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## **OVERVIEW**

AIM quoted resource company developing its 100% owned Zinnwald Lithium Project in Germany

# Attractive Project

Integrated project with the potential to produce a suite of value-added downstream battery-grade lithium products

Large resource - combined >1 Mt lithium carbonate equivalent ('LCE')

Potential resource upside from nearby exploration licences held

Potential added value from byproducts including tin & potassium sulphate ('SOP')

# Excellent Location

35km from Dresden, Germany

In the heart of the European chemical & automotive industries

Established mining district – mining history of over 400 years

Existing infrastructure & skilled labour in the region

# Strong Lithium Demand

Strengthening lithium market fundamentals supported by accelerating switch to electric vehicles ('EVs') & strong government support, particularly in Europe

Lithium product prices have risen over 400% since the beginning of 2021

Lithium demand seeing growing at a compound annual growth rate ('CAGR') of 28% through 2025

# Team to Deliver

Experienced Board with relevant sector & financial skills to advance the Project

Strong team of chemists, geologists & engineers in Germany

## **FSG**

Being environmentally & socially responsible & upholding high standards of governance is core to Zinnwald Lithium's mission

### **Environmental**



Lithium-ion batteries are a key enabling technology for the shift to a greener economy

Zinnwald Project is an integrated project located close to end markets thereby minimising transport & associated emissions

Small footprint underground mine limits physical impact of the operation

Dry stack benign tailings

Germany produces >50% of its power from renewable & low carbon sources

## Social



Established mining district – mining history of over 400 years

Access to brownfield infrastructure & skilled labour

Zinnwald Project is expected to generate over 180 long term direct jobs in the region

Zinnwald Project will act as a major income generator for the state & local regions

## Governance



UK listed Plc with a commitment & obligation to maintain the highest levels of transparency & corporate governance standards

Adheres to the QCA Corporate Governance Code

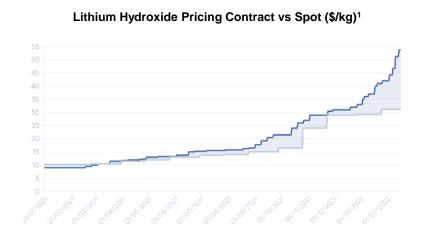
Board level Sustainability Committee to ensure best practice re ESG obligations

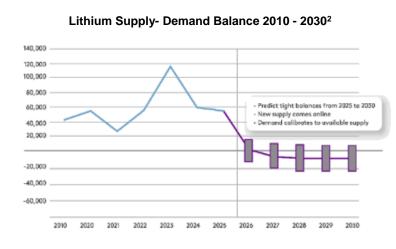
Established the Group's core sustainability philosophy & refining & expanding on existing ESG policies

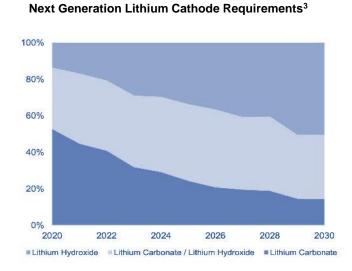


## LITHIUM MARKET DYNAMICS

- Lithium demand prospects of 3Mt by 2030 and by 5Mt by 2050 growing at an average of 28% through 2025 (Bank of America)
- Demand growth driven by shift to EVs, which is occurring faster than anticipated
- Expected shortfall of 26,000 tonnes LCE this year with the cumulative deficit mushrooming to 300,000 tonnes LCE by 2030 (BMI)
- The spot price of the lithium hydroxide rose over 400% between January 2021 and January 2022 (BMI)
- Demand for lithium hydroxide expected to grow strongly, especially in Europe, on the back of increased nickel-based battery chemistry applications; nickel-based batteries provide superior cold weather performance and energy density







<sup>&</sup>lt;sup>1</sup> Source Fastmarkets: Lithium hydroxide monohydrate min 56.5% LIOH<sub>2</sub>O, battery grade, spot price & contract price CIF China, Japan & Korea, \$/kg

<sup>&</sup>lt;sup>2</sup> Source Fastmarkets 2021

<sup>&</sup>lt;sup>3</sup> Source: Benchmark Mineral Intelligence, Livent Corp

# LITHIUM IN EUROPE

The EU added lithium to a list of critical materials in 2020

There will be a potential annual lithium supply shortfall of up to 500,000 tonnes in Europe by 2030

Europe will occupy over 26% of global lithium-ion battery cell capacity by 2030, with more than 30 lithium-ion battery megafactories in operation

Germany is committed to achieving climate neutrality by 2045, allocating €40b for climate related stimulus spending including 70,000 new EV charging stations & doubling the EV subsidy to €6,000 targeting annual production of 7-10m EVs by 2030

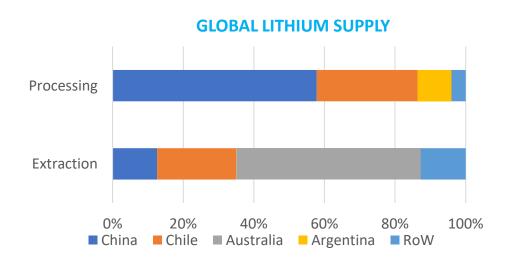
In a July '21 survey of 200 European firms, c.80% wanted to move their supply chain for batteries used in EVs and renewable energy away from China & closer to production, rising to 84% of British firms seeking to make changes within 12 months

2021 global electric passenger car sales surged 109% over 2020, led by China, Europe & U.S.

Energy transition could see demand for lithium growing 40x over the next 20 years

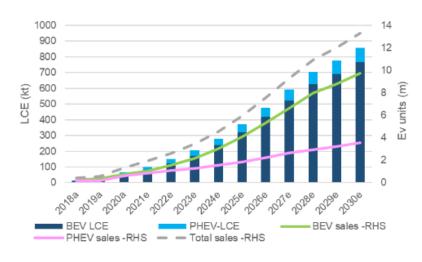
## LOCAL SUPPLY INCREASINGLY IMPORTANT

- European demand for LCE forecast to grow from 50,000 tpa in 2020 to 800,000+ tpa by 2030
- No current domestic European production
- European governments increasingly focused on transitioning economies to a more environmentally stable footing
- Local supply reduces carbon emissions & risks associated with extensive global supply chains



Source: IEA

#### **LITHIUM DEMAND FOR EVS IN EUROPE 2018 - 2030**



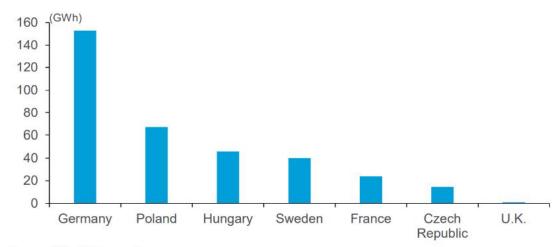
Source: Canaccord Genuity



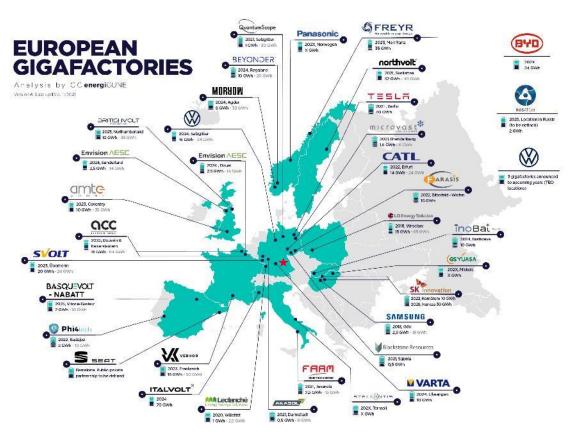
# LOCATED IN THE HEART OF THE EUROPEAN BATTERY & AUTOMOTIVE INDUSTRY

- Well located to supply existing and planned European battery factories
- Germany forecast to dominate European demand for battery materials

#### **EUROPEAN BATTERY CAPACITY PIPELINE**



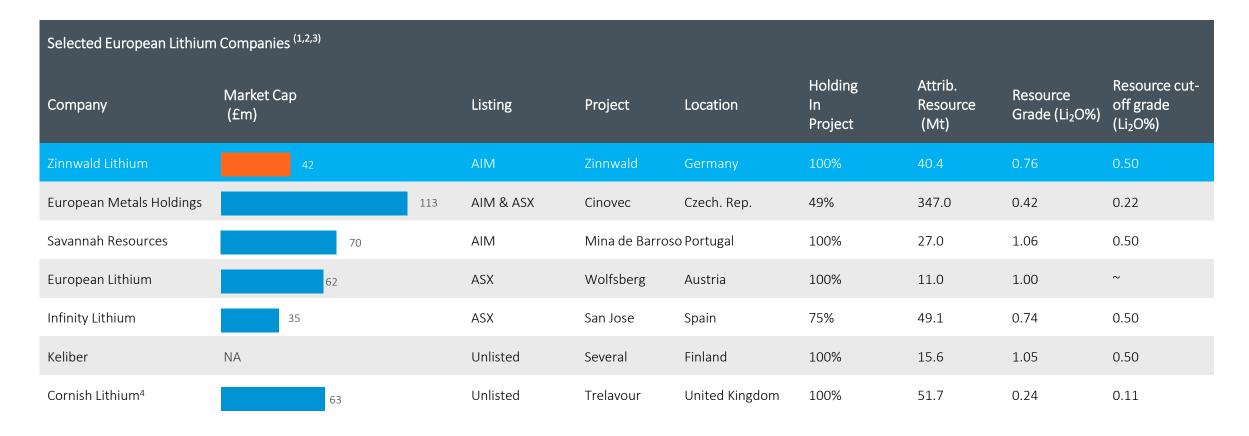
Source: BMI, Citi Research



★ Zinnwald Project



## **EUROPEAN PEERS**



<sup>&</sup>lt;sup>1</sup>Excludes brine projects, exploration projects and multi commodity projects (Jadar)



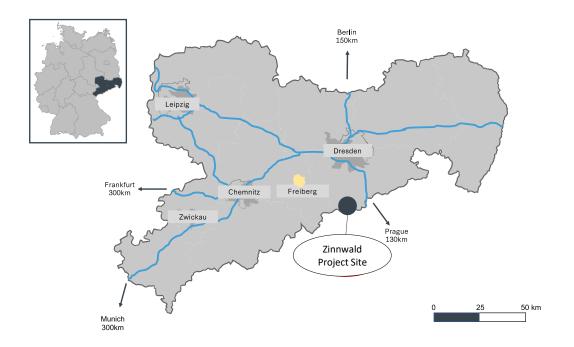
<sup>&</sup>lt;sup>2</sup> Source: Company websites

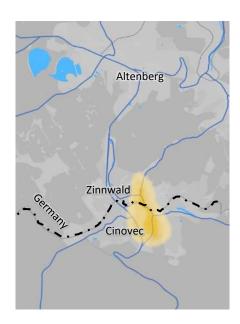
<sup>&</sup>lt;sup>3</sup> Market cap as at 14 March 2022

<sup>&</sup>lt;sup>4</sup> Implied pre-money market cap based on Techmet investment of £9m at 13.5p per share announced on 26 November 2021

# PROJECT OVERVIEW

- Integrated operation planned to produce battery grade lithium products
- Small footprint underground mine & associated mineral & chemical processing
- Production of battery grade products
  - Flexible production potential lithium hydroxide ('LiOH'), lithium carbonate ('Li2CO3'), lithium fluoride ('LiF')
- Valuable by-products
  - High purity SOP, precipitated calcium carbonate ('PCC') & tin
- Core mining licence valid until 2047
- Mine life of 30 years per 2019 43-101
- Regional exploration footprint
  - Three additional exploration licences within 15kms of core mining licence
  - Combined resource of >1 Mt LCE







## LOCATION INFRASTRUCTURE ADVANTAGES

Historic mining activity has resulted in a legacy of brownfield infrastructure in the region

- Located in a region with a long history of mining
- Brownfield facilities in the area
- Legacy mining infrastructure with the potential to improve project logistics and lessen the impact on local communities and the environment
- Transport links, power & gas are readily available
- Site location options that facilitate exploitation of satellite deposits (Falkenhain & Sadisdorf) should these prove their potential



# **RESOURCES & RESOURCE UPSIDE**

#### ZINNWALD LITHIUM DEPOSIT

- 256.5 ha and with a 30-year mining licence to 31 December 2047
- Measured plus Indicated Mineral Resource estimate containing 35.51 Mt at a grade of 0.76% Li<sub>2</sub>O (3,519 ppm Li) containing 124,974 tonnes Li at cut-off grade of 0.54% Li<sub>2</sub>O (2,500 ppm Li)
- Represents c.665,000 tonnes of LCE, comprising c.357,500 tonnes of LCE in Measured Resources & c.307,500 tonnes of LCE in Indicated Resources
- Estimated Inferred Mineral Resources of 4.87 Mt at a grade of 0.76% Li<sub>2</sub>O (3,549 ppm Li) containing 17,266 tonnes Li metal (approximately 92,000 tonnes LCE)

#### MINERAL RESOURCE ESTIMATE OF THE ZINNWALD LITHIUM DEPOSIT

| Resource classification*     | Ore tonnage<br>(000t) | Mean Li₂O<br>grade (%) | Contained LCE<br>(tonnes) |
|------------------------------|-----------------------|------------------------|---------------------------|
| Measured                     | 18,510                | 0.78%                  | 357,659                   |
| Indicated                    | 17,000                | 0.73%                  | 307,579                   |
| Inferred                     | 4,865                 | 0.76%                  | 91,906                    |
| Total (Measured + Indicated) | 35,510                | 0.76%                  | 665,238                   |
| Total Inferred               | 4,865                 | 0.76%                  | 91,906                    |

#### THE SADISDORF LICENCE

- 225 ha with a 5-year term to 30 June 2026
- 2017 historic JORC compliant inferred mineral resource of 25 Mt with an average grade of 0.45% Li<sub>2</sub>O (average 2,053 ppm Li)

#### THE FALKENHAIN LICENCE

- 295.7 ha and with a 5-year term to 31 December 2022
- Historical exploration data indicates resources hosted in several ore bodies containing lithium, tin metal and tungsten

#### THE ALTENBERG LICENCE

4,225.3 ha and with a 5-year term to 15 February 2024

#### SADISDORF TIN AND LITHIUM PROJECT

JORC (2012) Mineral Resource estimate as at 23 November 2017

| Resource classification* | Ore tonnage<br>(000t) | Mean Li₂O<br>grade (%) | Contained LCE<br>(tonnes) |
|--------------------------|-----------------------|------------------------|---------------------------|
| Inferred (inner Greisen) | 17,000                | 0.47%                  | 197,593                   |
| Inferred (outer Greisen) | 8,000                 | 0.43%                  | 85,071                    |
| Inferred (Total)         | 25,000                | 0.45%                  | 282,664                   |

Notes: MRE defined by 3D wireframe interpretation with sub-cell block modelling. Grades estimated using Ordinary Kriging. The MRE is reported at a cut-off of 0.15% Li (0.3% Li2O). The block model has been depleted to reflect historical mining.



# SUSTAINABILITY ADVANTAGES

|  | ZINNWALD | SOUTH<br>AMERICAN<br>BRINE | AUSTRALIAN<br>HARD ROCK | GEOTHERMAL<br>BRINE/DLE |
|--|----------|----------------------------|-------------------------|-------------------------|
| Proximity to end market (TRANSPORT COST & CO <sub>2</sub> EMISSIONS) | ✓        | ×                          | ×                       | <b>√</b>                |
| Physical footprint   | ✓        | ×                          | ×                       | <b>√</b>                |
| Water intensity  | ✓        | *                          | $\checkmark$            | *                       |
| Energy intensity   | ✓        | <b>√</b>                   | ×                       | *                       |
| Conventional technology  | ✓        | ✓                          | ✓                       | ×                       |

#### TRANSPORT MINIMISED

- Located close to final end markets
- Integrated production planned mining to battery grade products

#### LIMITED PHYSICAL IMPACT

- Small footprint underground mining operation
- Dry stack benign tailings (quartz sand/filler sand)

### LIMITED WATER USAGE

• Dry magnetic separation process and non water intensive process

### RELATIVELY ENERGY EFFICIENT PROCESS

 Zinnwaldite requires less energy than spodumene to process into battery grade product



## STRATEGY & FOCUS AREAS

- Strategy is to become an important battery grade lithium hydroxide supplier to the European battery sector through:
  - Increased production potential from core Zinnwald license area
  - Assess potential for satellite deposits to contribute to the Project by increasing production potential
  - Focus on lithium hydroxide ahead of niche products such as lithium fluoride
  - Optimise cost position through value engineering
  - Maximise revenue potential from by products (tin and SOP)
- Focus areas in the near term:
  - Flow sheet optimisation hydroxide flow sheet finalised and by product potential
  - Infill drilling to refine mine planning
  - Advance work on exploration licenses to evaluate potential and impact on the Project, including drilling to test historic work
  - Value engineering, project optimisation and site selection
  - Negotiate access to legacy infrastructure
  - Advance discussions with potential off-takers
  - Advance funding strategy for next stage of development, including drilling



## **INVESTMENT SUMMARY**



Integrated lithium project with attractive project economics & mining licence in place



Project in the heart of Europe's chemical & automotive industries, benefiting from historic mining activity & brownfield infrastructure



Meaningful resource position & expansion potential from additional exploration licences held in the area



Optimising plan focused on advancing Zinnwald towards construction & operation of a mine & processing plant



Strong market fundamentals with growth forecast for lithium hydroxide demand, particularly with EU focused on encouraging local supply

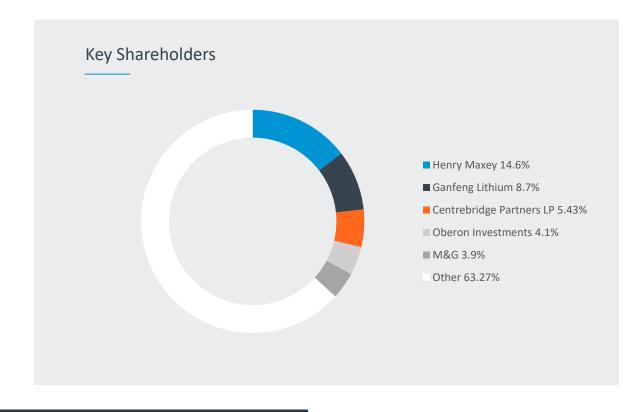


Experienced leadership & management team to deliver



# APPENDIX — KEY DATA (as at 14.03.22)

| Ticker | Market | Market cap | Share price | Shares in issue | Nomad           | Broker         |
|--------|--------|------------|-------------|-----------------|-----------------|----------------|
| ZNWD   | AIM    | £42m       | 14.4p       | 293,395,464     | Allenby Capital | Oberon Capital |



## Share Price Graph



## APPENDIX - BOARD



Jeremy Martin
Non-Executive Chairman

+20 years experience working in South America, Central America & Europe, where he was responsible for grassroots regional metalliferous exploration programmes through to resources definition and mine development.

He is currently CEO of Horizonte Minerals and a member of the Society of Economic Geologists and the Institute of Mining Analysts. He holds BSc (Hons), MSc, ACSM, MSEG. Horizonte Minerals is currently developing a major nickel project in Brazil.



Anton Du Plessis Chief Executive Officer

+20 years' experience in the finance sector where he held senior positions at several international investment banks including CIBC, Bank of America Merrill Lynch and Morgan Stanley with a focus on advising natural resources companies on the execution of strategic and financing transactions. He was previously Non-Executive Chairman of Erris Resources Plc.



Cherif Rifaat
Chief Financial Officer

UK Chartered Account with +20 years of VC,, Corp. Finance, Op Turnaround and IR experience. He has worked cross sectors with an emphasis on start up, pre IPO or restructuring phase.. He has been a corporate adviser to Bacanora since 2014 before it made its original IPO on AIM and is now its Co. Secretary. His role at Bacanora included preparing the Financial Models for the PFS & BFS for the Sonora Project. Was also involved in the financial modelling for the Zinnwald BFS.



Peter Secker
Non-Executive Officer

A mining engineer with +35 years experience in the resources industry. During his career he has built and operated several mines & metallurgical processing facilities in Africa, Australia, China & Canada. His operating & project experience spans a number of commodities, including titanium, copper, iron ore, gold & lithium.

For the past 15 years Peter has been Chief Executive of a number of publicly listed companies in Canada, UK & Australia. He is currently CEO of Bacanora Lithium.



Graham Brown
Non-Executive Director

An economic geologist with over 40 years' experience in the mining and exploration industry, having led teams that discovered numerous world class ore deposits. Previously the Group Head of Geosciences & Exploration at Anglo American, where he was responsible for the governance, oversight and assurance of all aspects of geosciences and exploration activities. He is currently a Senior Advisor to Appian Capital Advisory LLP a private equity fund focused on the mining industry.



## Zinnwald Lithium plc

The Clubhouse, 8 St James's Square, London SW1Y 4JU www.zinnwaldlithium.com info@zinnwaldlithium.com