spodumene.
- **Spodumene recoveries:** aiming for initial yields of 50% and targeting 70% after optimisation. A cost analysis will be initiated once the plant achieves steady state operation in its new configuration to assess the cost/benefit of increased yields.
- **Spodumene concentrate grades:** optimisation of concentrate grades.
- **Tantalite concentrate:** the production of a separate saleable tantalite concentrate.

The range of initiatives and improvements include:

- **Crushing plant:** this was built to a nameplate capacity of 1Mtpa. This is being replaced with a three-stage configuration instead of four stages with a crushing capacity of at least 1.6Mtpa. It includes new cone crushers. Operating initiatives include:
 - **Crushing size:** dry crushing at a larger 12mm size instead of 6mm.
 - **Utilisation rate:** longer periods of crushing
- **Mica removal plant:** additional reflux classifiers have been installed. Previously, mica removal was poor, which depressed spodumene grades. The additional reflux classifiers will allow the mica to be more selectively removed from the spodumene product.
 - This will reduce the quantity of mica in the finished spodumene concentrate from 15-20% to below 5%. This has the effect of increasing the concentrate grade from c 5.2% Li₂O to 5.5% Li₂O.
 - Higher-grade spodumene concentrate grades are more attractive to downstream plants and command a higher price.
- **Coarse circuit:** this is a two stage heavy media (HMS) installation which produces two separate size streams. It is being redesigned to produce a coarse fraction with a higher spodumene concentrate grade and a middlings stream. The middlings stream will be directed to the new fines recovery circuit. This will reduce the loss of spodumene to coarse tailings.
- **Fines circuit:** this is a new processing module. The original flow sheet had an anomaly in that lithium was not recovered from the <1mm fines fraction. The new circuit will recover some of this lithium in the form of additional spodumene concentrate:
 - There will be two reflux classifiers. Originally, the proposal was to install one reflux classifier plus flotation capacity. The use of two reflux classifiers will allow for both mica removal and lithium beneficiation. It will also allow a closer particle size in each unit, reducing the loss of lithium to tails.
 - GXY believes it will achieve considerable efficiencies under this revised configuration compared with a single reflux classifier and a flotation unit. Historically, fine spodumene is recovered through flotation.
 - The fines circuit is expected to produce a fine spodumene concentrate at 5.2-5.5% Li₂O.
 - The fine spodumene concentrate will be blended with the coarse stream, with expected grades in a 5.5-5.8% range. This will produce a blended product of a minimum 5.5% Li₂O.

- GXY plans further optimisation steps to increase final yields and may incorporate a small flotation circuit as a second stage concentration circuit.
- **Tantalum beneficiation circuit:** changes include a new spirals and tables circuit to recover tantalum. GXY envisages tantalum recoveries of 70-75%.

Sales

GXY expects the first shipment of spodumene concentrate to be made through the Port of Esperance during December 2016.

Mitsubishi Corporation is the project's agent, responsible for logistics and settlement. Major Chinese customers have been established for spodumene offtake. Spodumene is the preferred feedstock for lithium converters.

The Mt Cattlin project is not controlled by a downstream lithium converter or a trader. Therefore it is positioned to take advantage of market opportunities that may present in the current tight market, provided the project can achieve its production targets.

- **Sales 2016:** 45,000 tonne spodumene concentrate sold for 2016 delivery at US\$600/t. Upfront Prepayments of US\$13.5m have been received in respect of 22,500 tonnes spodumene concentrate equivalent to 50% of planned 2016 sales volumes.
- **Sales 2017:** binding commitment for the purchase of 120,000 tonnes spodumene concentrate. Pricing not fixed and expected to be finalised in Q4 of CY16.
- **Sales deferral:** the late final commissioning of the Mt Cattlin concentrator means that a proportion of concentrate priced for 2016 delivery will need to be deferred to the 2017 year. Production for 2017 will need to be close to the guided production of 160,000 tonnes to satisfy the binding commitment for 120,000 tonnes spodumene in 2017.

Resources and reserves

Mt Cattlin resources are tabulated in Exhibit 7:

Exhibit 7: Mt Cattlin resources estimate, July 2015 (cut-off 0.4% LiO₂)			
	Mt	Li ₂ O (%)	Ta ₂ O ₅ (%)
Measured	2.54	1.20	152
Indicated	9.53	1.06	170
Subtotal	12.07	1.09	166
Inferred	4.34	1.07	132
Total	16.42	1.08	157

Source: Galaxy Resources

Mt Cattlin reserves are tabulated in Exhibit 8:

Exhibit 8: Mt Cattlin ore reserve, September 2010 (cut-off 0.4% LiO₂)			
	Mt	Li ₂ O (%)	Ta ₂ O ₅ (%)
Measured	2.43	1.11	141
Indicated	7.54	1.02	152
Total	9.97	1.04	149

Source: Galaxy Resources

Exploration programme

A deep diamond drilling programme commenced in February 2016. The programme is designed to provide a greater understanding of the Mt Cattlin orebody. It will follow up exploration drilling activities in 2008 in which intersections of spodumene bearing pegmatite were recovered.

Initial drill results have been received. They include assays for pegmatite samples within the first four of six holes drilled during 2016. They confirm a new deep mineralised zone 500m wide and at least 150m long. This is open in all directions but in particular to the east, where it appears to be

increasing in thickness. GXY believes significant potential exists for finding additional repetitions in upthrust faulted positions closer to surface which may be open-pittable.

Planning for the next drilling programme is currently underway, with a focus on lateral extensions to existing mineral resources and an increase in drill density within inferred resources. A formal update to Mt Cattlin mineral resources and ore reserves is underway.

James Bay

James Bay is a hard rock lithium project containing a spodumene pegmatite deposit. It is located 1,000km north-west of Montreal, Quebec, Canada. The project is located in a mining friendly jurisdiction with the availability of low cost energy and is adjacent to key infrastructure including roads and readily accessible water.

The project comprises resources as in Exhibit 9, where they are compared with the resources at Mt Cattlin. James Bay has a similar resource base to Mt Cattlin in the measured and indicated category on both a tonnes and Li₂O grade basis. At the inferred category, James Bay resources tonnes and Li₂O grades are higher.

Tantalum grades have not been disclosed for James Bay.

A further drilling programme is planned at James Bay to expand resources, and drilling is expected in the September quarter 2016.

Exhibit 9: James Bay JORC 2004 resource (cut-off 0.75 % Li₂O) compared with Mt Cattlin (cut-off 0.4% Li₂O)

	James Bay		Mt Cattlin	
	Mt	Li ₂ O (%)	Mt	Li ₂ O (%)
Measured			2.54	1.20
Indicated	11.75	1.30	9.53	1.06
Subtotal	11.75	1.30	12.07	1.09
Inferred	10.47	1.20	4.34	1.07
Total	22.22	1.28	16.42	1.08

Source: Galaxy Resources

Project development

Development work at James Bay will involve a continuation of the previously started DFS. Given the similarity in deposit type and size, GXY intends to take advantage of the experience at Mt Cattlin to fast-track the DFS process. GXY expects to recommence DFS work in Q117. It is possible that process plant design could be similar to that at Mt Cattlin.

Mine operations – near-surface open-pit mining

The James Bay deposit occurs at surface and resource modelling has indicated it can be mined by open-pit methods. The mineral resource at the 0.75% Li₂O cut-off was derived from the material inside conceptual open-pit shells with an overall pit slope of 45 degrees.

Exploration – potential to increase resources and grade

GXY believes there is excellent potential to increase resources through additional delineation of the pegmatite dykes along strike and at depth. It also believes there is potential to increase grades through infill drilling.

Geological investigations to date have revealed that the pegmatite dykes at James Bay are almost always spodumene bearing. Spodumene crystals at James Bay are relatively coarse and are usually more than 50mm in length and sometimes exceed 1m.

Sales – proximity to the North American market

The project is strategically located to be a potential supplier to the growing North American market.

Earnings and valuation sensitivities

Valuations, earnings and cash flow are sensitive to a range of parameters including:

- **Lithium prices:** lithium is a very opaque market. There is evidence of very high lithium prices at the moment and we may be underestimating the lithium market's strength.
- **Supply, demand:** with possible delays to new projects, prices are sensitive to the tightness that may continue until supply catches up with demand.
- **Demand growth:** this may vary with the rate of application of lithium based transport and energy storage solutions, the strength of underlying economies and technological advances.
- **Funding:** availability of funding may determine GXY's interests in Sal de Vida and James Bay.
- **Project development:** risks of deferrals of project schedules and commissioning delays.
- **Capital and operating costs:** could differ from those used in our forecasts.
- **Quality specifications:** risk of quality specifications taking longer to achieve.
- **Substitution:** discovery of battery solutions that do not use lithium.

Valuation of GXY assets

Our valuations have been updated for the revised Sal de Vida DFS (August 2016) and the Mt Cattlin update (September 2016).

Valuations (Exhibit 10) are presented for a base case (conservative) and two scenarios, Case 1 and Case 2 for GXY using price scenarios from Exhibit 2. Case 1 represents a lower demand scenario than Case 2 with prices falling after 2020. Case 2 represents a high demand scenario with higher prices sustained to 2025. Demand assumptions are shown in Exhibit 1.

Projects	Base case		Case 1		Case 2	
	US\$m	A\$/share	US\$m	A\$/share	US\$m	A\$/share
Sal de Vida (US\$m)	372.3		411.1		532.3	
Sal de Vida (A\$m)	496.4	0.27	548.1	0.30	709.7	0.39
Mt Cattlin (A\$m)	313.4	0.17	334.1	0.18	358.8	0.20
James Bay (A\$m)	103.9	0.06	125.7	0.07	165.0	0.09
Total	913.7	0.51	1,007.9	0.56	1,233.5	0.68
Issued shares post GMM takeover	1,806.8			A\$/US\$	0.75	

Source: Edison Investment Research

Our valuation assumptions include:

- **NPV₁₀ valuation methodology:** we have carried out NPV₁₀ valuations for GXY's Mt Cattlin operation and its Sal de Vida and James Bay projects.
- **Lithium carbonate prices:** we used the lithium carbonate and spodumene prices in Exhibit 2 for our valuations. For spodumene we used US\$600/t in 2016 (contracted at this price), US\$750/t in 2017 and US\$650/t in 2018. We have developed a formula that provides an approximate link between the spodumene price and the lithium carbonate price, after taking into account lithium content, conversion charges and transport costs. The spodumene price will also be affected by the supply/demand characteristics of spodumene itself. Some spodumene projects are behind their original schedules. At the current time, there is very strong demand for spodumene with limited new supply from brine producers.

- **Potash price:** we used US\$300/t, which we believe is a long-term sustainable price.
- **Sal de Vida:** originally, it was proposed to develop Sal de Vida in more than one stage. We now assume the project is developed in one stage. While GXY may sell an interest in this project, our valuation attributes 100% of the project to GXY. If an interest in the project is sold, we assume the transaction is accomplished at the corresponding share of the NPV.
- **Mt Cattlin:** our valuation attributes 100% of the project to GXY following the takeover of GMM.
- **James Bay:** this is still an early stage project and a DFS is not expected to commence until the second half of CY16. However, it is similar in deposit type and size to Mount Cattlin. Lithium (Li₂O) grades are slightly higher but tantalum grades have not been recorded. Given the similarities, we have modelled James Bay on a similar basis to Mt Cattlin assuming no tantalum co-product revenue. We assume a capital cost of US\$112.5m (A\$150m) to develop the project.

We have assessed the sensitivity of the GXY valuation to the long-term LCE price and increased mine lives from exploration success:

- **Valuation sensitivity to assumed LCE price:** the base case GXY valuation, across all its projects, changes by approximately A\$250m or A\$0.14/share for every US\$1,000/t change in the long-term LCE price assumed.
- **Valuation sensitivity to exploration success and extended mine lives:** recognising the exploration potential at both properties, we have also assessed the valuation impact of an additional three years of mine life at both Mt Cattlin and James Bay (see Exhibit 11). Sal de Vida already has a long mine life of the order of 40 years.

Exhibit 11: Valuation of GXY assets: assumes an extra three years mine life at both Mt Cattlin and James Bay

Projects	Base case		Case 1		Case 2	
		A\$/share		A\$/share		A\$/share
Sal de Vida (US\$m)	372.3		411.1		532.3	
Sal de Vida (A\$m)	496.4	0.27	548.1	0.30	709.7	0.39
Mt Cattlin (A\$m)	402.5	0.22	423.2	0.23	460.5	0.25
James Bay (A\$m)	144.6	0.08	166.4	0.09	205.7	0.11
Total	1,043.5	0.58	1,137.7	0.63	1,375.9	0.76
Issued shares post GMM takeover	1,806.8			A\$/US\$	0.75	

Source: Edison Investment Research

Internal GXY valuation for Sal de Vida

GXY has calculated its own internal valuation for the Sal de Vida project. This was released as part of the announcement of 22 August 2016 outlining the revised DFS for Sal de Vida.

The GXY valuation reflects the company's internal opinion of the outlook for lithium and potash prices. Its pricing scenarios assume a Li₂CO₃ price range of US\$11,000 to US\$13,911/t and a KCl price of US\$220/t flat throughout the life of the project for battery-grade lithium carbonate and potash. GXY has determined an after-tax NPV₁₀ valuation of US\$1,043m under this price scenario. This is higher than the comparable Edison valuation.

There are a broad range of market views on the outlook for lithium prices. Our view is that lithium prices are likely to revert to a lower, sustainable 'long-term' price when supply and demand come into balance. With regard to potash, GXY is using what appears to be a bottom of the cycle KCl price of US\$220/t. We are using a potash price of US\$300/t, which we believe is a more sustainable long-term price.

Prior agreements with GMM and takeover offer

During a period of substantial financial restructuring in 2015, GXY entered into agreements with General Mining Corporation (GMM) such that GMM would manage and develop the Mt Cattlin mine. An earn-in agreement for the James Bay project was also negotiated.

The broad intention of the agreements was to enable GXY to focus on the Sal de Vida project and derive a cash flow stream from Mt Cattlin, which hitherto had been a dormant asset.

Mt Cattlin transaction and definitive agreement

In February 2015, GXY announced an agreement with GMM for Mt Cattlin that would generate annual cash flow for GXY through a lease fee and a production royalty with an option to purchase.

In June 2015, terms for the Mt Cattlin transaction were amended with GMM to acquire a direct 50% interest for a total consideration of A\$25m.

GXY executed a Mount Cattlin Definitive Agreement with GMM on 7 September 2015 involving:

- A partnership to restart and operate Mt Cattlin after over two years on care and maintenance.
- GMM to be the sole operator and manager of the Mt Cattlin project.
- The partnership was subject to a A\$25m earn-in by GMM for a 50% interest in Mt Cattlin. GXY and GMM are to each have a 50% share of the operating cash flows from Mt Cattlin.
- GMM to initially acquire a 50% deemed operating profit interest in the project by spending A\$7m prior to the commencement of production. GMM's initial 14% equity interest is dependent on the A\$7m restart requirement and the restart of production at the end of Q116. The balance of the A\$25m consideration to be paid in three A\$6m annual instalments after the start of production with GMM's equity interest increasing by 12% after payment of each instalment.

James Bay earn-in agreement

GMM also had the right to earn a 50% stake in GXY's James Bay lithium project by spending US\$5m over a three-year period.

Takeover offer for GMM

On 30 May 2016, GXY and GMM entered into a definitive takeover bid implementation agreement to merge.

- GXY to acquire all the issued shares of GMM it did not already own in a share-based transaction by way of an off-market takeover offer.
- Under the offer, GMM shareholders to receive 1.65 new GXY shares for every GMM share held. The offer to result in the issue of 512,583,178 GXY shares and the issue of 24,750,000 unlisted GXY options to replace 15,000,000 existing unlisted GMM options.
- 2,873,079 shares were issued to Canaccord as sale nominee for ineligible GMM shareholders accepting the offer. Canaccord was also issued 3,600,000 shares as part of a success fee.
- The GXY proposal was recommended by all GMM's directors in the absence of a higher bid.

Transactional impact of the takeover offer by GXY

Prior to the takeover offer by GXY, GMM achieved the recommencement of production at Mt Cattlin on 31 March 2016. This mainly involved the extraction and processing of fines material, containing spodumene, from the tailings dam. This triggered the entitlement to 14% equity in the Mt Cattlin assets. Capital expenditure of A\$7m by GMM was also confirmed. At this date, 50% of the net assets of Mt Cattlin were treated as sold.

At the GXY share price of A\$0.48 assumed in the bidder's statement, the purchase consideration in shares and unlisted options was A\$262.5m.

The difference between the purchase consideration and the net assets was allocated to property plant and equipment, viz:

- Book value net assets acquired of A\$11.7m including A\$18.4m of property, plant and equipment.
- Adjustments of A\$248.1m with an allocation of A\$269.2m to property, plant and equipment.

Background to Mt Cattlin and GXY restructuring

The Mt Cattlin project was established to provide spodumene concentrate to GXY's then new Jiangsu lithium carbonate plant in China. A long and difficult commissioning period at the Jiangsu plant led to the mothballing of the Mt Cattlin plant and a build-up in debt. This forced GXY, under a new management team, to initiate a programme of strategic initiatives and financial restructuring, which included the sale of the Jiangsu plant and a future focus on the Sal de Vida brine project.

Ultimately, the Jiangsu plant was sold to Tianqi in April 2015 for an effective consideration of US\$71.7m and assumption of GXY's outstanding US\$101.5m loan. At the 30 June 2015 balance date, GXY had A\$42.9m cash off set by A\$64.5m debt, mainly comprising A\$60m convertible notes.

The purpose of GXY's agreements with GMM was to generate a source of cash flow from the mothballed Mt Cattlin assets. GMM was able to provide funding and processing expertise to reopen and upgrade the Mt Cattlin project. GXY put in place agreements to sell a 50% stake in Mt Cattlin to GMM in 2015. This stake was treated as sold in March 2016. GXY also provided an agreement where GMM had the right to earn a 50% stake in the James Bay lithium project.

At the time, GXY was undergoing a restructuring of its debt and was not well positioned to investigate the possibility of reopening Mt Cattlin.

Remaining debt and a component of the convertible notes were later repaid. A three-year A\$31m secured debt facility with OCP was negotiated and subsequently drawn down in November 2015 for the principal purpose of repaying the balance of outstanding convertible notes. GXY stated that it regarded the debt refinancing as a major milestone and marked the final stage of the company's balance sheet restructuring.

The May 2016 definitive takeover bid to merge with GMM means that GXY is effectively buying back the 50% stake in Mt Cattlin it had sold and unwinding GMM's earn-in agreement for James Bay. First sales from Mt Cattlin are expected during December 2016.

Analysis of the GMM takeover

The share purchase consideration allocated A\$269.2m to property plant and equipment. This consideration is supported by our valuation of A\$209m for 50% of the Mt Cattlin and James Bay projects and the benefits to GXY of a cash-generating project during a period of strong prices that will assist in the funding of its next project, Sal de Vida.

- **GMM added value at Mt Cattlin:** value was undoubtedly added to the Mt Cattlin project by accelerating its development and enhancing the project through initiatives to improve plant throughput, recoveries and product grades. Mt Cattlin will be able to take advantage of current high prices for spodumene.
- **Timely receipt of cash flow:** GXY gains access to 100% of the cash flows from Mt Cattlin to assist in the funding of its next project, Sal de Vida.
- **Mt Cattlin valuation:** the acquired 50% of Mt Cattlin is worth A\$156.7m based on Edison's NPV₁₀ valuation at a long-term lithium carbonate price of US\$7,500/t.

- **James Bay valuation:** the retained 50% of James Bay is worth A\$52.0m based on Edison's NPV₁₀ valuation at a long-term lithium carbonate price of US\$7,500/t.

Financials

In our earnings, cash flow and balance sheet forecasts (Exhibit 12), we incorporate 100% of GMM, following the compulsory acquisition of the remaining shares in GMM on 29 September 2016. Our forecasts include Mt Cattlin and the development of Sal de Vida, which we assume commences production in 2019. The James Bay project has no firm development schedule and is not included in our forecasts.

Earnings

GXY has already received prepayments for Mt Cattlin concentrate. It expects concentrate shipments to start during December 2016. The company expects to commission Sal de Vida in 2019, but the schedule could vary. The timing of James Bay is uncertain and a DFS is still required. Given the level of development activity during the period to 2019, we do not forecast a dividend in this time frame.

Cash flow

GXY's estimate of the capital cost to complete construction and commissioning of the Mt Cattlin project until first revenue has increased from A\$15m to A\$22.4m. To the extent that any cash shortfall is forecast after utilisation of GXY's cash resources, some directors of the company have indicated their willingness to assist in arranging the necessary working capital from their own resources prior to the achievement of significant free cash flow. This is expected in 2017 when the Mt Cattlin operation reaches full capacity. The amount that could be received by GXY after exercise of options held by directors is approximately A\$2.4m. Given possible legal requirements, options exercise has not been incorporated in the financial forecasts in Exhibit 12.

Cash flows from Mt Cattlin will benefit from unused tax losses of approximately A\$207m as at 30 June 2016. At our price assumptions, we forecast that GXY is unlikely to pay any tax until 2019.

The Sal de Vida project has a capital cost of US\$376m and this will need to be funded. Preliminary analysis carried out by Edison has indicated GXY could retain around 60% of Sal de Vida if the project was debt funded and perhaps a larger stake if further equity was raised. We believe it is likely GXY will divest part of the Sal de Vida project to assist funding and diversify risk. GXY is in discussions with potential strategic partners at the project level. Our financial forecasts assume GXY retains 60% of Sal de Vida.

Balance sheet

GXY has low net debt, with the majority of debt relating to the refinancing of outstanding convertible bonds. Following the acquisition of GMM, there are 1,806.8m shares on issue. The balance sheet will be strengthened with the receipt of cash flow from the Mt Cattlin project.

Drawdowns of debt to fund 60% of capital expenditure for the Sal de Vida project are incorporated in our projections. We have not incorporated any further equity raisings into our projections, but additional equity is a possible further funding mechanism for Sal de Vida

Exhibit 12: Financial summary

	A\$'000s	2013	2014	2015	2016e	2017e	2018e	2019e
31-December		IFRS	IFRS	IFRS	IFRS	IFRS	IFRS	IFRS
PROFIT & LOSS								
Revenue		1,459	185	50	18,000	147,327	205,769	210,353
Cost of sales		(9,503)	(4,494)	(1,981)	(16,270)	(67,559)	(99,904)	(108,896)
Gross profit		(8,044)	(4,309)	(1,931)	1,730	79,768	105,865	101,457
General & administrative costs		(5,470)	(4,013)	(4,488)	(5,000)	(5,000)	(5,000)	(5,000)
EBITDA		(13,514)	(8,322)	(6,419)	(3,270)	74,768	100,865	96,457
Depreciation		(6,945)	(152)	(123)	(1,000)	(3,450)	(3,450)	(11,150)
EBIT (before amort. and except.)		(20,459)	(8,474)	(6,542)	(4,270)	71,318	97,415	85,307
Intangible amortisation		0	0	0	0	0	0	0
Exceptionals		(48,584)	(10,134)	(1,258)	0	0	0	0
Share based payments		(449)	(211)	(2,446)	(1,600)	0	0	0
EBIT		(69,492)	(18,818)	(10,246)	(5,870)	71,318	97,415	85,307
Net Interest		(12,346)	(10,396)	(5,334)	(2,207)	(2,765)	(6,096)	(12,130)
Profit before tax (norm)		(32,805)	(18,870)	(11,876)	(6,476)	68,554	91,319	73,177
Profit before tax (FRS 3)		(81,838)	(29,214)	(15,580)	(8,076)	68,554	91,319	73,177
Tax		0	0	0	0	0	0	(21,953)
Profit after tax (norm)		(32,805)	(18,870)	(11,876)	(6,476)	68,554	91,319	51,224
Profit after tax (FRS 3)		(81,838)	(29,214)	(15,580)	(8,076)	68,554	91,319	51,224
Minority interest		0	133	710	0	0	0	0
Net income (norm)		(32,805)	(19,003)	(12,586)	(6,476)	68,554	91,319	51,224
Loss from discontinued operation		26,064	25,490	(70,443)	0	0	0	0
Net income (FRS 3)		(107,902)	(54,837)	54,153	(8,076)	68,554	91,319	51,224
Average number of shares outstanding (m)		721.8	1,044.2	1,137.7	1,512.7	1,806.8	1,806.8	1,806.8
EPS - normalised (c)		(4.5)	(1.8)	(1.1)	(0.4)	3.8	5.1	2.8
EPS - (IFRS) (c)		(14.3)	(5.1)	4.9	(0.5)	3.8	5.1	2.8
Dividend per share (c)		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross margin (%)		N/A	N/A	N/A	10	54	51	48
EBITDA margin (%)		N/A	N/A	N/A	-18	51	49	46
Operating margin (before GW and except.) (%)		N/A	N/A	N/A	-24	48	47	41
BALANCE SHEET								
Non-current assets		139,416	132,944	127,239	437,290	565,174	693,057	750,574
Intangible assets		0	0	0	0	0	0	0
Tangible assets		139,314	132,904	125,690	437,290	565,174	693,057	750,574
Investments		0	0	0	0	0	0	0
Available for sale assets		102	40	1,549	0	0	0	0
Current assets		177,512	202,385	12,444	3,810	43,771	117,409	83,910
Stocks		1,162	1,096	1,065	856	5,213	7,909	8,658
Debtors		537	669	6,618	1,500	12,277	17,147	17,529
Cash		2,565	13,389	4,761	1,454	26,281	92,353	57,722
Available for sale assets		173,248	187,231	0	0	0	0	0
Current liabilities		(205,437)	(277,809)	(1,414)	(10,802)	(16,191)	(18,626)	(18,817)
Creditors		(4,547)	(5,162)	(1,361)	(750)	(6,139)	(8,574)	(8,765)
Short term borrowings		(64,702)	(101,233)	0	(10,000)	(10,000)	(10,000)	(10,000)
Other		(945)	(15,610)	(52)	(52)	(52)	(52)	(52)
Liabilities assoc with for sale assets		(135,243)	(155,804)	0	0	0	0	0
Non-current liabilities		7,376	7,455	35,467	50,413	136,746	238,079	197,546
Long term borrowings		0	0	(28,293)	(43,329)	(129,572)	(230,906)	(190,372)
Other long term liabilities		(7,376)	(7,455)	(7,174)	(7,174)	(7,174)	(7,174)	(7,174)
Net assets		104,115	50,065	102,802	379,885	456,008	553,760	618,120
CASH FLOW								
Operating Cash Flow		(18,560)	(8,987)	(7,380)	1,446	72,591	102,168	86,700
Net Interest		139	(16,399)	(12,952)	(2,207)	(2,765)	(6,096)	(12,130)
Tax		0	0	185	0	0	0	0
Capex		(6,288)	(6,915)	(1,865)	(27,600)	(131,333)	(131,333)	(68,667)
Acquisitions/disposals		(6,042)	13,030	46,931	0	0	0	0
Equity financing, other		25,573	25	(23)	0	0	0	0
Dividends		0	0	0	0	0	0	0
Net cash flow		(5,178)	(19,246)	24,897	(28,307)	(61,507)	(35,261)	5,903
Opening net debt/(cash)		160,426	197,380	243,648	23,532	51,785	113,292	148,553
Debt initiated		(3,278)	25,786	(36,714)	25,000	101,333	101,333	(40,533)
Other		40,232	20,482	(183,402)	3,253	(39,827)	(66,072)	34,631
Closing net debt/(cash)		197,380	243,648	23,532	51,785	113,292	148,553	142,650

Source: Edison Investment Research, Company data. Note: James Bay is not included in the financial projections above.

Contact details		Revenue by geography	
Suite 8/18 Kearns Crescent Ardross Western Australia WA 6953 +61 8 9215 1700 www.galaxyresources.com.au		N/A	
Management team			
Chairman, independent non-executive director: Martin Rowley		Managing director: Anthony Tse	
Mr Rowley was non-executive chairman and director of Lithium One, which was acquired by GXY in July 2012. He was appointed as chairman and director of GXY in November, 2013. He was a co-founder and current executive director, business development of TSX/LSE-listed First Quantum Minerals.		Mr Tse has been an executive director since October 2010 and MD since June 2013. He has 20 years of corporate experience in high-growth industries such as technology, internet/mobile, media & entertainment and resources & commodities, primarily in senior management, capital markets and M&A roles.	
Non-executive director: Michael Fotios		Chief financial officer: Rowan Colman	
Mr Fotios joined the board with effect from 19 August 2016 after previously serving as executive chairman for General Mining. He is a geologist with over 29 years' experience in Australia. He has held many senior and director positions in the resources industry. He is also a former MD of Galaxy Resources.		Mr Colman was appointed CFO on 1 December, 2014. He is a former development director of a major sovereign wealth fund in the Middle East, managing multiple global development projects. More recently, he has focused his expertise on the resource industry.	
Principal shareholders			(%)
Paradice Investment Management			5.7
Board and management			5.2
Companies named in this report			
General mining Corporation (GMM), FMC (FMC)			

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