

Stock Data

Share Price:	6.75p
Market Cap:	£13.8m
Shares in issue:	204.5m

Company Profile

Sector:	Mining
Ticker:	ZNWD
Exchange:	AIM

Activities

Zinnwald Lithium plc ('Zinnwald', ZNWD, 'the Group'), formerly known as Erris Resources plc, is a European-focused mineral exploration company. A General Meeting convened on 26 October 2020 completed the acquisition of 50% of the issued capital of Deutsche Lithium GmbH ('Deutsche Lithium', 'DL'), whose principal asset is the German Zinnwald Lithium Project.

Website: www.zinnwaldlithium.com

Erris 1-year Share price performance



Source: [LSE](https://www.lse.com)

Past performance is not an indication of future performance.

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Zinnwald Lithium plc

Further to last Monday's General Meeting, Erris Resources plc ('Erris') has been renamed Zinnwald Lithium plc (effective today) in order to better reflect the Group's revised focus and development strategy following its acquisition of a 50% interest in [Deutsche Lithium GmbH](#) from [Bacanora Lithium plc](#) ('Bacanora', AIM:BCN) via a [reverse takeover](#) ('RTO'). Deutsche Lithium's principal asset is the [Zinnwald Lithium Project](#) (the 'Project'). Zinnwald's Board considers the German-based, late-stage lithium project, which is located within Europe's chemical and automotive heartlands, has potential to become an important European battery-grade sector supplier. Global lithium demand has been [forecast to sustain a CAGR of 18%](#) from 2020 to 2027, by which time the value of its global opportunity is estimated to reach US\$129.3 billion. Erris shareholders registered before 29 October 2020 will also receive, pro rata on a one-for-one basis, shares in the Group's hitherto subsidiary, [Erris Gold Resources Limited](#) ('Erris Gold'), which now holds the [Loch Tay Option Agreement](#) and Erris's Norwegian exploration licenses. The Group has also undertaken a placing (the '[Placing](#)') of new ordinary shares priced at 5p each (the '[Placing Price](#)') to new and existing shareholders, as [announced on 8 October 2020](#). The net proceeds from the £3.75 million (gross) raise, will be applied to the professional fees incurred/general working capital purposes, with Admission also taking place today.

Acquisition of interest in the Zinnwald Lithium Project

Zinnwald has completed its acquisition ('the Acquisition') of a 50% equity interest in, and assumed joint operational control of, DL, whose principal asset is a lithium Zinnwaldite deposit with an NI-43-101 Resource of 35.5MT at 3,500ppmm Li containing approximately 665,000 tonnes of lithium carbonate equivalent, (LCE). The Zinnwald Lithium Project is located in Altenberg-Zinnwald/Saxony, some 35 km from Dresden and covers 256.5 ha that has a 30-year mining licence to 31 December 2047. This followed the entering of a share purchase agreement, pursuant to which the Group conditionally agreed the Acquisition plus cash amounting to €1,350,000 (of which €935,000 constitutes existing funding obligations), that was satisfied through the issuance of 90,619,170 consideration shares at the Placing Price along with the granting of a net profit royalty. The remaining 50% of DL is entirely owned by SolarWorld AG, a company which has been in administration since 1 August 2017. Existing pre-emption and first refusal rights that apply in relation to any proposed transfer of DL shares, require SolarWorld AG's administrators to make its holding available to Zinnwald in the first instance should it seek to sell its interest. Consolidation of the ownership of the Project is one of the Board's objectives.

Bankable Feasibility Study

Deutsche Lithium completed a [bankable feasibility study](#) for the commercial use of the Project deposit according to the Canadian standard NI43-101 on 31 May 2019. This confirmed [strong economic potential](#) for the prospect which has a current mining license and, based on a 30-year life-of-mine ('LOM'), produced an estimated Project pre-tax IRR of 27.4% together with a NPV_{8%} of €428 million and a 46% EBITDA operating profit margin over the life of mine.

Relationship Agreement with Bacanora

Bacanora now holds approximately 44.32% of Zinnwald's enlarged ordinary share capital. As such, it has formally undertaken, for so long as it is interested in ordinary shares carrying 25% or more of the Group's voting capital, not act to unduly

influence the Group or its Board and will ensure that transactions entered into with the Group remain on an 'arm's length' basis and are independently considered by the Group. While holding between 20% and 45% of Zinnwald, Bacanora is entitled to nominate one Director to the Group's Board and accordingly, Bacanora's CEO, Peter Secker, has been appointed.

Zinnwald Lithium plc - Corporate strategy

A Board reorganisation to support the Group's new strategy has been undertaken. This includes the appointment of Anton du Plessis, who has become the CEO, and Jeremy Martin, who has become Chairman, both with immediate effect. The aforementioned Peter Secker (who is also an experienced mining engineer) will also join the Board from Admission. The Board believes that the Zinnwald Lithium Project, which already has a published Feasibility Study and a mining licence, presents an excellent opportunity to create value for Shareholders, particularly given that it is at an advanced stage when compared with the Group's previous assets. The Zinnwald project's location in Germany and the European Union's incentives for regional development, in combination with major consumers seeking to secure long-term supply of both raw and processed needs from local producers, provides an excellent springboard for Zinnwald Lithium to develop a lithium supply in the German automotive and chemical industry heartlands.

Believing also that the Loch Tay Gold Project, would be better developed on a standalone basis in a private company, Erris Gold Resources, holder of the Option Agreement, has been spun out to shareholders along with an initial cash balance of €400,000. Erris Gold will be managed by previous Erris operational staff, including David Hall and Aiden Lavelle. Accordingly, shareholders registered as at 6pm on 27 October 2020 will not only retain their Ordinary but will also receive a share in Erris Gold Resources at a deemed value at 1 pence per share (on a pure cash basis).

Erris's other assets, [Abbeytown Project in Ireland](#) and its [Brännberg Gold Project in Sweden](#), will remain within the Group. The Group intends to seek funding partners for these assets going forward.

Zinnwald Lithium Project - Compliant Resources

The Zinnwald deposit provides an opportunity to focus on the production of high value downstream lithium products, rather than spodumene concentrates. These products have become an important component of battery chemistry and demand for them is expected to grow due to numerous factors, including a transition to electric vehicles. The Zinnwald Lithium Project provides the opportunity and flexibility to produce several different battery-grade lithium products, including its initial focus, Lithium Fluoride ('LiF'), along with Lithium Carbonate ('Li₂CO₃') and Lithium Hydroxide ('LiOH.H₂O') should demand/product pricing warrant. The Project's [30-year Feasibility Study mine plan](#) equates to the extraction of less than 50 per cent. of the currently identified compliant resource. It contains a Measured plus Indicated Mineral estimate containing 35.51 Mt at a grade of 3,519 ppm (or 124,974 t Li at cut-off grade of 2,500 ppm Li). This represents approximately 665,000 tonnes of lithium carbonate equivalent ('LCE'), comprising approximately 357,500 tonnes of LCE in Measured Resources and approximately 307,500 tonnes of LCE in Indicated Resources. It also has an estimated Inferred Mineral Resource of 4.87 Mt at a grade of 3,549 ppm containing 17,266 t Li metal (approximately 92,000 tonnes LCE).

While the Project's NI 43-101 Feasibility Study is based solely on the production of LiF, Deutsche Lithium has established the possibility of also producing battery-grade lithium carbonate directly from the lithium mica concentrate with only minimal modifications to the chemical plant circuits and is presently also undertaking testwork to determine if the same applies to possible lithium hydroxide production.

In addition to the mining licence that has been allocated for the Project, Deutsche Lithium holds two other exploration licences: the Falkenhain licence (covering 295.7 ha and with a 5-year term to 31 December 2022); and the Altenberg licence (covering 4,225.3 ha and with an approximately 5-year term to 15 February 2024). These exploration licences for lithium deposits may have the potential to significantly increase Zinnwald's resource base and the Project life.

The Zinnwald Project team is located in the city of Freiberg, approximately 60km from the Zinnwald mine site. The team is lead by Dr Armin Mueller, who has worked on the project for the past 10 years and leads an experienced team of geologists, metallurgists and project managers. The Zinnwald/Altenberg area has excellent access to road and rail infrastructure, natural gas and electricity supplies, as well as close proximity to all of the chemicals required to produce downstream lithium products. In addition, a lithium sphere of excellence is starting to develop in the Dresden/Saxony area as the German automotive industry has started to develop significant electric vehicle ('EV') and lithium battery technology in the area.

Planned mining operations

The Zinnwald Lithium Project is located in a granite hosted Sn/W/Li belt that has been mined historically for tin, tungsten, and lithium at different times over the past 300 years.

The Project's planned mining operation, which has a current valid licence, includes an underground development using a single decline ramp for access and ore transportation to surface. It will be based on load-haul-dump room & pillar technology with subsequent backfill using self-hardening material, while adopting a conventional processing flow sheet that utilises sulphate-route technology. The proposed integrated plant is designed to process approximately 570,000 tonnes ore/year (assuming a 30-year mine plan, which equates to approximately 50 per cent. of the total resource identified to date). However, to make the Project more viable and to reduce the payback time for the investment, the average mined tonnage of the first five years of production is planned to reach 522,000 tonnes at a grade of 3,400 ppm Li. The Project has a capital cost estimate of approximately €160 million which includes mining, processing plant, infrastructure, tailings management/general administration costs and government grants as well as the requisite contingencies.

With an abundant supply of fluorspar/hydrofluoric acid available in the immediate vicinity, the Feasibility Study focused on the production of LiF. LiF is a high value downstream lithium product and one of the two key components in the manufacturing process of Lithium hexafluorophosphate, LiPF₆, which is the most important conducting salt in lithium electrolytes and serves as the 'shuttle' in the lithium battery electrolyte which 'ships' the lithium ion between the cathode and the anode. Approximately [95 per cent.](#) of all lithium battery electrolytes use LiPF₆, and the percentage used in each cathode is increasing in some of the newer battery types.

In addition to returns generated by the sale of Lithium Fluoride ('LiF'), the Project also has the potential to produce up to 32,000 tpa of potassium sulphate ('SOP', 'K₂SO₄') for sale to the European fertiliser industry. Further, it is expected that a significant portion of the mined tailings may be sold for use as an aggregate filler to local building companies.

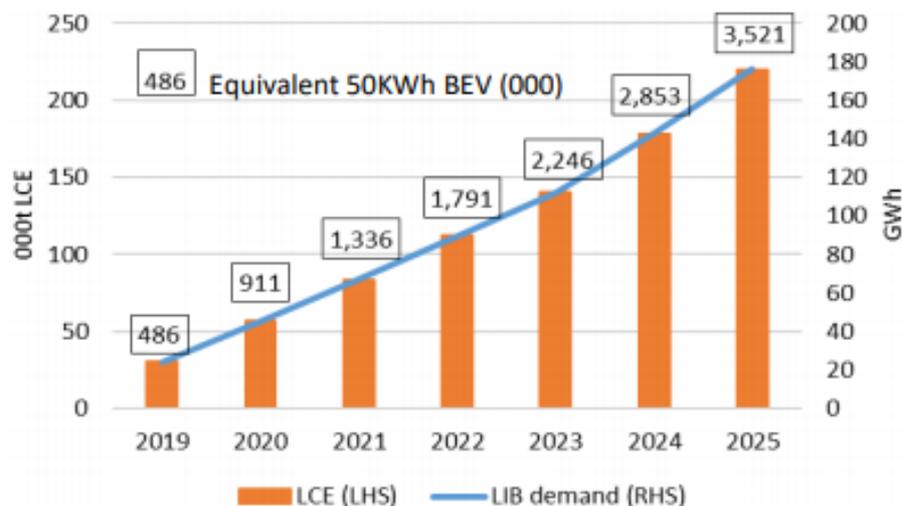
The strategic location of the Project provides convenient access to Germany's major automotive and downstream chemical industries who are expected to seek long-term offtake agreements for processed/high grade lithium, cobalt and other minerals that are critical to lithium-ion battery production.

European lithium - Security of supply to become a key consideration

Security of raw material supply will become a key consideration for major European lithium consumers.

Europe is the world's second largest market for lithium and EVs, yet it presently imports 100% of battery grade Li chemicals required. It was the major EV [growth centre in 2019](#) with 590k EVs sold (+44% y-o-y, 3.4% mkt share); in [1Q 2020 total plug-in sales](#) were 228k (+82% vs. 1Q 2019, 7.5% market share). With [€60bn invested in European e-mobility in 2019](#), Europe's lithium demand for EV batteries is set to grow 7x between 2019 and 2025. The chart below details this anticipated rise in demand in coming years:

Lithium & LIB demand projection from EU EV production



Source: [Savannah Resources plc](#), [InsideEVs](#)

Highlighting the European Commission's determination to ensure the complete supply chain for this strategically important mineral is secured in the region, its Joint Research Centre ('JRC') Policy Report, '[Lithium ion battery value chain and related opportunities for Europe](#)', analysed the global political, environmental and technological trends that are now driving demand for a rapid increase in the consumption of Lithium-ion batteries.

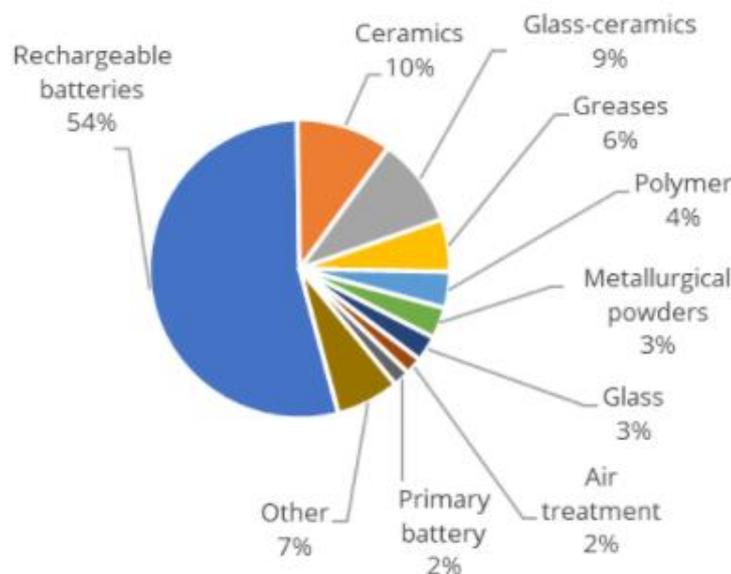
It recognises European vulnerability to the demand cycle that could result from underdeveloped regional raw material supply and processing, with a prospective economic impact possibly resulting from potential shortages, particularly of cobalt and lithium. It goes on to note that the EU industry has some productive base in all segments of the lithium-ion battery value chain, but that it is presently far from self-sufficient in either raw or processed materials, or the cell component/cell manufacturing value chain segments in which Europe presently hold a minor share of the market.

As a result, the EC is expected to incentivise regional development, while major consumers might be expected to secure long-term 'just-in-time' supplies of both raw and processed needs from local/regional producers.

Lithium market outlook - Supply crunch to follow recent demand imbalance

Lithium is rated as the [33rd most abundant chemical element](#) in Earth's continental crust. Principally of historical interest to glass, ceramics and lubricant manufacturers etc., such demand has become dwarfed over the past 20 years by the exponential rise of the rechargeable lithium-ion battery.

Lithium Global End-Market Demand in 2019



Source: Roskill, [Lithium Outlook to 2030](#), 7 August 2020

While there are significant costs and complications associated with lithium excavation and processing, the rapid supply response from the international mining industry over the past decade has been sufficient for it to rapidly outgrow and saturate its initial, albeit fast growing, EV and power industry target market which was, after all, starting from a small, relatively immature consumer base.

By 2019, however, rechargeable batteries accounted for 54% of total lithium demand, almost entirely for Li-ion technology production. Though the rapid rise of hybrid and electric vehicle sales has highlighted the prospective need for lithium compounds, slowing economic Chinese activity in H2 2019, the largest market for EV's, followed almost immediately after by a global reduction in sales caused by lockdowns related to the COVID-19 pandemic early in 2020, pressurised short-term demand growth, thereby impacting both battery and industrial applications.

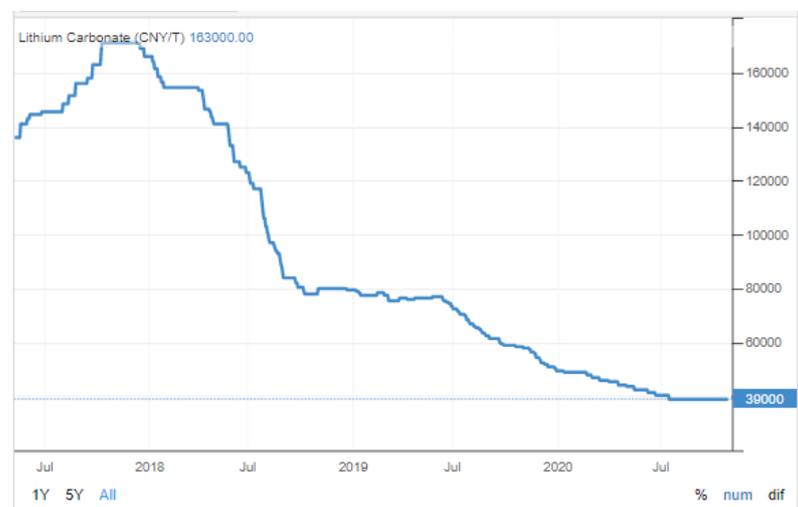
With additional mining & processing capacity for lithium carbonate and hydroxide also coming on stream at a time when stockpiles were already high, prices continued to display a downward trend throughout 2019 with monthly average lithium carbonate prices [falling 36% between January and December](#).

Trends in H1 2020 saw monthly average prices fall below 7,000/t Li₂CO₃ for the first time since 2014, eroding price increases caused by forecast strong demand growth in the lithium-ion battery industry and uncertainty over future supply. Q3 2020, however, has witnessed a change of direction with prices stabilising for the first time in 18 months as Chinese users rebuilt stocks and production output began to recover. Just as higher prices had incentivised the rapid commissioning of production capacity throughout the supply chain, the subsequent slide in lithium prices has stressed almost all producers from mined products to refined compounds, resulting output curtailments, suspensions and the disappearance of numerous funding channels that had been expected to help sustain project commercialisation/capacity expansion.

[Trading Economics](#), the global data provider which provides daily pricing based on spot Lithium Carbonate, 99.5% Li₂CO₃ min, battery grade traded in China, for example, highlights the outcome in a note it posted on 19 October 2020, stating that the mineral continued to trade at “record low levels in October, trading at 39,000 yuan per tonne as demand for lithium is unlikely to return to pre-coronavirus levels in 2020, even after economic activity resumed”.

The sharp decline in prices since summer 2018, followed by bottoming in Q3 2020 is shown below.

Lithium Carbonate Price (June 2018 to September 2020) in Chinese Yuan



CNY=£0.12

Source: [Trading Economics, 19 October 2020](#)

Cycle set to move from oversupplied to undersupplied – with an inevitable pricing spike

The conditions for lithium oversupply that have characterised the market for the past couple of years look set to rebalance by end-2021. Tumbling prices have resulted in a dearth of new capacity investment just at a time when high volume consumers are expected to seek the security of regional supplies based on long-term offtake agreements.

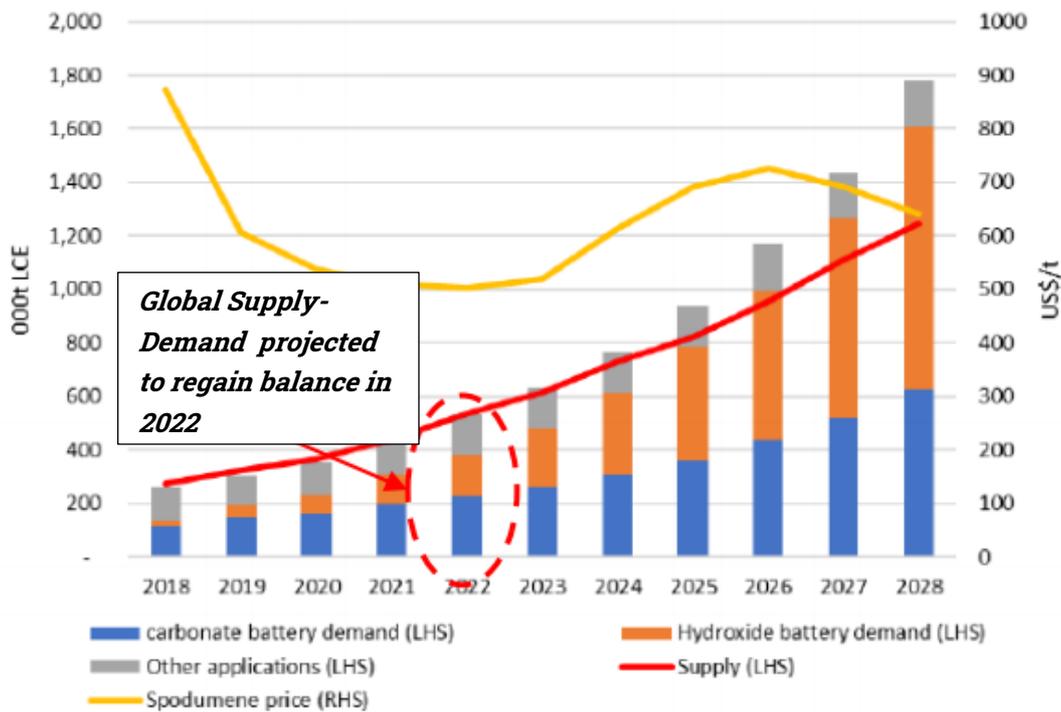
A looming shortfall in scheduled pipeline capacity following setbacks in developing, financing and commissioning lithium mining and refining operations, is seen leaving even major incumbent producers unable to close this gap, which highlights the technical and financial hurdles involved with bringing sizable volumes of new capacity online.

The chart overleaf details a view shared by TPI along with numerous market forecasting institutes and industry participants, targeting a time by when lithium supply-demand moves back into balance, whereupon refined supply tightens and is followed by a period of sustained supply deficit commencing in 2023.

The scale of the global opportunity now being presented has been highlighted by a number of different research institutions; Global Market Insights, for example, in [a major report dated May 2020](#), projects the sector's 2019 value which had risen to US\$40 billion in 2019 will expand by an anticipated CAGR of 15% through to 2026, by which time it will have reached US\$76bn, driven by surging worldwide demand for electric vehicles ('EV') and an expanding power storage market facilitated by environmentally-friendly renewable generation (including wind, solar etc.).

E-mobility is expected to account for the most immediate driving force for Li demand; despite the impact of the health emergency, [global EV sales have been forecast](#) to rise from 2.3m in 2019 to c.9m in 2025, before surging to 26m in 2030 and 44m in 2035. The clearly stated desire of international governments to accelerate their move toward such clean technologies, production and solutions, supports this move and is something that has been seen to intensify during the lockdown. The chart below that was sourced through a number of different industry participants, projects the ending of current oversupply in 2022, before moving into a relatively extended period of supply deficit from 2023 onwards.

Lithium Chemical Supply/Demand & Spodumene Price Forecast



Source: TPI, Savannah Resources, Benchmark Minerals Intelligence, RK Equity

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