

## EUROPEAN METALS HOLDINGS - Initiation

### Cinovec a vertically integrated lithium project

Share Price  
& Estimated  
Future Price

Price in 12-months*	\$1.67
Current Price	\$0.595
Implied Change	+181%

**European Metals Holdings (EMH.ASX)** – The large Cinovec Project (EMH 49%), is strategically located in the heart of the growing European EV ecosystem in the northwest of the Czech Republic. Cinovec is a large historic lithium resource, with a clean pathway to underground development, resulting in minimal surface impact or disturbance. EMH's 51% JV partner is the national utility CEZ a subsidiary of CEZ Group, which is owned 70% by the Czech Government. The Czech auto industry is important as it makes up ~10% of local GDP. Hence a local gigafactory, in addition to three in southern Germany, would accelerate the transition to EV's and with broader EU support underwrite Cinovec's development.

**Europe has no lithium concentrate & little carbonate production** – Europe is outpacing the US when it comes to demand growth for EVs but has been slipping when it comes to Government regulations and incentives, which are required to underwrite growth in a competitive marketplace. Benchmark Minerals Intelligence (BMI) suggests Europe could have 789GWh of battery gigafactories capacity by 2030. On this basis, Europe could require 800kt of lithium carbonate equivalent (LCE) by 2030; up from just 50kt in 2022. With competition fierce for global supplies, and supply chain traceability of growing importance, the maths seems crazy! It seems Europe needs ~30 Cinovec's by 2030! As BMI suggests, the lithium-ion battery today is what the oil barrel was to the 20th century. This ex-oil and gas analyst/geologist, of 30 years, agrees.

**What makes Cinovec interesting?** – Cinovec has a history with mining dating back 500 years. A brownfields development is supported by 89,000m of historic drilling data and a recently completed program of over 20,000m. The measured & indicated resource of 4.5mt lithium carbonate equivalent (LCE), is large and is adjacent to the Czech/German border. While the resource is of lower grade; EMH has produced high purity (99.99% LCE) battery chemicals with metallurgy supporting high recoveries of up to 93%. The revised flowsheet is simple suggesting either lithium hydroxide or lithium carbonate can be produced on demand. Costs are low, due to low reagent use and associated metal by products, providing additional sources of revenue that support project economics. The processing pilot is awaiting samples of ~20kg, which will be forwarded to potential customers for qualification. In January 2023, the [EU Commission has recognised Cinovec as a Strategic Project](#), giving it priority for grant funding from the Just Transition Fund, ahead of many other projects that have submitted funding requests.

**ESG Benefits and DFS update** – Minviro, a UK based and globally renown sustainability and lifecycle assessment consultant, estimates Global Warming Potential (GWP) of Cinovec is very low compared to spodumene converted in China. The DFS is expected to be complete towards the end of 2023.

**Valuation upside** – We model an integrated 29.3kt/year LiOH project. Ahead of a DFS, pilot and sample qualification by customers, we risk the integrated project at 0.33xNPV8. Adjusting for cash on a diluted basis, we carry a 12-months value of \$2.12/share. Given current concerns around pricing, we apply a 15% discount to arrive at a 12-month target of \$1.67/share. Assuming project momentum can be captured, the project NPV could continue to de-risk towards 1xNPV8, revealing a value of over \$6/share in 4 years.

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### Company Information

ASX Ticker	EMH
OTC Ticker	EMHLF
ASX Price (A\$)	0.595
52-week range (A\$)	0.56-1.27
Position relative to 52-week high	-53%
CDI's on Issue (m)	192.4
Options (m)*	4.6
Fully Diluted Shares on Issue (m)	194.8
Market Capitalisation (A\$m)	114.5
Average Daily Volume (,000)	54

\*There are 4.6m on issue; of which 2.624m are exercisable at 42/45 cents and thus in the money

### Market Model - undiluted

	Unit	
Market capitalisation	A\$m	114
Cash	A\$m	16
Debt	A\$m	0
Enterprise value (EV)	A\$m	98
Market model/ Risked intrinsic value	%	46%
Cash % market cap	%	14%

### Board & Key Personnel

Keith Coughlan	Executive Chairman
Kiran Morzaria	NED
Ambassador Bloomfield, Jr	NED
Richard Pavlik	ED

### EMH (CDI's = Chess Depository Receipts) FACTSET





## Europe's gigafactory capacity is forecast to grow 7.5x by 2030 – Enter a very large Cinovec

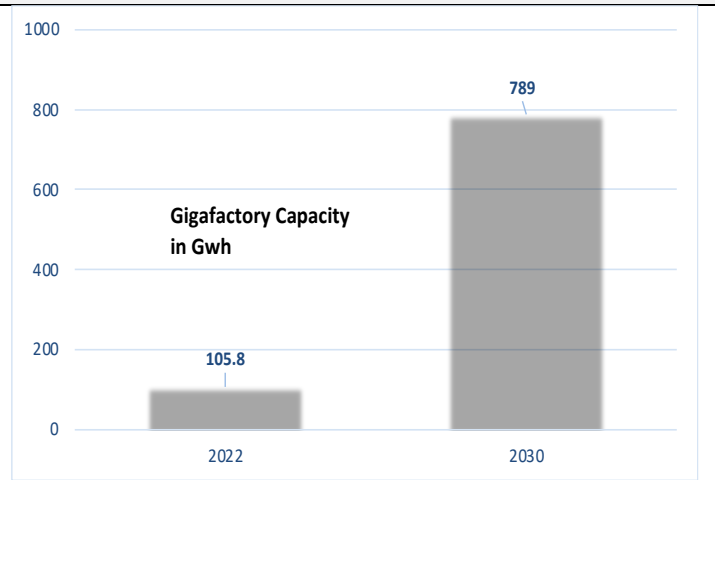
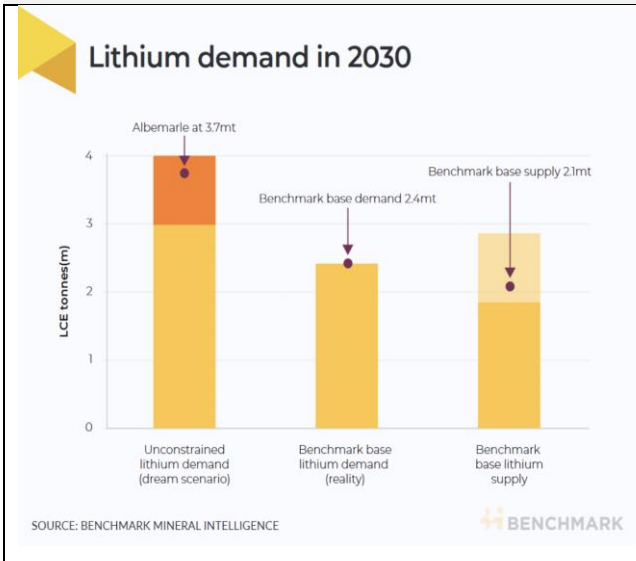
- China effectively controls the price of a US EV** – China accounts for 92% of global cathode, 91% of global anode and 83% of global LiOH capacity requirements. For Europe, ~100% of its lithium carbonate and hydroxide is imported from China. The challenge is moving Europe's reliance away from China and building a regional EV ecosystem – a massive task. To complicate things, Europe's lithium demand is accelerating. There are presently 5 battery gigafactories in Europe and BMI suggests 27 likely by 2030. In 2022, Europe was the fastest growing centre for EV batteries ex China.
- Strong support for Europe's EV ecosystem** – The EU aims to cease sales of new ICE vehicles from 2035 (The Green Deal) and to achieve zero carbon emissions by 2050. As an intermediary step towards zero emissions, new CO<sub>2</sub> standards require average emissions of new cars and vans to come down by 55% and 50% respectively by 2030. Presently there are 21 EU member states that offer incentives for the purchase of EVs. EVs are subsidised by €10,000, while plug-in hybrids are subject to a €4,500 subsidy. Early reports are that EV sales were ~2.1m units in 2022, down marginally from sales of 2.3m units in 2021. The impact of the Russian/Ukraine war and COVID has slowed growth.
- The Czech Republic is 15th largest auto manufacturer in the world** – With 20% of its economy dependent on the automobile industry, the Czech economy is highly correlated to the health of the automobile industry and the events of the last 3 years, including COVID, the ongoing Russian/Ukraine war, Brexit and chip shortages have hit the Czech Republic and greater Europe hard. The main car manufacturers in the Czech Republic are Skoda Auto/Volkswagen, Stellantis, Toyota Motor Corporation and Hyundai. Skoda's Czech made cars are sold successfully throughout Europe. They are cheaper and smaller, handy for those very narrow European streets. What could really change the landscape is if VW agrees to build a €4.4Bn battery gigafactory in the Czech Republic, then Czech lithium would find its way to VW's electric Skoda's and underwrite Skoda's aggressive EV sales expansion throughout Europe.
- European EV ecosystem is long gigafactories and short local inputs** – Europe has no producing lithium, nickel, cobalt and little graphite. It would seem, Europe will be destined to import the critical metals required to build its EV ecosystem. Cinovec is the largest hard rock lithium deposit in Europe and logic would suggest that if local supply chains are what Europe wants, then Cinovec must be at the front of the queue for development. ESG auditor Minviro suggests EMH's Cinovec will have one of the lowest carbon footprints in the world for hard rock lithium mines; and
- Cinovec mine restart** – EMH acquired Cinovec in 2014 and reduced its holding to 49% when it partnered with CEZ, the main Czech utility. The total resource is large at 708mt at 0.42% Li<sub>2</sub>O. This includes a large measured and indicated (M&I) resource of 413mt at 0.44% yielding 4.28mt of lithium carbonate equivalent (LCE). A 25-year mine life would only use 13% of M&I resource. ROM feed of 2.25mt/year and processed lithium hydroxide of 29,386t/year and/or lithium carbonate at 22,500t/year. By products credits from, tin, potassium sulphate and calcium carbonate support revenues. **The novel extraction process is in its pilot stage and LiOH and lithium carbonate samples should be sent to customers in coming months.** The simplified flowsheet has produced a 99.99% pure lithium carbonate. DRA global is scheduled to complete the DFS by the end of 2023.

### Lithium in Europe (Source: Benchmark Minerals Intelligence March 2023, Zinnwald Lithium)



## If Albemarle is right...the EV ecosystem is in trouble

## Europe's gigafactory capacity to grow 7.5x by 2030

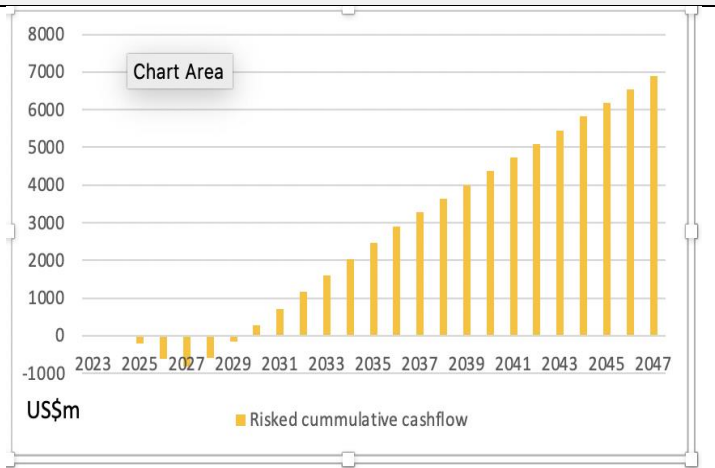
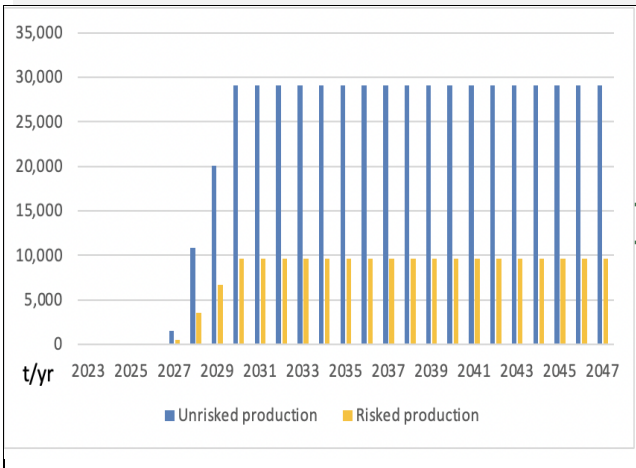


Source: Benchmark Mineral Intelligence Forecast

Source: Benchmark Mineral Intelligence July 2022

## Riskd & de-risked project production

## Riskd cumulative Project Cashflows

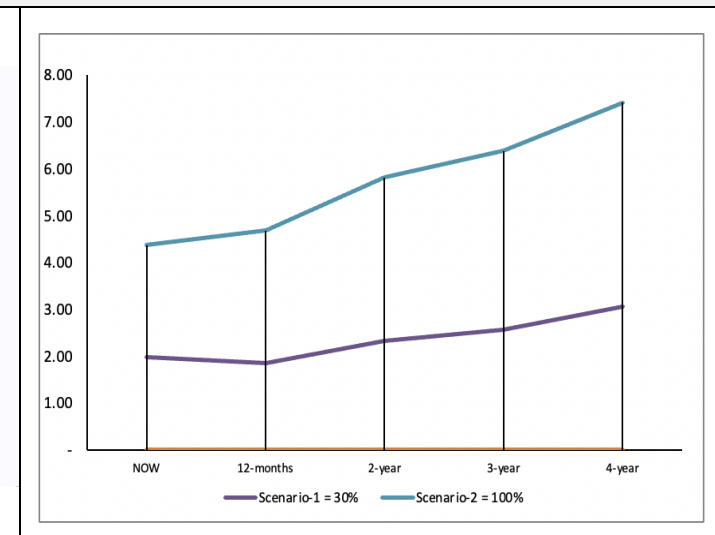
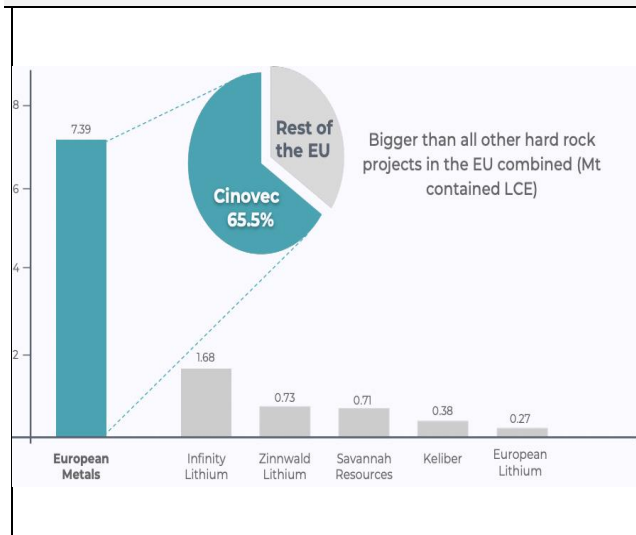


Source: EMH

Source: CCR model

## Riskd vs De-risked NET Lithium Carbonate Equiv.

## Riskd corporate valuation A\$/share (upside de-risked)



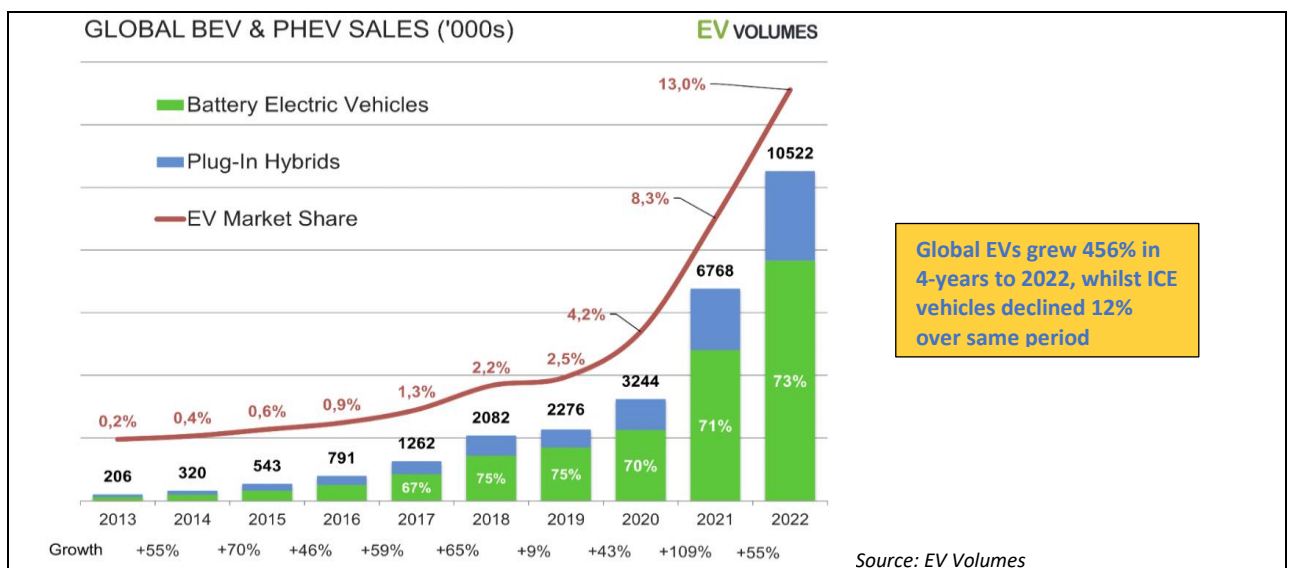
Source: CCR model

Source: CCR model



## Global EV Supply & Demand – Auto sales might be weak but EV growth still strong

- **Lithium-ion battery demand grows from 100GWh in 2018 to 740GWh in 2023, a 6.4x increase**
  - **EV demand reaches a tipping point with an auto market share of 15%; however**
  - **Europe and USA still depend on China for lithium carbonate and lithium hydroxide**
- **EV sales surged in 2022** – Although the world is moving past COVID, global auto sales remained soft in 2022 at 66.1m units down slightly from the 67m units in 2021 and still well below the 75m units sold pre pandemic in 2019. The Ukraine/Russian war and threat of recession has wreaked havoc on sentiment in Europe. However, *EV Volumes.com* suggests EV sales increased from 2.3m in 2019 to 10.5m units in 2022, representing an impressive increase of 456% over the 4-year period. Consequently, global EV sales in 2022 reached 15.8% of global vehicle sales...up from just 3% in 2019! Despite ongoing tensions in Europe and fears of a broader global recession, *EV Volumes.com* forecasts global EV sales for 2023 of 14.3m units, representing growth of 36%yoy. **It seems a tipping point has been reached!**
- **The EV market share is now 15.8%** – This appears to be in line with macro forecasts by Benchmark Minerals Intelligence (BMI), which suggests EV penetration could rise to ~30% by 2030, ~50% by 2035 and >70% by 2040. This, they consider, could push lithium demand to 2.4mt LCE by 2030 and 7mt LCE by 2040. BMI stated after COP26 in March 2022 that **lithium demand is growing at 3x the speed of lithium supply** and “that’s a big problem that needs to be solved.” Albemarle, the world’s largest chemical producer, recently tightened the screws further, suggesting their demand forecasts for lithium in 2030 was a very scary 3.7mt. This appears to be a very bullish forecast and has everyone wondering how such a number could be supported by the supply side.
- **China’s investment in EV ecosystem reaping returns** – Sales rose from 3.4 m units in 2021 to 6.5m units in 2022, which dwarfed Europe at 2.6m units and the USA at 0.80m units (+65% year on year). China invested US\$110B in 2021, putting it at the top of the EV investment league table after falling behind Europe in 2020. This investment is underwriting significant growth in output; however, China remains reliant on imports to fuel their battery production, and this will ensure price volatility remains along with higher medium to longer term pricing; and
- **A chasm exists between supply and unmet demand for 2030** – After a decade of decline in EV prices, the rise in battery materials costs, supply chain issues and rising electricity costs are increasing the price of making an EV. Auto OEMs, which are reeling from the semiconductor shortage, now face inflationary pressures from all directions. This is indeed problematic for the OEMs as they have largely failed to secure lower priced contracts. This need for materials is what drove lithium carbonate prices to a peak of US\$85,000 in 2022. Prices may have weakened recently, however, the chasm between unmet demand and supply may only close with the onset of global recession. We, however, do not expect demand or prices to collapse. Such is the power of systemic change. Current lithium hydroxide prices are ~US\$40,000/t or ~80% greater than our long term price forecast from 2030.



## European support for EV ecosystem – working on Critical Raw Materials Legislation

- **The Green Deal – net zero emissions by 2050**
- **Develop a local EV ecosystem – from the mine through to the EV; and**
- **EU wants to be 80% self-sufficient by 2025**

Brief snapshot – domestic supply chain must grow rapidly to replace China supply into Europe.

- Europe presently imports 100% of its lithium carbonate and lithium hydroxide, as well as 100% of its battery cell requirements; and
- The Czech Republic is already a major auto manufacturer in Europe employing over 120,000 people. Czech car manufacturer Skoda, a subsidiary of VW, plans domination in Europe with 50-70% EV market share by 2030.

Whenever a supply chain is controlled by a monopoly or foreign country, the greater the supply and price risk to the third party. Managing exposure risk to China is paramount and the localisation of supply chains is key to achieving this. With the recent superconductor saga and concern over meeting ever growing EV demand, diversification, and the need to simplify and localise supply chains is critical.

- **European demand for lithium forecast to grow from 50,000t/year LCE in 2020 to 800,000+ t/year LCE by 2030** and demand for lithium hydroxide is expected to grow strongly on the back of increased nickel-based battery chemistry applications; nickel-based batteries provide superior cold weather performance and energy density
- **At least 27 new lithium battery “Gigafactories” are planned in Europe by 2030; and**
- A digital passport to ensure battery inputs are of an acceptable standard to ensure high quality batteries are attained.

The **European Critical Raw Materials Act** is the EU’s response to the US Inflation Reduction Act, which has turbo-charged battery supply chain initiatives and EV demand in the USA. The EU now realise that, in a globally competitive landscape, a local materials supply is necessary to ensure local battery grade product is available for Europe. The EU Commission President reaffirms that “without critical raw materials, we will not lead the digital decade and will not be able to develop our defence capabilities either.” **The EU Green deal** commits €1trillion and is discussed on page 18.

- Impact of Europe’s new battery regulations include;
  - Carbon footprint analysis is recommended from 2023
  - Rechargeable EV must have a carbon footprint statement from 2024
  - Batteries will have to carry a carbon intensity performance label from 2026
  - Batteries must comply with maximum carbon footprint thresholds from 2027
  - New industrial and EV batteries will need to declare the content of recycled cobalt, lead lithium and nickel they contain from 2027
  - Batteries from 2030 will need to contain minimum levels of recycled content being 12% for cobalt, 85% for lead, 4% for lithium & 4% for nickel; and
  - From 2035, batteries will require minimum recycled content levels of 20% cobalt, 10% lithium & 12% nickel.

### EU AUTO REGULATIONS SUPPORT SIGNIFICANT EV UPTAKE



	<p><b>EU spends big on climate change</b> €1 Trillion to be spent on European Green Deal by 2030</p>	<p><b>Just Transition Fund</b> €40 billion fund to transition fossil fuels to green energy</p>
<p><b>EU Legislation</b> Introduction of European Critical Raw Materials Act</p>	<p><b>EU self sufficiency</b> Targeting 80% lithium self sufficiency by 2025</p>	<p><b>EU CO2 targets tighten</b> €billions potential fines for non-compliant automakers</p>

### Tesla Berlin Largest battery gigafactory in the world (Oct 2021 Completed)



Source: EMH

## Lithium Prices – Remain strong although off peaks, still higher than CCR forecasts

- **Chronic underinvestment has demand far outstripping supply after 2023**
- **Spot prices are weakening as China de-stocks ahead; but**
- **Fundamentals are still strong as lithium presently used in all types of battery cells**

Despite the global pandemic, demand for EVs surged over 2x and lithium prices over 5x in 2021. Lithium prices doubled again in 2022, however **spot sales prices for lithium carbonate and hydroxide have been weakening into 2023**. In 2023, lithium hydroxide prices rose to ~US\$85,000/t...an all-time high...before softening to current levels of US\$40,500/t.

However, due to the lag in contract price to spot prices of up to 6-months, contract prices will likely continue to rise in the short term.

**Why is the spot market softening?** BMI suggests lithium capacity could increase 42% in 2023. As a result, the timing and depth of recession could increase volatility as production ramps into capacity.

We use a long-term price of US\$22,000/t for lithium hydroxide, which is at ~46% discount to spot.

However, right now...the world is changing fast. The Ukraine/Russia war is complicating supply chains market is re-balancing. However, CCR's view remains that demand for EV's by 2030, will significantly outstrip supply.

The stakes are high as supply chain issues that have plagued the EV industry are inflationary and are lifting the cost of the energy transition. Increasing the supply of lithium is urgently required and CCR's view is that companies that can differentiate themselves or can develop projects quickly are best placed for Government grants and low-cost loans.

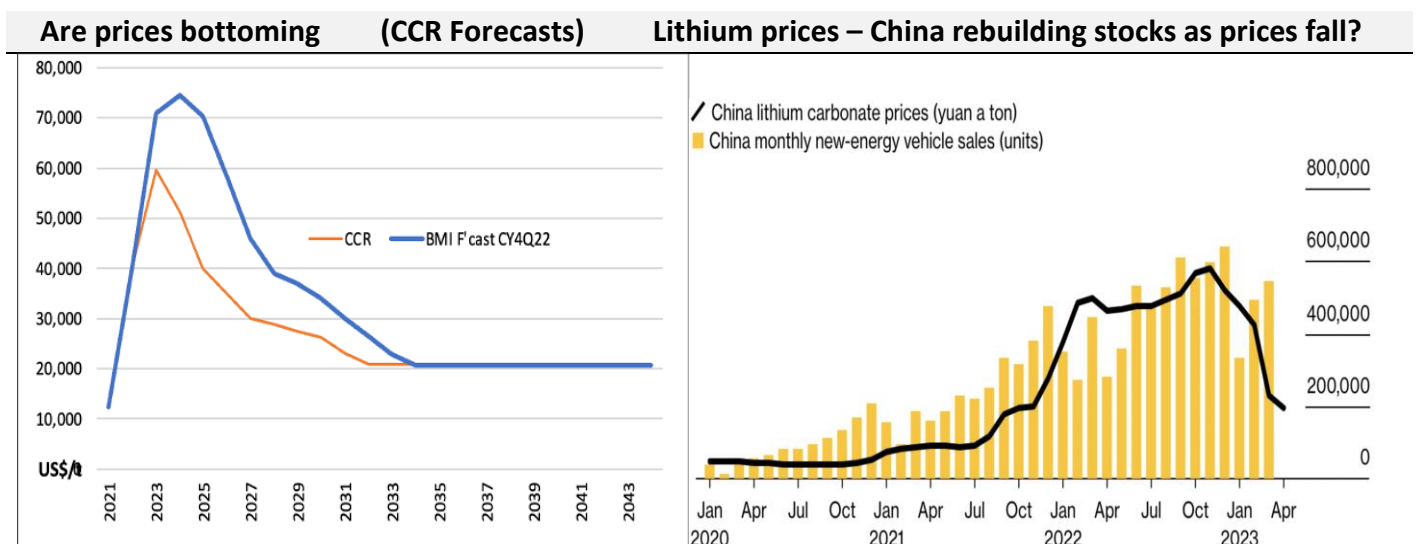
**This is how the maths works** - There is ~850g of lithium required/kwh of battery cell capacity (Martin 2017). This suggests that a Tesla standard range plus Model 3 with a battery cell output of 50kwh, could require ~42kg of LCE. Larger EVs require more lithium.

Suggestion is that 50kwh will form the average battery output. Consequently, 1 million 50kwh EVs would require 64m kg's of lithium. With 56m EV's required by 2030, over 3.5mt/year of LCE would be required. Albemarle suggests 3.7mt/year.

The UK has 2GWh of battery production today and could require 70GWh by 2030. However, if the UK wants to keep its car industry alive it may need up to 175GWh. If the latter is right, the UK could require 210kt of lithium carbonate/hydroxide.

So, where will all the supply come from? As a member of the Commonwealth, Canada and Australia could be positioned well to supply the UK. The question is...will Canada be Europe's partner...or will the USA and the UK be Canada's target markets? If Europe is to break its reliance on China, it will need to build a local full chain battery ecosystem.

We don't envisage that European lithium will leave that market, given Rystad Energy forecasts that there is a 216% shortage of lithium hydroxide capacity into 2023. Its options seem limited to us...which is good news for Cinovec if it can keep pushing.



Source: Benchmark minerals (4Q22) and CCR

Source: Asian Metal Inc, China Passenger Car Association and Bloomberg

## EMH (Cinovec net 49%) – Large hard rock deposit, centrally located in Europe

- **Largest hard rock project in Europe supports potential for a 25-year operation**
  - **Cinovec is underwritten by only 8% of the resource, plenty of project upside remains; with**
  - **Geographic proximity to expanding European EV demand**
- **Regional mining history** – Tin was mined underground at Cinovec as early as the mid 14<sup>th</sup> century. In the 20<sup>th</sup> century, mining of tungsten occurred to support the war effort. Mining of both tin and tungsten continued after the war and although the presence of lithium was recognised it was considered to be of little importance. With tin prices collapsing with the fall of communism, mining was ceased in 1993. In 2011, the old processing plant was removed, and the site rehabilitated.

EMH acquired the exploration permit over Cinovec in 2014 and in 2020, the CEZ Group acquired 51% of Geomet, a subsidiary of EMH that contained Cinovec for €29m.

- **Location** – Cinovec is located 100km from Prague and sits in an established but sparsely populated mining region that lies adjacent to the German/Czech border. The mineralised system extends into Germany, which was also mined in the 15th century. Cinovec is situated in a sparsely populated area and a historical understanding of mining could align development with local community support, given the project's integration into the auto ecosystem, a big employer in the Czech Republic.

Cinovec's location positions it well to supply lithium hydroxide and/or lithium carbonate to European battery and auto gigafactories, due to its proximity with the border with Germany where Tesla (Berlin), Samsung SDI, CATL, BYD, Northvolt, SVOLT and Automotive Cells Company, a new company backed by Saft, Stellantis and Mercedes. Sweden's Northvolt plans to build 3 battery plants in Germany.

- **Partner is CEZ Group** – In 2020, CEZ invested €29m for 51% of the Cinovec project. CEZ is the Czech Republic's national power utility and the largest integrated energy utility in central and eastern Europe, with over 28,000 employees. CEZ is going green. It is Europe's largest producer of wind energy and fifth largest nuclear producer. The shares of the Group's parent company, which is owned 70% by the Government of the Czech Republic, are traded on the Prague and Warsaw Stock Exchanges. The CEZ Group has a market capitalisation of ~US\$28Bn.
- **Will a Czech gigafactory be built?** – Volkswagen, AG's Skoda Auto subsidiary, has indicated that by 2030 it will build 6 gigafactories in Europe, of which one will be in central Europe. In 2021, the Czech government suggested it was in talks with Volkswagen, South Korea's LG and three other groups. VW's Skoda, which is manufactured in Czech Republic and is one of the largest car manufacturers in Central Europe, is planning to release 3 electric SUV's by 2026. Skoda has ambitious plans and with a low price point, it plans a 70% market share in countries it operates in by 2030.

### The project – A brownfields development that supports position down the cost curve

- **Tenure & Permits**– Geomet, the project company, holds the mineral exploration licences over Cinovec and a **Preliminary Mining Permit that is valid until 2028**. This permit will be superseded by a Final Mining Licence at FID. Geomet's partners are EMH 49% and CEZ 51%. At this stage all permits are outstanding and awaiting results from the LCP pilot test. Refer the permitting timeline, on page 2, as estimated by CCR.
- **The development & production plan** – underground stope mining with back fill. To date over 400kt of ore was mined as a trial sub-level open stope underground mining operation that supported the original PFS in 2017.
- **The 2022 PFS update to the 2019** – the original PFS was performed by Hatch in 2017 and updated in 2019 and more recently again in 2022. The 2022 PFS suggests that 450,000t/year of rock will be sent to the Lithium Chemical Plant (LCP) for processing to LCE and then to lithium hydroxide at the rate of 29,386t/year.
  - **Cost curve** – By-product credits from tin, will ensure the lithium operation sits at the low end of the cost curve. The project has proximity and access to existing infrastructure; and
  - Despite the low Li content of Zinnwaldite (2.7% versus 6%), the consultants have placed Cinovec 's total operating cost, after by products are considered, at US\$5,567t/LiOH, some 40% of an average spodumene operation at 6% Li<sub>2</sub>O and a tantalum by product.



## Mineralogy & Geology

- **Zinnwaldite is a mica that contains low grade, high purity lithium**
- **Iron situated in the lattice structure supports less expensive wet magnetic separation; and**
- **The Zinnwaldite is disseminated throughout the greisen rocks**

### Mineralogy – Zinnwaldite is different to spodumene

- The lithium is contained within Zinnwaldite  $\text{KLiFeAl}(\text{AlSi}_3)\text{O}_{10}(\text{OH},\text{F})_2$  a dark brown lithium enriched mica. Tin is often associated with Zinnwaldite and along with tungsten occurs as oxides such as cassiterite and wolframite respectively.
- Zinnwaldite is found in northern Czech Republic and southern Germany. Its lithium content is low at 2-4% by weight compared to 4+% by weight for the potassium and lithium rich lepidolite, which is mauve and a mica which occurs throughout most of Europe. The iron content, although in the lattice structure, is high at approximately 12%. This has caused much concern. However, SMS the German consultants, that were working the DFS, recognised that wet magnetic separation is effective at removing lattice iron. At this stage, zinnwaldite is not mined for lithium. Consequently, it will be imperative that a full pilot is run to produce LiOH to reduce and manage operational and funding risk.
- Currently, the two main sources of lithium are hard rock spodumene and brines. Spodumene has a higher  $\text{Li}_2\text{O}$  by weight but its dual phased high temperature roasting and its hard coarse nature requires bulk sulphuric acid, flotation and DSM adding to the costs. Zinnwaldite may have a lower theoretical lithium content than spodumene however its lattice structure combined with a simpler flowsheet result in high recoveries that exceed 90%.

### Geology – Multi phase pegmatites within intrusive dykes

- **Geology** – Cinovec trends north south with a strike length of 1km and width of 900m. Mineralisation extends from about 200m to 500m below the surface. The deposit is situated in the Central European Variscan Belt, which comprises a crystalline basement with post volcanic granitic intrusives from the Upper Carboniferous period (280million years old). The deposit itself is comprised of gneisses typical of low-grade metamorphism of metasediments along a major fault line. The location primarily contains mica rich rhyolitic metavolcanic rocks.

Zinnwaldite does not occur in dykes and seams as is common with spodumenes host rock pegmatites. Instead, the zinnwaldite is disseminated throughout the massive granite host rock, which EMH believes will support an easier bulk underground mining operation. It is the upper cooler portion of the granite cupola that has been mineralised by magmatic fluids.

- **Exploration** – Zinnwaldite ore extends into Germany, where mining for tin has occurred since the 15<sup>th</sup> century. That project is currently owned by AIM listed Zinnwald Lithium PLC and their PFS supports EMH 's metallurgy results. Due to low costs and high recoveries, they too have ultra-low cut-off grades.

Commensurate with centuries of exploration and mining, the geotechnical database over Cinovec is extensive. EMH suggests that some 90,000+ metres of diamond drilling has been made available by prior owners.

After securing the exploration permit to investigate lithium, EMH commenced a substantial verification program. Between 2014 and 2021, EMH cut 20,814m of core, which was then analysed and correlated to earlier data. In late 2021, geophysical tomography measurements were made in 4 lines along the axis of the deposit. In 2022 two boreholes were drilled to confirm earlier results.

Over the years, as data verification was building and geotechnical risk was declining, EMH proceeded with a Scoping study in 2015 and a PFS in 2019, which was then updated in January 2022. A DFS is currently underway with DRA Global and is expected to complete by late 2023. This timeline is later than expected following the recent change in consultant. SMS commenced the DFS, however due to a confluence of factors has since been replaced by DRA Global, which EMH believes is well suited to complete the project, which we now envisage will be 4Q23.

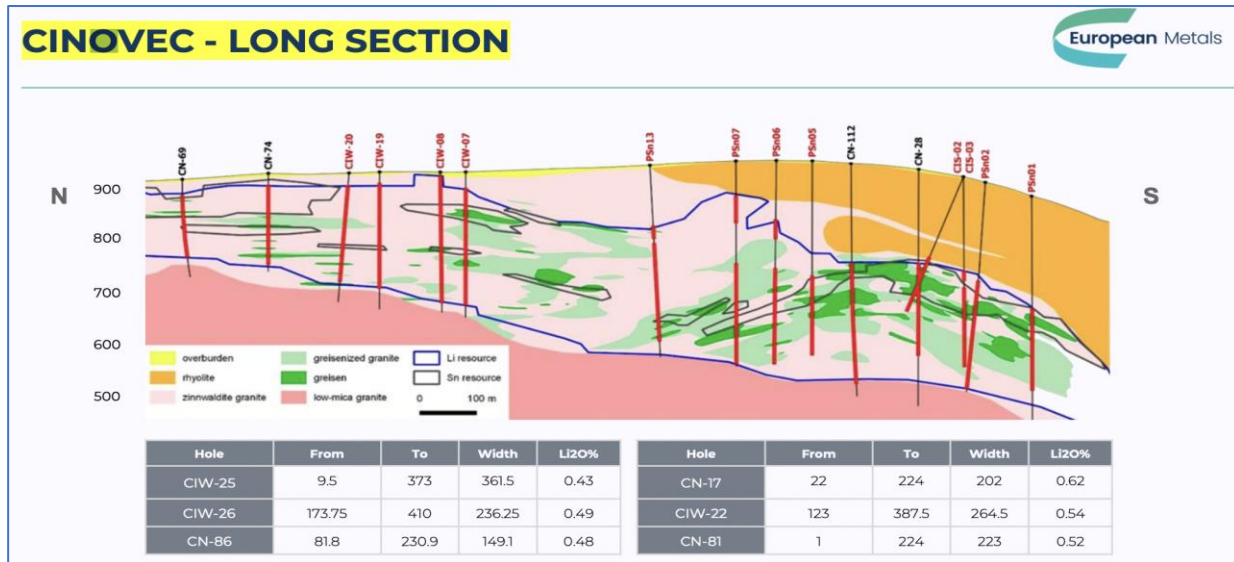
## Cinovec project borders Germany in northwest Czech Republic and zinnwaldite mineralisation at Cinovec



Source: EMH



Source: EMH

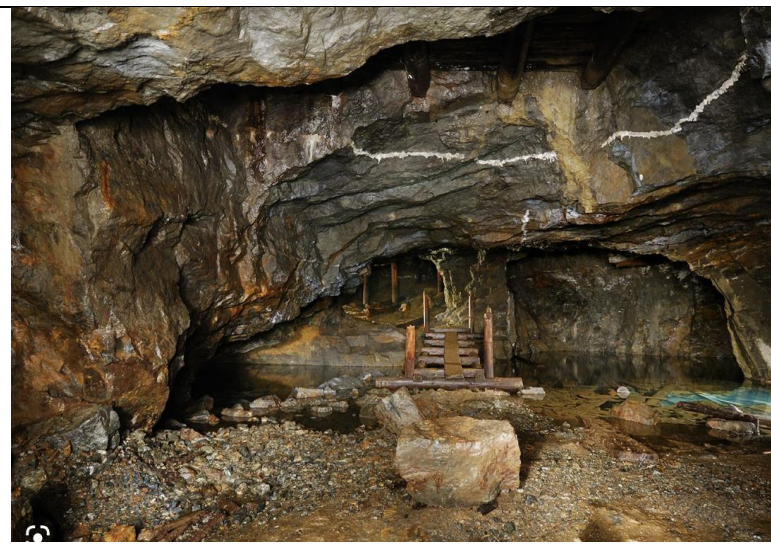


Source: EMH

## Cinovec Mine – Historical mine and mine workings



Source: EMH



Source: EMH

## Resources & Reserves – One of Europe’s largest potential sources of lithium

- **Measured resource is equivalent to 13% of total measured & indicated resource**
- **The 2P reserve covers the first 20-years of a 25-year mine life; and**
- **Plenty of resource to underwrite reserve upgrade & possible expansion on scale up of Phase-1**

**Resource** – Cinovec contains a measured and indicated JORC resource of 413mt @ a grade of 0.22% Li<sub>2</sub>O, or 4.51mt of lithium carbonate (LCE). The LOM resource is equivalent to just 13.1% of the existing measured and indicated JORC resource. A large inferred JORC resource of 294.7mt at 0.39%, lifts the total JORC resource to 7.9mt of LCE and 335.1kt of tin. The cut-off grade applied for Li<sub>2</sub>O is low at just 0.25% and was based off underground studies conducted by Bara Consulting in 2017. The risk the cut-off grade is too low is mitigated somewhat by the vast indicated resource.

### Cinovec RESOURCES Estimate (Before dilution effects)

Reserve Category	Resource mt	Grade Li <sub>2</sub> O%	Grade Sn%	Contained Li <sub>2</sub> O mt	LCE kt
Measured	53	0.48%	0.08%	0.26	0.64
Indicated	360	0.44%	0.05%	1.57	3.88
<b>Measured &amp; indicated</b>	<b>414</b>	<b>0.47%</b>	<b>0.05%</b>	<b>1.83</b>	<b>4.51</b>
Inferred	295	0.40%	0.05%	1.16	2.88
<b>Measured, indicated &amp; inferred</b>	<b>708</b>	<b>0.42%</b>	<b>0.05%</b>	<b>2.99</b>	<b>7.39</b>

The measured resource alone supports the probable reserve...  
[Refer ASX Release link here](#)

Source: EMH ASX release dated 13<sup>th</sup> October 2021

**Reserve** – An initial probable reserve of 34.5mt at a grade of 0.65% Li<sub>2</sub>O and 0.09% Sn has been defined and supports the first 20-years of mining. Thus, 65% of the measured resource underwrites the first 20 years of production of a 25-year project. On this basis, accounting for a 3-year ramp and mining rate of 2.25mt/year, the measured and indicated resource as reported would support a ~188-year operation! EMH has flagged early plans to execute a Phase-2 expansion. However, a Phase-1 development is rightly the focus to ensure success at scale is established.

Clearly, the resource size is not the pinch point. Rather the metallurgy and flowsheet are where the focus will be.

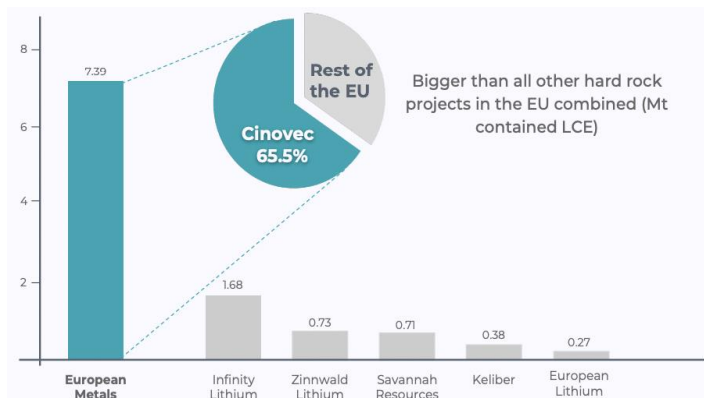
### Cinovec RESERVE Estimate

Category	Reserve mt	Grade Li <sub>2</sub> O%	Grade Sn%	Contained Li <sub>2</sub> O mt	LCE kt
Proved Ore Reserve	-	-	-	-	-
Probable Ore Reserve	35	0.65%	0.09%	0.2	0.6
<b>PROJECT 2P Ore Reserves</b>	<b>35</b>	<b>0.65%</b>	<b>0.09%</b>	<b>0.2</b>	<b>0.6</b>
<b>NET 2P Ore Reserves</b>	<b>16.9</b>	<b>0.65%</b>	<b>0.09%</b>	<b>0.1</b>	<b>0.3</b>

...which supports the first 20-years of mining

Source: EMH

### Cinovec dominates Europe’s hard rock supply options (in LCE)



Cinovec hard rock resource dominance dwarfs other projects

Source: EMH



## Mining & Production – Underground with 21.5km of historic drive development in place

- **Mine to battery grade products**
  - **Established mining region straddling Czech/German border; and**
  - **Previously mined brownfields underground development for tungsten**
- **Cinovec mining method** – 54.5mt of ore will be mined at the rate of 2.25 mt/year, using open stope mining with backfill. The 2P reserve of 34.5mt at 0.65% Li<sub>2</sub>O will cover the first 20-years of production. Given the vast inferred resource, we see little risk that the required resource will not transition to the probable category.

The ore will be mined, crushed underground and sent to a stockpile before moving to the beneficiation plant, where enrichment occurs. It is here that wet magnetic separation creates a low iron concentrate, which is then sent via an 8.3km rope conveyor, to the LCP for processing. It is here that lithium is extracted through roasting, leaching and purification to produce steady state production of 22,500t/year of battery grade lithium carbonate or 29,386t of battery grade lithium hydroxide. **The focus is converting lithium carbonate to lithium hydroxide.**

Providing an additional funds, high grade tin, tungsten and potassium sulphate will be produced as by-products. We estimate the LCP will operate 24 hours a day, 7 days a week with utilization rate of ~95%.

- **Metallurgy** – The metallurgical cut-off grade is 0.25% Li<sub>2</sub>O. EMH reports that lithium carbonate was produced from Cinovec from 1958 to 1966 and lab work in 1970 demonstrated that lithium could be extracted from the ore.

More recent metallurgical test work supports battery grade lithium hydroxide or up to battery grade lithium carbonate as well as high grade tin concentrate. As the zinnwaldite ore is fine grained and the iron is contained within the lattice, wet magnetic separation can be used to remove the iron. The use of wet magnetic separation is unique to zinnwaldite and according to the PFS consultants, provides for significant cost savings.

Testing by specialist battery materials consultants, ANZAPLAN in Germany and Nagrom in Perth, supports the production of battery grade lithium carbonate. When samples from a pilot operation are available using the simplified flowsheet, they will be sent to customers for qualification against other commercially available battery grade samples. This process could take up to 2-years and is necessary to secure offtake and funding.

- **Infrastructure** – An 8.3km rope conveyor will carry the crushed ore from the beneficiation plant to the LCP. Larger road transport is well developed, and train lines are located 5km to the north and 8km to the south of Cinovec. Power supply is supported by an active 22kv transmission line to the historic mine.
- **Mine Tailings** – There has been much concern around high water percentages in conventional slurry tailings. Wet tailings can contain up to 70% water and the risk of wall failure can be high. To mitigate this risk and maintain a social licence EMH will use dry stacking, which supports a higher recovery of recycled water for re-use in the mining operation. The filter cakes will be stacked ~600 metres away in a Tailings Storage Facility; and

Upfront costs are higher but dry stacking facilitates a conversation with local communities, due to improved water management, safety, faster remediation, and a smaller disturbed footprint. Thus, the use of dry tailings can reduce corporate risk and the environmental and social consequences associated with a tailings wall failure.

### Cinovec Operating Costs

Operating Expenditures	US\$/t ROM	US\$/t LiOH	US\$m	Opex Split
Mining	24.3	2,282	65.8	34%
Tailings management	11.7	888	25.6	13%
Backfill plant & infrastructure	4.7	355	10.3	5%
Processing & admin	41.0	3,103	89.5	46%
LiOH transport	1.3	99	2.8	1%
<b>Total Operating Costs</b>	<b>83</b>	<b>6,727</b>	<b>194</b>	<b>100%</b>
By product revenue credits	14.9	1,160	32.1	
<b>Total Opex net of by product credits</b>	<b>68</b>	<b>5,567</b>	<b>162</b>	

Mining is 34% of costs and processing & admin represent 46% of total opex

Source: EMH



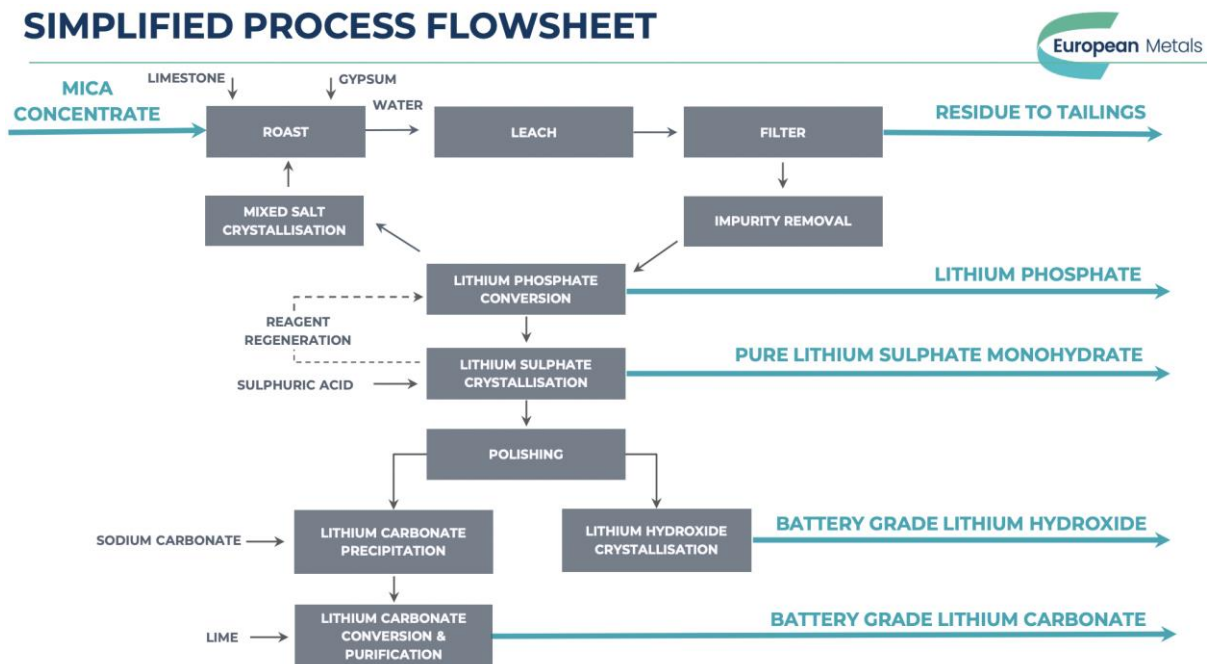
**Processing – A simplified flowsheet produces up to 99.99% pure lithium carbonate**

- **Integrated project, mine to battery grade lithium hydroxide**
  - **No DSM required and wet magnetic separation removes iron at low cost; and**
  - **Process yields a high-quality low impurity product**
- **A simplified energy efficient flowsheet** – Flowsheet optimisation is now complete and EMH stated in an October [ASX Release link here](#), that using the simplified flowsheet gives the LCP the “capability to deliver very high purity lithium hydroxide, lithium carbonate, lithium sulphate or lithium phosphate”.
- The feed rate of 450,000t/year of mica concentrate, which will be sent to the LCP. The 2022 PFS also assessed the economics of a developing a unique flowsheet that produces lithium hydroxide from lithium carbonate. ANZAPLAN developed a roasting process that substituted gypsum for limestone as well as the recirculation of excess sodium sulphate to the roast feed mix. This reagent mix has increased recovery yields up to 95%. This proprietary method is under a provisional patent, and the **LCP is forecast to commence production in mid 2027FY. Conservatively, we have pushed the start date out until early 2027CY.**
- **Simplified process** – When it comes to processing the ore, Zinnwaldite uses a single stage mid temperature roast requiring lower cost reagents like gypsum and limestone, which is abundant throughout Europe. EMH and its consultants consider that DSM will not be required at Cinovec...just lower cost wet magnetic separation. **It is the simpler mining and processing flowsheet combined with very high recoveries of ~92% and tin credits**, which supports favourable economics.

EMH highlights improvements offered by the simplified flowsheet;

- Reduction in processing steps from 15 to just 7 and lower reagent use
  - A 3%-6% improvement in recoveries up to 93%. Improvement noted during the beneficiation stage
  - Lower temperature requirements improve energy efficiency and reduces environmental impact; and
  - Capex and opex reductions of ~10-20%. The more complex flowsheet required 4 crystallisers and one evaporator, whilst the new flowsheet only requires 2 crystallisers. Opex is lower as energy input is less.
- **Six locked Cycle test work** – Initial pilot testing, to verify the quality of the product, was completed by ALS Global in Perth and a hydrometallurgical pilot plant to test the quality of the LCP product is underway. **Verifying the flowsheet at scale is the key to moving Cinovec forward in a timely manner and this step is never quick as qualification for one battery customer does not equal qualification for all potential customers.**

**SIMPLIFIED PROCESS FLOWSHEET**



Source: EMH

## ESG Benefits – Minviro suggests Cinovec could be lowest environmental impact globally

- **Mine tailings used underground as backfill; reduces environmental waste footprint**
- **Zinnwaldite does not require high temperature roasting, thus more energy efficient; and**
- **Moving to sustainable mineral processing**

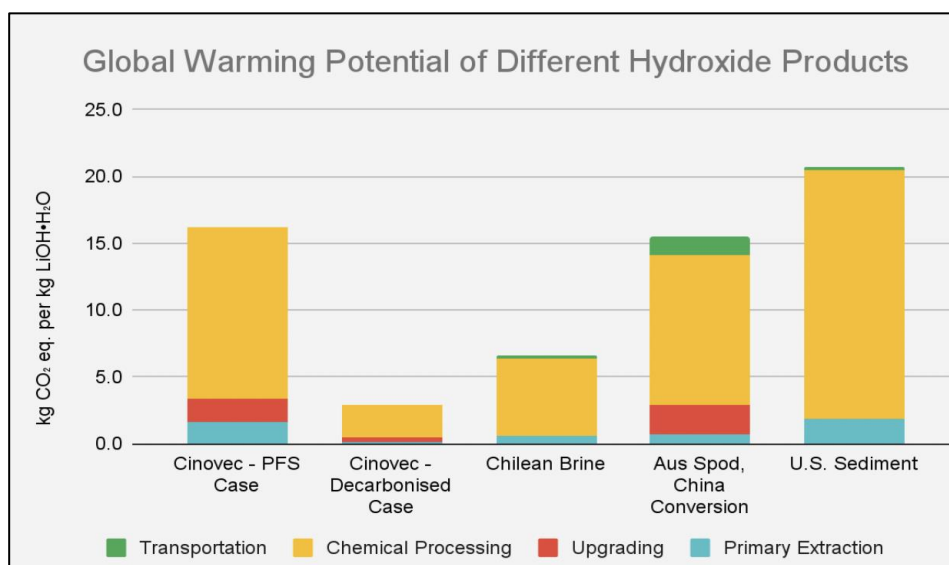
Minviro, a UK based, and globally renowned sustainability and lifecycle assessment (LCA) consultant was engaged to review Cinovec and compare results with industry peers. The LCA results, refer [ASX Release link here](#) were peer reviewed. EMH reported the results in November 2021. Minviro estimates that the Global Warming Potential (GWP) of Cinovec as presented in the 2019PFS is a very low 2.9kg CO<sub>2</sub> equivalent per kg of LiOH compared to spodumene converted in China with a LCA of ~15.5 CO<sub>2</sub> equivalent per kg of Li<sub>2</sub>OH.

Contributing elements to the decarbonised flowsheet include the following;

- **Low carbon energy** – Gas will be supplied by pipeline from Russia. However, with the Ukraine war, gas supply has taken a hit and prices have escalated. To manage the increased use of solar and wind, gas storage is likely to increase to mitigate grid management and fuel supply risk. Nuclear power makes up about 30% of the Czech grid. Earlier plans to increase nuclear power are unclear as uranium for its two of its six reactors comes from Russia. EMH is looking into the use of onsite hydrogen.
- **Mine access** – Through the existing historical mine entrance at Cinovec, will reduce environmental disturbance.
- **Closed loop refining technology** – New lithium hydroxide refining has been tested by EMH consultants to produce lithium hydroxide comparable to other commercially available product.
- **Electric underground trucks** – Powered by renewable hydroelectricity, will reduce the noise profile of the project.
- **Dry stack tailings as backfill** – 56% of tailings is now planned to be used as backfill, which will reduce ESG footprint. This will result in a reduction of stored dry stack tailings.

The remainder of the tailings will be used to rehabilitate the adjacent abandoned coal pits. Dry stacking will reduce reliance on non-recycled water for process water; and

- **Processing is energy efficient, and transport is less energy intensive** – Zinnwaldite only requires a mid-temperature roast compared to a dual phased high and mid temperature roast for spodumene. As a result, process cooling steps are reduced. In addition, transport to local European markets will result in significantly lower carbon emissions compared to imported product from China and spodumene from Australia.



The decarbonised case for Cinovec will form basis of the DFS

Source: EMH

## Cinovec Investment Model (net 49%)

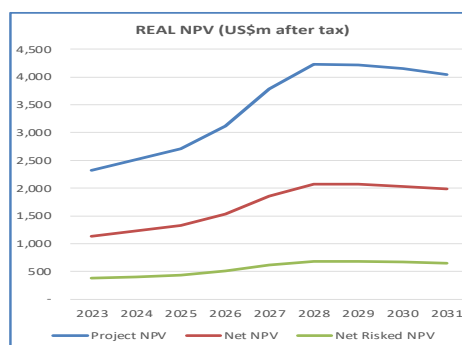
- **Vertically integrated lithium project centrally located in Europe**
  - **Peak production at 25,000t/year LCE or 29,386t of LiOH; and**
  - **Presently risked at 0.33xNPV**
- No refinery capacity in Europe. Developing a local supply chain meant that just producing a concentrate left another party to develop the LiCO<sub>3</sub> or LiOH. Completing the plant will enable the low grade Zinnwaldite to be processed into higher priced lithium carbonate using a unique processing flowsheet. Project financing will fund development. A condition precedent would likely be a successful commissioning of Cinovec
  - The current spot price for lithium carbonate is \$US\$24,000 and US\$40,500/t for lithium hydroxide. The gap of US\$16,500/t exceeds the normal price difference of US\$2,000. Presently there is no lithium refinery in Europe. Cinovec could supply homegrown lithium carbonate/hydroxide or phosphate into the local market; and
  - We estimate a REAL net post tax **project NPV8** of US\$2,518m. We then **apply a risk factor of 0.33xNPV** to cashflows, which yields a REAL RISKED project valuation of A\$831m. Our corporate valuation (refer page 17) converts this to nominal A\$m. The project is early on its trajectory, however as project milestones are met, like project financing, offtake agreements, construction and successful commissioning, the project will de-risk and the NPV multiple will move towards 1xNPV. EMH suggests first production in FY1H27. We delay to FY2H27 and ramp up to full production over 18 months.

## Pre-Production & Sustaining Capex

Capex in US\$m	Units	2022	CCR model	CCR moel
<b>Production LCE/year</b>	<b>t/yr</b>	29,386	29,046	14,233
Mining & infrastructure	US\$m	114	114	56
Backfill plant & infrastructure	US\$m	28	28	14
Processing incl. indirect costs	US\$m	449	449	220
Contingency	US\$m	53	53	26
<b>Pre production capital</b>	<b>US\$m</b>	<b>644</b>	<b>644</b>	<b>315</b>
Sustaining capital		151	151	74
<b>Total capital (LOM)</b>	<b>US\$m</b>	<b>795</b>	<b>795</b>	<b>389</b>

Source: EMH PFS 2022

## CINOVEC NPV (@ 10% real discount rate)



Source: Corporate Connect Research

## Cinovec Project Cashflows (June Yr end, net 49%, REAL cashflows with long term prices from 2032)

PROJECT Cashflows	June Yr End	2023	2024	2025	2026	2027	2028	2029	2030	2031
Project production (LiOH)	t/yr	-	-	-	-	1,545	10,815	20,085	29,046	29,046
Net production	t/yr	-	-	-	-	757	5,299	9,842	14,233	14,233
Average REAL lithium price (50% LiOH and 50% Lithium carbonate)	US\$/t	-	-	36,000	33,000	29,750	28,500	27,250	25,000	22,000
Project revenue	US\$m	-	-	-	-	46	308	547	726	639
-All in costs	US\$m	-	-	-	-	(10)	(71)	(132)	(191)	(191)
<b>EBITDA</b>	<b>US\$m</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>36</b>	<b>237</b>	<b>415</b>	<b>535</b>	<b>448</b>
-Pre production capex	US\$m	-	-	(193)	(418)	(32)	-	-	-	-
-Sustaining capital	US\$m	-	-	-	-	(10)	(10)	(10)	(10)	(10)
-Working capital		-	-	-	-	(132)	106	(20)	(15)	7
<b>Total capex</b>	<b>US\$m</b>	<b>-</b>	<b>-</b>	<b>(193)</b>	<b>(418)</b>	<b>(174)</b>	<b>96</b>	<b>(30)</b>	<b>(25)</b>	<b>(3)</b>
<b>PROJECT – Pre tax cashflows</b>	<b>US\$m</b>	<b>-</b>	<b>-</b>	<b>(193)</b>	<b>(418)</b>	<b>(138)</b>	<b>333</b>	<b>385</b>	<b>510</b>	<b>445</b>
<b>PROJECT – Post tax cashflows (10 year tax holiday)</b>		<b>-</b>	<b>-</b>	<b>(193)</b>	<b>(418)</b>	<b>(138)</b>	<b>333</b>	<b>385</b>	<b>510</b>	<b>445</b>
<b>NET Project – Post tax cashflows</b>	<b>Net 49%</b>	<b>US\$m</b>	<b>-</b>	<b>-</b>	<b>(95)</b>	<b>(205)</b>	<b>(68)</b>	<b>163</b>	<b>189</b>	<b>218</b>
<b>RISKED NET PROJECT – Post tax cashflows</b>	<b>Risk 0.33xNPV</b>	<b>US\$m</b>	<b>-</b>	<b>-</b>	<b>(31)</b>	<b>(68)</b>	<b>(22)</b>	<b>54</b>	<b>62</b>	<b>83</b>

Source: Corporate Connect Research

CINOVEC PROJECT		Based on PFS	Updated PFS	Update PFS	Based on PFS 2022	Based on PFS
ASSUMPTIONS		19 April 2017	17 June 2019	19 January 2022	CALLIBRATED to PFS	27 April 2023
		EMH	EMH	EMH	CCR Model input	CCR Model F'cast*
Mining consultant		Barra	Barra			
LCP consultant		Hatch	Hatch			
Mine life	yrs	21	21	25	25	25
Total resource	mt	657	696	708	708	708
Measured & indicated resource	mt	348	372	413	413	413
% measured resource	%	-	-	13%	13%	13%
Average LiO2 grade	%	0.45%	0.45%	0.44%	0.44%	0.44%
Measured & Indicated resource	LCE mt	3.9	3.9	4.5	4.5	4.5
Ore (nominal ROM)	mt	34.5	34.5	54.5	54.5	54.5
Mine LiO2 grade	%	0.65%	0.65%	0.65%	0.65%	0.65%
Ore produced (ROM)	mt/year	1.68	1.68	2.25	2.25	2.25
Lithium recovery to concentrate	%	90%	90%	90%	90%	90%
Mica concentrate feed rate to LCP	t/year	360,000	360,000	450,000	450,000	450,000
LCP lithium recovery rate*	%	85%	91%	91%	91%	91%
Lithium carbonate production	t/year	20,800	-	-	-	-
Lithium hydroxide peak productio	t/year	-	25,267	29,386	29,046	29,046
Lithium carbonate price	US\$/t	10,000	-	-	-	-
Lithium hydroxide price	US\$/t	-	12,000	17,000	17,000	22,000
Tin price	US\$/t	22,500	22,500	24,000	24,000	-
Tungsten price	US\$/t	33,000	33,000	30,300	30,300	30,300
Sulphate of potash price	US\$/t	520	520	520	520	520
Av. prod costs (incl. by-product credit	US\$/t	3,483	3,435	5,567	5,567	5,567
Exchange rate (long-term)	E\$:US\$	0.76	0.76	0.76	0.76	0.66
Pre Production Capex	US\$m	393	483	644	644	644
<b>TOTAL PROJECT VALUE (post tax)</b>		<b>EMH from Year 1</b>	<b>EMH from Year 1</b>	<b>EMH from Year 1</b>	<b>CRR from Year 1</b>	
Calculated from Year 1 (2022 prices)						
NPV8 (REAL)	US\$m	540	1,108	1,938	1,940	
NPV10 (REAL)	US\$m	392	-	-	-	
<b>NET VALUE (post tax)</b>		<b>EMH from Year 1</b>	<b>EMH from Year 1</b>	<b>EMH from Year 1</b>	<b>CRR Adj April '23</b>	<b>CRR Adj April '23</b>
Project NPV8 (nominal)	US\$m				1,180	2,650
Project NPV10 (nominal)	US\$m				840	
EMH project equity	%	100%	100%	49%	49%	49%
NPV8	US\$m	540	1,108	950	578	1,299
NPV8 (PFS supported)	A\$m	711	1,458	1,250	761	1,968
NPV8 (risked @ 0.33xNPV)	A\$m				319	649

\* Lab work by ANZAPLAN showed up to 95% lithium recoveries

Source: EMH 2017 PFS and PFS updates in 2019 & 2022 and Corporate Connect Research

**Key assumptions from the PFS are detailed below. We calibrate our model to the PFS and then alter pricing assumptions as highlighted in above table include;**

- Annual ore mined of 2.25mt/year and processed lithium hydroxide of 29,386t/year
- The long-term price assumptions included lithium hydroxide monohydrate at US\$17,000/t, tin at US\$24,000/t, tungsten at US\$30,300/t and potassium sulphate at US\$520/t
- No royalties are payable over the 25-year mine life
- Includes a 10-year tax free window. After 10-years federal tax is paid at 19%
- Lithium recoveries to concentrate of 90% and lithium recovery in the LCE plant of 91%; yielding an overall lithium recovery of 82%. Lithium recoveries in the lab have been achieved up to 95%. Tin recovery estimated at 65%
- Pre-production capex of US\$643.8m; includes mining cost of US\$114m, backfill plant and infrastructure costs of US\$28m and processing and indirect costs of US\$448.6m. Contingency costs are included at 12%
- Capital & sustaining capital costs of US\$151m lift total capital LOM capital costs to US\$794.8m; and
- ROM operating costs at US\$84.25/t or US\$194m/year from year 3 to 25. Some 34% of the annual Opex cost is assigned to open pit mining, 13% to tailings management, 5% to backfill and 46% processing and admin.



## Valuation – is DCF based and then risked on a project basis

- Large lithium resource in Europe,
- Low lithium grade; but metallurgy supports high recoveries & lower costs supports economics
- Hydroxide or carbonate, that is the question!

We run three scenarios with varying levels of risk applied to EMH's business. As catalysts are executed, the probability of each phase goes up. As this occurs, scenario-2 becomes more likely and as production is commissioned, the probability associated with the second and third phases rises to reflect reduced development and execution risk. As milestones are met, project risking declines and the NPV multiple moves closer to 1xNPV.

### DCF Highlights

- CCR use a real discount rate of 8%. **To arrive at a nominal valuation, we inflate project cashflows in line with cpi**.
- We input data included in the PFS results released to the ASX in January 2022. We then calibrate our model to arrive at a comparable NPV8 valuation. Changes to the inputs are then made within our EMH investment model to arrive at a CRR forecast. The only change made from the calibrated PFS model to our investment model, is an increase in the LiOH price from 17,000/t to US\$22,000/t (refer page 16).
- There are many catalysts due to be completed ahead of the project FID. Despite this, we recognise material upside as the pilot LCP plant is completed, product is qualified by customers, funding becomes clearer and offtake contracts are finalised.
- Lithium hydroxide price – We use a price deck similar to Zinnwald Lithium PLC in its September 2022 PFS rather than the lithium hydroxide price of US\$17,000/t used by EMH in its DFS in January 2022, before the price rose significantly.
- When running the EMH price deck for Li<sub>2</sub>O and a LCE/LiOH price mix of US\$22,000/t through our model, we make some observations; Firstly, we consider that the project has capacity to be developed. On this basis, we assume that;
  - On a risked basis, the DCF could be \$2.12/share today
  - Assuming the project is developed and de-risked over time, the DCF could rise to over \$5/share 4-years out. Given our assumptions, this statement would remain valid even if the project start date pushed out to 2029; and
  - Our risked 12-month target price of \$1.67/share represents a 15% discount to the DCF of \$2.12/share. This discount we consider, might reflect market cautiousness and the risk that the project timeline could be pushed out one year.

## Valuation Pathway – Scenario- 1 is current CCR pathway rising diagonally only as milestones are met

RISKED VALUATION THROUGH TIME	Discount Rate	POS	NOW	12-months	2-year	3-year	4-year
<b>Cinivec</b>							
Hydroxide	8%	33%	649	623	714	897	1,063
<b>Total Cinovec</b>	<b>A\$m</b>		<b>649</b>	<b>623</b>	<b>714</b>	<b>897</b>	<b>1,063</b>
<b>Total Operations</b>							
	<b>A\$m</b>		<b>649</b>	<b>623</b>	<b>714</b>	<b>897</b>	<b>1,063</b>
Corporate Costs	10%		(110)	(113)	(115)	(117)	(118)
Working Capital			-	-	-	-	-
Net Cash (last qtr rpt-adj)			16	3	22	(100)	(135)
<b>Scenario-1 LKE Forecast A\$/share</b>	<b>A\$m</b>		<b>555</b>	<b>513</b>	<b>621</b>	<b>680</b>	<b>810</b>
No of diluted shares			262	262	262	262	262
<b>EMH Value at 0.33xNPV8</b>	<b>A\$/share (diluted)</b>		<b>2.12</b>	<b>1.96</b>	<b>2.37</b>	<b>2.60</b>	<b>3.09</b>
<b>EMH Value de-risked at 1xNPV8</b>	<b>A\$/share (diluted)</b>		<b>4.46</b>	<b>4.91</b>	<b>5.87</b>	<b>6.43</b>	<b>7.46</b>

\*The 12-month valuation is discounted by 10% to arrive at our target price of \$1.67

\*Source: Corporate Connect Research

## Funding – supported by EU Commission loans & grants

- **Like the US and Canada, Europe has announced a Critical Minerals Strategy...**
- **Developing a localised battery chain from critical minerals mining to value added processing; and**
- **EU recognises that they need to support mining, but they have yet to finalise strategy**

Funding can be challenging at any time but particularly so if you are a small company. Companies without a credit rating, risk-having access limited to more expensive money; like project financing. Unfortunately, this usually comes with a slew of associated operational and financial caveats that risk restricting a company's operating leverage. This "chicken and egg" presents as substantial headwinds to investment. Given delays brought about by COVID and the Ukraine war, the EU's target of 80% lithium self-sufficiency by 2025...seems like a bridge to far. However, at this stage Europe is way behind the US with its Inflation Reduction Act, which has been a catalyst to development within the EV ecosystem. The EU is concerned that the IRA may have a discriminatory impact on the EU...accelerating the exodus of funds. Tesla was looking to expand giga Berlin, but as a direct result of the IRA has plans now to expand Texas instead. It is this very concern that may push the EU to make significant changes.

In June 2022, there were 11,000 registered EVs in the Czech Republic. This equates to a very low market share of just 0.1%.

If **significant funding support from the European Commission** can be secured (direct or guarantor), then the likelihood of securing "best price" **project financing and senior debt** could be achieved. EU grants or loans would help provide access to less expensive funds as would access to low-cost EU Commission loans and grants.

**The Green Deal** – The EU Green deal commits €1trillion. The EU aims to reduce greenhouse gas emissions by 55% in 2030 and become net zero by 2050 by creating a green circular economy. This deal has caused some consternation in the Czech Republic as the energy mix comprise ~52% fossil fuels with a focus on coal. Nuclear power represents 40% and is sourced from Russia. Only around ~7% of energy is sourced from renewables.

**Just Transition Fund** – The €40Bn JTF supports the territories most affected by the transition towards a climate-neutral economy. In effect the JTF is to ensure that no country is left behind in the transition to zero emissions. Cinovec has recently been classified as a Strategic Project for the Usti Region of the Czech Republic. Being classified gives Cinovec priority for grant funding from the JTF, ahead of many other projects. Importantly, being awarded a Strategic Project status shows alignment between the approving bodies the European Commission, the Czech Central Government, and the Czech Regional Government in Usti. The Usti region has been allocated €632M or 38% of the €1.64Bn allocated to the Czech Republic. The Usti funds will be dispersed amongst 11 classified projects. Cinovec has been awarded the maximum €49M, subject to securing permits for early-stage work. EMH suggests this money could be used to enter the mine mouth via twin decline, supporting the early extraction of ore to feed a demonstration size LCP plant, which will provide samples to customers in a timelier manner. The JTF will go some way to ameliorating concern about the impact of the Green Deal on the Czech economy.

**The Critical Raw Materials Act** – Is expected to launch in 2023 with start-up funds of €2Bn. This is expected to grow significantly through time.

**The European Investment Bank (EIB)** – Have worked in the Czech Republic since 1992, supporting infrastructure developments. Over that time, the EIB invested €25Bn. In 2022, they invested €1.85Bn in the Czech Republic, of which a €790m was made to CEZ. The deal aimed to upgrade and expand the country's electricity distribution grid and promote the Czech Republic's energy independence from Russia by enabling ČEZ to connect around 2.2GW of new renewable energy sources. Access to these Treasury linked loans, either direct or as guarantor would assist in development.

Our view is that quality projects in the EV supply chain will be in line to receive low-cost direct loans from the EU Commission. The Czech Government has a Standard & Poor's credit rating of AA-, which will give offtakers comfort. Success here would be expected **to reduce perceived technology and operational risk** and depending on size of support could facilitate the completion of likely syndicated senior debt, at a lower cost than would normally occur. This effective "credit wrap" provided by Government support, would put **EMH** in a better position to secure credit worthy offtakers.

Further, the lower cost of debt lowers the company WACC and reduces the call on equity and hence dilution to shareholders and increases potential free cash flows. The combination of these two forces de-risks a project and in so doing; leads to an increase in valuation. Any project finance for Cinovec would be deployed on a 70% debt/30% equity basis.

## RISKED A\$ Earnings (Note: de-risked analysis on next page)

Note: Below is based on Scenario-1.

RISKED FORECAST, EARNINGS, CASHFLOW & BALANCE SHEET										CINOVE		33%		NPV		PRICE: 0.595			
PROFIT AND LOSS (riskied)										PRODUCTION ESTIMATES (Net)									
Year ending 30 June										Year ending 30 June									
Unit	2022A	2023F	2024F	2025F	2026F	2027F	2028F	Unit	2022A	2023F	2024F	2025F	2026F	2027F	2028F				
Revenue	A\$m	1	-	-	-	12	82	PROJECTS											
Expenses	A\$m	(7)	(8)	(8)	(9)	(10)	(13)	Total ore Mined	mt	0.0	1.1	1.5	1.5	1.4	1.4				
EBITDA	A\$m	(6)	(8)	(8)	(9)	(10)	(1)	LiOH	t	-	-	-	-	-	1,545				
Accelerated Depreciation	A\$m	-	-	-	-	-	(10)	Total lithium carbonate equiv-riskied	kt LCE	-	-	-	-	-	1,182				
EBIT	A\$m	(6)	(8)	(8)	(9)	(10)	(11)	Total lithium carbonate equiv-riskied	kt LCE	-	-	-	-	-	390				
Net interest (expense)	A\$m	-	-	-	-	(9)	(9)	-Net to EMH& riskied (in P&L)	kt LIC03	-	-	-	-	-	390				
NPBT	A\$m	(6)	(8)	(8)	(9)	(19)	(20)	NOMINAL PRICING & FOREX ASSUMPTIONS											
Tax expense	A\$m	-	-	-	-	-	-	Year ending 30 June											
NPAT (pre-abnormal)	A\$m	(6)	(8)	(8)	(9)	(19)	(20)	Unit											
Abnormal items	A\$m	-	-	-	-	-	-	2022A											
NPAT (reported)	A\$m	(6)	(8)	(8)	(9)	(19)	(20)	2023F											
CASH FLOW (riskied)										2024F									
Year ending 30 June										2025F									
OPERATING CASHFLOW										2026F									
Ebitda	A\$m	(6)	(8)	(8)	(9)	(10)	(1)	2027F											
Income tax	A\$m	-	-	-	-	-	-	2028F											
Change in working capital	A\$m	-	-	-	-	-	-	NOMINAL PRICES											
Interest paid & Other	A\$m	3	-	-	-	(9)	(9)	Lithium hydroxide*											
Operating cash flow	A\$m	(3)	(8)	(8)	(9)	(19)	(10)	US\$/t											
INVESTING CASHFLOW										Tin									
PP&E	A\$m	-	-	-	(46)	(104)	(8)	US\$/t											
Exploration & evaluation	A\$m	-	-	-	-	-	-	AUD/USD (PFS)											
Sustaining capital (from 2028)	A\$m	-	-	-	-	(3)	(3)	0.69											
Other	A\$m	-	-	-	-	(34)	28	0.69											
Investing cash flow	A\$m	-	-	-	(46)	(104)	(45)	0.70											
FINANCING CASHFLOW										0.73									
Net share & convertible note issues	A\$m	14	-	-	-	-	20	0.73											
Project equity	A\$m	-	-	-	74	-	-	0.73											
Project debt	A\$m	-	-	-	111	-	-	0.73											
Other	A\$m	(0)	-	-	-	-	-	0.73											
Financing cash flow	A\$m	14	-	-	186	-	20	0.73											
Surplus Cashflow	A\$m	11	(8)	(8)	130	(122)	(35)	0.73											
BALANCE SHEET (riskied)										Long-term price of US\$22.00/t									
Year ending 30 June										MARKET MODEL									
ASSETS										Year ending 30 June									
Cash (incl. raising)	A\$m	19	11	3	134	11	(23)	Unit											
Accounts receivable	A\$m	0.8	-	-	-	-	-	A\$m											
PP&E (Capex less depreciation)	A\$m	0	0	0	46	150	185	114											
Exploration & evaluation assets	A\$m	-	-	-	-	-	-	A\$m											
Other	A\$m	17	17	17	17	17	17	16											
Total assets	A\$m	37	29	21	198	179	179	A\$m											
LIABILITIES										Debt									
Creditors	A\$m	-	-	-	-	-	-	-											
Provisions	A\$m	-	-	-	-	-	-	-											
Borrowings	A\$m	0	0	0	111	111	111	98											
Other	A\$m	(1)	(1)	(1)	(1)	(1)	(1)	-											
Total liabilities	A\$m	1	1	1	112	112	112	-											
SHAREHOLDER'S EQUITY										Enterprise value (EV)									
Share capital	A\$m	48	50	52	129	131	154	A\$m											
Reserves	A\$m	12	12	12	12	12	12	-											
Retained earnings	A\$m	(24)	(31)	(39)	(48)	(66)	(86)	-											
Total equity	A\$m	36	31	25	93	77	80	-											
Weighted average NoSh/period	m	192	192	195	212	262	262	-											
RATIOS										Cash % market cap									
ASSETS										%									
Net Cash (Debt)	A\$m	19	11	3	22	(100)	(135)	14%											
Net Debt/Equity	%	0%	0%	0%	0%	130%	169%	-											
EPS	cps	(0.04)	(0.04)	(0.04)	(0.04)	(0.07)	(0.08)	-											
PE ratio	ratio	-19.7x	-15.2x	-14.2x	-14.3x	-8.4x	-7.9x	-											
Ebitda ratio	ratio	(5)	0.0x	0.0x	0.0x	0.0x	-0.1x	-											
EV/Ebitda ratio	ratio	-16.9x	-13.1x	-12.0x	-11.1x	-10.2x	-7.7x	-											
DISCOUNTED CASHFLOW MODEL - Refer Scenario-1										NPV (Post tax)									
										Discount Rate %									
										8%									
										2,650									
										1,299									
										1,968									
										33%									
										649									
										2.48									
										2,650									
										1,299									
										1,968									
										649									
										2.48									
										100%									
										(110)									
										(0.42)									
										100%									
										16									
										0.06									
										1,358									
										1,968									
										100%									
										555									
										2.12									
										262									
										262									
										A\$/share									
										2.12									
										A\$/share									
										1.96									
										A\$/share									
										1.67									
										1,968									
										649									
VALUATION - CURRENT DCF SENSITIVITIES (Feb '22)										LITHIUM HYDROXIDE PRICES									
										US\$/t									
										\$m									
										\$/sh									
										% diff									
										Base									
										22,000									
										555									
										2.12									
										Low									
										20,000									
										451									
										1.72									
										High									
										24,000									
										659									
										2.52									
										19%									
										19%									
EXCHANGE RATE (long term)										AUD/USD									
										\$m									
										\$/sh									
										% diff									
										Base									
										0.73									
										555									
										2.12									
										Low									
										0.63									
										473									
										1.81									
										High									
										0.83									
										665									
										2.54									
										-15%									
										20%									
WACC (post tax)										\$m									
										\$/sh									
										% diff									
										Base									
										8.0%									
										555									
										2.12									
										Low									
										7.0%									
										659									
										2.52									
										High									
										9.0%									
										467									
										1.78									
										-16%									

## De-RISKED A\$ Earnings

Note: Below is based on Scenario-1

### De-RISKED FORECAST, EARNINGS, CASHFLOW & BALANCE SHEET

CINOVE 100% NPV PRICE: 0.595

PROFIT AND LOSS (riskied) (Year End June)									PRODUCTION ESTIMATES (Net)									
Year ending 30 June	Unit	2022A	2023F	2024F	2025F	2026F	2027F	2028F	Year ending 30 June	Unit	2022A	2023F	2024F	2025F	2026F	2027F	2028F	
Revenue	A\$m	1	-	-	-	-	36	248	PROJECTS									
Expenses	A\$m	(7)	(8)	(8)	(9)	(10)	(18)	(69)	Total ore Mined	mt	0.0	1.1	1.5	1.5	1.4	1.4	1.4	
<b>EBITDA</b>	<b>A\$m</b>	<b>(6)</b>	<b>(8)</b>	<b>(8)</b>	<b>(9)</b>	<b>(10)</b>	<b>17</b>	<b>180</b>	LiOH	t	-	-	-	-	-	1,545	10,815	
Accelerated Depreciation	A\$m	-	-	-	-	-	(10)	(64)	Total lithium carbonate equiv-riskied	kt LCE	-	-	-	-	-	1,182	8,273	
<b>EBIT</b>	<b>A\$m</b>	<b>(6)</b>	<b>(8)</b>	<b>(8)</b>	<b>(9)</b>	<b>(10)</b>	<b>8</b>	<b>116</b>	Total lithium carbonate equiv-riskied	kt LCE	-	-	-	-	-	1,182	8,273	
Net interest (expense)	A\$m	-	-	-	-	(27)	(27)	(27)	<b>-Net to EMH&amp; riskied (in P&amp;L)</b>	kt LiCO3	-	-	-	-	-	1,182	8,273	
<b>NPBT</b>	<b>A\$m</b>	<b>(6)</b>	<b>(8)</b>	<b>(8)</b>	<b>(9)</b>	<b>(37)</b>	<b>(19)</b>	<b>89</b>	<b>NOMINAL PRICING &amp; FOREX ASSUMPTIONS</b>									
Tax expense	A\$m	-	-	-	-	-	-	-	Year ending 30 June	Unit	2022A	2023F	2024F	2025F	2026F	2027F	2028F	
<b>NPAT (pre-abnormal)</b>	<b>A\$m</b>	<b>(6)</b>	<b>(8)</b>	<b>(8)</b>	<b>(9)</b>	<b>(37)</b>	<b>(19)</b>	<b>89</b>	<b>NOMINAL PRICES</b>									
Abnormal items	A\$m	-	-	-	-	-	-	-	Lithium hydroxide*	US\$/t					37,000	34,000	30,750	
<b>NPAT (reported)</b>	<b>A\$m</b>	<b>(6)</b>	<b>(8)</b>	<b>(8)</b>	<b>(9)</b>	<b>(37)</b>	<b>(19)</b>	<b>89</b>	Tin	US\$/t					50,685	46,575	42,123	
<b>CASH FLOW (riskied)</b>									<b>CURRENCY</b>									
Year ending 30 June	Unit	2022A	2023F	2024F	2025F	2026F	2027F	2028F	AUD/USD (PFS)	A\$/US\$	0.69	0.69	0.70	0.73	0.73	0.73	0.73	
<b>OPERATING CASHFLOW</b>									Long-term price of US\$22,000/t									
Ebitda	A\$m	(6)	(8)	(8)	(9)	(10)	17	180	<b>MARKET MODEL</b>									
Income tax	A\$m	-	-	-	-	-	-	-	Year ending 30 June	Unit								
Change in working capital	A\$m	-	-	-	-	-	-	-	Market cap	A\$m	114							
Interest paid & Other	A\$m	3	-	-	-	(27)	(27)	(27)	Cash	A\$m	16							
<b>Operating cash flow</b>	<b>A\$m</b>	<b>(3)</b>	<b>(8)</b>	<b>(8)</b>	<b>(9)</b>	<b>(37)</b>	<b>(10)</b>	<b>153</b>	Debt	A\$m	-							
<b>INVESTING CASHFLOW</b>									<b>Enterprise value (EV)</b>									
PP&E	A\$m	-	-	-	(140)	(315)	(25)	-		A\$m	<b>98</b>							
Exploration & evaluation	A\$m	-	-	-	-	-	-	-	<b>Cash % market cap</b>									
Sustaining capital (from 2028)	A\$m	-	-	-	-	-	(8)	(8)		%	<b>14%</b>							
Other	A\$m	-	-	-	-	(103)	86	78	No of shares current diluted	m	192							
<b>Investing cash flow</b>	<b>A\$m</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>(140)</b>	<b>(315)</b>	<b>(136)</b>	<b>78</b>	No of shares current diluted	m	195							
<b>FINANCING CASHFLOW</b>									No of future diluted shares									
Net share & convertible note issues	A\$m	14	-	-	-	-	20	-	m	362								
Project equity	A\$m	-	-	-	225	-	-	-	* Outstanding options of 4.6m, of which 2.624m are in the money									
Project debt	A\$m	-	-	-	337	-	-	-	<b>DISCOUNTED CASHFLOW MODEL - Refer Scenario-1</b>									
Other	A\$m	(0)	-	-	-	-	-	-	Discount									
<b>Financing cash flow</b>	<b>A\$m</b>	<b>14</b>	<b>-</b>	<b>-</b>	<b>562</b>	<b>-</b>	<b>20</b>	<b>-</b>	NPV (Post tax)	Rate %	(US\$m)	(US\$m)	(A\$m)	Risking %	(A\$m)	A\$/sh		
Surplus Cashflow	A\$m	11	(8)	(8)	413	(351)	(125)	230	Hydroxide Plant	8%	2,302	1,128	1,709	100%	1,709	4.72		
<b>BALANCE SHEET (riskied)</b>									NPV									
Year ending 30 June	Unit	2022A	2023F	2024F	2025F	2026F	2027F	2028F	1,709 1,709 1,709 1,709 1,709 1,709									
<b>ASSETS</b>									<b>LIABILITIES</b>									
Cash (incl. raising)	A\$m	19	11	3	417	66	(60)	171	Creditors	A\$m	-	-	-	-	-	-	-	
Accounts receivable	A\$m	0.8	-	-	-	-	-	-	Provisions	A\$m	-	-	-	-	-	-	-	
PP&E (Capex less depreciation)	A\$m	0	0	0	140	455	581	439	Borrowings	A\$m	0	0	0	337	337	337	337	
Exploration & evaluation assets	A\$m	-	-	-	-	-	-	-	Other	A\$m	(1)	(1)	(1)	(1)	(1)	(1)	(1)	
Other	A\$m	17	17	17	17	17	17	17	<b>Total liabilities</b>	<b>A\$m</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>338</b>	<b>338</b>	<b>338</b>	<b>338</b>	
<b>Total assets</b>	<b>A\$m</b>	<b>37</b>	<b>29</b>	<b>21</b>	<b>574</b>	<b>538</b>	<b>539</b>	<b>627</b>	<b>SHAREHOLDER'S EQUITY</b>									
<b>LIABILITIES</b>									Share capital									
Creditors	A\$m	-	-	-	-	-	-	-	A\$m	48	50	52	279	282	304	307		
Provisions	A\$m	-	-	-	-	-	-	-	Reserves	A\$m	12	12	12	12	12	12	12	
Borrowings	A\$m	0	0	0	337	337	337	337	Retained earnings	A\$m	(24)	(31)	(39)	(48)	(84)	(104)	(15)	
Other	A\$m	(1)	(1)	(1)	(1)	(1)	(1)	(1)	<b>Total equity</b>	<b>A\$m</b>	<b>36</b>	<b>31</b>	<b>25</b>	<b>244</b>	<b>210</b>	<b>213</b>	<b>304</b>	
<b>Total liabilities</b>	<b>A\$m</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>338</b>	<b>338</b>	<b>338</b>	<b>338</b>	Weighted average NoSh/period	m	192	192	195	212	362	362	375	
<b>SHAREHOLDER'S EQUITY</b>									<b>RATIOS</b>									
Share capital	A\$m	48	50	52	279	282	304	307	<b>ASSETS</b>									
Reserves	A\$m	12	12	12	12	12	12	12	Unit	2022A	2023F	2024F	2025F	2026F	2027F	2028F		
Retained earnings	A\$m	(24)	(31)	(39)	(48)	(84)	(104)	(15)	Net Cash (Debt)	A\$m	19	11	3	79	(272)	(397)	(167)	
<b>Total equity</b>	<b>A\$m</b>	<b>36</b>	<b>31</b>	<b>25</b>	<b>244</b>	<b>210</b>	<b>213</b>	<b>304</b>	Net Debt/Equity	%	0%	0%	0%	0%	130%	186%	55%	
Weighted average NoSh/period	m	192	192	195	212	362	362	375	EPS	cps	(0.04)	(0.04)	(0.04)	(0.10)	(0.05)	0.24		
<b>RATIOS</b>									PE ratio									
<b>ASSETS</b>									ratio									
Net Cash (Debt)	A\$m	19	11	3	79	(272)	(397)	(167)	ratio	-19.7x	-15.2x	-14.2x	-14.3x	-5.9x	-11.3x	2.5x		
Net Debt/Equity	%	0%	0%	0%	0%	130%	186%	55%	ratio	(5)	0.0x	0.0x	0.0x	0.0x	0.5x	0.7x		
EPS	cps	(0.04)	(0.04)	(0.04)	(0.10)	(0.05)	0.24		EV/Ebitda ratio	ratio	-16.9x	-13.1x	-12.0x	-11.1x	-10.2x	5.6x	0.5x	
PE ratio	ratio	-19.7x	-15.2x	-14.2x	-14.3x	-5.9x	-11.3x	2.5x	<b>EXCHANGE RATE (long term)</b>									
Ebitda ratio	ratio	(5)	0.0x	0.0x	0.0x	0.0x	0.5x	0.7x	AUD/USD									
EV/Ebitda ratio	ratio	-16.9x	-13.1x	-12.0x	-11.1x	-10.2x	5.6x	0.5x	Base									
<b>EXCHANGE RATE (long term)</b>									AUD/USD									
<b>WACC (post tax)</b>									\$m \$/sh % diff									
<b>WACC (post tax)</b>									Base									
<b>WACC (post tax)</b>									Low									
<b>WACC (post tax)</b>									High									



## BOARD AND KEY MANAGEMENT

**Keith Coughlan**  
Executive Chairman



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 has advised various companies on the identification and acquisition of resource projects and was previously employed by one of Australia's then largest funds.

Keith was previously the Non-Executive Chairman of ASX listed Talga Resources Limited and a Non-Executive Director of Calidus Resources Limited. He is currently the Non-Executive Chair of Doriemus PLC.

Keith is a member of the Audit & Risk Committee and Nomination Committee

**Kiran Morzaria**  
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.

Kiran is the Chair of the Remuneration Committee, and a member of the Audit & Risk Committee and Nomination Committee.

**Ambassador  
Lincoln P Bloomfield, Jr**  
Non-Executive Director



Lincoln is a former US official specialising in foreign policy and international security, having held policy positions in five previous administrations, most recently in 2008 as a Presidential Envoy with the rank of Ambassador. He has dealt with a wide range of issues and has experience working effectively with governments in Europe and around the world. He has many years of experience working with companies in the private sector, primarily involving renewable energy technology, private equity, and security issues.

For eight years until 2016, Lincoln was Chairman of the Stimson Center in Washington DC, one of the top think tanks in America. During his service as US Assistant Secretary of State for Political Military Affairs, Lincoln was the US Government regulator responsible for industry compliance with defence export law and regulation. He serves and has previously served on for-profit and non-profit Boards.

Lincoln is the Chair of the Audit & Risk Committee and a member of the Remuneration Committee and Nomination Committee.

**Richard Pavlik**  
 Executive Director


Richard is the Chief Advisor to the CEO of Geomet s.r.o., the Company's Czech subsidiary, and is a highly experienced Czech mining executive. He holds a Master's Degree in Mining Engineer 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.

Richard has held previous senior positions within OKD and New World Resources as Chief Engineer, and as Head of Surveying and Geology. He has also served as the Head of the Supervisory Board of NWR Karbonia, a Polish subsidiary of New World Resources (UK) Limited. He has an intimate knowledge of mining in the Czech Republic.

Richard is a member of the Audit & Risk Committee and Nomination Committee

**Simon Edwards**  
 Corporate Development  
 Manager & COO, Geomet


Simon has over 25 years' experience in advising and financing companies across mining, industrial, technology and financial sectors, having qualified as a Chartered Accountant (ICAEW) with Coopers & Lybrand, then moving to corporate finance roles in leading London-based bank/brokers.

Since 2005, he has been exclusively engaged in advising & managing mining companies.

Simon studied Metallurgy & Science of Materials at Oxford University. He joined European Metals in July 2019 and became COO of Geomet, the operator of the Cinovec Project, in April 2020.

**Grant Harman**  
 Metallurgical Consultant


Grant is one of the world's foremost lithium metallurgists and he's played a significant role in the Company's successful PFS.

Grant was previously Manager Lithium Chemicals for Talison Lithium and was involved in the management of the Talison Lithium Carbonate Plant from Scoping Study to Definitive Feasibility Study. He was involved in the design and technical direction of the Talison Test Facility and has more recently been a technical consultant on the Sonora Lithium Project in Mexico.

Grant has had previous roles with UGL, SNC Lavalin, CleanTeq and Ausenco.

## COMPANY RISKS

Significant risks are associated with the development and commissioning of any operation. The main risk areas include the potential for demand destruction for lithium and subsequent lower prices. This is mitigated by the desire for countries to build out their own supply chains that was previously satisfied by supply from China.

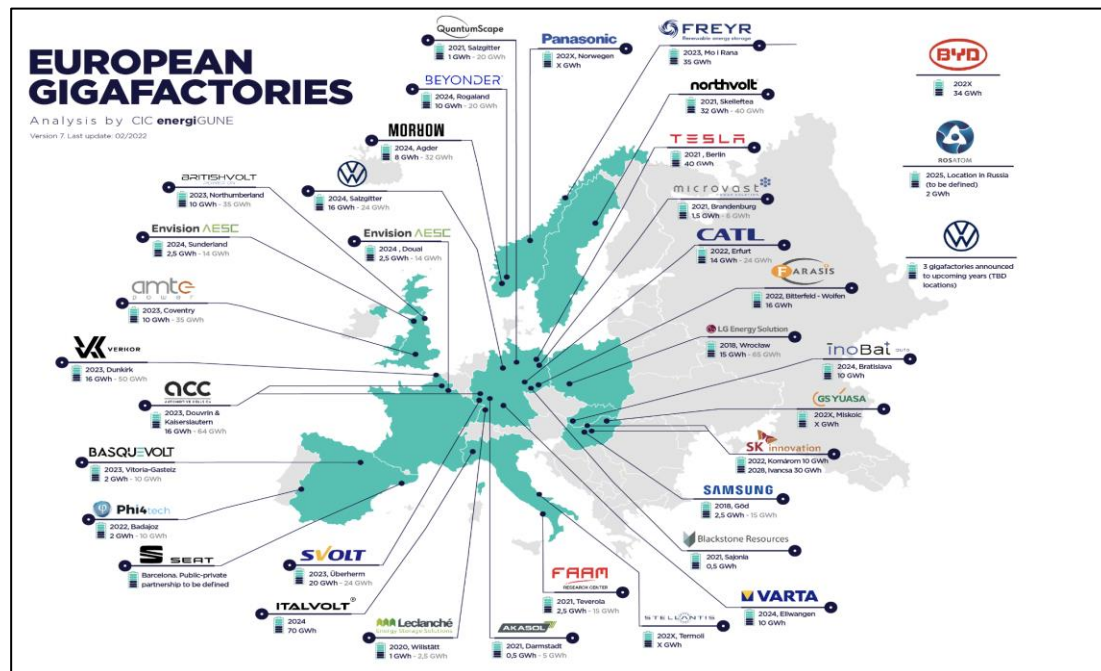
We assess key business risks as:

- **Political Risk** – Political risk is greater in eastern Europe than it is in Eastern Europe due to the ongoing conflict between Ukraine and Russia. The Czech Republic is located in central Europe and became a member of NATO in 1999. It is actively supporting NATO joining a defence group established in Slovakia
- **Market Risk** – Despite the global slowdown, EV demand forecasts are still very strong as supply chains localise away from China and global EV Green Deal initiatives gain momentum. Market risk is mitigated by Europe's stated support for developing a local ecosystem
- **Forex & Commodity Price Risk** – Fluctuations in lithium prices and currencies may adversely impact the company's earnings and valuation. This fact is in part mitigated by strong prices and growth forecasts suggesting demand could increase between 8 – 18 times by 2030. Supply will not meet demand unless parties with bigger more credit worthy balance sheets get involved. Lithium carbonate prices remain more than US\$80,000/t
- **Country Risk** – Is low and mitigated by Standard & Poor's recently affirmed AA- rating for the Czech Republic with a stable outlook. This rating compares well against Standard & Poor's AA+ rating and stable outlook for the USA
- **Reserve & Project Risk** – Further exploration and migration of resource to the reserve category is required to better control this risk. At this stage relative to where EMH is in its development, we consider reserve risk to be low. This risk is partly mitigated by the Cinovec has been a producer for centuries
- **Execution Risk** – Addresses project management of technical, organisational, logistical and supply chain management
- **Construction Risk** – Construction risk will be mitigated with the employment of experienced contractors and consultants
- **Battery Cell Risk** – There is a risk that the battery cell supply chain will not be able to meet surging demand for EV's. Staying at the front of the queue and maintaining early momentum will be paramount to engaging battery cell makers ahead of its competitors
- **Metallurgy risk** – Is considered low. Zinnwaldite is known to have low lithium content but very high recoveries. Further Zinnwaldite's iron is in its lattice structure and as a result cheaper wet magnetic separation can be employed
- **Processing Risk** – The unique pathway to lithium hydroxide from lithium carbonate has yet to be scaled
- **Rising energy costs** – Europe's energy prices are under upwards pressure. Increasing gas storage in the Czech Republic will help mitigate gas supply risk
- **Liquidity, Funding and Dilution Risk** – COVID has hammered home the importance of having a Board approved liquidity and crisis management framework. Capex over coming years will be significant and liquidity will need to be carefully managed. This is mitigated, by an expectation that Government debt and grants are required to support the EV ecosystem. Additional funds could be raised through the issuance of new equity and structured off-take deals. EMH is in talks with European banks re Treasury linked loans; and
- **Crisis Risk Management** – Europe has numerous crises that it is dealing with being the Ukraine/Russian war, the COVID pandemic, Brexit, and the semiconductor shortage. COVID is under control at time of writing as herd immunity grows. However, lockdown risk is ever present and could negatively impact any construction and start-up schedule. The war risk is reduced by the Czech Republic's membership in NATO.

## EMH TOP 13 Shareholders – 13.65% of issued capital

Top 13	Shareholder Name	30-Nov-22	% Total Shares
1	Armco Barrier Pty Ltd	16.50	8.8%
2	Cadence Minerals PLC	16.44	8.8%
3	United Super Pty Ltd	10.13	5.4%
4	Ellerston Capital	9.29	5.0%
5	Inswinger Holdings Pty Ltd	4.90	2.6%
6	Orn & Cie SA	4.76	2.5%
7	DonnalCoughlan	2.88	1.5%
8	Andrew Goodall	1.77	0.9%
9	Keith Coughlan	0.85	0.5%
10	Pacific Fonder AB	0.30	0.2%
11	Richard Pavlik	0.30	0.2%
12	Lincoln Bloomfield	0.25	0.1%
13	Kiran Morzaria	0.20	0.1%
<b>Top 13</b>		<b>264.73</b>	<b>35.65%</b>

Source: Link Market Services and EMH



## Comparative Data

Company (NET data)	Ticker Code	A\$ /share	Region	Location	Mkt cap A\$m	Net Cash A\$m	EV A\$m	M+1 LCE mt	EV/mt A\$/t	2P LCE mt	EV/2P mt
European Metals	EMH.ASX	0.61	Europe	Czech Republic	117	17	100	2.2	45	0.6	178
Latin Resources	ASX.LRS	0.13	Sth America	Brazil	275	27	248	0.1	3,995	-	-
Core Lithium	ASX.CXO	1.00	Australia	Northern Territory	1,846	125	1,721	0.8	2,097	0.4	4,862
African Lithium	ASX.A11	0.63	Africa	Ghana	382	19	363	0.4	829	-	-
Anson Resources	ASX.ANS	0.17	USA	Nevada	200	45	156	0.2	651	-	-
European Lithium	ASX.EUR	0.09	Europe	Austria	130	24	105	0.2	425	0.2	580
Global Lithium	ASX.GL1	1.35	Australia	West. Australia	286	76	210	0.5	383	-	-
Green Technologies	ASX.GT1	0.60	Canada	Ontario	114	30	85	0.2	376	-	-
Lake Resources	LKE.ASX	0.43	Sth America	Argentina	605	133	471	2.2	214	-	-
Infinity Lithium	PLL.ASX	0.13	Europe	Spain	58	16	42	0.3	150	0.3	150
Galan Resources	ASX.GLN	1.67	Sth America	Argentina	324	38	286	5.1	56	0.5	529
Vulcan Energy	VUL.ASX	5.73	Europe	Germany	822	24	615	12.0	51	0.5	1,139
Global Lithium	ASX.GL1	1.35	Australia	West. Australia	286	76	210	0.5	-	-	-

Source: Company data and Corporate Connect Research



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