EDISON

KEFI Minerals

Operational update

Blue sky and beyond

Metals & mining

KEFI has formally mandated the placing of US$160m of Luxembourg-listed infrastructure bonds, which are expected to fund ownership by the Luxembourg-regulated SPV of the gold processing plant and ancillary infrastructure at the Tulu Kapi Gold Mines Share Company (TKGM), jointly owned by KEFI Minerals (Ethiopia) and the Ethiopian government. This initiative follows a positive draft independent technical expert's report on the project. Subject to completion of all due diligence, documentation and government approvals, drawdown and development is planned for the end of the Ethiopian wet season, in September. While originally designed as a 1.2Mtpa operation, plant throughput at Tulu Kapi has since been increased to 1.9–2.1Mtpa for around the same overall capital cost.

Year end	Revenue (£m)	PBT* (£m)	EPS* (p)	DPS (p)	P/E (x)	Yield (%)
12/15	0.0	(2.0)	(3.0)	0.0	N/A	N/A
12/16	0.0	(2.5)	(1.6)	0.0	N/A	N/A
12/17e	0.0	(2.9)	(0.9)	0.0	N/A	N/A
12/18e	0.0	(2.8)	(0.4)	0.0	N/A	N/A

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

Tulu Kapi project significantly upgraded

On 19 April, KEFI reported that community resettlement procedures were being formalised with local government agencies following the new government appointments arising from the appointment of a new prime minister on 2 April 2018. Compared to its earlier guidance of a project NPV_8 of US$92m at the start of construction, KEFI's models now indicate a value of US$115m (or 19c or 13.8p per existing share for a 55% interest – see page 18) at a US$1,300/oz gold price.

Valuation: 2.3x the current share price

Once developed, we calculate that Tulu Kapi is capable of generating free cash-flow of c £38.6m a year for eight years, from 2021 to 2028 (inclusive). With average (maximum potential) dividends of 2.10p/share for the five years from 2024 to 2028, this implies a valuation for KEFI of 6.38p/share (at a 10% discount rate), rising to 10.27p/sh in FY21, when we estimate that the first potential dividend could be paid (given that the majority of the proposed financing is in the form of a bond). Stated alternatively, we estimate that an investment in KEFI shares now at a price of 2.795p could generate an internal rate of return to investors of 23.3% over the 12 years to 2029 in sterling terms. Note that this valuation ignores the pipeline of other exploration and development targets in the KEFI portfolio. If KEFI is successfully able to leverage its cash flow from the mine into other assets in the region, then we estimate that a valuation of 13.02p is achievable. In the meantime, the stock is trading on an enterprise value multiple of just US$7.64 per resource ounce, which is 24.8% below our estimate of the global average discovery cost of an equivalent resource.

8 May 2018

Price	**2.795p**
Market cap	**£9m**
	US$1.3731/GB£
Net cash (£m) at 30 June 2017	1.6
Shares in issue	332.7m
Free float	89.5%
Code	KEFI
Primary exchange	AIM
Secondary exchange	N/A

Share price performance

%	1m	3m	12m
Abs	(3.3)	(13.9)	(41.0)
Rel (local)	(7.0)	(10.1)	(43.1)
52-week high/low		10.9p	4.1p

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

Community resettlement confirmed	Q218
Project equity plan committed	Q318
Project finance etc drawdown	End-Q318
Community resettlement starts	Q418
Mobilisation and procurement	Q418

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Edison profile page

Investment summary

Company description: Arabian-Nubian Shield specialist

KEFI was formed in 2006 and has since come to focus its exploration and development activities solely on the ANS. Its lead project is Tulu Kapi in Ethiopia, which it acquired from Nyota between December 2013 and September 2014 for a total consideration of £5.25m plus 50m shares, followed by Jibal Qutman in Saudi Arabia. Despite two states of emergency in Ethiopia over the past two years, the Ethiopian government has smoothly transitioned itself to the appointment of a popular new prime minister who also happens to be from the region where the Tulu Kapi project ranks as a top priority. Ethiopia has preserved its ranking of 15 years running among the world's top growth countries. Tulu Kapi – also a national priority project – is now in the final stages of due diligence ahead of final project financing, draw down and project mobilisation in Q3 and Q418.

Tulu Kapi project

Tulu Kapi comprises a resource of 1.76Moz (at a 0.5g/t cut-off), of which 59.7%, or 1.05Moz, has been converted into appropriately mineable reserves. While originally designed as a 1.2Mtpa operation in its 2015 definitive feasibility study, plant throughput has since been increased to 1.9–2.1Mtpa for approximately the same capital cost, such that capital intensity has fallen by 28.4%, from US$153.25 per annual tonne of throughput to US$109.70/t. Thereafter, KEFI will produce 980koz gold over a seven-year mine life at an all-in sustaining cost of US$793/oz.

Valuation: 6.38p/sh, potentially rising to 13.02p

Once developed, we calculate that Tulu Kapi is capable of generating free cash flow of c £38.6m a year for eight years, from 2021 to 2028 (inclusive). With average (maximum potential) dividends of 2.10p/share for the five years from 2024 to 2028 inclusive, this implies a valuation for KEFI of 6.38p/share (discounted back to FY18 at a rate of 10% per year), rising to 10.27p/sh in FY21, when we estimate that the first potential dividend could be paid to shareholders (given that the majority of the proposed debt financing is in the form of a bond). Stated alternatively, we estimate that an investment in KEFI shares now at a price of 2.795p per share could generate an internal rate of return to investors of 23.3% over the 12 years to 2029 in sterling terms. Note, however, that this valuation is based on the projected dividend flow resulting from the execution of the Tulu Kapi project alone and ignores the pipeline of other exploration and development targets in the KEFI portfolio. If KEFI is successfully able to leverage its cash flow from the mine into other development assets in the region, then we estimate that a valuation of 13.02p is achievable.

Financials: Debt and project level equity protect returns

KEFI had £1.6m in cash on its balance sheet as at 30 June 2017, after receiving the first £2.2m of a £5.62m equity financing programme H117. It plans to finance its US$239.4m capex funding requirement via a TKGM bond (US$160m) and project-level equity (US$50m in addition to the US$60m equity already invested), and an ore stockpile banking facility (US$10-20m). For valuation purposes, Edison assumes a further residual funding requirement of US$15.4m, which we assume will be equally split between mezzanine finance (eg streaming) and parent company equity, of which at least c US$3.0m has already been committed. While the principal financing is the off-balance sheet infrastructure funding for TKGM, if all funding sources are considered, we forecast a maximum aggregate net debt funding requirement overall for the project of £70.8m (US$97.2m) in FY20, which (in Edison's estimation) equates to an approximately 58:42 net debt:equity ratio at the project level. Note that our estimate of aggregate debt has deliberately incorporated all components

at the project level, whether on- or off-balance sheet, and comprises cash, the TKGM bond (US$160m), ore stockpile facility (US$10-20m) and streaming contingent liability (US$4.6m).

Sensitivities: ±10% Au change results in ±64% valuation change

A ±10% change in the gold price relative to our forecasts (see Exhibit 13) results in a 4.07p change in our valuation, while a ±10% change in costs results in a 3.02p change.

Company description: Transitioning into production

KEFI was formed in 2006 and has since rapidly evaluated and relinquished a number of exploration properties as well as acquiring new projects. The ANS, which spans the African and Arabian plates, became the company's primary focus in 2008, when it commenced exploration in Saudi Arabia. It expanded its activities on the ANS in December 2013, when it acquired 75% of Tulu Kapi in Ethiopia for £4.5m, from the previous licence holder, Nyota Minerals. In September 2014, it bought the remaining 25% of Tulu Kapi for £750,000 plus 50m shares. KEFI's exploration activities are now concentrated exclusively on the ANS, with Tulu Kapi in Ethiopia its flagship project, followed by Jibal Qutman in Saudi Arabia.

History

The ANS is the source of some of man's earliest known mining activities, including the Mahd adh Dhahab ('Cradle of Gold') mine, which is the leading gold mining area in the Arabian peninsula. Gold was first mined in the area around 5,000 years ago in the form of swarms of gold-bearing quartz veins and the site has been identified as one of the possible locations of King Solomon's mines, with archaeologists having found a large abandoned gold mine, c 1Mt of waste rock and thousands of stone hammers and grindstones left by early artisanal miners.

Tulu Kapi

Although very little detailed academic work was performed on it at the time, the Tulu Kapi deposit was known and exploited as long ago as the 1930s, when an Italian company (SAPIE) conducted saprolite, hydro-mining of the quartz veins at depth near the contact of the diorite and syenite, where the degree of albitization is less and the degree of silicification is more. Note that this mineralisation is not the immediate target of either KEFI's exploration work or its development plans (see Geology, below).

Having lain dormant for some years, exploration restarted under the auspices of the UN Development Programme (UNDP), which drilled two diamond holes at Tulu Kapi during the 1970s and identified the eponymous UNDP zone (see Geology, below). Canadian junior, Tan Range (TREC), continued exploration work with grid soil, ground geophysical and diamond drill work (five holes totalling 374m) between 1996 and 1998. Mapping, soil sampling, ground geophysics (induced polarisation and magnetics) and additional drill holes (34 diamond drill holes totalling 6,908m on an 80x80m grid) were then performed by GPMC/Minerva between 2005 and 2009, which resulted in its reporting a maiden inferred resource at Tulu Kapi of 690,000oz gold in September 2009.

Exploration was intensified between 2009 and 2013 by Tulu Kapi's new owner, Nyota, in the form of airborne (radiometry) and ground (induced polarisation and magnetics) geophysical surveys plus 14 trenches (totalling 98m) and infill drilling (259 diamond drill holes, totalling 65,125 m, and 331 reverse circulation (RC) holes totalling 38,328m), which led to the expansion of the resource to 1.9Moz at an average grade of 2.3g/t (cf Exhibits 3 and 4, below).

After a period of due diligence, KEFI acquired 75% of Tulu Kapi for £4.5m in December 2013 (cf historic exploration expenditure of >US$50m, source: KEFI Minerals), equivalent to US$5.17 per

contemporary resource oz. In September 2014, it bought the remaining 25% of Tulu Kapi for £750,000 plus 50m shares – equivalent to US$5.06/oz at that time – such that its total consideration in respect of Nyota's 1.9Moz resource estimate (cf Exhibits 3 and 4, below) was US$9.77m (equivalent to US$5.14/oz).

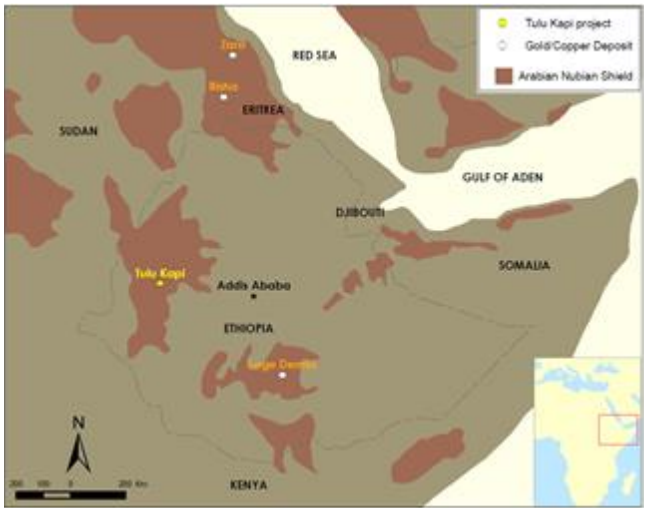
Geography

Tulu Kapi is located in the Oromia regional state (the biggest in the country) and in the Ghimbi/Gimbe zone of western Ethiopia, approximately 360km west of Ethiopia's capital, Addis Ababa. It is accessible via a 565km main road that passes less than 12km from the site and takes approximately 10 hours to complete by car. The government has reserved for KEFI the exploration rights over 1,000km^2 of the Tulu Kapi district, for exploration to commence as soon as Tulu Kapi development is triggered. This area includes the Tulu Kapi deposit and surrounding areas. The site is 1,600–1,765m above sea level.

Exhibit 1: Location of the ANS and major tectonic structures

Source: KEFI Minerals

Exhibit 2: Location of Tulu Kapi in the ANS



Source: KEFI Minerals

Geology

In general, the ANS consists of Precambrian crystalline rocks and hosts various minerals in a diverse range of deposit formations, including gold, copper, zinc, tantalum, silver and potash, which can be found in mesothermal gold, polymetallic, quartz vein gold and volcanogenic massive sulphide (VMS) ores.

Tulu Kapi

The region around Tulu Kapi consists of typical greenstone geology. Tulu Kapi itself is located in the Tulu-Dintu shear zone – a major north-east/south-west trending fault – which is characterised by Neoproterozoic, meta-volcanic sedimentary successions that have been faulted and folded and intruded granites, mafics and ultra-mafics. The deposit itself exists at the contact of three plutonically related lithologies, being one syenite and two diorites into which two major dyke swarms have intruded (being porphyritic, dioritic and basic in nature, thereby indicating a dilational environment). Gold is hosted in the syenite, stacked up against the diorite, leading KEFI to posit that it represents a structurally-controlled, hydrothermally altered deposit in which the host rock is the gabbro sill, the heat source was the quartz and the structurally suitable deposition zone is albitized syenite. It is thought that the syenite itself is unlikely to be the source of the gold-bearing

fluids and current thinking is that the shear zone represents a structure created by reactivation of a former vein-fault zone. This reactivation caused the brittle syenite intrusion to shear, thereby forming a series of low angle faults that provided the conduit for both the swarm of dolerite sills and the mineralising fluids. As such, the principal gold mineralisation at Tulu Kapi is associated with shallow (c 30^{o}) north-west dipping zones of dense gold-bearing quartz veining, enveloped by an auriferous, highly albitized, metasomatic alteration centred on the shear zone. Gold is generally only associated with the albitized zones (including gold contained within quartz veins and fractures); however, there does not appear to be any correlation between the degree of albitization and the gold grade. The alteration also involves the replacement of the mafic minerals with sulphides (see Metallurgy, below). One of the significant consequences of this formation is the marked visible distinction between the (green) host rock of mafic syenite and the (white) ore comprising albitized syenite. The albitized zones are of a lensoid nature comprising discrete, stacked bodies that pinch and swell along both strike and dip. The thickness of the individual albitized zones is highly variable. Dykes and/or sills are present within the syenite in the form of mafic rocks (dolerite) and are up to 10m in thickness.

There are two ostensible zones of mineralisation, being the more fractured, but higher-grade central zone (c 2.7g/t) and the generally lower grade (c 1.1g/t), albeit first to be discovered, UNDP zone. The two are separated by the UNDP fault (an in-filled dyke). However, there is no major faulting to offset mineralisation.

The exact nature of the shear zone has not been fully confirmed and the shear contact is considered to be complex with deep drilling having identified high gold grades within the diorite located beyond the shear. In addition, deep diamond drilling has identified particularly high gold grades at depth, within the syenite, close to the shear zone. Note that the degree of alteration in the syenite reduces with depth, with less albitization and more silicification. This zone is variously known by KEFI either as ‘the deeps’ or ‘the feeder zone’.

Reserves and resources

The currently defined mineralisation at Tulu Kapi exists within in a 1,500 x 400m surface area, with gold, silver and pyrite existing in conjunction with minor amounts of sphalerite and galena. Resources in the (main) central area have been drilled on a 40m grid, concentrating to a 20m grid in some areas, which is relatively dense given the style of mineralisation and therefore suitable for reporting to the indicated category of resources. Outside the central area, the grid ranges from 40m to 80m and is suitable for inclusion within the inferred category. Note that a large portion of the resource also exists in the indicated category owing to extensive RC drilling.

Including Jibal Qutman, a summary of KEFI’s total attributable resource (with Tulu Kapi’s resource being assessed at a cut-off grade of 0.5g/t) is as follows:

Exhibit 3: KEFI Minerals' total attributable resource

		Cut-off grade (g/t)	Tonnage (Mt)	Grade (g/t)	Contained gold (Moz)	Attributable interest (%)	Attributable resource (Moz)
Tulu Kapi							
	Measured	0.50	0.00	0.00	0.00	*100	0.00
	Indicated	0.50	19.40	2.65	1.65	*100	1.65
	Inferred	0.50	1.51	2.32	0.11	*100	0.11
	Total	0.50	20.91	2.62	1.76	*100	1.76
Jibal Qutman							
Oxide	Measured		0.00	0.00	0.00	40	0.00
	Indicated		8.30	0.86	0.23	40	0.09
	Inferred		2.80	0.64	0.06	40	0.02
	Sub total		11.10	0.80	0.29	40	0.11
Sulphide	Measured		0.00	0.00	0.00	40	0.00
	Indicated		9.70	0.86	0.27	40	0.11
	Inferred		7.60	0.72	0.18	40	0.07
	Sub total		17.30	0.80	0.45	40	0.18
Oxide + sulphide	Measured		0.00	0.00	0.00	40	0.00
	Indicated		18.00	0.86	0.50	40	0.20
	Inferred		10.40	0.70	0.24	40	0.10
	Total		28.40	0.80	0.73	40	0.29
Grand total	**Measured**		**0.00**	**0.00**	**0.00**		**0.00**
	Indicated		**37.40**	**1.79**	**2.15**		**1.85**
	Inferred		**11.91**	**0.93**	**0.36**		**0.21**
	Total		**49.31**	**1.58**	**2.51**		**2.06**

Source: KEFI Minerals, Edison Investment Research. Note: *The Ethiopian government became entitled to a 5% free-carry interest in Tulu Kapi upon granting of the Mining Licence in April 2015. KEFI's interest will further reduce to c 75% upon the Ethiopian government's project level investment into Tulu Kapi and then potentially to c 55% depending on the degree of additional project level funding (see Funding mix on page 18).

This modifies only fractionally for Tulu Kapi when considered with respect to differentiated cut-off grades to reflect discrete open pit and underground mining domains.

Exhibit 4: Tulu Kapi resource at differentiated cut-off grades

	Category	Cut-off (g/t)	Tonnes (Mt)	Grade (g/t)	Contained gold (Moz)
Above 1,400m RL	Measured	0.45	0.00	0.00	0.00
	Indicated	0.45	17.70	2.49	1.42
	Inferred	0.45	1.28	2.05	0.08
	Sub total	**0.45**	**18.98**	**2.46**	**1.50**
Below 1,400m RL	Measured	2.50	0.00	0.00	0.00
	Indicated	2.50	1.08	5.63	0.20
	Inferred	2.50	0.12	6.25	0.02
	Sub total	**2.50**	**1.20**	**5.69**	**0.22**
Total	Measured		0.00	0.0	0.00
	Indicated		18.78	2.67	1.62
	Inferred		1.40	2.40	0.10
	Total		**20.18**	**2.65**	**1.72**

Source: KEFI Minerals, Edison Investment Research

Of the 'above 1,400m RL' resource, 81% of the tonnage, 86% of the grade and 70% of the gold inventory have subsequently been converted into appropriately mineable reserves, as follows:

Exhibit 5: Tulu Kapi reserves

Category	Cut-off grade (g/t)	Tonnage (Mt)	Grade (g/t)	Contained gold (Moz)
Probable (high grade)	0.9	12.00	2.52	0.98
Probable (low grade)	0.5-0.9	3.30	0.73	0.08
Total		**15.40**	**2.12**	**1.05**

Source: KEFI Minerals, Edison Investment Research

Note that the mine design around which these reserves are derived is based on an optimised pit shell using a gold price of US$1,250 per ounce and that gold mineralisation remains open at depth (>400m below surface).

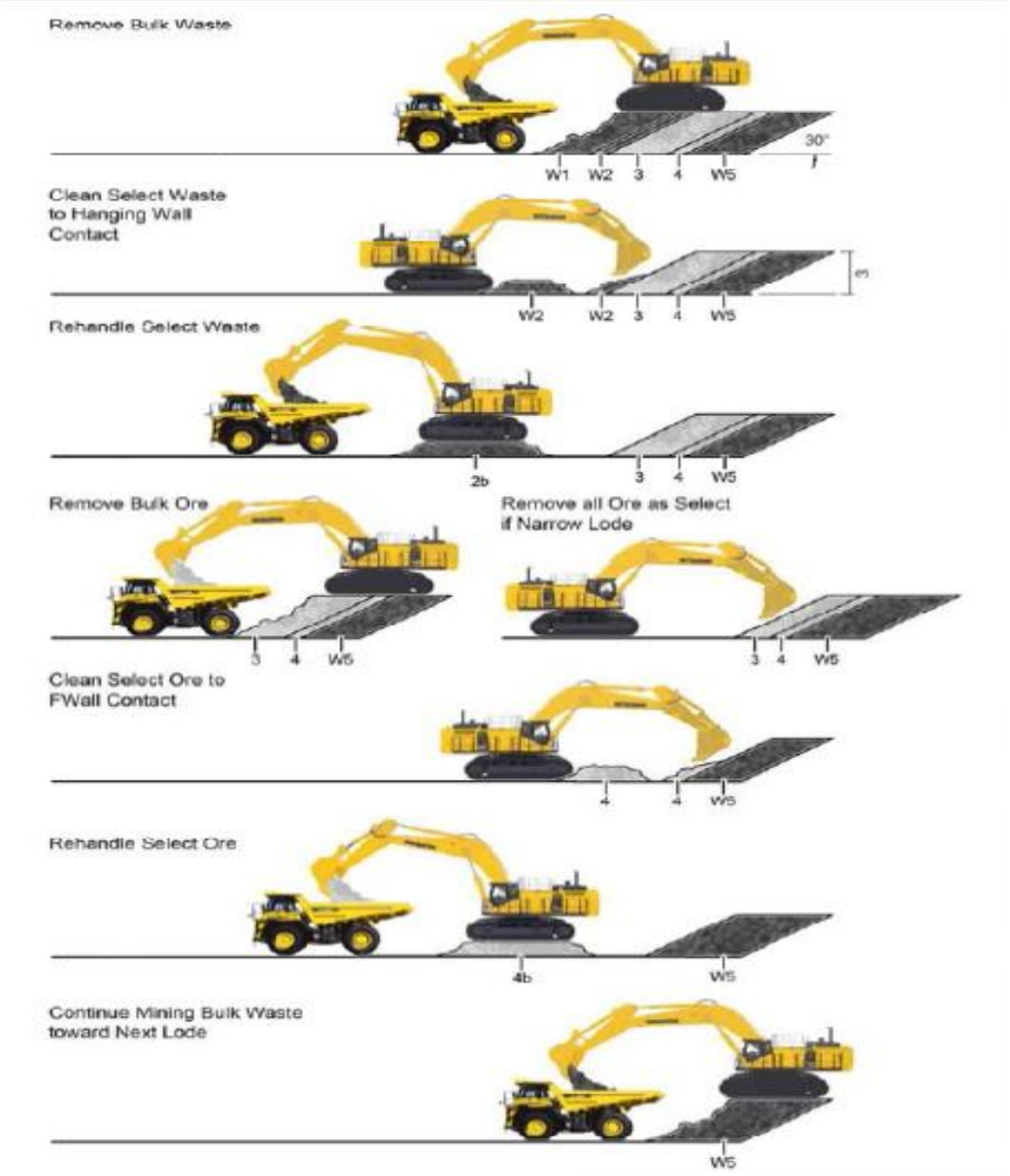
Mining

The Tulu Kapi mine design is based on conventional open-pit mining methods. Open-pit and blast mining in conjunction with load and haul will be configured on 7.5m benches using 120t backhoe excavators. Every second blast hole will be used for grade control. As per KEFI's draft mine services contract with Ausdrill, to further increase the mined gold grade, a "bulk" mining approach will be applied to 70–80% of the ore and 90–95% of all material mined and a "selective" mining approach to 20–30% of the ore and 5–10% of all material mined. In this case, there will be a specific requirement for excavator cleaning and re-handling of waste material in a seven-step process:

1. bulk waste removal;
2. cleaning waste from the hanging-wall contact;
3. re-handling of selective waste;
4. removal of bulk ore;
5. cleaning of selective ore to the footwall contact;
6. re-handling of select ore; and
7. continuation of waste material mining.

It is envisaged that mining will progress across the bench from west to east to avoid collapsing the ore material into the waste. A schematic representation of the ore loading cycle is shown below:

Exhibit 6: Selective mining ore loading cycle, schematic representation



Source: KEFI Minerals

In general, the cycle uses more productive top loading of trucks. However, the excavator will need to be on the same level as trucks when handling material less than 1m thick at the extreme eastern and western limits of the pit. In conjunction with the more selective loading cycle, this increases mining costs to an average US$3.56/t, but is more than offset by the resulting decrease in dilution. This method of mining inevitably confers a requirement for precise and accurate blasting on the operators. A water cannon will also be used in the pit to assist ore spotters to distinguish between (white) ore and (green) waste.

The average stripping ratio of the open pit in the first two years of operations is 5.5:1, owing to the dip of the orebody rather than rock competence or topography. It is relatively lower in earlier years, but then increases in the third year, when operations enter a low density area of veins, before falling again at the end of the life of the mine, such that it averages to 7.47 to one over the life of operations. The berm width is 6m for 15m high batters, increased to 10m at the base with a maximum inter-ramp height of 120m. Geotechnical berms will be accommodated by the in-pit road.

Initially, it is expected that a workforce of 700 plus 300 for construction will be required. This will decline to c 700 once steady-state production is achieved. However, the mine will indirectly support a further 250 employees through its ongoing supply requirements.

Metallurgy

Petrography

Petrographical studies have determined that the gold at Tulu Kapi occurs on the grain boundaries and fractures within sulphides. The gold grains vary in size from c 1µm to 300µm, with an average of c 11µm – hence gold grains can occasionally be seen in core.

According to a 2007 study commissioned by GPMC (the then owner), the most abundant type of sulphide associated with the gold is pyrite, followed by sphalerite, bornite, chalcopyrite, galena, arsenopyrite and tetrahedrite-tennantite. Encouragingly, there is an absence of gold in arsenic, tellurium and antimony sulphide minerals.

Weathering

The Tulu Kapi syenite hill is divided into two weathering zones: weathered and unweathered zone. There is a sharp transition between the oxides and sulphides and the transition zone between the two is reported to range from <1m to only several metres in the majority of the deposit. On account of its negligible thickness, previous work on the metallurgical characteristics of this transition zone was discontinued. There is no evidence of supergene enrichment.

Plant design

Initial conclusions relating to the metallurgical test work to date are summarised below:

- the oxide and transitional ores are of medium hardness and fresh ore becomes harder with increasing depth;
- all the ore types are amenable to gold extraction by conventional cyanidation;
- leach dissolutions of 97.4% and 96.4% were obtained for oxides and deep, hard, fresh ores, respectively, at a P_{80} grind size of 75µm in a leach time of 24 hours;
- recovery test work with and without gravity separation showed that gravity separation did not significantly increase overall gold recovery. As a result, run-of-mine cyanidation was selected as the process route; and
- leach optimisation test work ultimately indicated the following optimum parameters:
  - optimum grind: 80% passing 75µm
  - optimum initial cyanide concentration: 0.035% NaCN
  - presence of preg-robbers: 1.75%
  - resonance time: 24 hours

As a result, a conventional carbon-in-leach process route was chosen to mitigate the effects of potential preg-robbing, especially at the start of operations, on account of incomplete grubbing and clearing of organic material before processing. Later, in consideration of project refinements, a number of modifications to the process flow-sheet were made to simplify the operation of the plant as well as restraining costs, including:

- the modification of the processing plant comminution circuit from a primary SAG mill and secondary ball mill to a larger SAG mill-only circuit, and
- an increase in the grind size from P_{80}=75µm to P_{80}=150µm.

A secondary crusher may be required in the fourth year of operations to process the harder, fresh ore.

The on-site infrastructure will be built by Lycopodium, including the processing plant, provided under a fixed price engineering, procurement and construction (EPC) contract, and the accommodation village, earthworks, water dams and tailings storage facility under a 'cost plus' EPC management arrangement. In general, the plant has been designed to be 'dumb' (ie with low levels of automation, such as automatic titration) to reflect the fact that the operation will be in a country with limited initial access to appropriately trained technicians. Overall life-of-mine recoveries of gold are forecast to average c 93.0%.

Community resettlement

All land in Ethiopia is owned by the government and every Ethiopian is entitled to land (effectively, on a long lease) at the age of 18, although the land is allocated to the family at an earlier stage. As a result, the landscape is characterised by a large number of small landholdings and any initiative such as the development of a mining project at Tulu Kapi will require a programme of resettlement including, where appropriate, infrastructure such as roads and schools etc. This process is concluded via the agency of the government and it is a not uncommon aspect of life in Ethiopia. In the case of Tulu Kapi, the focal government entity is the Ministry of Mines.

Given KEFI's current mining plan, 260–300 households will require relocation, representing c 1,300 people from the local kebele (village) plus a further c 500 people from the surrounding countryside. As a consequence, KEFI has been involved in an active period of community consultation (in collaboration with the government) and stakeholder engagement, with the result that its Resettlement Action Plan (RAP) has now been approved as part of the mining agreement signed between the company and the government. In negotiating the RAP, KEFI and the government offered the villagers 17 potential site options, of which three were chosen by the villagers. The most favoured site is reported to be situated on better agricultural land, although land that is arguably not optimally suited to coffee cultivation (an important cash crop in Ethiopia).

In consideration of the RAP, KEFI has budgeted US$13.5m (which is deductible against future tax liabilities). This includes building starter homes, livelihood restoration and community development. In addition to compensation for structures, residents are also entitled to crop compensation (eg five years for coffee). Residents have a statutory 90-day time limit to relocate once compensation has been paid and appropriate infrastructure constructed.

On 19 April, KEFI announced that formalities had been triggered at site for resettlement details for each individual household. This followed a re-engagement by local government with the company following the recent change of government leadership arising from the appointment of a new prime minister on 2 April 2018.

Infrastructure

Power

The plant will be powered by overhead grid power lines. Existing power lines are 40km away. A new, 47km long, 132kV power line from Gimbi to Tulu Kapi will also be required, which KEFI will construct and then sign over to the government. The plant's initial power requirement is estimated at 10MW plus an additional 3MW at start-up. It may then increase to 13MW as a result of the incorporation of an additional secondary crusher to process the fresh ore from the fourth year of operations. Hence, infrastructure will be constructed for a power requirement of 15MW, with the additional 2MW being made available to the local community. The estimated capital cost of the power infrastructure is US$10.5m plus a US$1.0m contingency.

A 5MW emergency power plant, comprising three generators, has also been budgeted as a back-up supply. It will be sized to keep certain, key process equipment operational when grid power is not available at an estimated additional capital outlay of US$0.4m.

In its Q118 quarterly update, KEFI reported that the Ethiopian Electric Power Corporation has confirmed its commitment to completion of its installations for Tulu Kapi at the end of 2019 as part of the Ethiopian government's earn-in of an additional 20% interest in Tulu Kapi at project level.

Water

Western Ethiopia experiences average annual precipitation of 150cm annually (cf 59.4cm a year in London). The majority of this occurs in the wet season, between May and September, and particularly between June and August. Nevertheless, the design of the process plant is around the concept that rainwater can be captured during the two years of construction, stored and reused. There has also been provision for water bores as back-up in case of drought.

Roads

As part of its earn-in of an additional 20% interest in the Tulu Kapi at project level, the Ethiopian government has also agreed to construct two major roads outside the mine licence area to both minimise the impact of the operation on the local community and to improve Tulu Kapi's connectivity with the outside world during operations. Specifically, these are:

- a 14.97km road from the village of Kelley to Tulu Kapi, of which c 9.5km will be outside the mine licence area; and
- a 4.5km southern bypass road.

In its Q118 Quarterly update, KEFI reported that the Ethiopian Roads Authority has also confirmed its commitment to completion of its installations for Tulu Kapi at the end of 2019.

Tailings and waste

The preferred site for the development of the Tulu Kapi tailings storage facility is an area immediately adjacent to and to the east of the proposed plant site. The site will be developed as an impoundment facility with staged downstream wall lifts to match the anticipated deposition of 1,200ktpa of gold tailings for a period of six years, after which the facility will be self-raised as a day-wall facility for a further five years.

Financial, fiscal and legal environment

All project plans have been approved and form a legally binding contract with the government as part of the mining agreement.

On granting a mining licence for Tulu Kapi, the Ethiopian government became eligible for a 5% free-carried interest in the project. Thereafter, revenues are subject to a 7% royalty and profits to 25% income tax (after deducting depreciation over a four year period for past capex). Moreover, the company's agreement is written in such a way that KEFI benefits from any future reduction in the 7% rate, but is protected from any future increases.

In the meantime, capital goods may be imported free from import taxes (assuming they are included on the Mining List). Taxes become payable once commercial production is declared.

Exploration

Although developing Tulu Kapi remains KEFI's immediate priority, there are a number of exploration prospects that provide potential for the incremental and marginal expansion of KEFI's gold output in

the future. To this end, KEFI has applied for two major land positions – one in Ethiopia and the other in Saudi Arabia – and is positioning itself for an aggressive exploration programme as soon as the financing of the Tulu Kapi mine is completed and construction has begun. Partnerships with the Ethiopian government and Saudi Arabia's ARTAR reinforce this.

Ethiopia

Although KEFI's exploration licence in Ethiopia has expired, management reports that the government has agreed its renewal – albeit timed to coincide with construction mobilisation at Tulu Kapi. KEFI has three major, immediate exploration targets in the country – Tulu Kapi underground, the Guji-Komto belt (a parallel structure to Tulu Kapi) and a gold-copper project to its north.

Parallel to Tulu Kapi: Guji-Komto

The Guji-Komto belt represents a series of old gold workings on a parallel strike to Tulu Kapi extending continuously for over 9km to the west of the Tulu Kapi pit. The most extensive historic workings are located at the Komto 1 prospect and prior exploration drilling by Nyota had already extended the limits of mineralisation by up to 4km. At 1.3–1.5g/t in-situ, the grade of this mineralisation was considered too low to be included in the development plan for the mine. However, impressive widths and the oxide nature potentially qualify it as the basis of an incremental heap leach operation via the exploitation of a series of open pits in the style of a 'string of pearls'. Exploration results from one prospect – Guji – in particular serve to emphasise the potential:

- 23m at a grade of 1.5g/t gold (trench)
- 10m at 3.0g/t gold (trench)
- 19m at 4.4g/t gold (trench)
- 44m at 1.7g/t gold (drill hole)

The 24-hour coarse crush (>6mm), cyanide leach bottle roll metallurgical tests (a proxy for column leach tests) have been completed on selected trench samples and demonstrate a recovery of c 94%. Preliminary management estimates indicate that c 250koz of gold could be amenable to exploitation by such methods, with low-grade material being directed to heap leach pads and high-grade material to the existing carbon-in-leach CIL plant at Tulu Kapi. Such an operation, based on preliminary management estimates, could produce c 40koz gold a year over five years for a relatively small incremental capital outlay of US$30.42m, or US$663 per annual oz of production (on account of infrastructure already being in place to service Tulu Kapi) and could have a net present value in the order of US$26–47m at the gold prices shown below (note that these are illustrative numbers and are subject to the results of exploration and development studies:

Exhibit 7: Guji-Komto indicative financials

Gold price (US$/oz)	1,100	1,200	1,250	1,300
NPV_{10}	26.9	36.8	41.8	46.8
Ditto per existing KEFI share (US cents)*	7.7	10.5	11.9	13.4
IRR (%)	45	57	63	69

Source: KEFI management estimates. Note: *95% basis.

Underground at Tulu Kapi

In addition to potential satellite heap leach operations, c 333koz of resources exist at depth at Tulu Kapi in the indicated and inferred categories at grades of approximately 6.3g/t. Mineralisation increases in grade and thickness with depth, and remains open at depth and along strike to the north. In this case, the higher grade could be attributed to either a tighter structure or a hotter environment on formation. In either case, based on the latest interpretation, it is considered that there is exploration potential to triple the current underground mineral resource to c 1Moz. In the meantime, the widths of the structures typically exceed 4m and are therefore amenable to

underground mining. The higher grades also contribute to higher metallurgical recoveries – typically 93–94%.

While developments are at a relatively early stage, a preliminary economic assessment (PEA), dating from March 2014, envisages an incremental, high-grade underground mining operation at Tulu Kapi processing 320,000t of ore per year to produce 40–50koz Au per year for an initial four-year life of mine. Access would be via decline from the open pit and mining would be mechanised on stopes designed for vertical thicknesses of 4-25m and larger widths. Capital expenditure is estimated at US$36.5m (c US$811 per annual oz of production), all-in sustaining costs at US$765/oz, on which basis the NPV of the project is estimated to be US$44m at a gold price of US$1,250/oz and a discount rate of 8% – of which, KEFI's share would be c 55% (see Funding mix on page 18), or US$24.2m. Note that, once again, these are illustrative numbers, subject to the results of exploration and development studies.

North of Tulu Kapi: The Kata gold-copper project

The Kata gold-copper prospect is located 50km to the north of Tulu Kapi. It is characterised by 30m of gossan at surface and was explored by the United Nations (UN) in the early 1970s, including one hole of 14.3m at a grade of 3.2% Cu, which was abandoned and never assayed for gold. A subsequent, deeper hole intersected 35.51m at a grade of 0.82% Cu but was, once again, not assayed for gold.

Gossans are intensely oxidized, weathered or decomposed rocks, usually the upper and exposed part of an ore deposit or mineral vein. In the classic gossan, or iron cap, all that remains is iron oxides and quartz often in the form of quartz lined cavities retaining the shape of dissolved ore minerals (boxworks). Since antiquity however, gossans have been used by prospectors as guides to buried metal ore deposits.

To date, some 600m of the structure has been mapped at surface at a width of c 30m and down to a depth of c 120m, leading KEFI management to speculate that Kata could prove to be one of six undrilled VMS deposits in the area and potentially larger than Tulu Kapi itself – a VMS deposit being a type of metal sulphide ore deposit, mainly copper-zinc, which are associated with, and created by, volcanic-associated hydrothermal events in submarine environments (eg Bisha in Eritrea). If so, its current dimensions suggest a potential size of c 10–20Mt which, at a grade of c 1.5% Cu, could contain some 100–200kt of in-situ copper. However, soil geochemistry defines a 2km copper anomaly so, once its licence to explore Kata is granted, KEFI intends to test the prospect via two trenches and a geophysics programme to extend the strike of the known 600m defined by UN drilling before, ultimately, drilling it out. NB Illustrative numbers, subject to the results of exploration and development studies.

Saudi Arabia

Background

The Arabian side of the ANS is the source of some of man's earliest known mining activities, including the Mahd adh Dhahab ('Cradle of Gold') mine, which is the leading gold mining area in the Arabian peninsula, in the Al Madina province of the Hejaz region of Saudi Arabia, between Mecca and Medina. Gold was first mined in the area around 5,000 years ago in the form of swarms of gold-bearing quartz veins. The site has been identified as one of the possible locations of King Solomon's mines, where archaeologists have found a large abandoned gold mine, c 1Mt of waste rock and thousands of ancient stone hammers and grindstones.

In general, the ANS consists of Precambrian crystalline rocks and hosts various minerals in a diverse range of deposit formations, including gold, copper, zinc, tantalum, silver, and potash, which can be found in mesothermal gold, polymetallic, quartz vein gold and VMS ores.

The Saudi Arabian government has stated that it wishes to grow the mining sector materially in the future. In the past, all activity was conducted by the state-controlled Saudi Arabian Mining Company (Ma'aden). However, it has now been de-regulated and opened up to overseas investors (eg Barrick, among others), although Ma'aden remains the largest operator, with six gold mines in production and a number of exploration prospects.

Unlike many other jurisdictions, no royalties are levied on production in Saudi Arabia. Moreover, a requirement to demonstrate advance funds to underwrite future works on exploration licences (a requirement managed by ARTAR as the applicant on behalf of G&M, see Commercial and technical, below) acts as an effective barrier to entry for the more opportunistic junior explorers. On the other hand, up to 75% of the capital costs of strategic projects are eligible for Saudi Industrial Development Fund debt funding, which would leave KEFI (or any other company) required to fund just 40% of the 25% of the total capital cost of the project to maintain its interest. In the meantime, KEFI states that the cost of exploration in Saudi Arabia is close to US$40 per metre of RC drilling and US$100/m of diamond drilling (cf c US$160/m in Ethiopia).

Commercial and technical

KEFI's interest in Saudi Arabia began with the formation of a 40:60 joint venture, called Gold & Minerals (G&M), with the Saudi construction and investment group ARTAR (the vehicle of the Al-Rashid family). Despite its minority interest in the JV, KEFI nevertheless operates all G&M's assets in Saudi Arabia, while ARTAR provides administrative, logistic and professional services' advice.

The US Geological Survey and the French BRGM have jointly compiled approximately 60 years' worth of geological data on Saudi Arabia. In total, they documented over 5,000 historic mining sites in the country. This information has been acquired by KEFI and integrated over a nine-year period into its multi-layered proprietary database. Initially, this resulted in KEFI making 24 licence applications over areas with old workings and instigating early-stage trenching programmes. However, it has recently taken advantage of the period of change in Saudi Arabia (which included the adoption of new mining regulations) to overhaul its portfolio of exploration assets and to build up its land position. As a result, it has one mining licence application, one exploration licence, 17 exploration licence applications and four exploration licences pending, covering over 1,000km^2 of land. Within these are three priority projects, summarised below.

Jibal Qutman (gold)

Jibal Qutman comprises four licences covering c 100km^2 in the central southern region of Saudi Arabia, on the Nabitah-Tathlith fault zone of the Arabian-Nubian Shield (a 300km-long structure with multiple outcrops at surface) and along which BRGM mapped over 40 mineral occurrences and/or ancient mines. KEFI's management likens the area to Western Australia and, in particular, Kalgoorlie, before it was pegged, but without the attendant problems of a settled population and private land ownership. G&M was granted the Jibal Qutman exploration licence in June 2013 and it has subsequently lodged a mining licence application.

Gold mineralisation at Jibal Qutman itself is hosted in a series of quartz veins in six separate ore bodies, denoted the Main Zone, the South Zone, the West Zone, 3K Hill, 5K Hill and Pyrite Hill. The main vein dips to the east at an angle of c 45°, surrounded by parallel veins that form stringer zones around it. Jibal Qutman has now been drilled out and, during this process, the sulphide portion of its resource was found to be refractory on account of the presence of carbon. As a result, KEFI focused its exploration activities on the oxide portion of the resource and delineated a potential mineable resource of 6.6Mt at a grade of 0.95g/t, containing c 200koz gold, at a stripping ratio of 2.2 (cf grades of c 0.8g/t at comparable, proximate assets). Column leach metallurgical tests conducted by ALS indicated gold recoveries of c 73%, as a result of which KEFI envisaged developing the area via a string of pits mining oxidised material for heap leach processing. In May

2015, a preliminary economic assessment on the deposit was completed on the basis of a 1.5Mtpa heap leach operation, producing 139koz gold over an initial 4.5-year mine life (average 30.9koz pa) at an average metallurgical recovery of 69% and capex and opex of US$30m and US$597/oz, respectively. In due course, the addition of adjoining licences could support a proportionally larger production base using a modular development model (eg 2–4x that currently assessed) as well as reducing operational risk:

Exhibit 8: Jibal Qutman May 2015 preliminary economic assessment outcomes

	Existing resource		Trebled resource	
Gold price (US$/oz)	**1,150**	**1,300**	**1,250**	**1,300**
NPV_5 (US$m)	47.7	64.3	145.0	159.0
Ditto per existing KEFI share (US cents)*	5.7	7.7	17.4	19.1
IRR (%)	41	52	25	30

Source: KEFI Minerals. Note: *40% basis.

Note that the above analysis on the basis of a trebled resource also assumed a similar factor applied to capex whereas, in reality, there would probably be scope for capex savings as well as higher grades from alternative ore sources. In the immediate future, KEFI's objectives at Jibal Qutman include completing a pre-feasibility study as well as investigating the potential to develop heap leach operations to fund construction of a CIL processing plant for the deeper (albeit refractory) sulphide ore.

Jibal Qutman and environs

In addition to the Jibal Qutman mining licence application, G&M has four other exploration licence applications in the immediate area, named Jibal Qutman North and South and Abal Ajibawal North and South.

Jibal Qutman North and South

Jibal Qutman North hosts quartz vein style mineralisation in granites. Exploration is constrained by extensive sand cover and an absence of outcropping material, but rock chip sampling has yielded 25 samples from old workings at an average grade of 7.8g/t (range 1.0–66.5g/t) and KEFI estimates that it has the potential to host >0.5Moz, of which approximately half would be in oxide form (and therefore easily processed). Mineralisation within Jibal Qutman South is interpreted to be of a similar style (ie quartz vein within granites), although the entire 6.1x1.0km mineralised trend is also interpreted to be within a dilation zone. Old workings have yielded 67 rock chip samples to date with an average grade of 11.7g/t (within the range 1.0–58.2g/t), as a result of which KEFI estimates a mineralised potential of >1.0Moz Au, of which approximately half would again be in oxide form suitable for either heap leach or CIL processing.

Abal Ajibawal North and South

Abal Ajibawal comprises two contiguous tenements, denoted North and South, and hosts a 6km trend – interpreted to be a tensional zone within a shear zone – containing dozens of old workings, up to 1,200 years old. Importantly, the gold itself is reported to be in the granite and hence there is no potentially preg-robbing carbon associated with it. As a result, the sulphide portion of the mineralisation is also potentially amenable to processing, leading KEFI to estimate a mineralised potential of >1Moz within the two tenements.

Hawiah (copper and base metals)

The 95km^2 Hawiah exploration licence was granted in December 2014 and is now in renewal. It is located in the southwest of the Arabian Shield on the 120km Mamilah-Wadi Bidah Volcanogenic Mineral belt (which is three times as long as the Bisha belt in Eritrea), on which BRGM and the USGS documented c 24 VMS deposits and historic workings, of which at least one was subsequently drilled and found to contain copper at a grade in excess of 2%. In this respect, the

Wadi-Bidah Mineral District is almost unique in that not many VMS belts in the world remain undrilled and, as a result, KEFI has applied for an additional eight exploration licences in the area encompassing the majority of the belt and covering a cumulative >12km of gold gossans. Note that BRGM drilling on these gossans in the 1980s resulted in a resource of 1.2Mt at a grade of 6.4g/t, containing 254koz gold.

The Hawiah deposit itself is on a 6km gold mineralised gossan, 5–40m wide, and is interpreted to overlie a copper-gold-zinc massive sulphide target. An initial 53-trench surface sampling programme over a 6km horizon demonstrated early evidence of the presence of metals in the form of visible staining and included the following results:

- 6m at a grade of 2.2g/t
- 2m at 8.69g/t
- 6m at 1.94g/t
- 3m at 5.76g/t
- 2m at 7.54g/t
- 8m at 3.04g/t

Secondary copper was reported to have leached at the surface forming an enriched zone at the surface base. As a result, KEFI implemented a major geophysical survey over the southern half of the gossanous horizon, which identified a large, intense north-south trending self-potential geophysical anomaly (approximately 2,000m long, 300m high and 10-50m wide) potentially indicating the presence of massive sulphides plus a parallel anomaly with a similar, but less continually intense signature located 600m to the east. On account of its nature and potential scale, Hawiah is therefore a commercial priority for KEFI and it intends to simultaneously explore the prospect for a) a near-surface gold resource in the gossan via further trenching and RC drilling and b) a major copper-gold-zinc sulphide orebody along strike and/or at depth via a more detailed induced polarisation geophysical survey, with copper as the main target.

Applications registered and licences pending

One additional tenement, yet to be awarded, has been applied for by ARTAR on behalf of G&M (as with all applications in Saudi Arabia, application to date has been by ARTAR on account of the up-front need for financial capacity to complete the programmes and KEFI retains the right for all tenements to be transferred into G&M as and when appropriate). This particular tenement was explored by BRGM during the 1980s and lies immediately to the north of a prospect where a French operation subsequently intersected massive sulphides. Exploration results dating from 1989 include:

- 8.9m at 8.8g/t (drill hole)
- 5.1m at 8.7g/t (drill hole)
- 9.1m at 8.6g/t (trench)

Subsequent notable exploration results included 28.3m at 8.7g/t (trench) and one further drill hole intercept of 18m at a grade of 8g/t. The mineralised rock is described as a large, resistant gossan with evidence of supergene enrichment (and grades as high as 16g/t at the base of the weathering profile). While the tenement was drill tested, however, the process was not thorough and samples were, initially, assayed for gold alone, which resulted in a non-JORC resource estimate of 400koz. This was rectified by the USGS, which assayed for copper and thereby estimated a copper content of 2.0–2.5%, but not for zinc (which KEFI management speculates could be in the order of 2%). Because the area was located in a wadi in which there was a degree of agricultural development however, exploration rights over the area were allowed to lapse. Nevertheless, such gossans are typical of other areas of the Arabian-Nubian Shield, such as Sudan, where government-incentivised

artisanal mining has increased gold output from such large gossan systems, from 12.1t in 2010 to 39.9t in 2017, and propelled the country to being the second largest exporter of gold in Africa.

KEFI estimates that it would cost US$40–50m to drill the tenement appropriately, but also that it has received a farm-in approach by one of the majors to this end. It also proposes an ionic potential geophysical survey to develop a model of the mineralisation at depth. Note, however that, in the event of any farm-in, KEFI intends to retain the gold cap for its sole benefit.

Infrastructure

Hitherto, a significant constraint to the developing mining industry in Saudi Arabia has been a lack of access to water. However, Ma'aden has now commissioned a 450km, 18-inch pipeline to carry treated waste water to its region of operations. Management believes that a similar approach will apply to Jibal Qutman, near a major township. Water is also potentially available via artesian sources or trucking (note, there is a precedent for trucking water in Saudi Arabia, where fuel costs as low as US$0.10 per litre make this almost uniquely feasible).

In addition to cheap trucking costs, the low cost of fuel also results in a low power cost of c 2–3c per kWh for generated electricity. This means that the development of KEFI's Saudi Arabian assets will result in its operating in very low-cost jurisdictions with respect to power and labour, in particular, on both sides of the Red Sea, and thereby allow it to maintain total cash costs in the lower half of the global cost curve.

Assumptions

KEFI completed an updated definitive feasibility study (DFS) on the Tulu Kapi project in July 2015 in collaboration with Senet, Golders, Epoch and Snowden. The DFS reflected both a complete overhaul and an independent validation of Tulu Kapi's geological resources and reserves, with KEFI inserting significant additional data and 'wireframing' each individual ore lode in the system. Thereafter, the project's plant construction and mining operation was put out to international tender and was, with the winning tenderers, further refined and optimised via joint value-engineering exercises. In general, while the mine plan remained unchanged, plant throughput increased to align the processing rate with the mining rate to avoid building up a large stockpile for post-mining processing. Based on the bids received at that time, however, KEFI did not expect the expanded plant to increase the assumed level of funding required to develop the mine.

In May 2017, KEFI completed a 2017 DFS update that incorporated due diligence and all of the refinements since the 2015 DFS. This was followed by a decision in July to majority finance the project by way of a bond (originally in the sum of US$135m) to finance the on-site infrastructure at Tulu Kapi. Three months later, in October 2017, it then announced further increases to the planned production rate at Tulu Kapi, from 1.5–1.7Mtpa to 1.9–2.1Mtpa. This had the immediate effect of increasing gold production in the first three full years of operations from 115koz a year to >140koz a year, although total forecast gold production from the open pit remained 980koz at an all-in sustaining cost of less than US$800/oz. On 1 February, KEFI then announced additions to its senior management team for triggering development, as part of its operational readiness preparations. The three additions are experienced African mining operators who, as partners, just completed the overhaul of a west African gold mine for a private group involving a large family office and Middle Eastern sovereign wealth fund. One of the three, David Munro, is well known for having served as CEO of African mining groups, such as Billiton. Finally, on 7 May, at the time of the announcement of the bond issuance mandate, KEFI also released the results of the final Tulu Kapi project models, production plans and costings following independent expert reviews for the project finance. While pending final sign-offs at completion of the project financing and contractual documentation, the latest details reflect draft funding and contracting documentation.

Capex

In consideration of the above refinements, KEFI has updated its capex estimates to include the extra funds required by the bond funding structure and for safety buffers (especially during the first 30 months – the so-called 'grace period', during which lease payments will not be made). These are now as follows:

Exhibit 9: Tulu Kapi estimated capex, July 2017 and April 2018

(US$000s, unless otherwise indicated)	2017 KEFI plan	Final project models
	July 2017	April 2018
Mining	15.8	28.6
Processing	75.9	100.1
Infrastructure	15.7	15.7
Tailings	18.7	14.9
Indirect	1.8	0.0
Owner's costs	13.7	14.7
Community relocation etc	10.0	13.5
Environmental management	1.1	1.3
Further contingency	3.3	12.7
Other	(15.7)	(20.7)
Additional funding-related costs	15.6	0.0
Sub-total	**155.8**	**180.7**
Working capital	4.0	7.1
Additional funds required for project funding	33.0	33.9
Cash buffer	0.0	17.7
Totals	**192.8**	**239.4**
Assumed throughput rate (Mtpa)	1.7	1.9-2.1
Capital intensity (US$ per annual tonne)	**113.41**	**119.70**

Source: Edison Investment Research, KEFI Minerals

For accounting purposes, infrastructure funding financed via the bond will be treated as a finance lease and still be capitalised on project company TKGM's balance sheet in the manner of conventional debt funding. For share valuation purposes, Edison assumes a further US$15.4m of funds also raised for corporate purposes and safety buffers (see below).

Funding mix

KEFI's approach to its funding requirements has been consistent in seeking to share risk with contractors and to minimise dilution. During 2014 and 2015, it revised its inherited DFS as a precursor to opening the project construction and mining to international tender, with the specific intent of reducing upfront capex by introducing contract mining. Since then, it has introduced project-level equity (eg the government of Ethiopia has confirmed that it is subscribing equity of US$20m at the project level) as well as pursuing bond financing. Given its capital cost efficiency, more recently, KEFI has begun negotiations with a number of long-term investors in Ethiopia to subscribe for an additional tranche of equity at the project level and/or at KEFI Minerals (Ethiopia) level (in the absence of any immediate detail, this has been presumed to be on the same terms as the government of Ethiopia's already committed tranche – ultimately leading to a 45% minority interest in the project for the purposes of Edison's financial modelling vs 25% previously). Moreover, KEFI has a close working relationship with the Development Bank of Ethiopia, with which it was originally in detailed negotiations to provide senior secured debt for the project. While the major portion of debt financing is now presumed to be in the form of a bond, the bank is nevertheless reported to have offered to advance an ore stockpile facility to the Tulu Kapi project of c US$10-20m. Only then will the balance of funding needs be met at parent-company level, typically in mezzanine (eg streaming) or equity form. For the purposes of Edison's (fully diluted) financial forecasts, for share valuation purposes therefore, we assume a further US$15.4m in funds are raised for corporate purposes, cost overrun provisions etc split 50:50 between mezzanine funding and parent company-level equity (including equity already committed) to support KEFI's

funding requirement. Mezzanine finance is therefore assumed to be in the form of a US$7.7m streaming agreement to sell gold at US$450/oz (escalating) and yielding an internal rate of return to the counterparty of 16%. As a result, we anticipate a future (un-committed) raise of US$4.7m (£3.4m at current forex rates), compared to US$13m (£9.9m) previously. Note that we have built the extra dilution resulting from this additional equity into our valuation model below.

Exhibit 10: Estimated financing of Tulu Kapi funding requirement

Item	Previous		Current	
	US$m	£m	US$m	£m
Bond	135.0	103.3	160.0	116.5
Senior secured debt	0.0	0.0	0.0	0.0
Ethiopian government participation at project level	20.0	15.3	20.0	14.6
Cost overrun debt	0.0	0.0	0.0	0.0
Committed equity	6.0	4.6	3.0	2.2
Other project level equity	0.0	0.0	30.0	21.8
Ore stockpile facility	0.0	0.0	10.0-20..0	7.3-14.6
Mezzanine (eg streaming)	19.0	14.5	7.7	5.6
Parent company level equity	13.0	9.9	4.7	3.4
Total	**193.0**	**147.7**	**235.4-245.4**	**171.4-178.7**

Source: Edison Investment Research. Note: US$1.3731/£ (previously US$1.3067/£); totals may not add up owing to rounding.

Otherwise, the government's recent policy directive requiring a maximum 50% debt gearing (ie debt/[debt+equity]) policy for new projects does not apply to KEFI's Tulu Kapi project, which has prior approval to expand the debt portion of its funding requirement to 70% of the total. In addition, clarification received from the regulator (the National Bank of Ethiopia) indicates that historical exploration spend on the project of c US$60m is considered to contribute towards equity for the purposes of this calculation.

In the meantime, the company is continuing to refine its funding requirement and further engineering and procurement work may lead to some savings in the contingency.

Mine schedule and opex

In preparing for contract execution and estimating contracted costs, KEFI has updated detailed mine engineering and planning for the bulk mining (>90%) and also for the selective mining (<10%) of its ore and waste, which it has now built into contractually detailed schedules. This is an area on which KEFI has focused intensively, to reliably measure average grade and also manage grade variability during operations. This process began with significantly expanded resources, based on extra drilling and trenching results, and then developed on the basis of more tightly defined reserves derived from the wireframing of the entire ore system. According to the details of the final Tulu Kapi project models, throughput and grade will therefore be as shown in the exhibit below:

Exhibit 11: Updated Tulu Kapi mine plan and cost assumptions

	2020	2021	2022	2023	2024	2025	2026	2027	2028
Waste (kt)	6,502	18,444	20,000	20,132	19,994	18,192	8,262	3,510	0
Stripping ratio	6.1	4.9	9.7	10.6	9.7	7.9	5.3	4.8	N/A
Ore processed (kt)	534	2,126	2,120	2,098	2,042	1,977	1,915	2,003	579
Grade (g/t)	1.94	2.73	2.15	2.02	2.34	2.34	1.93	1.76	0.70
Contained gold (koz)	33.4	186.7	146.6	136.3	153.5	148.5	118.7	113.6	13.0
Recovery (%)	92.49	95.12	92.20	91.82	93.61	92.82	90.96	94.12	85.61
Recovered gold (koz)	30.9	177.6	135.1	125.2	143.7	137.8	108.0	106.9	11.1
Operating costs (US$/t processed unless otherwise indicated)									
Mining (US$/t mined)*	3.02	3.79	3.45	3.19	3.16	3.36	4.12	6.28	-
Milling (oxide, US$/t)	8.57	8.57	8.57	8.57	8.57	8.57	8.57	8.57	8.57
Milling (fresh ore, US$/t)	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07
Milling (hard ore, US$/t)	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62
Total (US$/t)	56.02	52.51	48.73	46.52	47.74	49.04	35.81	27.15	23.81
Gold price (US$/oz)	1,482	1,437	1,304	1,303	1,264	1,235	1,319	1,428	1,500
Sustaining capex (US$000s)	2,611	6,991	378	1,712	3,114	2,740	2,773	4,587	902

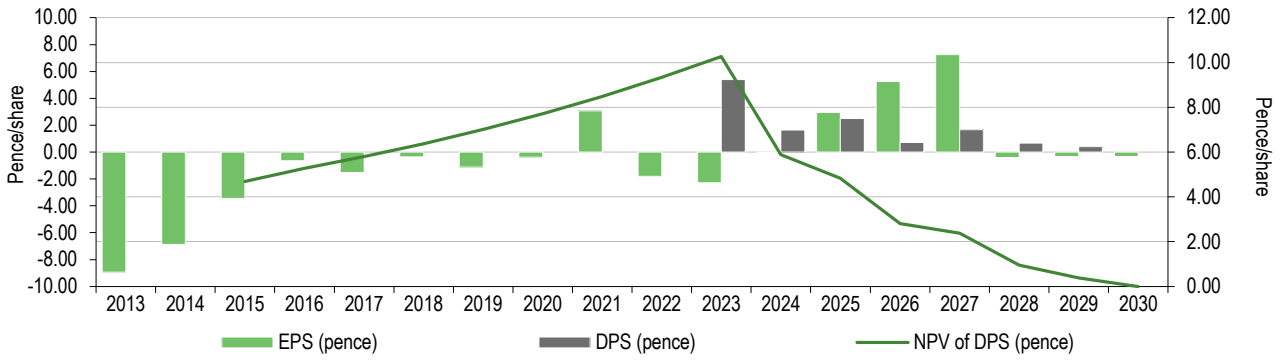
Source: KEFI Minerals, Edison Investment Research. Note: *Includes waste.

Encouragingly, as per KEFI's update of 9 November 2017, the proposed mining method and equipment specification are considered straightforward and technically sound by the lenders' independent technical expert. In particular, the fact that less than 10% of the total material movement is categorised as 'selective' mining under the draft mining contract specifications indicates that the mining methods are otherwise generally very standardised.

Valuation

On the basis of the above assumptions and converted at the appropriate foreign exchange rate of US$1.3731/£, we calculate that Tulu Kapi is capable of generating free cash-flow of c £38.6m a year for seven years, from 2021 to 2027 (inclusive). With average (maximum potential) dividends of 2.10p/share for the five years from 2023 to 2028 inclusive (after deduction of a 45% minority interest as per the expected funding mix described on pages 18–19, above), this implies a valuation for KEFI of 6.38p/share (discounted back to FY18 at a rate of 10% per year), rising to 10.27p/sh in FY23, when we estimate that the first potential dividend could be paid to shareholders (given that the majority of the proposed debt financing is in the form of a bond).

Exhibit 12: Edison estimate of life of mine KEFI fully diluted EPS and maximum potential DPS (pence/share)



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

Note that our valuation is fully diluted not only for anticipated future equity issues at the parent company level, but also for derivatives, such as management options. In this case therefore,

Edison's valuation of 8.26p at the time of our update note, Greater exposure to gold price beckons, published on 1 February 2018, reduced automatically to 8.14p upon the grant of 12.6m additional options to management in the same month. The decline in KEFI's share price from 3.75p to 2.795p and changes in the cable rate were then responsible for another 1.12p decline in value. The remaining 0.64p decline could then be attributable to the near one-year delay in the timing of the first gold pour from H120 to Q420 and to changes to the funding mix (see pages 18-19). Given that the near one-year delay in isolation could have been expected to result in at least a 10% decline in valuation, the overall 0.64p decline implies that changes in the funding mix, in particular, have been value adding to shareholders.

Stated alternatively, we estimate that an investment in KEFI shares now at a price of 2.795p per share could generate an internal rate of return to investors of 23.3% over the 12 years from 2018 to 2029 (inclusive). Note however, that this valuation is based on the projected dividend flow resulting from the execution of the Tulu Kapi project alone and ignores the exploration and development of the pipeline of targets in the KEFI portfolio.

Sensitivities

Quantitatively, our base case discounted dividend flow valuation of 6.38p is sensitive to the gold price, cash costs and discount rate inputs, to the extent shown in Exhibits 13 and 14 below.

Exhibit 13: Discounted dividend valuation sensitivity to gold prices and costs (pence)

Valuation (pence per share)		Gold price				
		-20%	-10%	Base case	+10%	+20%
Cash costs	+20%	0.00	0.00	0.35	4.40	8.46
	+10%	0.00	0.00	3.36	7.42	11.48
	Base case	0.00	2.32	**6.38**	10.44	14.51
	-10%	1.25	5.33	9.40	13.46	17.53
	-20%	4.26	8.35	12.42	16.48	20.55

Source: Edison Investment Research

In general terms therefore, it can be seen that a ±10% change in the gold price results in a 4.07p change in our valuation, while a ±10% change in costs results in a 3.02p change in our valuation.

Exhibit 14: Discounted dividend valuation sensitivity to discount rate (pence)

Discount rate (%)	0%	5%	10%	15%	20%	25%	30%
Valuation (pence)	13.02	9.00	**6.38**	4.61	3.40	2.54	1.93

Source: Edison Investment Research

Financials

KEFI had £1.6m in net cash on its balance sheet as at 30 June 2017, after £1.7m in operating cash outflows before working capital in H117, a £1m VAT refund and the issuance of £2.2m (gross) in equity (being the first element of a £5.62m programme). This cash burn rate compares to £2.0m in H116 (including capex), £3.6m in H115, £6.6m in FY15 and £6.3m in FY14.

KEFI plans to finance its US$239.4m capex funding requirement via a TKGM bond (US$160m) and project-level equity (US$50m in addition to the US$60m equity already invested) and an ore stockpile banking facility (US$10-20m). Edison assumes a further residual funding requirement of US$15.4m, which we assume will be equally split between mezzanine finance (eg streaming) and parent company equity, of which at least c US$3.0m has already been committed. While the principal financing is the off-balance sheet infrastructure funding for TKGM, if all funding sources are considered, we forecast a maximum immediate aggregate net debt funding requirement overall for the project of £70.8m (US$97.2m) in FY20, which (in Edison's estimation) equates to an

approximately 58:42 net debt:equity ratio at the project level. Note that our estimate of aggregate debt has deliberately incorporated all components at the project level, whether on- or off-balance sheet, and comprises cash, the TKGM bond (US$160m), ore stockpile facility (US$10-20m) and streaming contingent liability (US$4.6m).

Exhibit 15: Financial summary

£'000s	2013	2014	2015	2016	2017e	2018e
December	IFRS	IFRS	IFRS	IFRS	IFRS	IFRS
PROFIT & LOSS						
Revenue	0	0	0	0	0	0
Cost of Sales	(927)	(2,071)	(1,634)	(2,260)	(2,692)	(2,538)
Gross Profit	(927)	(2,071)	(1,634)	(2,260)	(2,692)	(2,538)
EBITDA	(927)	(2,071)	(1,634)	(2,260)	(2,692)	(2,538)
Operating Profit (before amort. and except.)	(927)	(2,189)	(1,724)	(2,315)	(2,747)	(2,544)
Intangible Amortisation	0	0	0	0	0	0
Exceptionals	(442)	(379)	(428)	1,944	(1,900)	0
Other	0	0	0	0	0	0
Operating Profit	(1,369)	(2,568)	(2,152)	(371)	(4,647)	(2,544)
Net Interest	4	(413)	(319)	(136)	(189)	(239)
Profit Before Tax (norm)	(923)	(2,602)	(2,043)	(2,451)	(2,936)	(2,783)
Profit Before Tax (FRS 3)	(1,365)	(2,981)	(2,471)	(507)	(4,836)	(2,783)
Tax	0	0	0	0	0	0
Profit After Tax (norm)	(923)	(2,602)	(2,043)	(2,451)	(2,936)	(2,783)
Profit After Tax (FRS 3)	(1,365)	(2,981)	(2,471)	(507)	(4,836)	(2,783)
Average Number of Shares Outstanding (m)	29.0	56.0	92.8	194.9	332.7	418.4
EPS - normalised (p)	(7.4)	(6.2)	(3.0)	(1.6)	(0.9)	(0.4)
EPS - normalised and fully diluted (p)	(7.4)	(6.2)	(3.0)	(1.5)	(0.9)	(0.3)
EPS - (IFRS) (p)	(4.7)	(5.1)	(2.7)	(0.3)	(1.5)	(0.4)
Dividend per share (p)	0.0	0.0	0.0	0.0	0.0	0.0
Gross Margin (%)	-	-	-	-	-	-
EBITDA Margin (%)	-	-	-	-	-	-
Operating Margin (before GW and except.) (%)	-	-	-	-	-	-
BALANCE SHEET						
Fixed Assets	7,152	9,299	11,926	14,053	16,108	16,102
Intangible Assets	6,900	9,139	11,845	13,992	15,856	15,856
Tangible Assets	252	160	81	61	6	0
Investments	0	0	0	0	246	246
Current Assets	4,014	1,061	1,012	3,561	342	146,211
Stocks	0	0	0	0	0	0
Debtors	655	335	358	3,056	247	247
Cash	3,279	640	562	410	0	145,869
Other	80	86	92	95	95	95
Current Liabilities	(3,363)	(3,202)	(1,995)	(2,067)	(2,067)	(2,067)
Creditors	(3,363)	(3,202)	(1,995)	(2,067)	(2,067)	(2,067)
Short term borrowings	0	0	0	0	0	0
Long Term Liabilities	0	0	0	0	(2,169)	(116,525)
Long term borrowings	0	0	0	0	(2,169)	(116,525)
Other long term liabilities	0	0	0	0	0	0
Net Assets	7,803	7,158	10,943	15,547	12,214	43,721
CASH FLOW						
Operating Cash Flow	(1,424)	(2,006)	(2,729)	(2,211)	(1,670)	(2,538)
Net Interest	4	(413)	(319)	(136)	(189)	(239)
Tax	0	0	0	0	0	0
Capex	(877)	(3,133)	(3,507)	(3,014)	(2,324)	0
Acquisitions/disposals	(1,083)	(750)	0	16	0	0
Financing	4,735	3,663	6,480	5,192	1,604	34,290
Dividends	0	0	0	0	0	0
Net Cash Flow	1,355	(2,639)	(75)	(153)	(2,579)	31,514
Opening net debt/(cash)	(1,924)	(3,279)	(640)	(562)	(410)	2,169
HP finance leases initiated	0	0	0	0	0	0
Other	0	0	(3)	1	0	0
Closing net debt/(cash)	(3,279)	(640)	(562)	(410)	2,169	(29,344)

Source: Company sources, Edison Investment Research

Contact details	Revenue by geography
23 Ezekia Papaioannou Street, Office 21, 2nd Floor, Nicosia. Cyprus 1075 +357 22 25 61 61 KEFI-minerals. com	N/A

Management team

Executive chairman: Harry Anagnostaras-Adams	Head of operations: David Munro
Harry Anagnostaras-Adams qualified as a chartered accountant while working with PricewaterhouseCoopers and has an MBA from the Australian Graduate School of Management. He has overseen a number of business start-ups, both in the mining industry (eg KEFI and EMED Mining) and outside (eg Citicorp Capital Investors, Pilatus Capital and Cyprus-based Semarang Enterprises) in the capacity of chairman, deputy chairman and managing director.	David Munro has been in the metals and mining industry since 1977. He joined Gencor in 1981 and served variously as its executive director of new business and trading, MD of Billiton International, general manager of Samancor, vice president of strategy & business development, chief development officer and executive director of Aluminium. Since leaving BHP Billiton, other positions held include strategy director and executive officer of Kazakhmys and group CEO of CEMEX.
Adviser - exploration strategy: Jeff Rayner	**Finance director: John Leach**
Jeff Rayner is a geologist with more than 25 years' experience in gold exploration and mining in Australia, Europe and Asia. He started his career in Australia with BHP Gold and later Newcrest Mining. He was involved in the early exploration discovery of the Cracow, Gosowong and Cadia Hill deposits, as well as Monte Ollasteddu and Biely Vrch. He joined EMED in 2006 and became MD of KEFI in November 2006 and exploration director in October 2014. He is a member of the Australasian Institute of Mining & Metallurgy and of the Society of Economic Geologists.	John Leach has over 25 years' experience in senior executive positions in the mining industry internationally. He holds a BA (economics) degree and an MBA. He is a member of the Institute of Chartered Accountants (Australia), a member of the Canadian Institute of Chartered Accountants and a Fellow of the Australian Institute of Directors.

Principal shareholders	(%)
Lanstead Capital	11.96
Odey Asset Management	13.29
Capita Financial Managers (Ireland)	13.29
Hargreaves Lansdown Asset Management	11.74
Interactive Invest Trade	9.84
Ausdrill International Pty	4.98
JP Morgan Chase & Co	4.54
Halifax Share Dealing	4.33

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