

Will Lynas' LAMP ever shine?

- Our on-the-ground research suggests local opposition to Lynas' rare earth processing plant is vociferous and mounting
- Regardless of a 30 January decision by the AELB on whether to commission the plant, protests look set to continue
- Fund managers need to carefully consider their risk appetite. Our bear-case valuation for Lynas is A\$0.68 for 33% downside



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About Lost & Found

This is the fourth in a new series of reports in which Daiwa analysts and guest experts head off the beaten track to offer a different take on topical issues.

These might be company notes from far-flung operations, macro pieces from the unlikelyst of places, or strategy reports offering a fresh first-hand perspective.

But the goal is always to provide on-the-ground colour as an aid to investment decision-making.

This *Lost & Found* brings together on-the-ground findings from guest author Amy Chew, a former financial journalist and war correspondent with 26 years' experience who recently joined Daiwa, with research on Lynas by our fundamental analyst David Brennan, CFA.



Amy with rebels in Brega, Libya (March 2011)

The commissioning of Lynas' (LYC AU, A\$1.02, Buy [1]) Advanced Materials Plant (LAMP) in Gebeng, Malaysia, could be a transformational event for the company. The market has been aware of controversy surrounding the plant since protests erupted in Malaysia following a March 2011 [article](#) in *The New York Times* and a June 2011 [article](#) alleging construction and design problems.

Most analysts assume the plant will go ahead, perhaps with some delays. The importance of the plant to Lynas is underlined by the target values of Daiwa's David Brennan: A\$1.63 if LAMP goes ahead on schedule, and A\$0.68 if it is not commissioned. A critical date in this story will be 30 January, when Malaysia's Atomic Energy Board (AELB) decides whether to give interim permission for commissioning of the plant.

Malaysia's forthcoming elections look set to be the closest ever, particularly following Anwar Ibrahim's acquittal. With opposition politicians, including those from the powerful Pan-Malaysian Islamic Party (PAS), becoming more vocal, controversy over LAMP could go from being primarily a local affair into a full-blown national issue.

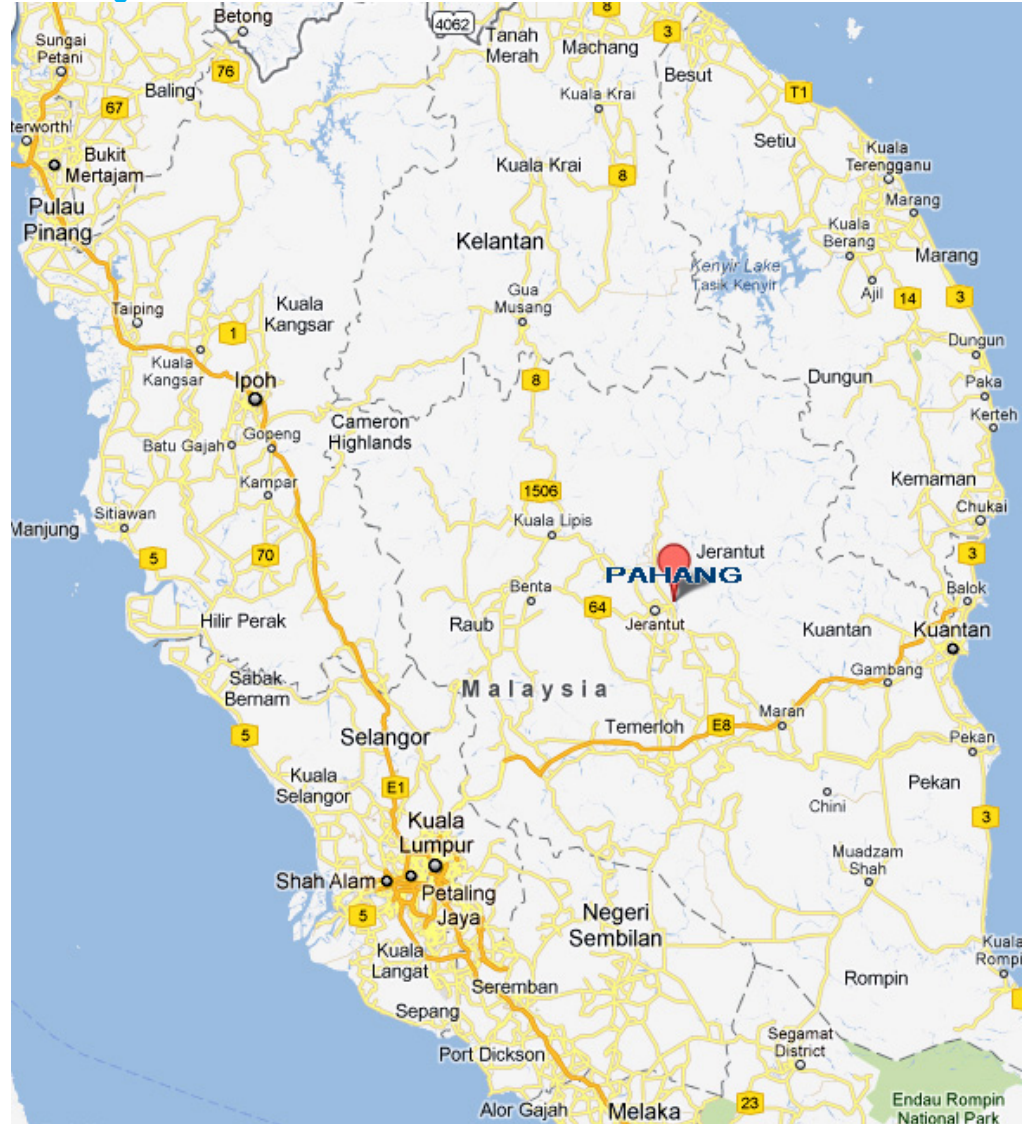
Does the financial community appreciate the depth of concern in Malaysia over LAMP? And is the market discounting the possibility that the plant may not be commissioned at all? Judging from today's A\$1.02 stock price, we think not.

We are in no position to judge claims and counter-claims regarding LAMP. Nor do we advocate a position for or against the plant. Our goal is simply to judge the investment risk on Lynas' stock. To that end, Amy Chew has headed to Pahang to assess the situation on the ground, and David Brennan has looked at Lynas' prospects if LAMP does not go through. Following are Amy's observations.

AMY CHEW: LOST IN PAHANG

LAMP, now under construction in Malaysia's state of Pahang, in Gebeng, just a short drive from the provincial capital of Kuantan, has turned into a controversial issue.

■ **Pahang**



Source: Google

Residents of Kuantan have collected over 70,000 signatures throughout Malaysia protesting against the plant, underscoring how this local issue could move to the national stage — with implications for the ruling government of the National Front in a year in which general elections are widely expected to be held.

Malaysians' experience of rare earth refinery facilities is little short of disastrous — the last such plant, operated by Mitsubishi Chemical in Bukit Merah, Perak, is now one of Asia's largest radioactive waste clean-up sites.

Seven plant workers died in Bukit Merah, which was shut down in 1992, and Bukit Merah is implanted in the psyche of those who remember and know of the incident. Bukit Merah will likely have a bearing on any anti-Lynas campaign in terms of determination and staying power. Indeed, several Bukit Merah residents are actively involved in the 'Stop Lynas' campaign.

As Lynas waits for Malaysia's Atomic Energy Licensing Board (AELB) to decide whether to grant the plant a temporary operating permit, civil groups have stepped up their campaign against the company, highlighting reports of shortcomings in the construction of the plant. Over the weekend, the local press reported that the AELB may not make a decision on LAMP by the 30 January date.

Civil groups claim that Lynas has no plan for a proper waste disposal facility, which is seen by some observers as crucial since the process of rare earth extraction leads to a concentration of a naturally occurring radioactive element known as thorium.

The International Atomic Energy Agency (IAEA) has said Lynas must submit – before the start of operations – a comprehensive waste management plan for the AELB's approval.

Even if Lynas were to be granted a temporary operating licence, allowing the plant to operate for two years, it may continue to face legal and political challenges both in Malaysia and Australia, where the company is based and listed.

A legal team from Pahang is drafting a class action suit against Lynas to stop the plant from operating on the grounds that it is unsafe – should the government grant it a licence to operate. The team plans to file the suit in the Pahang High Court. In Australia, environmental groups are exploring legal avenues to stop Lynas from exporting rare earth ore from Mount Weld in Western Australia to the Kuantan plant for refining.

Malaysia's opposition coalition has said it rejects the plant and will shut it down over issues of safety, as well as a perceived lack of transparency and public consultation over construction of the plant. For its part, the chief of the youth wing of the ruling coalition, United Malays National Organisation (UMNO), said the plant should go ahead as the government has undertaken comprehensive studies to ensure the safety of the project.

LAMP threatens to become an election issue, especially for the opposition, whose platform includes sustainable development. Residents and opposition believe there is little or no benefit from the plant, since the government has agreed to give the company a 12-year tax break.

And Lynas does matter, given Prime Minister Najib Razak's constituency is in a small town called Pekan, just a 45-minute drive from Kuantan. While Pahang residents expect Najib to retain his seat in Pekan, since he's seen as taking good care of his constituency, they believe the ruling party will lose several seats in Pahang to the opposition over the Lynas issue as many are opposed to the plant.

Politicians and political scientists are predicting a very close fight for the ruling government in upcoming elections. Under such circumstances, the fate of LAMP will likely be as uncertain as the political climate in the country.

AMY CHEW: FOUND IN PAHANG

Parts of the Lynas plant were flooded on the day of my visit (13 January).

The plant has yet to be completed.

The plant is built on swamp land, which local residents say floods easily.

It is also situated close to the Balok River, where local fishermen go about their work.

Foreign engineers were seen on the site.

■ LAMP, plant car park during downpour, and nearby swamp land



Source: Daiwa

Verbatim

I spoke with several people to get their perspective on the plant. I should point out that I contacted Lynas and tried to talk to its people on the site. However, they were unavailable.

The opinions and views expressed here are those of our interviewees and do not necessarily correspond with those of Daiwa.

Kuantan MP Fuziah Salleh from the opposition People's Justice Party (PKR). She alerted residents to the construction of LAMP after reading about it in *The New York Times* in March 2011

“Will the Atomic Energy Licensing Board (AELB) grant a licence? I have a feeling NO. There are too many loopholes in Lynas’ Waste Management Plan.

“The submission of the waste management plan is the first recommendation of IAEA but it was too shoddy. It goes to show that Lynas is not a responsible entity.

“Neither is it a credible corporation. They’re doing everything to find loopholes in our law. And they want to get away with it too.

“Lynas had claimed, back in 2008, that the waste from LAMP is not radioactive; that its waste is classified as industrial waste with Normal Occurring Radioactive Material (NORM). This thinking framework of Lynas was reflected in the three submissions of the waste management plan prior to this (22 April 2011, 18 July 2011 and 3 November 2011) — all of these prior submissions uses the title 'Waste Management Plan', conveniently omitting the word 'radioactive'. It is to my understanding that all three submissions were rejected by the AELB.

“It was only in the 4th submission of the waste management plan (30 December 2011) that Lynas finally conceded and admitted that their waste is classified as radioactive waste.”

Pan Islamic Malaysian Party (PAS) central committee member Dr Dzulkefly Ahmad. Also MP for Kuala Selangor and toxicologist

“If we (opposition) come into power, we will stop this plant. We reject Lynas.

“We (coalition of opposition parties) are unanimous on this as it has to do with public health and the environment.

“They (Lynas) have not been truthful and transparent about it.

“Why we (do) not concur with them (government) allowing it to operate is because of lack of transparency and public consultation.

“The location of the plant, for example, in Gebeng, is too close to a human population and water sources.

“And we (the people) won’t get anything from this plant for the next 12 years as the government (has agreed to) give Lynas a 12-year tax break.

“We only get radiation [sic].

“This is most inappropriate and deceitful. The government is willing to sacrifice the people’s health and interests.”

Ruling party UMNO youth chief Khairy Jamaluddin, who called on the government to review Lynas project back in March 2011

“I made the call for a review based on residents’ concerns.

“I think the government had undertaken comprehensive studies to ensure the safety of the project. I think it should proceed.”

Mr Tan Bun Teet of Save Malaysia, Stop Lynas, a civil society group waging a campaign to stop the plant

“There is no plan for the permanent disposal of waste, which is radioactive, after the rare earth is extracted. It contains thorium and strains of uranium.

“In order to have a permanent disposal facility (PDF), they have to comply with many specifications. They (Lynas) have to do a lot of tests to make sure all recommendations are met. But they have not done any specific tests for the siting of such a facility.

“For example, they need to have a layer of low water permeability, ie, bed rock test, dig 30 metres down the site.

“Surface to ground water during high monsoon weather has to meet certain requirements.

“If such specifications are not met, contaminants could migrate into the ground water, soil and be dispersed into the biosphere by wind.

“Lynas has plans to convert the current temporary disposal facility (in Gebeng) to a permanent waste disposal facility if they can’t find another site.

“The temporary site is not suitable as it is on swamp land and the ground water table is barely one metre below the surface.”

Jehan Bakar, lawyer and member of Save Malaysia, Stop Lynas

“We have collected over 70,000 signatures from all over Malaysia opposing Lynas. We handed it over to Kuantan MP Fuziah Salleh.

“None of us in Kuantan knew anything about the Lynas plant. It was the March 2011 article in *The New York Times* which alerted us to it.

“We have to fight this as it has to do with the future of our children and the generations to come.”

DAVID BRENNAN, CFA: IMPLICATIONS FOR LYNAS

It's "all duck or no dinner" for Lynas

Our NPV-derived six-month target price of A\$1.63 per share assumes that LYC receives AELB and government approval for LAMP in 1Q12, and that rare earth oxide (REO) production at the Gebeng processing plant starts in 2Q12. However, if the plant does not get the government's go-ahead, we calculate that LYC's REO resource base supports a significantly lower share price value of only A\$0.68.

Background

Reports of public concern over health and safety issues relating to LYC rare earth oxide (REO) processing facility (LAMP) first reached the Malaysian press in early April 2011 following the March 2011 article in *The New York Times*.

On 22 April 2011, the Malaysian government, under pressure from environmental activists, commissioned an independent panel of nine experts – selected by the IAEA – to review the health risks (primarily radiation) associated with thorium-containing waste from the processing operations.

The IAEA Report was submitted to the Malaysian government on 30 June 2011. The report made 11 recommendations, three of which were specifically directed to Lynas' policies on long-term waste management, plant decommissioning and dismantling, and community communication. Lynas responded to these recommendations in a report submitted to Malaysia's Atomic Energy Licensing Board (AELB) in August 2011.

Since then, the AELB has been reviewing LYC's proposals. On 5 January 2012, Lynas issued a market update stating that the AELB had scheduled a meeting for 30 January 2012 to decide whether to grant a temporary licence for LAMP.

Base-case production profile

We assume first output from Phase 1 of Lynas' REO processing plant – LAMP – in Gebeng, Malaysia in 2Q12, with first production from Phase 2 one year later in 2Q13.

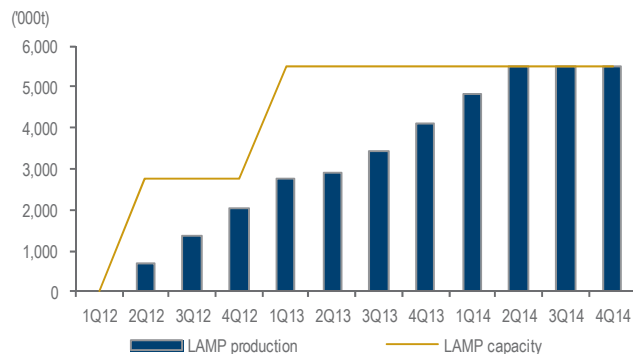
We forecast the plant to operate at full capacity of 22,000tpa (5,500tpq) in 2Q14. Our relatively conservative, in our view, ramp-up profile, reflects recent statements from LYC indicating that the granting of a temporary licence is dependent on (among other factors) continuous oversight of the operations by the Malaysian regulatory authorities for two years.

■ LYC: forecast quarterly REO production (tonnes)

Calendar-year period	1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	4Q14
Financial -year period	3Q FY12E	4Q FY12E	1Q FY13E	2Q FY13E	3Q FY13E	4Q FY13E	1Q FY14E	2Q FY14E	3Q FY14E	4Q FY14E	1Q FY15E	1Q FY15E
LAMP capacity: Phase 1 ('000t)	0	2,750	2,750	2,750	2,750	2,750	2,750	2,750	2,750	2,750	2,750	2,750
Phase 1 production ('000t)	0	688	1,375	2,063	2,750	2,750	2,750	2,750	2,750	2,750	2,750	2,750
Phase 1 utilisation rate (%)	n.a.	25%	50%	75%	100%	100%	100%	100%	100%	100%	100%	100%
LAMP capacity: Phase 2 ('000t)	0	0	0	0	2,750	2,750	2,750	2,750	2,750	2,750	2,750	2,750
Phase 2 production ('000t)	0	0	0	0	0	138	688	1,375	2,063	2,750	2,750	2,750
Phase 2 utilisation rate (%)	n.a.	n.a.	n.a.	n.a.	n.a.	5%	25%	50%	75%	100%	100%	100%
LAMP capacity ('000t)	0	2,750	2,750	2,750	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500
LAMP production ('000t)	0	688	1,375	2,063	2,750	2,888	3,438	4,125	4,813	5,500	5,500	5,500
LAMP utilisation rate (%)	n.a.	25%	50%	75%	50%	53%	63%	75%	88%	100%	100%	100%

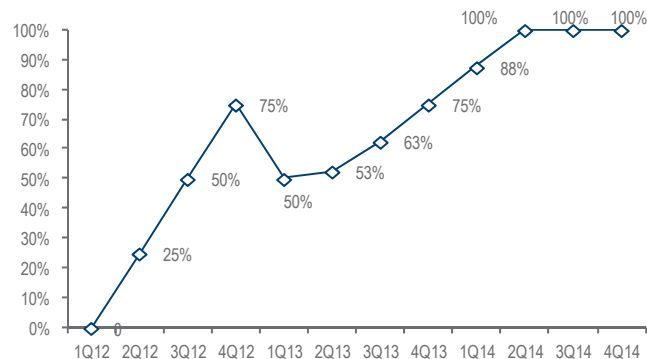
Source: Company, Daiwa forecasts

■ **LYC: forecast LAMP REO capacity and production**



Source: Company, Daiwa forecasts

■ **LYC: forecast LAMP utilisation rate**

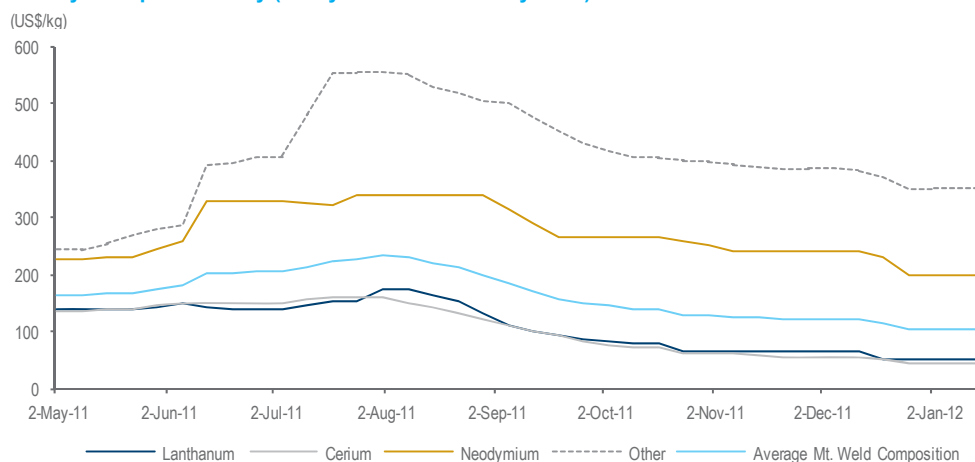


Source: Company, Daiwa forecasts

REO price forecast

The REO price (based on the ore composition of LYC's Mt Weld deposit) has fallen by 55% from a high of US\$233/kg on 1 August 2011 to the most recent (16 January 2012) price of US\$104/kg. Even so, the REO price is still significantly up on last year's 1Q11 average price of US\$93/kg and significantly higher than 1Q10's average of US\$13/kg.

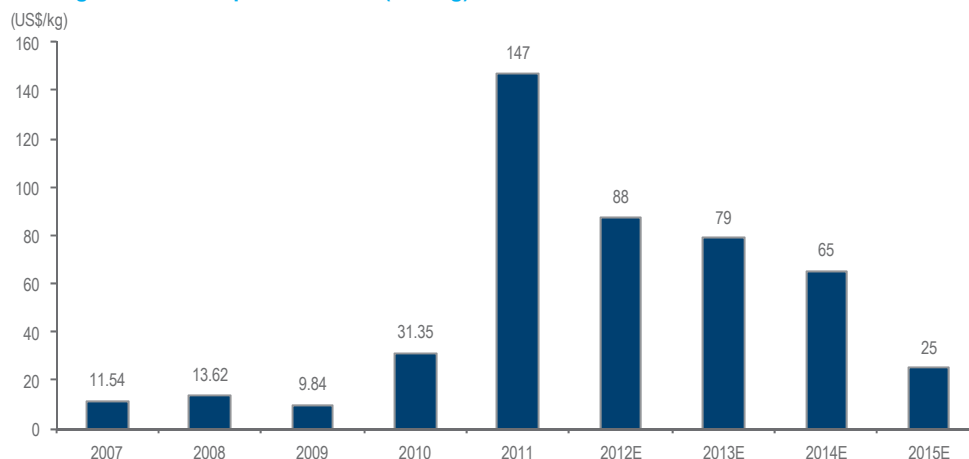
■ **Weekly REO price history (2 May 2011 to 16 January 2012):**



Source: Company, compiled by Daiwa

We forecast an average annual price of US\$88/kg in 2012 (some 15% below the most recent weekly price), and forecast a long-term (post 2014) average annual price of US\$25/kg.

■ **Average annual REO price to 2015E (US\$/kg)**



Source: Company, compiled by Daiwa, Daiwa forecasts

Note: Prices are average per calendar year

Base-case valuation: A\$1.63 per share

Predicated on the above assumptions, we have an NPV-derived target price for LYC of A\$1.63 per share.

■ **LYC: target-price calculation (base-case scenario)**

	A\$m	A\$ per share
Mt. Weld NPV - CL deposit (US\$m)	2,111	
Mt. Weld NPV - Duncan deposit (US\$m)	183	
Kangankunde - Malawi NPV (US\$m)	96	
NPV of REO resource-base (US\$m)	2,390	1.41
One-year target value for REO resource (US\$m)	2,654	
One-year US\$:A\$ exchange rate	0.97	
One-year target value for REO resource	2,574	1.52
Net cash / (debt) as at end FY12E	83	0.05
Niobium/phosphate/other tenement value	100	0.06
Total	2,757	1.63

Source: Company, Daiwa forecasts

Note: The total REO resource base of 1,523,000t is comprised of 1,057,000t from the Central Lanthanide Deposit (CLD) at Mt Weld, 366,000t from the Duncan Deposit at Mt Weld, and 107,000t from the Kangankunde ore body in Malawi. We've attached a 45% discount to the less developed Duncan Deposit - whose mineralogy is under review - and a 75% discount to the undeveloped Kangankunde ore body (relative to our estimated CLD NPV of US\$2.00/kg). Other key assumptions in our NPV calculation include a discount rate (WACC) of 11%, and real cash costs of around US\$13.00/kg.

Significantly lower valuation of A\$0.68 if LAMP is not approved

If LAMP is not approved, we believe that the group's operations would change from producing and marketing REOs, to selling intermediate REO concentrates to third parties for further processing.

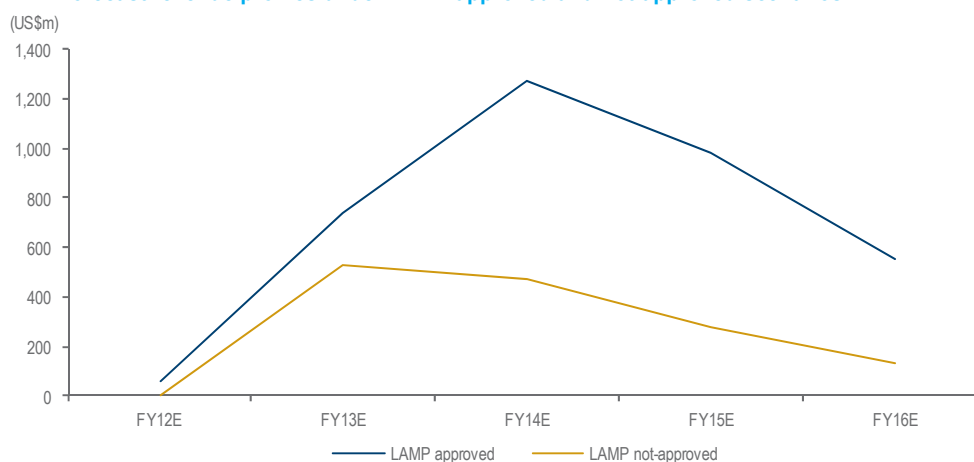
In this scenario, we estimate that five-year (FY12-16E) group revenue would fall significantly (-61%) to US\$1,402m from US\$3,608m.

LYC: forecast revenue profiles under LAMP approved and not-approved scenarios

	FY12E	FY13E	FY14E	FY15E	FY16E	FY12-16E
LAMP approved						
REO sales ('000t)	688	9,075	17,875	22,000	22,000	
REO ARP(US\$/kg)	88	81	71	45	25	
Revenue (US\$m)	61	738	1,273	980	556	3,608
LAMP not-approved						
REO concentrate sales ('000t)	0	22,000	22,000	22,000	22,000	
REO concentrate ARP (US\$/kg)	24	24	21	13	6	
Revenue (US\$m)	0	525	473	277	128	1,402
REO concentrate price as % REO	27%	29%	30%	28%	23%	

Source: Daiwa forecasts

Note: ARP is average received price

LYC: forecast revenue profiles under LAMP approved and not-approved scenarios


Source: Daiwa forecasts

If LAMP is not approved (bear-case scenario), we calculate LYC's NPV-derived target value falling by 58% to A\$0.68 (excluding any potential refund, which the Malaysian government may pay for capex [A\$417m or A\$0.25 per share] incurred by Lynas in the course of constructing Phase 1 of the processing plant).

LYC: target value (if LAMP is not approved)

	A\$m	A\$ per share
Mt. Weld NPV - CL deposit (US\$m)	840	0.50
Mt. Weld NPV - Duncan deposit (US\$m)	73	0.04
Kangankunde - Malawi NPV (US\$m)	38	0.02
NPV of REO resources (US\$m)	951	0.56
One-year target value of REO resources (US\$m)	1,047	
One-year US\$:A\$ exchange rate	0.97	
One-year target value for REO resource	1,015	0.60
Net cash / (debt) as at end FY12E	83	0.05
Niobium / phosphate / other	50	0.03
Total resource value	1,148	0.68
LAMP capex	417	0.25
....LAMP (Phase 1)	237	
....Other (including land at Gebeng)	180	
Total	1,565	0.93

Source: Company, Daiwa forecasts

Note: Our key assumption for the above valuation assumes that LYC sells REO concentrate (22,000tpa) to third parties for processing and receives the cash cost of mining and concentrating the REO ore, plus a one-third share of margin between the REO price and total costs.

With the share price at A\$1.02, there is no middle ground in our view

At the current (17 January) share price of A\$1.02, it appears investors assume that there is only a 35% chance of the processing plant in Malaysia obtaining approval.

■ LYC: share price scenario analysis

Scenario	Target value (A\$)	Weighting	Weighted target value (A\$)
LAMP approved.(base-case)	1.63	35%	1.01
LAMP not- approved (bear-case)	0.68	65%	

Source: Daiwa forecasts

We would not recommend adopting this approach.

For investors who believe that LYC will emerge successfully from this political /regulatory and environmental impasse, we see significant share price upside.

For investors who believe that LYC will be (ultimately) unsuccessful in getting permission to operate a REO processing facility in Malaysia, our bear-case valuation suggests significant downside risk to the share price.

It is in the context of the stock's event risk that we show our share price scenario analysis. Our target value of A\$0.68 in a scenario of LAMP not being approved would imply potential downside of some 33%.

Our view is that LAMP will get approval and will commence operations in 2Q12. Our base-case NPV-derived target price of A\$1.63 indicates some 60% potential upside and we maintain our Buy (1) rating.

Conclusion (Tathagata Guha Roy)

We reiterate that we are in no position to judge the claims and counter-claims regarding LAMP. Nor are we looking to advocate a position for or against the plant.

Our goal is simply to judge the investment risk on Lynas stock, given the uncertainties at play and the significant impact the non-commissioning of LAMP could have on Lynas' profits and valuation.

After looking at the whole picture, we see heightened risk that the plant may not be able to operate at all or may be delayed two to three years. A delay of three years could have a profound impact on profits and cash flow, as David predicts rare earth oxide (REO) prices to come down to US\$25/kg from US\$104/kg today.

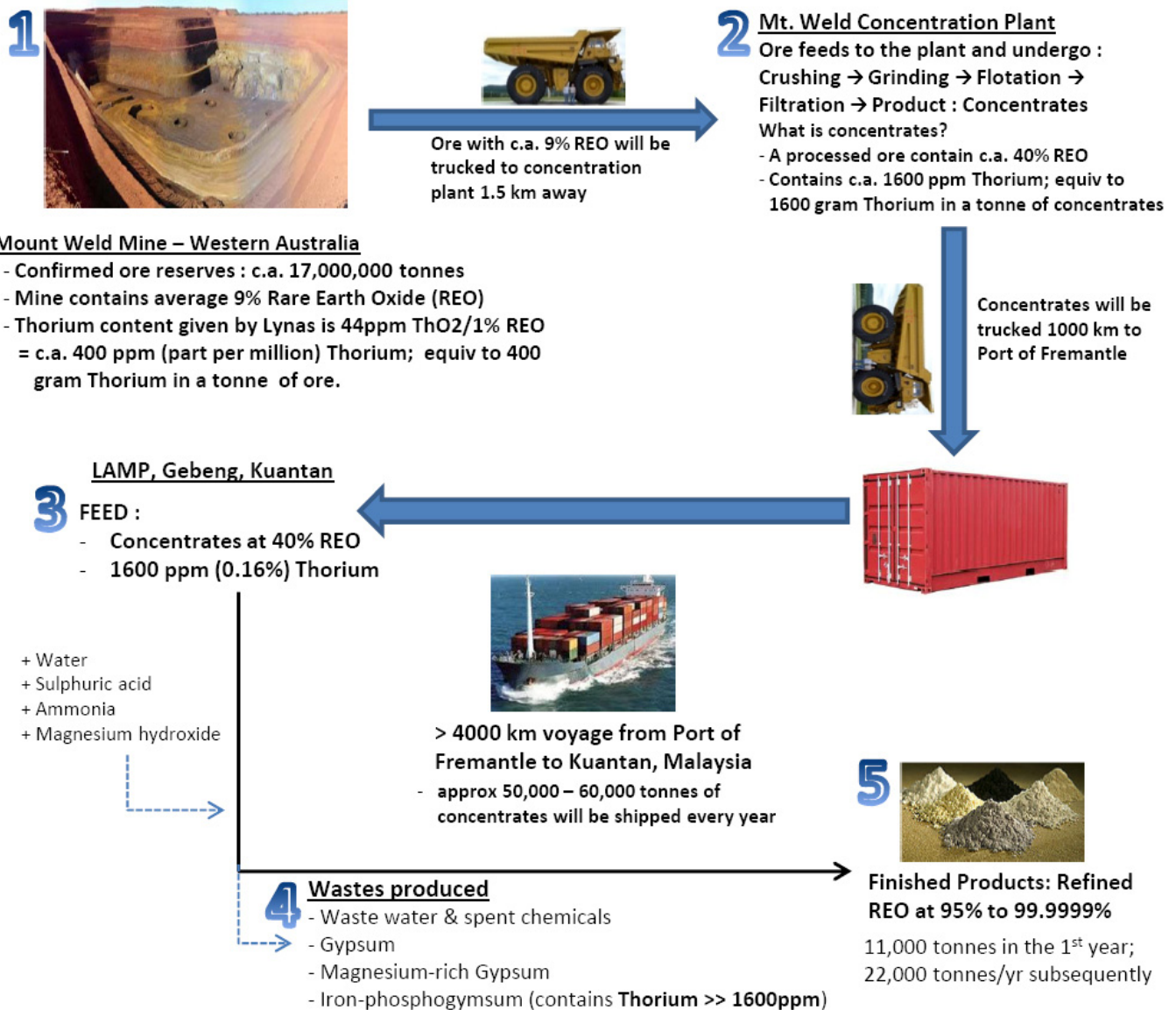
Even if the AELB does grant interim permission for LAMP on 30 January, the risks may not go away. If the opposition comes into power in the elections, the risk for LAMP will likely be much greater, given all opposition politicians we spoke to were vehemently against the plant.

Even if the ruling UMNO comes to power with a reduced majority, the PAS may well turn out to be the kingmaker. In that case, the opinion of someone like Dr Dzulkefly Ahmad is worth noting.

In sum, the stock has significant event risk that is beyond the scope of fundamental analysis. Fund managers should assess their risk appetite carefully if they conclude that Lynas is, at this juncture, essentially a call on Malaysian politics.

Appendix

Save Malaysia, Stop Lynas: its view of rare earth process flow from the beginning to the end





Source: SMSL citing Lynas Investor presentation, annual report/AGM

Amy Chew is a veteran journalist who has reported from many countries, most recently on the revolutions in Egypt and Libya. During most of her career in journalism she has been based in Asia, living at various times in Indonesia, Hong Kong and Malaysia.

Look out for more of Amy's on-the-ground reports in the future.

Please also see:

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