WHIreland
CORPORATE & INSTITUTIONAL BROKING

14 May 2020

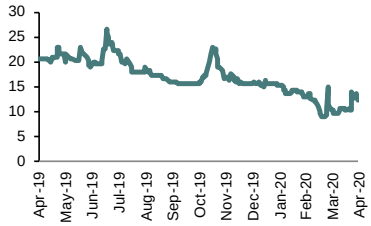
CORPORATE

Share Price	**11p**

Reuters/BBG	EMH.L / EMH LN
Index	FTSE AIM
Sector	Mining
Market Cap	£17m
Shares in Issue	153.1m

Performance	**Absolute**	**Basic Res.**	**FTSE AIM**
1 month:	14.4%	(14.3)%	(9.2)%
3 months:	(33.8)%	(11.6)%	(7.1)%
12 months:	(46.9)%	(26.4)%	(17.0)%
High/Low			28p / 8p

Last Results	Apr 2020 – Q3 update
Next Results	Jul 2020 – Q4 Year-end update
Next Event	News on Feasibility Study



Source: © 2020, S&P Global Market Intelligence

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European Metals Holdings

€29m CEZ Strategic Investment in Cinovec Project completed

European Metals Holdings is seeking to develop the large Cinovec lithium (tin/ tungsten) deposit in the Czech Republic. With its new strategic partner, CEZ, it is fully funded through to construction decision, with EMH holding 49% of this valuable asset and operational control of the DFS and FEED programmes. The large Cinovec deposit benefits from simple bulk mining and magnetic upgrade and can use conventional processing techniques to produce an essential component to power European Electric Vehicles (EVs) and power storage solutions. Security of supply and a scalable project constitutes the prize offered to Europe as the EU supports the development of the next generation of EVs and begins the transition to a carbon neutral future. Our simple DCF valuation model gives a fair value of 62p/sh. The recent strategic investment by CEZ, the Czech state utility, heralds the start of a new partnership which will, in our opinion, reduce the risks associated with any capital markets funding.

An investment in European Metals provides investors with:

- **Exposure to the lithium market** We see strong fundamentals for the lithium market. In our opinion, the supply response will be insufficient to fulfil the obvious growing demand. Long lead times to develop projects and the associated downstream conversion capacity together with difficult capital markets will drive prices; we use prices close to current spot in our model.
- **A development project about to go through a funded final feasibility** The plan for Cinovec is simple and achievable in our view. Conventional mining and processing will produce a battery-grade lithium hydroxide using well understood technology. Tin and tungsten credits will provide a small element of revenue diversification (5-10%). There may also be synergies with the Zinnwald deposit extension over the German border. The new partnership with CEZ funds the process until the decision to mine and could help facilitate funding with EU help.
- **Attractive economics** Expected post-credit costs place Cinovec in a low-risk portion of the global cost curve; we believe that attractive profit margins will generate significant cash flow and returns.
- **Ideal location** The European automotive industry will require security of supply, especially as China flexes its muscles by taking stakes in other lithium deposits, and Cinovec is perfectly placed in the heart of industrial Europe. There is a strong interest within the EU in the whole battery chain with a particular emphasis on raw material.
- **Strong, strategic partner** In addition, there is support from the new strategic partner – CEZ, a major European utility (70% owned by the Czech Govt.). In our opinion this reduces the risk going forward and removes the ongoing requirement for dilutive, small fund raises.

We see the **European Metals Holdings story as a straightforward investment case** with the development of an operation to produce lithium hydroxide directly for battery manufacturers. Growing lithium demand in Europe will drive an incentive (and strategic requirement) for domestic production as Europe's vehicle fleet electrifies and Europe looks to a carbon neutral future; driven by a world-leading climate change approach.

In our model we assume current spot prices ($12,000/t LiOH) through the mine life and have inflated our capital cost requirement from the June updated PFS to $550m (from $483m). Using these inputs **we calculate a fair value at 62p/sh** using a DCF methodology and 40% of NPV_{10}. European metals is only at the start of its development cycle.

Contents

Figure 1: Zinnwaldite – lithium mica, from its type locality at Cinovec / Zinnwald

Source: Leon Hupperichs - http://www.mindat.org/photo-150086.html

Investment Case

Robust business – fair value of 62p/sh

European Metals Holdings (ASX/AIM:EMH) is developing the Cinovec lithium (tin-tungsten) deposit in the Czech Republic. This resource (the largest defined lithium resource in Europe and 4th largest hard rock lithium deposit in the world) is strategically located close to key automotive consumers in Europe and attracting a great deal of interest from the battery and automotive industry within the wider European Union. We see fair value at 62p/sh.

Strategic Investment by Czech utility CEZ highlights attractiveness of the project

This updated note reflects the new investment by CEZ to take a 51% stake in the project by investing €29.1m to fund the final feasibility study and take the project to a construction decision. If nothing else – today's news puts a current valuation on the project of at least €57m (£50m; $62m) and shows that European Metals Holdings appears undervalued against this metric.

The updated PFS in June 2019 confirmed a planned switch from lithium carbonate to lithium hydroxide production

The proposed production process is all standard and will follow a simple route to produce lithium-mica, tin and tungsten concentrates to be supplemented by a new flowsheet to produce lithium hydroxide via roasting the lithium mica concentrate with limestone, gypsum and sodium sulphate before leaching and then lithium recovery from solution after purification. The first stage lithium carbonate production is converted to lithium hydroxide in a final step with hydrated lime slurry with a final purification step using ion exchange and lithium hydroxide crystallisation.

The capital cost (updated in June 2019) estimates show a capital cost of $482m (WHIe $550m – higher than the EMH forecast as we expect a small upward revision for the mine site associated infrastructure in the full feasibility study) with a net operating cost (after by-product credits) of $3,435/t LiOH (WHIe $3,500/t LiOH). Production of over 25kt/yr LiOH is the new production target at this stage. EMH has a 21 year mine life in its economic model, a mine life which only uses less than 10% of the resource and which could easily be scaled or extended if, as expected, lithium demand increases as future transport solutions focus on Electric Vehicles (EVs).

Strategic partner with the large Czech utility CEZ

EMH first announced a strategic relationship in July 2019 with CEZ – the large Czech utility company. After conducting Due Diligence over Cinovec this has turned into a partnership with CEZ earning 51% at the project level (held by EMH's holding company Geomet) for €29.1m – to fund the project to a construction decision. In our opinion, this is great news for EMH's shareholders as it reduces the risk going forward and removes the ongoing requirement for dilutive, small fund raises. It is also at a strong premium to the current share price which shows the value placed on the project by industry participants – and perhaps not fully appreciated by the market yet.

Robust project on many levels

Large resource

Consistent, mineralogy

The site of a former mine

Europe – leading new technology industries in the battery sector

Conventional production process

Just to reiterate the investment case for Cinovec:

- **Cinovec ticks the boxes of a low-risk, high-return project** The fundamental basis for investment in mining projects in our opinion should be low risk and a high return – with an assessment reached based on geology, mining, metallurgy, location, economic returns, commodity market and management.
- Cinovec has a **large resource**, which is **amenable to bulk mining and processing** and is **multi-commodity**, hence capable of producing **several saleable products**: lithium hydroxide (or still potentially lithium carbonate if required), tin, tungsten and potash (potassium sulphate). The PFS uses only 10% of the total outlined Indicated Resource (Table 4).
- **Mineralisation is consistent** – the large bulk of the resource shows little variability in grade and mineralogy. Lithium grade can be simply upgraded by

magnetic separation of lithium-bearing mica – meaning back end processing size is smaller (~80%) with a saving on capital cost.

- **Local support** People in the local area appreciate mining and the employment benefits it can bring.
- We view the location in the **centre of Europe as a big positive**: stable democracies, expansion of automotive and battery industry infrastructure. There is little production of lithium in the EU; and Cinovec would provide **domestic security of supply**.
- Production will be via **conventional processes, well-understood technology** which reduces the risk going forward.
- **Full value capture** - with European Metals Holdings proposing to produce a final product direct to the battery manufacturers, it is not losing value in the conversion from an intermediate concentrate (e.g. the spodumene producers).
- Our DCF using inputs from the updated PFS in June 2019, show **strong returns and value creation**.
- **Management** has been pursuing the project for several years and is well connected internally in the Czech Republic with **links at all levels of government**.

The change from lithium carbonate to lithium hydroxide production was an easy decision to make

Positive choice to produce lithium hydroxide European Metals Holdings adapted its plan for final product to lithium hydroxide in June 2019 in response to many battery manufacturers turning to this compound as feedstock for batteries: it offers better power density (a bigger battery capacity), longer life cycle and enhanced safety features. Lithium hydroxide currently achieves a premium to lithium carbonate (15-20%), a differential that has been higher in the past, but price differential that will be maintained in our opinion.

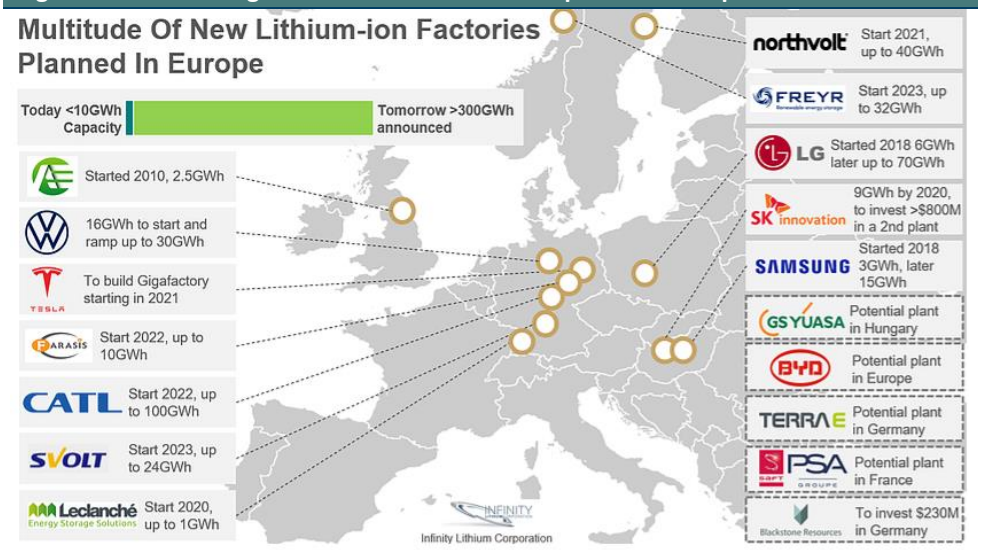
Exposure to lithium a positive

Exposure to lithium Lithium is increasingly seen as a metal for today and the future. The demand for lithium-ion batteries is only set to increase and eventually likely to become very large; and all economically viable EV battery configurations rely on lithium. Current utilization levels at existing lithium producers is low and in the short term, lithium production and therefore price can be managed. Further out as demand grows, there will be a requirement for additional supply – this is where Cinovec can come into its own, especially as it is located in the heart of industrial Europe. Geographically, the project is a sweet spot as a key component for security of supply for consumers. Demand will be led principally by the electric vehicle industry as more vehicles are manufactured and more batteries are required, with the majority of car manufacturers working on new and improved electric vehicles. This is shown graphically in Figure 2 with the Cinovec project right in the sweet spot for lithium demand in Europe. Demand for electric vehicles will in turn be led by improvements in infrastructure (e.g. charging points) for electric cars together with improved battery technology (capacity, charging speed) and specific legislation in countries (e.g. in Europe) which will challenge the use of the internal combustion engine – this is already happening as many countries put dates on when new Internal Combustion Engines cannot be sold.

High-level European interest in the whole battery chain The European Union recognises the importance of the battery industry to the European economy going forward – the whole chain, from raw materials through battery manufacture and inclusion in EVs and back to raw materials again via recycling. Perhaps more so now than ever before leaders of governments and industry are looking at supply chains and security of supply. Prior to this, the situation was recognised in Europe and a "European Battery Alliance" (EBA) was set up, composed of the European Commission, EU countries, the European Investment Bank and other stakeholders (mining companies, battery companies etc). This encourages the full development of the industry in Europe for an expected €250bn market requiring 10-20 "giga factories" to be set up – these will require significant

amounts of raw material. The industry is therefore being promoted from within – European Metals Holdings is a member of the group and ideally situated to benefit from first-mover advantage in the heart of industrial Europe.

Figure 2: Cinovec – right at the heart of EV development in Europe



Source: Infinity Lithium

Nascent lithium industry – plenty of opportunities

Industry in a flux and it is a great time to make a deal The last few years have seen lithium chemical producers and mining companies tie up feed via offtakes and equity stakes – some of which show companies taking sizeable positions. This is a nascent industry in many parts of the world and as such a company such as European Metals Holdings could generate interest from a variety of sources keen to gain a foothold in lithium production in Europe. Some recent transactions are shown below in Table 1. Much of the M&A over the past few years has come from China, Korea and Japan – worry over security of supply should kick start further involvement from European and North American markets in our opinion – although this has been slow to see to date.

Table 1: Recent Transactions in lithium deposits

Date	Transaction
Jan 2017	Ganfeng Lithium – US$40m equity investment and US$125m debt facility in Lithium Americas
Feb 2017	Bacanora Minerals - €30m equity option for 50% of Deutsche Lithium
May 2017	Great Wall – A$28m equity investment in Pilbara Minerals
Oct 2017	Hanwa – £10.2m equity investment in Bacanora and offtake
Jan 2018	Toyota Tsusho – US$224m equity investment in Orocobre
Feb 2018	POSCO – A$79.6m equity investment in Pilbara Minerals plus binding offtake
Aug 2018	Nemaska Lithium - €10m promissory notes and 5 year offtake in Northvolt
Aug 2018	POSCO – A$280m purchase of Salar del Hombre Muerto project from Galaxy Resources
June 2019	Ganfeng Lithium – 29.99% investment in Bacanora Minerals for $14.4m, a 22.5% stake in project level Sonora and an option to increase
July 2019	Pallinghurst offer CAD600m for the financing of Nemaska's Whabouchi project

Source: WH Ireland research, European Metal Holdings

European Metals Holdings currently trades at a discount to its peers There are several other lithium companies in Europe, and European Metals Holdings appears undervalued against these on EV/t LCE (total resource) considering size, stage and conventional development profile to final product. These are shown in Table 2 below.

Simple investment case: Robust project, good location (to operate and sell directly) and strong commodity outlook to generate significant returns

Overall we see the European Metals Holdings story as a straightforward investment case. With the development of an operation to produce lithium hydroxide direct for battery manufacturers. Revenues are highly geared to lithium, but some by-product tin and tungsten will add a valuable revenue stream to the mine – perhaps 5-10% of net revenue. Growing demand in Europe will drive an incentive (and requirement) for domestic production as Europe's vehicle fleet electrifies. This is driven by Europe's world-leading climate change approach and growth of a low-carbon economy.

Table 2: European Metals Holdings Peers in Europe (plus Bacanora Minerals – as a major London-listed lithium company)

Company	Country	Deposit	Stage	Total Res (Mt)	Li_2O (%)	LCE (Mt)	EV (USDm)	EV/ t LCE	Comments
European Metals	**Czech**	**Cinovec**	**DFS**	**696**	**0.4**	**7.2**	**21.0**	**2.9**	
Rio Tinto	Serbia	Jadar**	PFS	136	1.9	6.2			Small part of large multi-national
Infinity Lithium Corp	Spain	San Jose	PFS	111	0.6	1.7	4.7	2.8	
Deutsche Lithium	Germany	Zinnwald***	DFS	35.5	0.8	0.7			Optioned to Bacanora
Savannah Resources	Portugal	Mino do Barroso	DFS	20	1.0	0.5	29.3	56.3	
Keliber	Finland	Various	DFS	10	1.2	0.3			Subsidiary of Nordic Mining
European Lithium	Austria	Wolfsberg	DFS	11	1.0	0.3	19.3	71.5	
Bacanora Lithium ****	Mexico	Sonora	DFS	559	0.6	8.8	54.6	6.2	

Source: WH Ireland Research, European Metals Holdings, S&P Capital IQ 13/05/2020
* Grade is easily upgraded to 2.7%Li_2O as part of the wet magnetic separation of the lithium-rich mica in the process route
** Jadar is a lithium-borate clay deposit and was discovered in 2004. It has been slow progress at the project. The mineral jadarite is the chemical equivalent of Kryptonite of superman fame
*** Zinnwald is the continuation of the Cinovec mineralisation over the Czech border into Germany
**** Resource only for Sonora and ignoring any component of value given by the market for Zinnwald.

Who is CEZ ?

CEZ is a financially strong partner, headquartered in the Czech Republic and with ongoing and future interests in the use of lithium.

A natural fit for the next stage in European Metals Holdings' development

European Metals Holdings' new partner in Cinovec is CEZ which is an established, integrated energy group with operations in a number of Central and South-eastern European countries and Turkey and headquartered in the Czech Republic. CEZ's core business is electricity (generation, supply and trade), natural gas extraction, and coal production. CEZ Group has 33,000 employees and annual revenue of approximately EUR 7.24 billion.

The largest shareholder of its parent company, CEZ a.s., is the Czech Republic with a stake of approximately 70%. The shares of CEZ a.s. are traded on the Prague and Warsaw stock exchanges and CEZ has a market capitalization of approximately £7.8bn.

CEZ intends to develop several projects in areas of energy storage and battery manufacturing in the Czech Republic and in Central Europe hence it's interest in Cinovec. It is also a market leader for E-mobility in the region and has installed and operates a network of EV charging stations throughout the Czech Republic.

While CEZ can withdraw from the project at certain milestones, we see this as unlikely given the expansion into automotive infrastructure that CEZ is already committed to. CEZ can withdraw firstly (milestone 1) after spending €12.3m on completing the engineering design program (including semi-industrial pilot testing) or secondly (milestone 2) after spending €20.8m which would include the completion of the Definitive Feasibility Study. Milestone 1 would leave CEZ with 21.5% of Cinovec with 36.4% after milestone 2 – both stages would have hugely advanced the Cinovec project.

In our opinion, CEZ is a strong partner and a natural fit for the next stage in European Metals Holdings' development.

Key Risks and Other Considerations

Usual risks for development-stage projects

European Metals faces the usual risks for development projects, raising money (equity and debt) in the capital markets and permitting being specific risks.

Funding via capital markets remains a risk

The capital markets have recently been a difficult place for junior explorers and developers in the Natural Resources Sector. Bacanora (AIM:BCN) is a case in point when, even with a compelling feasibility study for production and several strong partners lined up, it ran into difficulties in financing its project in Mexico, and without its new JV partner (project and company level) in Ganfeng Lithium, would probably still be struggling to gain traction. We believe that with the location in Europe for EMH's project and the many car manufacturers pinning their future on EVs, and the potential growth of a significant battery industry, an environment will be created where industry participation and/ or EU guarantees in the funding of the project may be a distinct possibility.

Country risk is low

We assess the country risk for the project as low. The Czech Republic is an established democracy in the European Union. There had previously been some issues at a government level, which led to the cancellation of an MOU to explore downstream processing signed between European Metals Holdings and the Czech Government, but this has had no effect on European Metals Holdings permitting in the country. More importantly, this has not hindered the award of further permits to European Metals Holdings and drilling permits were issued for mine plan drilling. The June 2019 strategic partnership with CEZ, a major Czech utility owned 70% by the Czech government also shows that the Czech Republic is a good place to do business – with support at all levels of government for EMH.

Location key: central, infrastructure and reactivation of a brownfield site

Location in an area full of infrastructure is also a further big positive. The new spodumene producers in Western Australia are remote, Spodumene projects in Europe and Africa are far from the companies which refine in China, the Chilean and Argentinian brine deposits often lack sufficient process water and the new clay deposits in Mexico are also remote and in areas which will be new to mining, with all the lack of support services that this implies. Cinovec by comparison benefits from significant infrastructure, access to experienced contractors and a trained workforce in a region with a very well-established mining industry; and the intention to produce a final product, for sale, in Europe.

Product pricing a benefit

Product pricing will also be lower risk in our opinion. Lithium pricing is not always transparent. Lithium concentrate producers must take the price for concentrate from China – which may not always run in the same direction as the lithium compound pricing depending on the supply and demand for concentrate. In Cinovec's favour is that it will produce a final product and is expected to settle longer-term offtake agreements with consumers – this will both provide security of revenues and enable proper partnerships to be built up and also may be a source of funding for the development of the project.

Commodity risk is low

Our estimates of the supply / demand-price equation for lithium show that a front runner in lithium production in Europe would be relatively low risk. There is a growing demand for lithium, amongst a host of speciality and critical metals to enable green, efficient technologies and hi-tech applications; for which there is no realistic economic metal substitution possible and for which there are issues around security of supply. In the case of lithium there is a large anticipated expansion in electric vehicles which requires new producers to satisfy ever increasing demand.

Valuation

We see fair value in EMH at 62p/sh

Our fair value for European Metals Holdings is 62p against the current share price of 13p.

Approach

We use a DCF approach for our fair value

Our model is based on Pre-Feasibility numbers from European Metals Holdings modified by assumptions from WHI – these are laid out in Tables 5 and 6 below, with a summary cash flow in Table 7. We risk the project using 40% of the project NPV for this stage in our final fair value calculation using a share divisor of current outstanding shares (151.7m). This is an increase on our previous 20% of NPV – reflecting that the full feasibility study, FEED process and offtake discussions are now funded - together with enough corporate contributions from the JV 'management fee' to mean that EMH should not need to come back to the market before a decision on construction and any requirement for an equity contribution to the capital expenditure.

WH Ireland Model Assumptions

Long-term LiOH price set at $12,000/t

Long-term tin price set at $20,000/t

Long-term tungsten price set at $350/mtu APT

Potassium sulphate $600/t

Capex - $550m

Opex - $5000/t LCE (pre-Sn/$WO_3$ credits)

Table 3: European Metals Holdings Valuation (US$m)

Valuation Approach		Valuation US$m	Valuation £m**	Owned %	Risk* %	Valuation GBP p/s
Cinovec	DCF - 10%	642.2	494.0	49.0	40.0	63.2
Cash & Cash Equivalents***		0.6	0.5			0.3
Corporate Costs	3yr DCF-10%	(3.4)	(2.6)			(1.7)
WH Ireland Valuation						**61.8**

Source: WH Ireland Research. Valuation based on 153.1m ** Subjective risk*
** WHI est FX US$:£ = 1.3:1. (Apr 2020), *** WHI est April 2020.

Sensitivity

The Cinovec project is a robust project as shown in Figure 3. Even if the lithium hydroxide price were to fall 20% (the current indicative pricing), the project would still return ~$200m in our model. The initial 20 year mine life outlined by European Metals Holdings is also only a minimum in our view as the whole outlined resource would justify a much longer life – subject to drilling and reserve definition.

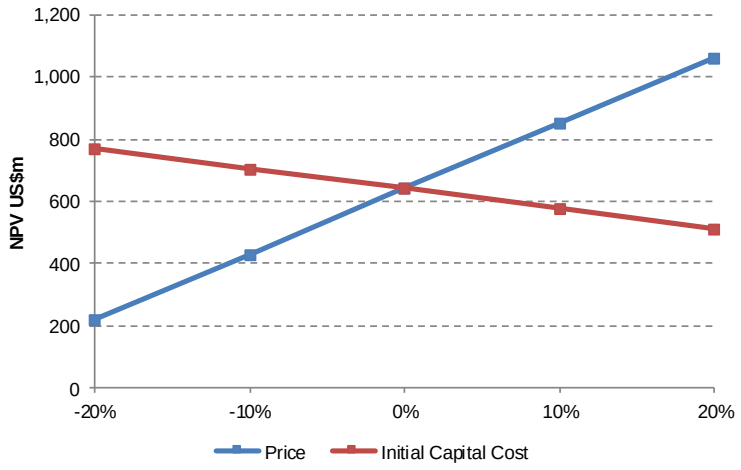
There is also the expansion capacity with the remaining part of the deposit on the German side of the border – Zinnwald (currently optioned by Bacanora – AIM:BCN). We are firmly of the opinion that there are synergies with Zinnwald and that in all likelihood there will only be one large processing facility required and economies of scale could generate bigger returns for shareholders of both deposits. A significant majority of the current declared lithium resource is on the Czech side of the border (98%).

The valuation in the future of any project at Cinovec generating $150-$200m of free cash flow every year would be significant.

We use a standard 10% discount rate in our fair value assessment, which is our WH Ireland standard for the mining sector - for ease of comparison across similar scale projects. However, this might not be appropriate for a project located in the European Union and for a project producing a strategically important product – and a product where we see support from EU and governmental levels. If we used a lower discount rate our NPV_8 (Table 8) would increase to $846m from the NPV_{10} $642m (Table 3); which would produce a fair value for Cinovec of 84p/sh (63p/sh – Table 3) using the same 40% of project NAV.

Cinovec is a robust project and we expect once in production for it to lie in a low risk part of the global cost curve, with costs below the spodumene producers and benefiting from by-product credit tin and tungsten

Figure 3: Sensitivity of Cinovec NPV (10% discount rate)



Source: European Metals Holdings

Overview of European Metals Holdings

European Metals Holdings is listed on the ASX and AIM - EMH

European Metals Holdings controls the mineral exploration licenses awarded by the Czech State over of the Cinovec lithium-tin deposit in the Czech Republic – these are held 100% by Geomet, the local 100% Czech subsidiary – and it is this subsidiary that CEZ is earning its 51% stake in. The project is located 100 km NW of Prague on the border with Germany. It is part of the historic Cinovec-Zinnwald mining district which over the past 600 years has been a significant producer of tin. The deposit is in the heart of industrial Europe, close to the major centres for the automotive production and where technology industries are abundant.

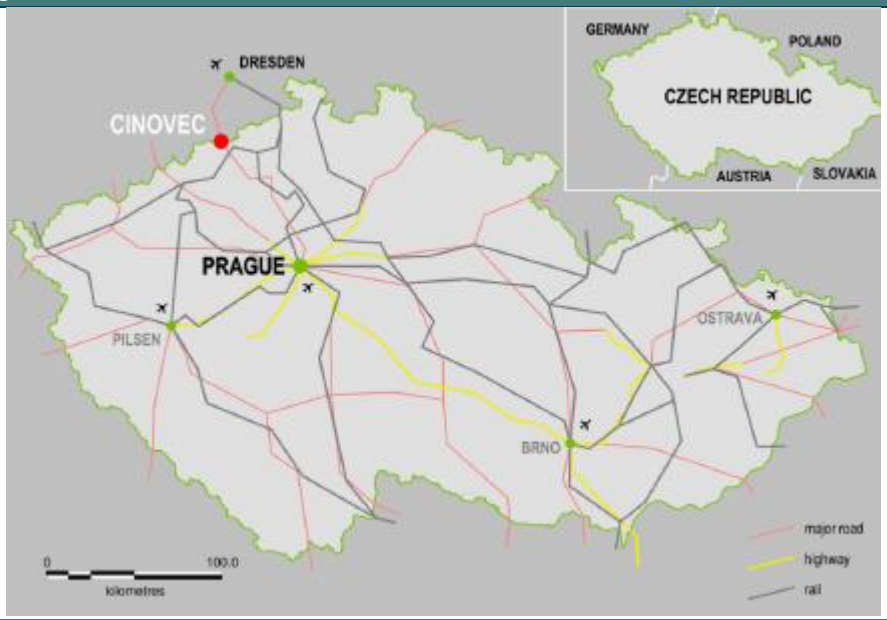
History

Current area has long been prospective for mining

Tin mining began in the area in the 14th century with modern mining only ceasing in 1972 when near surface flat lying quartz-cassiterite-wolframite veins were mined underground using shaft access.

As the neighbouring high grade tin ore was running out, the Czech State began an extensive underground exploration programme south of the workings. UG drilling and tunnelling defined significant blind tin-tungsten-lithium mineralization associated with greisenization and silicification with about 0.5Mt of ore test-mined in the 1980s and a feasibility study completed. All operations ceased with the demise of the centralized economy in 1990.

Figure 4: Location of Cinovec



Source: European Metals Holdings

After gaining control of the licence, European Metals Holdings has quickly moved through the stages of study completing a scoping study in 2015 and a PFS in 2017 (which was updated in June 2019).

Geology

Cinovec lies in the Erzgebirge region situated in a NW part of the Bohemian Massif in the

Saxothuringian zone of the European Variscides. The mineralisation is related to post-orogenic granite intrusions and hydrothermal alteration – a "greisen" system with quartz and zinnwaldite (a lithium mica) with or without topaz, minor sericite, fluorite and potassium feldspar and forms as:

- irregular metasomatic greisen and greisenised granite zones from several tens to hundreds of metres thick that follow and are located near or at the upper contact of the cupola;
- thin, flat greisen zones enclosing quartz veins up to 2m thick and parallel to the intrusive contact of the cupola. Ore minerals are cassiterite, wolframite, scheelite and zinnwaldite. In the greisen, disseminated cassiterite predominates over wolframite, while in veins wolframite is roughly equal to, or more abundant than, cassiterite;
- steep quartz veins with wolframite

Resources

A resource was calculated for the lithium and the tin zones in November 2017 after a period of infill drilling. This incorporates all of the historical data (which is considerable: drill holes, production reports and underground sampling, 85km of historic diamond drilling plus 21.5km historic development tunnels) which had been checked with holes drilled by European Metals Holdings (>12km to date).

European Metals Holdings concentrated its recent drilling on known high-grade areas in the tin and lithium zones; high grades which would substantially improve the economics of the deposit if targeted during the early years of production.

As Figure 5 clearly shows, the deposit is not constrained by the national border and the mineralisation does run into southern Germany where the licences are held by another company (which is now 50% owned by Bacanora – AIM:BCN) and the deposit called Zinnwald. There may be some synergies with the continuation of the deposit.

Table 4: Cinovec resource (Nov 2017) – see Figure 5 for location of resource

Category	Cutoff Li	Mt	Li%	LCE kt	Sn%	Sn kt	W %	W kt
Indicated	0.1	372.4	0.21	3,890	0.04	149	0.02	60
Inferred	0.1	323.5	0.18	2,960	0.04	129	0.01	42
Total	0.1	695.9	0.20	6,990	0.04	278	0.01	102

Source: European Metals Holdings, WH Ireland research

The Prefeasibility Study (PFS) is based on mining 34.5 Mt of material over 21 years, 100% of which lies within the Indicated Mineral Resource category. The tonnage used in the PFS represents only 5% of the total Mineral Resource and 10% of the Indicated Mineral resource.

Proposed production plan

The Prefeasibility Study assumes mining 1.7Mt/a which is mined and crushed in the underground mine before stockpiling at the mine entrance (30kt capacity) over a 21 year period. The geometry of the orebody is largely flat or shallow dipping and massive enough to allow the use of long-hole open stoping (stopes - 90m long, 25m high and 13m

wide, rib pillars up to 7m). The mine will be accessed by a twin decline system. A conveyor will be installed from the underground primary crusher on the 590m level (130m below surface) with a conveyor up the decline to take ore to surface. The second decline will be used as a service decline for men, material and as an intake airway.

Comminution will be via a single stage 4MW SAG mill at the mining portal and will deliver ground ore (P_{80} < 212µm) to the Beneficiation Plant, which is to be located adjacent to the Lithium Plant. Wet High Intensity Magnetic Separation (WHIMS) will first separate out the lithium-bearing micas (zinnwaldite) and produce a magnetic mica concentrate (0.36Mt/a for further processing). The ability to use wet magnetic separation is unique to zinnwaldite ore because zinnwaldite contains iron in its lattice and is paramagnetic. Magnetic separation offers cost and recovery advantages over beneficiation through froth flotation (recovery of 91% v 78%). The non-magnetic stream will be treated by gravity, flotation, magnetic and electrostatic separation to produce tin and tungsten products.

The lithium plant will take the mica concentrate from the Beneficiation plant and extract the lithium through roasting, leaching and then purification to produce battery grade lithium carbonate or hydroxide. The plant will also produce a by-product potassium sulphate. The tailings produced by both processing plants will be filtered to produce a filter cake which is dry stacked in a nearby Tailings Storage Facility (TSF). Although higher cost than alternative methods, dry stacking significantly reduces environmental impact. Recent test work conducted at separate laboratories determined the optimal mass ratio of mica to gypsum and limestone additions to the roast. This roast recipe results in an ambient temperature leach lithium recovery of 95% after the blended powder has been roasted at a temperature of 850 °C for 1 hour.

Based on the best lithium extraction achieved in early roast optimisation test work, a bulk composite of mica concentrate, produced from representative Cinovec core samples, was roasted at Nagrom, and an initial lithium carbonate produced which had a purity of >99.5%.

As confirmed by test work conducted in both Anzaplan (Germany) and Nagrom (Perth), the quality of the lithium carbonate produced meets requirements for use in lithium batteries. Tin and tungsten concentrates would be sent to smelters on arm's length contracts with the lithium mica processed on site to produce battery-grade lithium carbonate or hydroxide.

Anzaplan began testwork on proving up a flowsheet for the production of lithium hydroxide in 2018 and following the recent PFS update.

- Lithium recovery to concentrate – 90%;
- Lithium recovery in carbonate plant – 91%;
- Overall lithium recovery – 82%; and
- Tin recovery – 65%.

Prefeasibility study economics

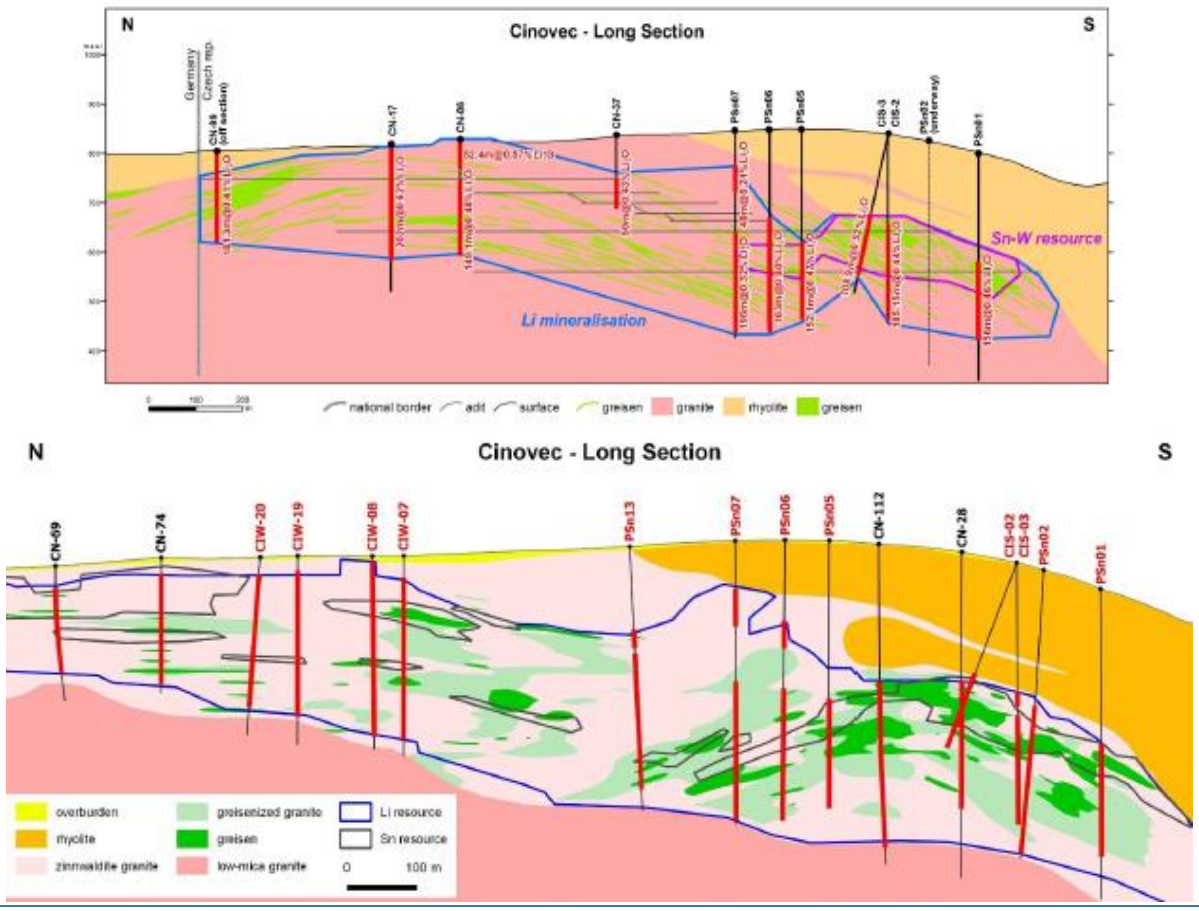
The PFS was completed in April 2017 (updated June 2019) and used the parameters laid out in Table 5 and 6. The accuracy of the estimates was put at +/- 25%. As the Project lies on the border of Germany and the Czech Republic, it is exceptionally well-serviced by supporting infrastructure including access to rail, national highways, power, water, gas, skilled workforce, engineering companies and chemical companies

Funding

A project with a capital cost projected to be >$0.5bn is obviously not going to be simple to fund.

However, with the current COVID-19 crisis highlighting the precarious just-in-time supply chains and with sovereign decisions taken in disrupting free trade – there really is no substitute for security of supply and domestic production in our opinion. Cinovec will be a large, expandable, long-life project capable of producing significant amounts of lithium compounds that are essential to the health and well-being of the auto industry defining the EU's low-carbon future. We expect also that the EU may be supportive in helping to find funding for the project in some way (either directly or with loan guarantees for example) once the final feasibility study has been completed. However, a serious partner like CEZ will also be a big help – with its large stable balance sheet and its demonstrated capability to run projects.

Figure 5: Long sections through Cinovec



Source: European Metals Holdings

Table 5: Cinovec PFS parameters – Capital Cost (updated in June 2019)

Parameters	PFS	WHI assumptions
Feed Rate	1.7Mt/a	1.7Mt/a
Costs		
	Capital Cost (US$m)	
Mining	70.3	
Comminution / Beneficiation / Infrastructure	104.9	
Lithium plant (LCP) to produce LiOH*	264.3*	
Contingency @ 10%	43.9*	
TOTAL	**482.6**	**550**

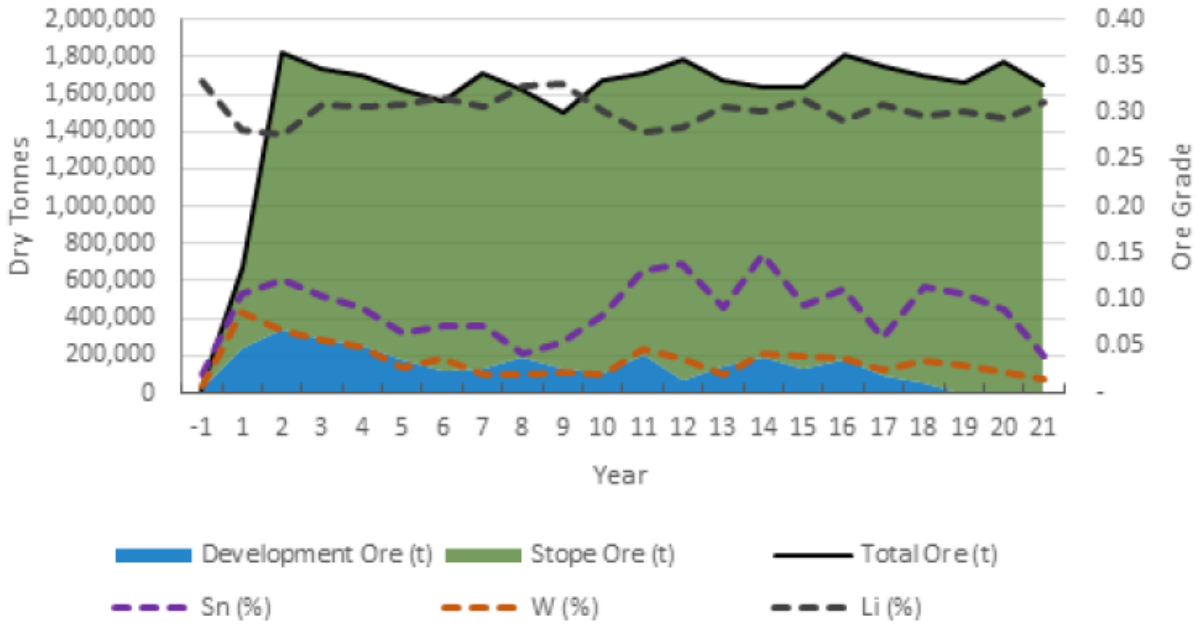
Source: European Metals Holdings, WH Ireland research
*Updated June 2019

Table 6: Cinovec PFS parameters – Operating Cost (updated in June 2019)

	EMH PFS update			WHI estimates		
Costs	**$M/a**	**$/t ROM**	**$/t LiOH***	**$M/a**	**$/t ROM**	**$/t LiOH***
Mining	40.7	24.3	1625	42.5	25.0	1600
Comminution / Beneficiation / Infrastructure	19.4	11.6	770	20.4	12.0	775
Lithium plant (LCP) to produce LiOH*	62.1	37.0	2458	68.0	40.0	2600
Admin	0.9	0.5	34	4.0	4.0	150
Total Operating Cost	**123.1**	**73.4**	**4887**	**134.9**	**81.0**	**5125**
By-product Sn/W	(29.2)	(17.4)	(1156)	(28.7)	(16.9)	(1080)
By-product potash and sodium sulphate	(6.7)	(4.0)	(285)	(7.8)	(4.6)	(175)
Total Opex (net of by-product credits)	**87.2**	**52.0**	**3446**	**98.4**	**59.5**	**3870**

Source: European Metals Holdings, WH Ireland research
*Updated June 2019

Figure 6: Cinovec Life of Mine Production schedule from PFS



Source: European Metals Holdings, WH Ireland research

Discounted Cash flow analysis

WH Ireland Assumptions

Lithium – pay 100% of LiOH.H_2O. Long-term LiOH price set at $12,000/t

Tin (Sn) – TC of $500/t conc. (Inc. low grade penalty), deduct 2% tin for low grade, Long-term tin price set at $20,000/t

Tungsten (WO_3) – pay 80% of APT price. Long-term price set at $350/mtu APT

Potassium sulphate $600/t

Capex - $550m (WHI est.)

Opex - $5,125/t LiOH (pre-Sn/$WO_3$ credits). Net production cost of $3,870/t (post credits). This is a low risk part of the cost curve in our opinion.

Table 7: Cash Flow Cinovec lithium – tin/tungsten project (100%) -Real 2020$

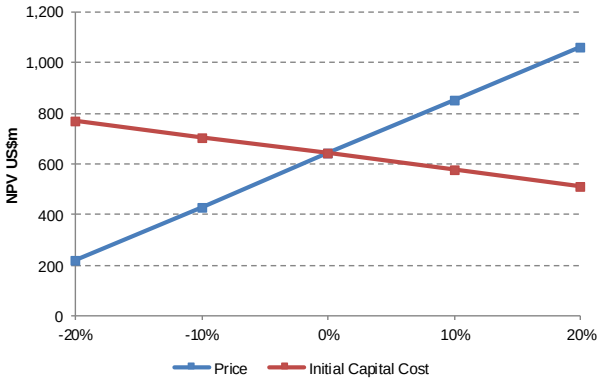
		Yr-2	Yr-1	Yr 1	Yr 5	Yr 15	Yr 20
Tonnes to Mill	kt	-	-	1000	1700	1700	1700
Li	%*	-	-	0.30	0.30	0.30	0.30
Sn	%	-	-	0.09	0.09	0.09	0.09
WO_3	%	-	-	0.03	0.03	0.03	0.03
LCE	kt	-	-	13.7	23.3	23.3	23.3
Paid LiOH	kt	-	-	15.6	26.6	26.6	26.6
Paid Sn	kt	-	-	-	1.0	1.0	1.0
Paid WO_3	kt	-	-	0.2	0.3	0.3	0.3
Paid potassium sulphate	kt	-	-	7.6	13.0	13.0	13.0
Price LiOH	US$/t LiOH	-	-	12000	12000	12000	12000
Price Sn	US$/t Sn	-	-	20000	20000	20000	20000
Price WO_3	$/mtu APT	-	-	350	350	350	350
Price potassium sulphate	$/t	-	-	600	600	600	600
NET REVENUE	**US$M**	**-**	**-**	**197.6**	**355.3**	**355.3**	**355.3**
Mine Site Cost	**US$M**	-	-	(81.0)	(134.9)	(134.9)	(134.9)
Royalties	US$M	-	-	(4.0)	(7.1)	(7.1)	(7.1)
EBITDA	**US$M**	**-**	**-**	**112.6**	**213.3**	**213.3**	**213.3**
DDA	US$M	-	-	(26.5)	(48.1)	(48.1)	(48.1)
Interest	US$M	-	-	-	(10.6)	-	-
Tax	US$M	-	-	-	-	(31.4)	(31.4)
Net Profit After Tax	**US$M**	**-**	**-**	**86.1**	**154.6**	**133.8**	**133.8**
Add back in DDA	US$M	-	-	26.5	48.1	48.1	48.1
Add back in interest	US$M	-	-	-	(10.6)	-	-
Expansion Capex	US$M	(100.0)	(270.0)	(180.0)	-	-	-
Sustaining Capex	US$M	-	-	(10.0)	(20.0)	(20.0)	(20.0)
CINOVEC CASH FLOW	**US$M**	**(100.0)**	**(270.0)**	**(77.4)**	**172.2**	**161.9**	**161.9**

Source: WH Ireland. Note the break in years. Forecasts are Real 2020$

Table 8: Returns for Cinovec

IRR	27%
	US$m
NPV 8%	846
NPV 10%	642
NPV 15%	314
NPV 20%	134
Breakeven LiOH Price (10%)	$7939/t

Figure 7: Sensitivity of the Cinovec NPV (10%)



Source: WH Ireland Research

Lithium Market

Lithium is produced from two main sources: hard rock mines and salt lake brines, which account for roughly 50% each of current production. Lithium is sold in several forms, but mostly in the form of lithium carbonate (of various grades) and lithium hydroxide. There are several lithium clay projects (e.g. Sonora in Mexico and Jadar in Serbia for example) and a large lithium mica project in the Czech Republic (Cinovec) which may also form a significant component of production in the future.

GLOSSARY

LCE – Lithium Carbonate Equivalent
LiOH – Lithium hydroxide monohydrate

CONVERSIONS

ppm – parts per million
ppm to % divide by 10,000
Li to LCE multiply by 5.32
Li to LiOH multiply by 6.06
LiOH to LCE multiply by 0.88

Supply

The majority of production comes from Chile, Australia, Argentina and China - with the top three, Australia, Chile and Argentina, accounting for 85%. Brines and Hard rock source account for roughly 50% of production respectively at the current time. The largest hard rock producer is Talison Lithium in Australia, which has the capacity to produce 1.4Mt/yr of spodumene concentrate (~ 160kt LCE) after a recent expansion at its Greenbushes mine in Australia. The largest brine producer is SQM in Chile, which produced 70kt lithium carbonate and 14kt lithium hydroxide in 2019. Hard rock producers send their concentrates to China, in the main, for conversion to one of the saleable lithium compounds with some small conversion capacity in Australia and Brazil. Albemarle is the world's largest lithium producing company.

The lowest cost production is from lithium brines with production costs of US$3,000-$4,500/t LCE forming the lowest cost 50% of the cost curve. Above this, the hard rock producers have production costs ranging from US$6,000 – US$8,000/t LCE. There is growth expected in recycled supply as companies gear up to reprocess electronic batteries and to the anticipated volume of batteries from electronic vehicles in the future.

The increased requirement for lithium over the short to medium term may be satisfied from increased capacity utilisation and a raft of hard rock and brine projects due for construction. However, many of those already slated for production have been delayed (e.g. Bacanora, a new project delayed due to financing difficulties; SQM, an existing brine producer with delayed expansions due to legal challenges over taxes and a lack of water in the Atacama). There are significant challenges to future supply growth – these include: 1) funding; 2) time to build (hard rock mine 4-5 years, brine salar plant 6-8 years); 3) commissioning then achieving and maintaining nameplate output; 4) requirement for new conversion capacity in China (or elsewhere) to match concentrate production; and 5) delivering a battery grade product.

Currently the market seems adequately covered, with a small surplus which is depressing current prices. However, over the medium term the world will need ever increasing amounts of lithium and it is clear to us that new projects will be required as part of the production mix since we are not convinced that existing producers (especially the brine producers) can hit their optimistic expansion targets. We see strong lithium prices justifying new hard rock project development, with differential prices for the separate lithium chemicals required for different types of batteries.

Demand

Lithium is used for batteries, glass, ceramics, greases, metallurgical powders, polymers, and in the aluminium industry.

- Batteries are the growing use of lithium for rechargeable batteries in electronic hardware to the new exciting use as the source of power in electric cars at ~60% of lithium demand in 2019
- After batteries the largest market for lithium is in glass, glass-ceramics and ceramics which together accounted for ~25% of total consumption in 2019; lithium helps reduce the viscosity of the glass melt.
- Metallurgical powders, polymers and grease.
- Air treatment – dehumidifiers and air purification
- Lithium is also used in the production of aluminium

The key theme in the lithium industry is increased demand going forward from all end uses, with the biggest area of growth arising from the expansion of the battery sector for electric vehicles. Battery-grade lithium carbonate and lithium hydroxide consumption is expected to rise from 200kt/a in 2019 to ~1,050kt in 2025 (source UBS research – Figure 8)). The demand is being led by increased EV production by all of the major automobile makers. Lithium-ion batteries are able to store more energy with greater longevity than other battery compounds, and are more lightweight than their lead nickel, nickel cadmium, and nickel metal hydride counterparts. The new battery factories, with their economies of scale, should reduce the cost per pack and make it able to compete with the internal combustion engine. Indeed, lithium-ion costs have dropped from $1,000/kwh to ~$200/kwh over the past 5 years driven by technological advances; the aim is to reduce the cost further to below $100/kwh by 2030.

Battery life has also improved with many producers offering guarantees for 8 years / 100,000 mile warranties on their batteries. The speed of charging has also improved with fast chargers being introduced to many countries.

All the major German car manufacturers have plans to increase sales of Electric Vehicles (EVs) with Volkswagen, Porsche, Mercedes, BMW and Daimler all looking to build up their EV models by 2025. We anticipate that they will be seeking partnerships with battery manufacturers (e.g. LG, Samsung, A123 and northvolt) looking to build battery plants in Poland, Hungary, Austria, Czech Republic and Sweden (and possibly Tesla in Germany as well) to cope with expected demand.

Growth in EVs will come from the continued decrease in cost of the batteries and as many countries look to ban the sale of new internal combustion engine cars over the next few decades.

Figure 8: Expected lithium demand growth (LCE kt)

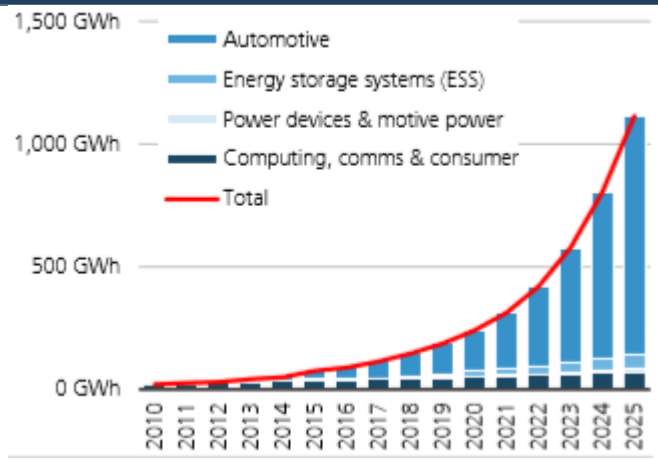
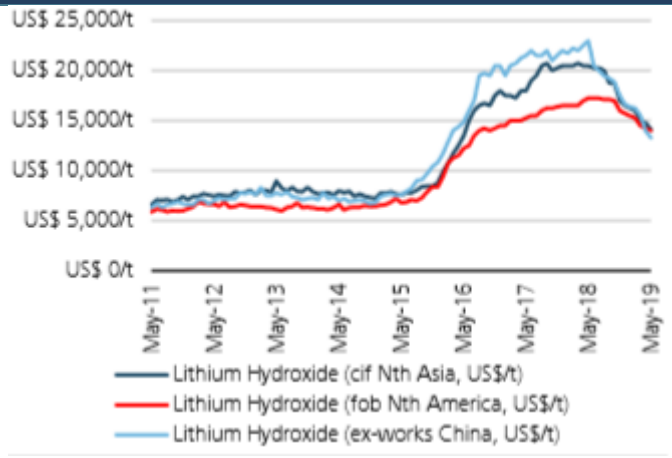


Figure 9: Recent lithium price performance



Source: WH Ireland Research, UBS Research (Q2 2019)

Price

Current Lithium prices (Fastmarkets' lithium reference prices – LME) are $8,000/t for lithium carbonate and $9,750/t for Lithium Hydroxide

In our models, **we use a long-term price of $10,000/t lithium carbonate (99.5%) and $12,000/t lithium hydroxide.** These are a moderate premium to current prices but we believe this represents a conservative forecast given our expectation of further supply delays and ever-increasing demand.

Shareholders

Table 9: European Metals Shareholders (April 1st 2020)

	Shares	% Total
Cadence Minerals PLC	25.3	16.6
Armco Barriers Ltd	15.3	10.0
Mr Keith Coughlan	9.4	6.1
Total *	153.1	100
* of which Directors **	39.4	25.8

*** Kiran Mozaria (NED – Cadence nominee) holds shares directly and indirectly on behalf of Cadence*

Source: European Metals Holdings, WH Ireland research

European Metals Holdings Directors and Management

Dave Reeves - Chairman. Dave is a qualified mining engineer with 20 years' experience in Africa and Australia. He holds a degree in mining engineering from the University of New South Wales, a graduate diploma in applied finance and investment from the Securities Institute of Australia and a Western Australian first class mine managers certificate of competency.

Dave is currently the Managing Director of ASX listed Calidus Resources Limited and Non-Executive director of AIM listed Keras Resources, which are Australian Gold and Togo Manganese exploration and mining companies respectively.

Keith Coughlan – Managing Director. Keith has almost 30 years' experience in stockbroking and funds management. He has been largely involved in the funding and promoting of resource companies listed on the ASX, AIM and TSX.

He is currently the Non-Executive Chair of Doriemus PLC and a Non-Executive Director of Calidus Resources Limited and Southern Hemisphere Mining Limited.

Richard Pavlik - Executive Director. Richard is a highly experienced Czech mining executive. He holds a Masters Degree in Mining Engineering from the Technical University of Ostrava in Czech Republic. He is the former Chief Project Manager and Advisor to the Chief Executive Officer at OKD. OKD has been a major coal producer in the Czech Republic. He has almost 30 years of relevant industry experience in the Czech Republic.

Kiran Mozaria - Non-Executive Director. Kiran is currently Chief Executive Officer and Director of the Company's largest shareholder, Cadence Minerals.

Kiran holds a Bachelor of Engineering (Industrial Geology) from the Camborne School of Mines and an MBA (Finance) from CASS Business School. He has extensive experience in the mineral resource industry working in both operational and management roles. Kiran spent the first four years of his career in exploration, mining and civil engineering before obtaining his MBA. He has served as a director of a number of public companies in both an executive and non-executive capacity.

Grant Harman – Metallurgical Consultant. Grant is one of the world's foremost lithium metallurgists. Grant was previously Manager Lithium Chemicals for Talison Lithium

Dr Pavel Reichl – Geological Consultant. Pavel has over 15 years' experience in precious, base and PGE metals exploration and production and has a PhD from University of Montana.

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Recommendation	Total Stocks	Percentage %	Corporate	Percentage %
Corporate	58	96.7	58	100.0
Buy	0	0.0	0	0.0
Speculative Buy	0	0.0	0	0.0
Outperform	2	3.3	0	0.0
Market Perform	0	0.0	0	0.0
Underperform	0	0.0	0	0.0
Sell	0	0.0	0	0.0
Total	**60.0**	**100.0**	**58.0**	**100.0**

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Company/Issuer Disclosures

Company Name	Table of interest number	12-month recommendation history	Date
European Metals Holdings (EMH)	2,3,4,5,10	Corporate	11/03/19

http://research.whirelandplc.com/research/regulatory.asp

Companies Mentioned

Company Name	Recommendation	Price	Price Date/Time
Sociedad Química y Minera de Chile S.A. (NYSE:SQM)	No Rec	USD 22.3	13/05/2020 16:30
Albemarle Corporation (NYSE:ALB)	No Rec	USD 59.26	13/05/2020 16:30
European Metals Holdings Limited (AIM:EMH)	Corporate	GBP 0.11	13/05/2020 16:30
Rio Tinto Group (LSE:RIO)	No Rec	GBP 37.14	13/05/2020 16:30
Infinity Lithium Corporation Limited (ASX:INF)	No Rec	AUD 0.03	13/05/2020 16:30
Savannah Resources Plc (AIM:SAV)	No Rec	GBP 0.02	13/05/2020 16:30
European Lithium Limited (ASX:EUR)	Corporate	AUD 0.05	13/05/2020 16:30
Bacanora Lithium Plc (AIM:BCN)	No Rec	GBP 0.24	13/05/2020 16:30
Ganfeng Lithium Co., Ltd. (SZSE:002460)	No Rec	CNY 50.36	13/05/2020 16:30
Great Wall Motor Company Limited (SEHK:2333)	No Rec	HKD 5.4	13/05/2020 16:30
Lithium Americas Corp. (TSX:LAC)	No Rec	CAD 4.66	13/05/2020 16:30
Hanwa Co., Ltd. (TSE:8078)	No Rec	JPY 1705	13/05/2020 16:30
Toyota Tsusho Corporation (TSE:8015)	No Rec	JPY 2461	13/05/2020 16:30
Posco International Corporation (KOSE:A047050)	No Rec	KRW 13850	13/05/2020 16:30
Nemaska Lithium Inc. (TSX:NMX)	No Rec	CAD 0	13/05/2020 16:30
Galaxy Resources Limited (ASX:GXY)	No Rec	AUD 0.76	13/05/2020 16:30
northvolt (private)	No Rec	NA	13/05/2020 16:30

Headline	Date
Significant lithium resource at the heart of industrial Europe	11/03/19
Update: Lithium hydroxide production confirmed	01/08/19
€29m CEZ Strategic Investment in Cinovec Project completed	14/05/20

Recommendation	From	To	Analyst
Corporate	11/03/19	present	CA

Current Analyst (CA), Previous Analyst (PA)

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