EDISON

KEFI Minerals

H1 results & DFS evolution

More gold faster and cheaper

Metals & mining

KEFI's DFS on Tulu Kapi was based on a conventional owner-operator model to estimate costs from first principles (see page 2). However, to minimise initial capex, management then invited final bids from fixed-price plant building and mining contractors. In collaboration with these, it has also been able to announce a 25% expansion of the proposed processing rate to 1.5Mtpa, such that KEFI shares now offer investors an IRR of 38.6% in sterling terms over 12 years (vs 25.9% over 17 years previously). Significantly, KEFI has also confirmed that the Ethiopian government is planning to proceed with a US$20m investment at the project subsidiary level at a valuation related toTulu Kapi's NPV at the current gold price.

Year end	Revenue (£m)	PBT* (£m)	EPS* (p)	DPS (p)	P/E (x)	Yield (%)
12/13	0.0	(0.9)	(0.4)	0.0	N/A	N/A
12/14	0.0	(2.6)	(0.4)	0.0	N/A	N/A
12/15e	0.0	(1.8)	(0.2)	0.0	N/A	N/A
12/16e	0.0	(6.1)	(0.3)	0.0	N/A	N/A

Note: *PBT and EPS are normalised, excluding intangible amortisation and exceptional items.

Reduced capex and opex

In contrast to the original processing plan, the updated schedule seeks to process the same quantity of ore over 11, rather than 14 years (although the mine plan remains unchanged). As a result, there is an increase in forecast gold production in the first nine years of operations. By contrast, while there is an increase in gross costs in six of the first seven years of operations, there is a 3.1% decline overall over the full 11-year life of operations, resulting in a 2.7% decline in unit costs of production (including offsite costs and royalties), from US$761/oz to US$740/oz. In addition to the revised plant throughput schedule, KEFI is in the process of revising and optimising its capex estimates. Relative to estimates at the time of our initiation note in August, KEFI's latest estimates indicate an 11.1% reduction in upfront capital expenditure (including working capital and community relocation costs).

Valuation: Up 34.2% to 2.59p per share

We calculate that KEFI is capable of generating average after-tax earnings of c £25m pa for eight years, from 2018 to 2025 (vs £20m pa previously) and free cash flow of £34m pa (vs £32m previously). Without taking into account the anticipated streaming deal and using a 10% discount rate, our updated estimate of the project's NPV is £78.8m (vs £68.0m previously), or 4.5p/share (4.3p attributable) at our long-term gold prices. Whereas previously funding had been assumed to be in the form of a US$100m streaming agreement and a US$10m equity raise, it is now assumed to be in the form of streaming (US$45m), equity in the project (US$20m) and equity in the parent (US$5m), with the balance to be provided in the form of conventional debt. On the basis of these funding assumptions in particular, we now estimate that KEFI investors may expect maximum potential dividends in the order of 0.69p/share pa, which have a value over the life of operations of 2.59p/share in 2015 (using a 10% discount rate), rising to 3.79p/share in FY19.

1 October 2015

Price	**0.53p**
Market cap	**£9m**
	US$1.5231/£
Net cash (£m) at 30 June 2015	1.0
Shares in issue	1,744.4m
Free float	89.5%
Code	KEFI
Primary exchange	AIM
Secondary exchange	N/A

Share price performance

%	1m	3m	12m
Abs	(33.3)	(39.4)	(63.6)
Rel (local)	(31.4)	(35.1)	(61.5)
52-week high/low		1.3p	0.5p

Business description

KEFI Minerals is an exploration and development company focused on gold and copper deposits in the highly prospective Arabian-Nubian Shield – principally the 95%-owned Tulu Kapi project in Ethiopia and, to a lesser extent, the 40%-owned Jibal Qutman project in Saudi Arabia.

Next events

Financing details	Q415

Analyst

Charles Gibson +44 (0)20 3077 5724

mining@edisongroup.com

Edison profile page

KEFI Minerals is a research client of Edison Investment Research Limited

Investment summary: Updated estimates and forecasts

With collaboration from Senet, Golders, Epoch and Snowden, KEFI completed an updated definitive feasibility study (DFS) on the Tulu Kapi project in July 2015. The DFS reflected both a complete overhaul, and an independent validation, of the Tulu Kapi geological resources and reserves, whereby KEFI inserted significant additional data and "wireframed" each individual ore lode in the system as part of a concerted programme of works to put behind it the issues raised by the intended bankers about the previous project plans under past ownership. Capex for the project in the DFS was estimated to be US$176m. However, the study was completed as if Tulu Kapi would be owner-operated. In consideration of the need to minimise initial capital expenditure, as well as the more exacting technical requirements of the selective mining campaign, KEFI instead decided to pursue a contract mining business plan, with the result that estimates for development capex initially reduced to US$141.2m (including working capital and relocation costs), which formed the basis of our initiation note, published in August 2015.

The development plan for Tulu Kapi has continued to evolve since then and, on 7 September, KEFI announced revised operational parameters for the project, based on an increased plant throughput rate. The expansion was based on the company's ongoing discussions with potential project contractors. However, whereas the processing rate will increase, the mine plan will remain unchanged, as the original plan envisaged building up a stockpile, which would then be processed in years 11 to 14 of the project. The updated plan, by contrast, assumes a closer relationship between mining and processing rates, such that both are completed in year 11 of the project. However, based on the bids received to date, KEFI does not expect the expanded plant to increase the assumed level of funding required to develop the mine. A summary of the new processing plan and cost schedule is shown in Exhibit 1 below.

Exhibit 1: Updated Tulu Kapi mine plan and cost assumptions

	2017e	2018e	2019e	2020e	2021e	2022e	2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e
Waste (kt)	7,281	12,922	15,446	17,368	16,688	17,091	14,120	7,462	3,728	1,740	353	0	0	0
Stripping ratio	5.2	5.2	6.3	15.3	9.2	12.1	7.3	5.2	4.7	5.2	2.8	0	0	0
Ore processed (kt)	950	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	943	0	0	0
Grade (g/t)	1.77	2.59	2.88	2.01	2.24	2.26	2.48	2.29	2.13	1.24	0.85	0.00	0.00	0.00
Contained gold (koz)	54.1	124.7	139.0	96.9	107.9	109.1	119.6	110.7	102.6	59.8	25.8	0.0	0.0	0.0
Recovery (%)	92.47	92.82	92.90	92.38	92.55	92.05	90.46	89.61	89.98	89.79	89.67	0.00	0.00	0.00
Recovered gold (koz)	50.0	115.8	129.1	89.5	99.9	100.5	108.2	99.2	92.3	53.7	23.2	0.0	0.0	0.0
Operating costs (US$/t processed unless otherwise indicated)														
Mining (US$/t mined)*	3.69	3.09	3.25	3.17	2.97	2.99	3.29	3.08	3.23	3.63	4.76	0.00	0.00	0.00
Milling (oxide, US$/t)	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98
Milling (fresh ore, US$/t)	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63
Milling (hard ore, US$/t)	0.00	0.00	0.00	9.60	9.60	9.60	9.60	9.60	9.60	9.60	9.60	0.00	0.00	0.00
Total (US$/t)	47.90	44.02	50.90	51.22	48.71	49.16	48.32	31.75	22.71	17.97	16.26	0.00	0.00	0.00
Gold price (US$/oz)	1,347	1,408	1,483	1,467	1,409	1,404	1,389	1,379	1,398	1,423	1,431	1,439	1,409	1,395
Sustaining capex (US$000's)	2,872	5,773	2,787	3,411	2,248	5,816	0	0	0	0	0	0	0	0

Source: KEFI Minerals, Edison Investment Research. Note: *Includes waste.

This may be compared to the assumptions used in our initiation note, which are reproduced in Exhibit 2 below.

Exhibit 2: Previous Tulu Kapi assumptions

	2017e	2018e	2019e	2020e	2021e	2022e	2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e
Ore processed (kt)	800	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	193
Grade (g/t)	1.95	3.01	3.33	2.27	2.60	2.63	2.91	2.68	2.49	1.64	0.86	0.70	0.70	0.68
Contained gold (koz)	50.2	116.1	128.6	87.7	100.1	101.4	112.2	103.3	95.9	63.4	33.3	26.9	26.9	4.3
Recovery (%)	92.63	92.92	92.97	92.43	92.62	92.08	90.39	89.47	89.88	90.54	90.89	91.41	89.80	88.78
Recovered gold (koz)	46.5	107.9	119.5	81.1	92.7	93.4	101.5	92.4	86.2	57.4	30.2	24.6	24.1	3.8
Operating costs (US$/t processed unless otherwise indicated)														
Mining (US$/t mined)*	2.81	3.39	3.66	2.01	2.75	2.94	3.50	4.14	4.67	5.36	4.85	3.00	3.02	9.70
Milling (oxide)	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98
Milling (fresh ore)	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63
Milling (hard ore)	9.60	9.60	9.60	9.60	9.60	9.60	9.60	9.60	9.60	9.60	9.60	9.60	9.60	9.60
Total (US$/t)	43.69	53.59	64.37	44.82	54.60	58.75	59.62	45.25	33.99	27.37	19.01	13.61	15.06	23.92
Gold price (US$/oz)	1,347	1,408	1,483	1,467	1,409	1,404	1,389	1,379	1,398	1,423	1,431	1,439	1,409	1,395
Sustaining capex (US$000's)	3,054	5,927	2,649	3,350	2,248	800	0	0	0	0	0	0	0	0

Source: KEFI Minerals, Edison Investment Research. Note: *Includes waste.

As previously, additional costs include the 7% mining royalty, US$8.5m in life-of-mine offsite costs and an US$11.9m provision for closure costs. On-site general and administrative costs are forecast to be US$7.1m pa during full mining and processing operations and US$3.6m pa while reprocessing stockpiles (for the final nine months of operations only). Head office costs are assumed to amount to £2.0m pa. A carried-forward tax loss of US$60m has also been applied to future pre-tax profits before tax is payable.

The principal differences between the two plans may be summarised as follows:

- the same quantity of ore and waste mined;
- the same quantity of ore processed, but processed over 11, rather than 14 years (including part-years);
- a decline in the head grade of ore processed in all 11 years;
- an increase in gold production in the first nine years of operations, owing to increased plant throughput;
- an increase in gross costs (in US$m) in six of the first seven years of operations; however, a 3.1% decline in gross costs over the full 11-year life of operations;
- an increase in unit costs (as measured in US$/t processed) in only two of the first seven years of operations on account of higher plant throughput rates; and
- a decrease in initial sustaining capital, but a US$4.9m increase over the life of operations.

A summary of these changes is provided in the table below in the units in which each of these parameters is reported.

Exhibit 3: Tulu Kapi mine plan and cost assumption changes

	2017e	2018e	2019e	2020e	2021e	2022e	2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e
Ore processed (kt)	150	300	300	300	300	300	300	300	300	300	-257	-1,200	-1,200	-193
Grade (g/t)	-0.18	-0.42	-0.45	-0.26	-0.36	-0.37	-0.43	-0.39	-0.36	-0.40	-0.01	-0.70	-0.70	-0.68
Contained gold (koz)	3.9	8.6	10.4	9.2	7.8	7.7	7.4	7.4	6.7	-3.6	-7.5	-26.9	-26.9	-4.3
Recovery (%)	-0.16	-0.10	-0.07	-0.05	-0.07	-0.03	0.07	0.14	0.10	-0.75	-1.22	N/A	N/A	N/A
Recovered gold (koz)	3.5	7.9	9.6	8.4	7.2	7.1	6.7	6.8	6.1	-3.7	-7.0	-24.6	-24.1	-3.8
Operating costs (US$/t processed unless otherwise indicated)														
Mining (US$/t mined)*	0.88	-0.30	-0.41	1.16	0.22	0.05	-0.21	-1.06	-1.44	-1.73	-0.09	N/A	N/A	N/A
Milling (oxide)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	N/A	N/A
Milling (fresh ore)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	N/A	N/A
Milling (hard ore)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	N/A	N/A
Total (US$/t)	4.21	-9.57	-13.47	6.40	-5.89	-9.59	-11.30	-13.50	-11.28	-9.40	-2.75	N/A	N/A	N/A
Gold price (US$/oz)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sustaining capex (US$000's)	-182	-154	138	61	0	5,016	0	0	0	0	0	0	0	0

Source: KEFI Minerals, Edison Investment Research. Note: *Includes waste.

Overall, unit working costs decline 3.1% under the updated processing schedule (from US$40.77/t processed to US$39.50/t). By contrast, total unit cash costs of production, which include unchanged offsite and royalty cost assumptions, decline 2.7%, from US$761/oz to US$740/oz.

In addition to the revised plant throughput schedule, KEFI is in the process of revising and optimising its capital expenditure estimates. Updated capital cost estimates, including their evolution since the release of the original BFS in July, and projected savings are provided in Exhibit 4 below.

Exhibit 4: Tulu Kapi initial capex estimate evolution, July 2015 to present

Capital expenditure	Original BFS	Original contract mining estimates*	Updated contract mining estimates and savings
Mining	39,742	10,586	15,586
Processing	79,908	72,300	65,614
Infrastructure	21,748	17,800	16,748
Tailings	7,088	8,200	7,088
Indirect (EPCM, contract mining etc)	0	10,800	14,294
Owners Cost	8,854	7,604	7,604
Independent Technical Experts' (ITE) review	5,717	0	5,717
Working Capital	0	6,100	6,579
Other	12,543	0	13,291
Subtotal	**175,600**	**133,390**	**152,521**
Relocation & livelihood restitution	8,330	7,800	8,330
Total	**183,930**	**141,190**	**160,851**
Deferred payment of EPC contractor			-10,417
Further savings in mining, tailings, access roads etc			-10,448
Targeted savings in civils			-11,478
Further targeted EPC savings offset by expansion costs			-3,000
Total after savings			**125,507**

Source: KEFI Minerals, Edison Investment Research. Note: *As used in our August 2015 initiation note.

Note that the US$10.4m reduction in the retainer payable to KEFI's EPC contractor is presumed to be a deferral only, ie it is assumed that a payment for the same amount will occur, but later in the life of the mine's operations, such that it will not be a part of initial capital expenditure and will therefore be payable out of cash flows, rather than adding to KEFI's initial funding requirement.

On the basis of these updated estimates, overall, pre-production capex equates to US$1,203 per annual oz of average gold production at full capacity (vs US$1,396 previously), or US$83.67/t of ore processed (vs 112.6/t previously).

Valuation

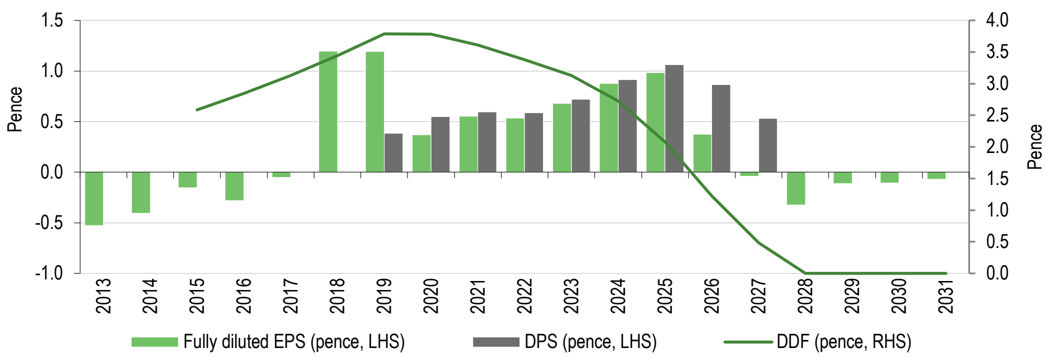
KEFI has recently announced that it intends to source US$20m in funding for the project "as minority equity investment in the project subsidiary" and that this will "be priced at a valuation reflecting Tulu Kapi's net present value of c US$100m at current gold prices." On this basis, a US$20m investment in the project subsidiary would confer a 16.7% interest in the project on the investor and KEFI has confirmed that the government of Ethiopia is now planning to proceed with such an arrangement, which is self-evidently a positive development.

Whereas previously funding had been assumed to be in the form of a US$100m streaming agreement and a US$10m equity raise, it is now assumed to be in the form of streaming (US$45m), equity in the project (US$20m) and equity in the parent (US$5m), with the balance to be provided in the form of conventional debt.

On the basis of the above assumptions alone and converting at the prevailing foreign exchange rate of US$1.5231/£ (vs 1.55/£ previously), we calculate that KEFI is capable of generating average after-tax earnings of c £25m pa for eight years, from 2018 to 2025 (vs £20m pa previously) and free cash flow of £34m pa (vs £32m previously) on a 100% basis. Without taking into account the anticipated streaming deal and using a 10% discount rate, our updated estimate of the project's NPV is £78.8m (vs £68.0m previously), or 4.5p per existing share (4.3p attributable). The project's internal rate of return increases from 26.1% to 29.5%.

Over the period since our initiation note, KEFI's share price has fallen from 0.78p to 0.53p. However, to the extent that this implies a proportionate increase in dilution (although the amount of equity to be raised is now lower), this is more than offset by the fact that dividends will be paid out over a shorter, earlier timespan (notwithstanding the increased minority interest), with the result that investors in KEFI's shares may expect maximum potential dividends in the order of 0.69p/share pa (vs 0.46p/share previously). Therefore, whereas the net present value of this dividend stream was 1.93p/share previously (when discounted at 10% pa), it is now 2.59p – an increase of 34.2%. This valuation then rises to 3.79p/share (vs 2.82p/share previously) in FY19, being the year of the first (potential) substantive dividend payment. As a result, an investment in KEFI shares at a price of 0.53p per share will therefore generate a return to investors of 38.6% in sterling terms over 12 years (vs 25.9% over 17 years previously).

Exhibit 5: Edison estimate of life-of-mine KEFI EPS and (maximum potential) DPS



Source: Edison Investment Research. Note: DDF = discounted dividend flow.

Sensitivities

Quantitatively, our DDF valuation of 2.59p is most sensitive to the gold price, cash costs and the discount rate, as shown in Exhibits 6 and 7 below.

Exhibit 6: Discounted dividend valuation sensitivity to gold prices and costs

Valuation (pence per share)		Gold price					
		Spot price*	-20%	-10%	Base case	+10%	+20%
	+20%	0.00	0.00	0.45	1.35	2.29	3.23
	+10%	0.10	0.14	1.03	1.97	2.91	3.85
Cash costs	Base case	0.68	0.72	1.64	**2.59**	3.53	4.48
	-10%	1.27	1.32	2.26	3.21	4.16	5.11
	-20%	1.88	1.93	2.88	3.83	4.79	5.75

Source: Edison Investment Research. Note: *US$1,128/oz.

A 10% change in the gold price from our long-term forecasts therefore results in a c 0.94p per share change in our KEFI valuation, whereas a 10% change in cash costs (excluding royalty and offsite costs) results in a 0.62p per share change.

Exhibit 7: Discounted dividend valuation relative to discount rate

Discount rate (%)	0%	5%	10%	15%	20%	25%	30%
Valuation (pence)	6.21	3.94	**2.59**	1.75	1.22	0.87	0.63

Source: Edison Investment Research

Financials

KEFI's financial results for the half year to 30 June 2015 were consistent both with what investors should expect from a junior mining company and our forecasts. As at 30 June, the company had cash of £1.0m on its balance sheet (cf £0.6m on 31 December 2014) after a cash burn of £3.6m (cf £3.8m in H114 and £6.3m in FY14). For the purposes of our valuation (and in line with company guidance), we have assumed one further equity raise of US$5m in FY15 via the issue of an additional 619.4m shares (vs 859.4m previously) at a price of 0.53p/share.

On the basis of these assumptions, we estimate that KEFI will have a maximum funding requirement (likely to be satisfied predominantly by debt) of £40.0m (excluding streaming) in FY17 (see Exhibit 8).

Streaming will create an additional contingent liability in KEFI's accounts, which we estimate in the order of £28.1m at its maximum extent in FY17 (see above and also Exhibit 8). However, streaming is associated with less risk than debt (and is not considered as debt by the lending banks), as it has neither debt-service covenants nor a fixed repayment schedule.

Exhibit 8: Financial summary

£'000s	2013	2014	2015e	2016e	2017e
December	IFRS	IFRS	IFRS	IFRS	IFRS
PROFIT & LOSS					
Revenue	0	0	0	0	40,859
Cost of Sales	(927)	(2,071)	(1,697)	(1,971)	(31,850)
Gross Profit	(927)	(2,071)	(1,697)	(1,971)	9,010
EBITDA	(927)	(2,071)	(1,697)	(1,971)	9,010
Operating Profit (before amort. and except.)	(927)	(2,189)	(1,857)	(5,850)	2,584
Intangible Amortisation	0	0	0	0	0
Exceptionals	(442)	(379)	(200)	0	0
Other	0	0	0	0	0
Operating Profit	(1,369)	(2,568)	(2,057)	(5,850)	2,584
Net Interest	4	(413)	10	(292)	(3,364)
Profit Before Tax (norm)	(923)	(2,602)	(1,847)	(6,143)	(780)
Profit Before Tax (FRS 3)	(1,365)	(2,981)	(2,047)	(6,143)	(780)
Tax	0	0	0	0	0
Profit After Tax (norm)	(923)	(2,602)	(1,847)	(6,143)	(780)
Profit After Tax (FRS 3)	(1,365)	(2,981)	(2,047)	(6,143)	(780)
Average Number of Shares Outstanding (m)	493.4	952.4	1,799.6	2,363.8	2,363.8
EPS - normalised (p)	(0.4)	(0.4)	(0.2)	(0.3)	(0.1)
EPS - normalised and fully diluted (p)	(0.4)	(0.4)	(0.1)	(0.3)	(0.1)
EPS - (IFRS) (p)	(0.3)	(0.3)	(0.1)	(0.3)	(0.0)
Dividend per share (p)	0.0	0.0	0.0	0.0	0.0
Gross Margin (%)	-	-	-	-	22.1
EBITDA Margin (%)	-	-	-	-	22.1
Operating Margin (before GW and except.) (%)	-	-	-	-	6.3
BALANCE SHEET					
Fixed Assets	7,152	9,299	15,791	61,313	79,460
Intangible Assets	6,900	9,139	10,688	9,800	8,912
Tangible Assets	252	160	3,879	50,289	69,324
Investments	0	0	1,224	1,224	1,224
Current Assets	4,014	1,061	508	3,679	6,849
Stocks	0	0	0	1,702	3,405
Debtors	655	335	422	1,890	3,358
Cash	3,279	640	0	0	0
Other	80	86	86	86	86
Current Liabilities	(3,363)	(3,202)	(2,296)	(2,300)	(2,456)
Creditors	(3,363)	(3,202)	(2,296)	(2,300)	(2,456)
Short term borrowings	0	0	0	0	0
Long Term Liabilities	0	0	(2,658)	(45,247)	(68,076)
Long term borrowings	0	0	(2,658)	(15,702)	(40,000)
Other long term liabilities	0	0	0	(29,545)	(28,076)
Net Assets	7,803	7,158	11,345	17,445	15,777
CASH FLOW					
Operating Cash Flow	(1,424)	(2,006)	(2,690)	(5,138)	5,995
Net Interest	4	(413)	10	(292)	(3,364)
Tax	0	0	0	0	0
Capex	(877)	(3,133)	(7,540)	(50,289)	(25,460)
Acquisitions/disposals	(1,083)	(750)	0	0	0
Financing	4,735	3,663	6,922	13,131	0
Dividends	0	0	0	0	0
Net Cash Flow	1,355	(2,639)	(3,298)	(42,588)	(22,829)
Opening net debt/(cash)	(1,924)	(3,279)	(640)	2,658	45,247
HP finance leases initiated	0	0	0	0	0
Other	0	0	0	0	0
Closing net debt/(cash)	(3,279)	(640)	2,658	45,247	68,076

Source: Company sources, Edison Investment Research

Frankfurt +49 (0)69 78 8076 960
Schumannstrasse 34b
60325 Frankfurt
Germany

London +44 (0)20 3077 5700
280 High Holborn
London, WC1V 7EE
United Kingdom

New York +1 646 653 7026
245 Park Avenue, 39th Floor
10167, New York
US

Sydney +61 (0)2 9258 1161
Level 25, Aurora Place
88 Phillip St, Sydney
NSW 2000, Australia

Wellington +64 (0)48 948 555
Level 15, 171 Featherston St
Wellington 6011
New Zealand