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European Battery Alliance

Business Investment Platform Raw Materials Cases

Update on European Battery Production

Dramatic uptake in EU investments

E-mobility investments by EU carmakers and others in Europe are 3.5 times higher than in China

Europe is closing the investment gap with China compared to 2017/18

Investments in Europe



mid 2017 to mid 2018	2019
€3.2 billion	€60 billion



Investments in China

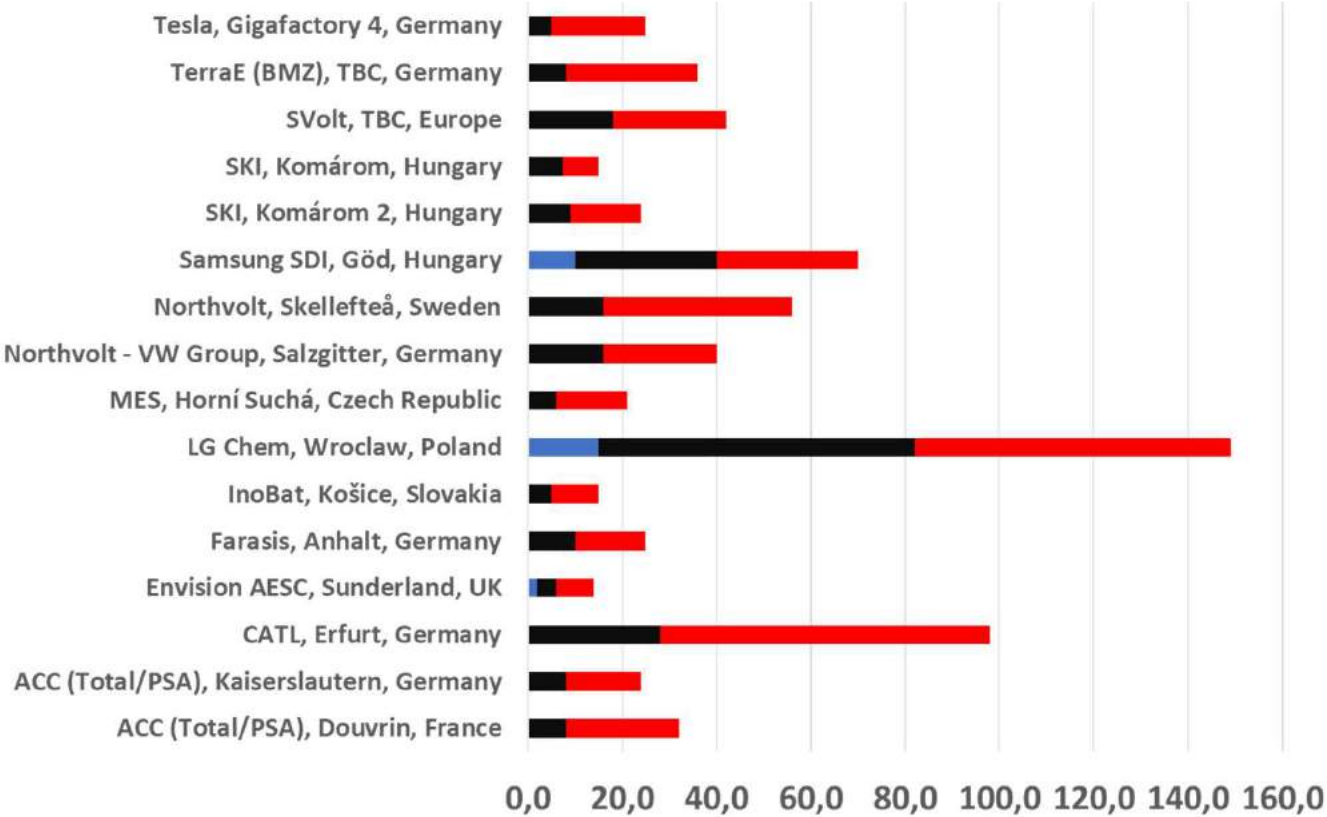


mid 2017 to mid 2018	2019
€21.7 billion	€17.1 billion



Cell factories in Europe - 2019, 2024 and 2029

Diagramrubrik



Source: Benchmark Minerals May 2020

European Battery Alliance and Business Investment Platform

**EUROPEAN
BATTERY
ALLIANCE**

EBA250

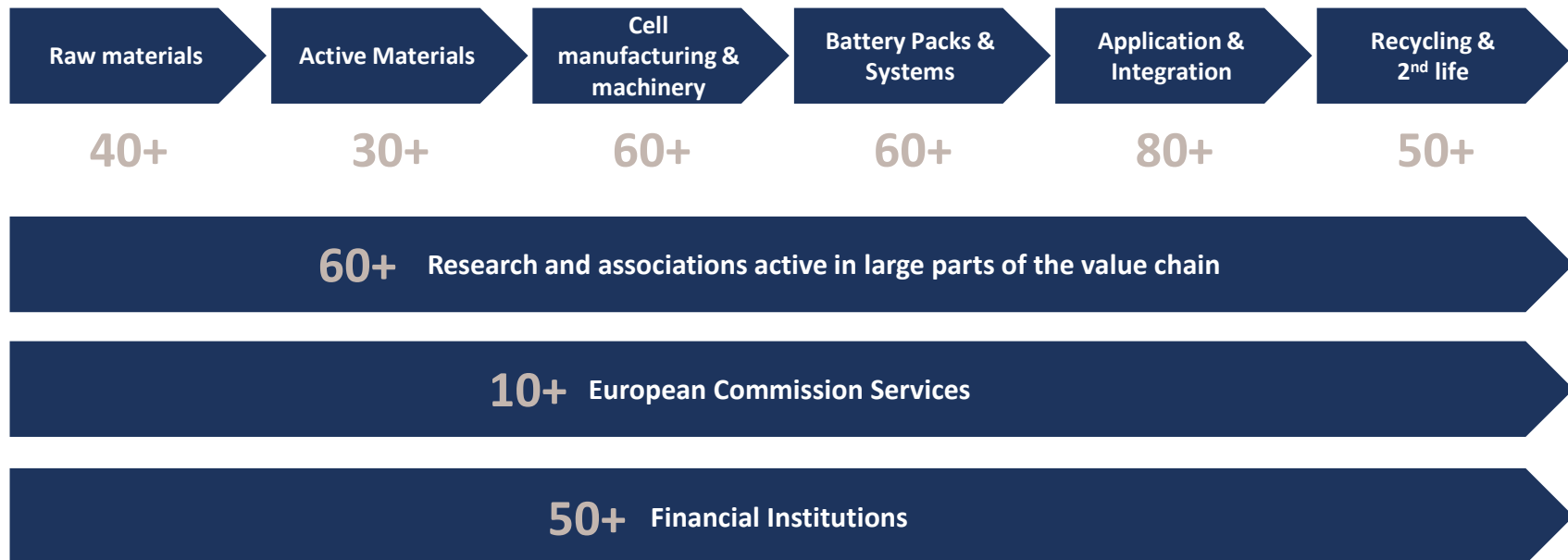
This cooperative ecosystem gathers the European Commission, interested EU countries, investment institutions and key industrial, innovation and academia stakeholders

EIT InnoEnergy has been trusted by the European Commission to drive forward and promote EBA250 activities, acting as network manager and project facilitator



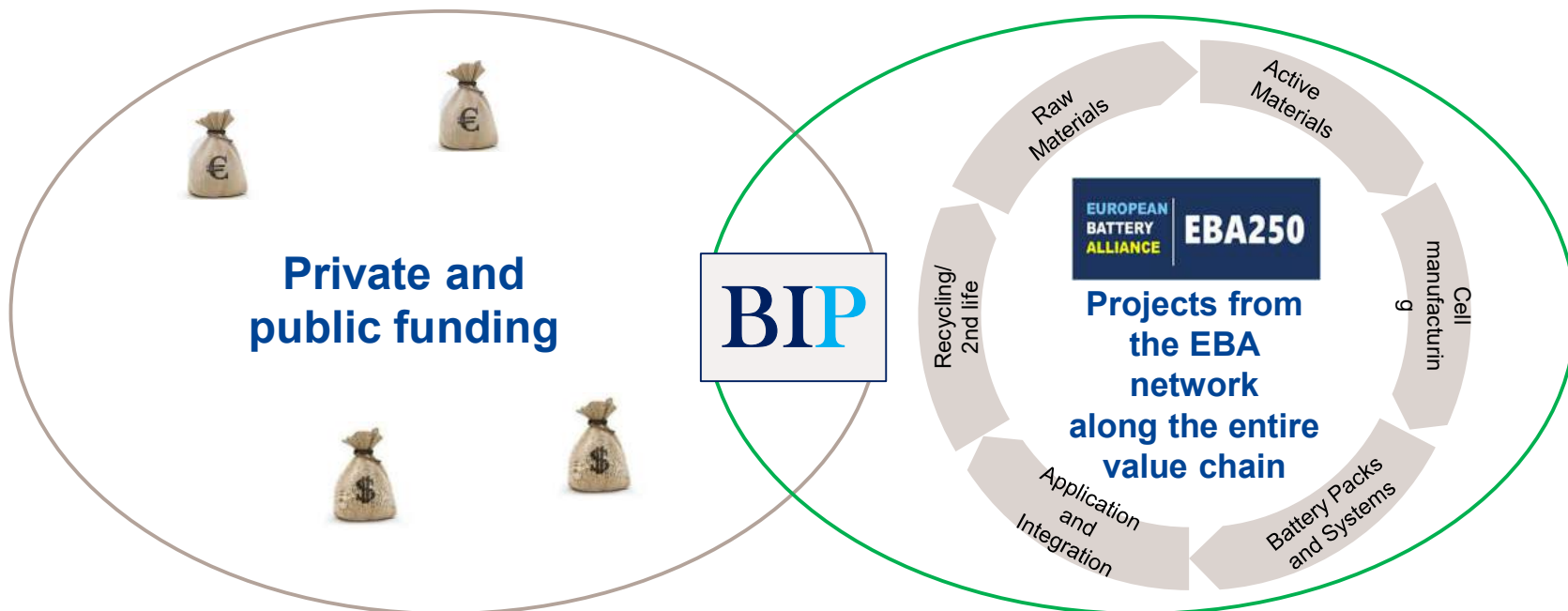
EBA250 is an inclusive network with **440+ members** along the entire battery value chain, gathering the European Commission, interested EU countries, financial institutions, key industrial players, innovation and academia stakeholders.

The EBA250 stakeholders' list can be found [here](#)



Figures correct as of May 2020

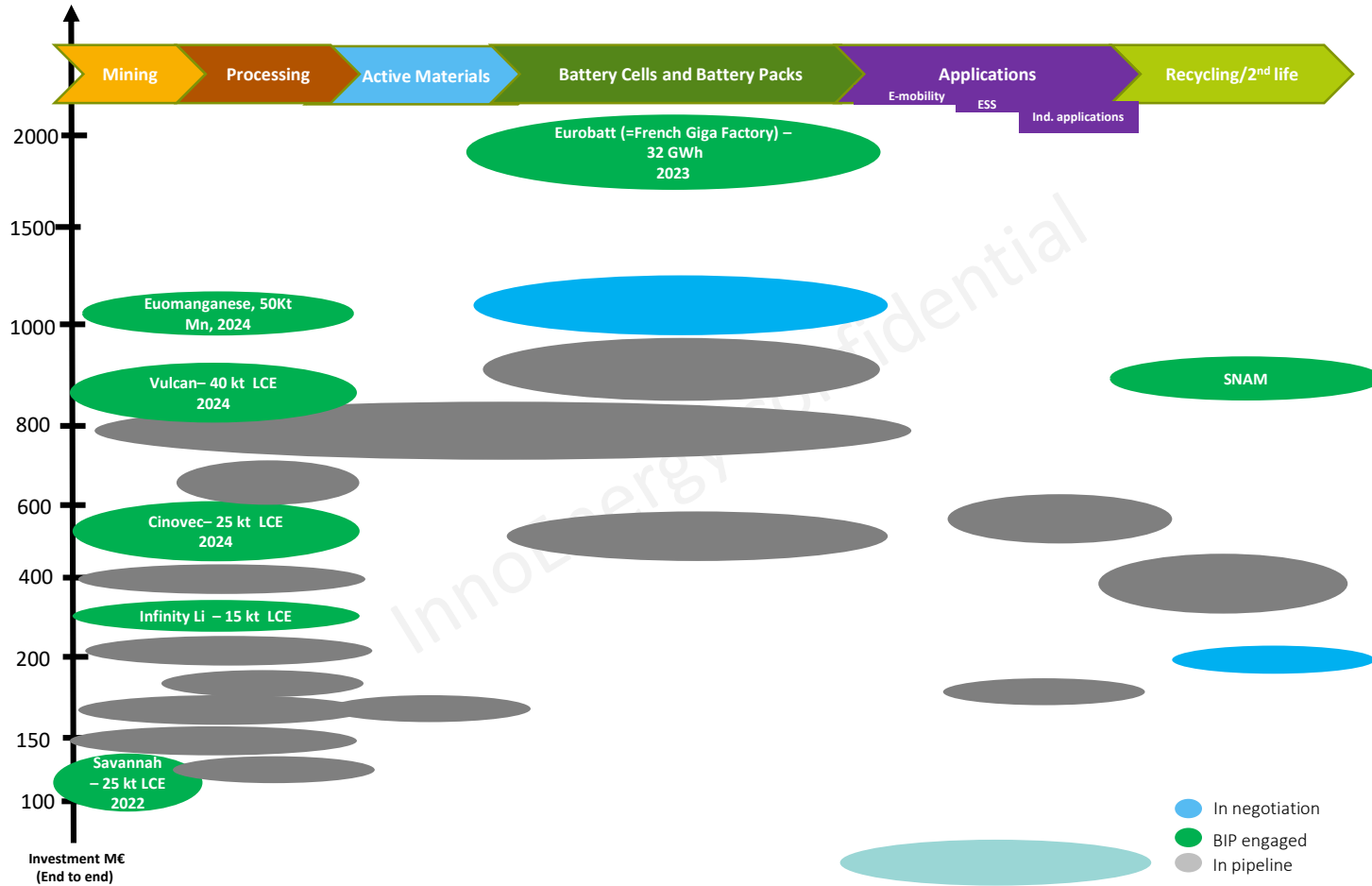
One stop shop: € Supply side meets and transacts € demand side



70 B€ targeted transactions for the period [2019-2023]

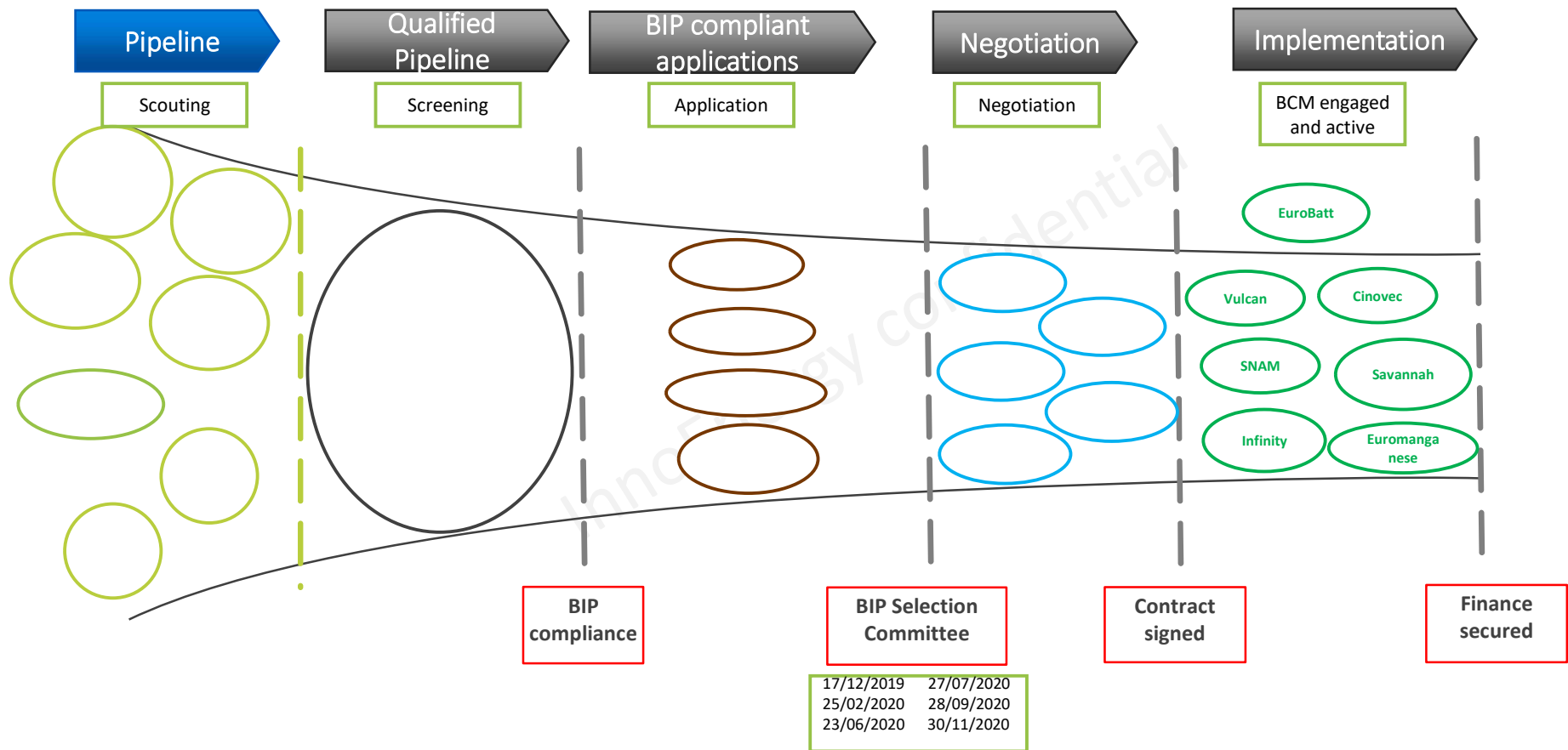
EBA@250 – Business Investment Platform BIP (1/2)

DashBoard Industrial Projects (Oct 2019- Nov 2020)



EBA@250 – Business Investment Platform BIP (2/2)
DashBoard Industrial Projects (Oct 2019- Nov 2020)

Business Investment Funnel



Business Investment Platform

Battery Materials Investment Cases:

Invest in de-risked projects

Savannah Resources



Location: Boticas
 Ore: Spodumene
 Type: Open Pit & Concentrator Plant
 Size: 26.000T LCE pa
 Project Life: 11+ years
 Refining: No
 State: EIA submitted, DFS underway.
 Operational: 2023
 CAPEX: 110M€
 NPV: 219M€ post tax
 IRR: 48,6% post tax
 Specifics: Smart Mining

Promoter: Savannah Resources PLC.
 Listed: AIM, FWB, SWB (34MGBP)
 SPV: Savannah Lithium Lda. (2016)
 100% owned by promoter.



Mina do Barroso
(Boticas)



Open Pit Mining.

State-of-the-Art Green Mining Technologies.

Partners in EITRawMaterials for LiRef Project & CERA Project.

Local Community to share in upside from the Project via “Benefit Sharing Program”.

The first European extraction Project to hit the market.

Infinity Lithium

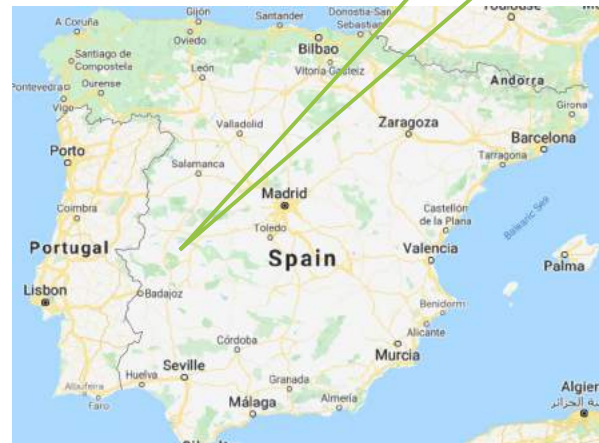


SAN JOSÉ
VALDEFLÓREZ

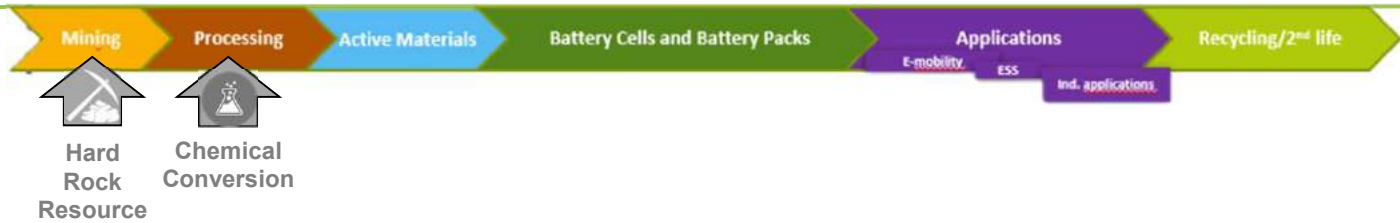


Location: Cáceres
 Ore: Mica (Zinnwaldite)
 Type: Open Pit Extraction
 Size: 15.000T LiOH pa.
 Project Life: 30 years
 Refining: Yes. Fully Integrated Process Operation
 State: Class 3 FS to be launched
 Operational: 2024
 CAPEX: 282M€ (47M€ mining, 235M€ refining)
 NPV: 782M€ pre tax
 IRR: 42% pre tax

San José de Valdeflórez (Cáceres)



SPV: Tecnología Extremeña del Litio (2016)
 Shareholders: Infinity Lithium Pty, ASX listed (32MAUD) holds 75% of TEL.
 Sacyr Group (Spanish Construction Company) holds 25% of TEL
 Infinity maintains call option to acquire Sacyr's share for 10M€.

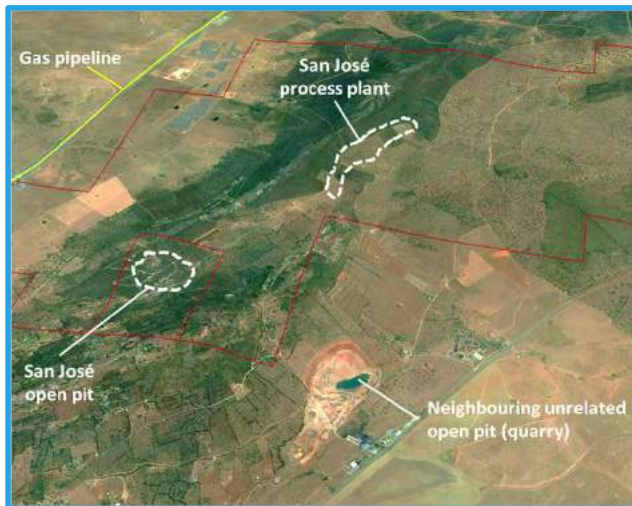


Fully integrated and sustainable project:

- Mining + Refinery
- Open pit mine – brownfield with historical tin mine on site

Innovativeness in Refining Process:

- New Alunite stage that takes flow directly to LiOH
- Use of Potassium Sulfate (fertiliser) instead of Sulphuric Acid.
- Reagent Recycling (water and potassium sulfate)



Cinovec



Location: Cinovec
Ore: Mica (Zinnwaldite)
Type: Underground Mine
Size: 25.267 T LiOH pa.
Project Life: 21 years.
Refining: Yes
State: In DFS / FEED
Operational: 2024
CAPEX: 439M€ (70M€ Mine, 369M€ Refining)
NPV: 1.1B€ post tax
IRR: 28,8% post tax
Specifics: Self-financed 'til Construction Decision (2023)

Cinovec
CZ-D border



SPV: Geomet s.r.o. (2007)
Shareholders: CEZ, the state-owned energy company in CZ, owns 51%
European Metals Holdings, ASX/AIM/Frankfurt listed, owns 49%.



Biggest Lithium hard-rock Resource in Europe, by far.

PFS made on only 10% of JORC Resources.

Now they are optimising the refining process with SMS-Group Process Technologies GmbH (FEED)

Vulcan Zero Carbon Lithium®

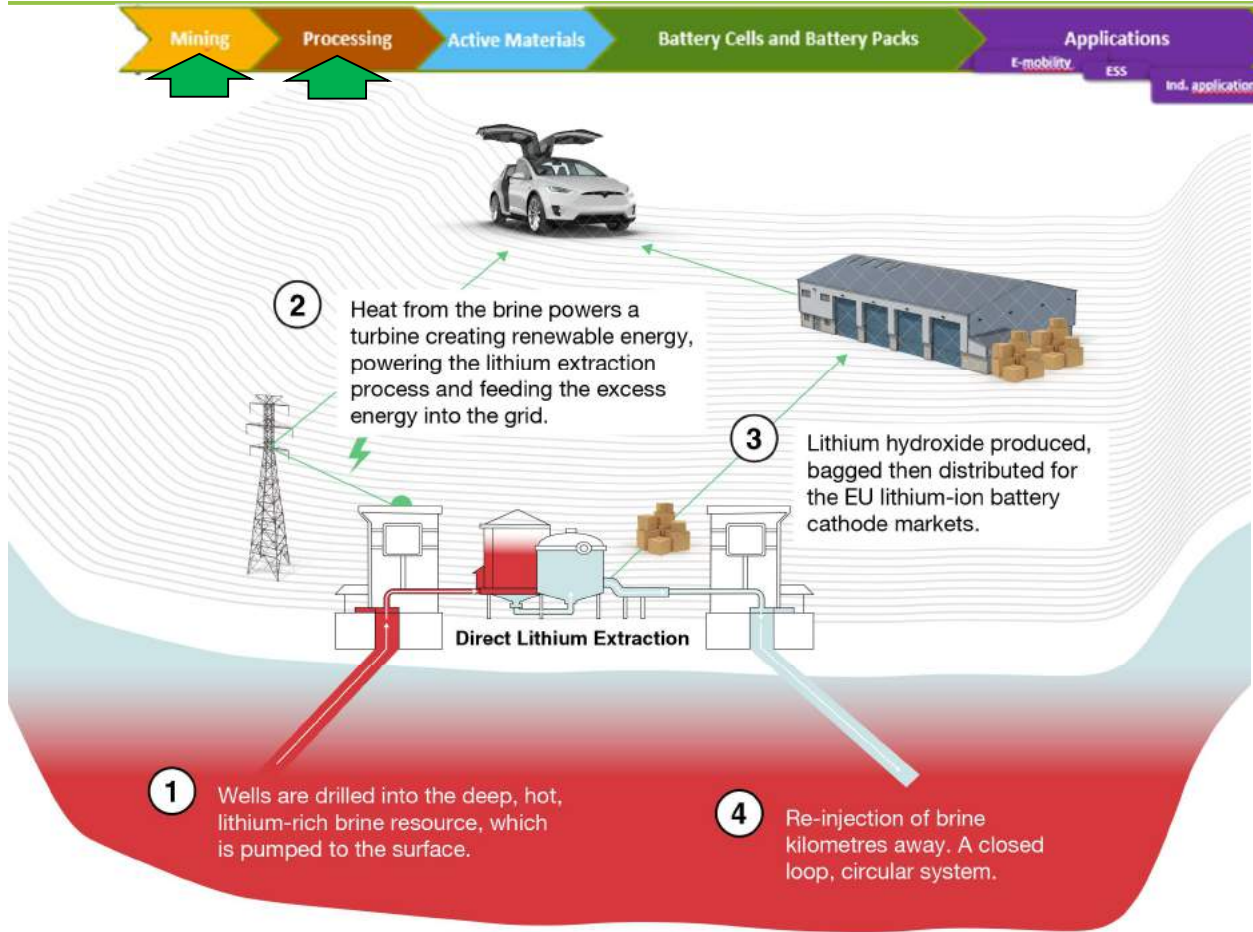


Location: Upper Rhine Valley
Ore: Geothermal Brine
Type: Pipeline Geothermal Extraction
Size: TBC, Resource > 16MT LCE
Refining: Yes
State: PFS released in January 2021
Operational: 2024
Specifics: Only Zero Carbon Lithium® project in the world, located in Germany.
Promoter: Vulcan Energy Resources Pty.
Listed: ASX and Frankfurt
SPV: Vulcan Energie Ressourcen GmbH (2020) , owned 100% by the former.

Upper Rhine Valley



A dual revenue renewable project



A PERFECT FIT		
	Market Demands in EU & Germany	Vulcan value propositions & revenue streams
Core Market	Zero Carbon Lithium™ 	VULCAN ENERGY Zero Carbon Lithium™
	Zero Carbon Heating Zero Carbon Electricity 	VULCAN ENERGY Zero Carbon Lithium™

Euromanganese



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Location: Chvaletice - western area of the Pardubice region of the Czech Republic, approximately 90 km by road east of Prague, on the southern shore of the Elbe River

Ore: Tailings deposit

Type: Tailings deposits after pyrite and manganese ore production

Size: over 25Mt of tailings

Project Life: 25 years

Refining: Processing of tailings to EMM (Electrolytic Manganese Metal) and MSM (Manganese Sulphate Monohydrate)

State: Final stage of FS. EIA underway.

Operational: 2024. Full capacity in 2027

CAPEX: 403,9 mUSD

NPV: 593m USD @10%

IRR: 22,6%

Specifics: Recycling and reclamation of an old mining site

Promoter: Euro Manganese Inc. (EMN)

Listed: TSXV/ASX: EMN

SPV: Mangan Chvaletice s.r.o.



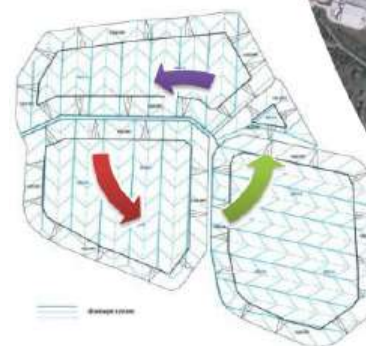
Chvaletice Tailings:
Europe's only realistic opportunity for large-scale primary production of high-purity manganese products, which are important battery raw materials.

Recycling waste!

None of the impacts of hard rock mining.
No new waste.
Remediating a polluted site.



Made-in-Europe supply of an important battery raw material that is technically, economically and environmentally challenging to produce (with China having 93% market share)





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Knowledge Innovation Community

Lluís Molina
European Battery Alliance-EBA250

lluis.molina@innoenergy.com


+34 629431208



EIT InnoEnergy
Kennispoort 6th floor
John F. Kennedylaan 2
5612 AB Eindhoven
The Netherlands
Info@innoenergy.com

Innoenergy.com



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