



Lighter aircrafts



Clean air



Minerals for a sustainable future
OAX: NOM



Renewable energy



Electric cars



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Developing high-value assets in the Nordic Region



Titanium - natural rutile



High Purity Quartz



Seabed minerals

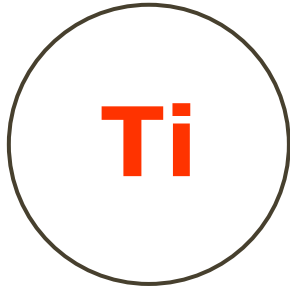


Platinum, Palladium

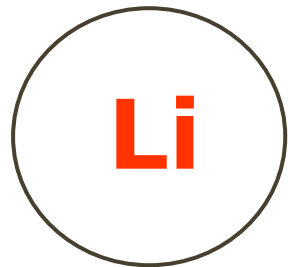


Lithium





Diverse and unique properties



The key to a greener society



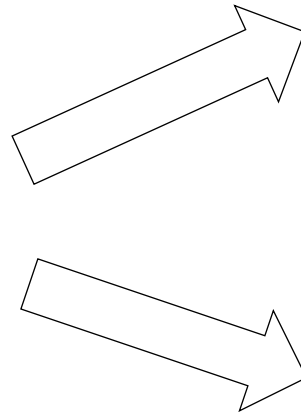
Engebø

- ✓ One of the world's largest deposits of natural rutile
- ✓ Highest grade among current producers and projects
- ✓ Significant content of garnet
- ✓ Impurities at background levels
- ✓ Located next to tidal waters and European markets
- ✓ Permitted for 50 years of operation

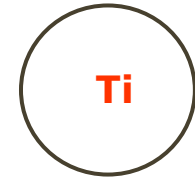
Current status

- ✓ Geology and resource report published early September; significant increase of classified resources
- ✓ Hatch contracted as technical advisor for PFS; kick-off mid-September
- ✓ PFS will comprise a new review of project and scenarios
- ✓ Mine planning, test work and other activities are ongoing
- ✓ Market outlook for garnet strengthened

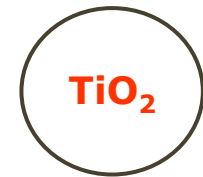
Rutile concentrate can be processed into two main products:



Titanium



Titanium dioxide



Titanium has unique properties both as oxide and metal



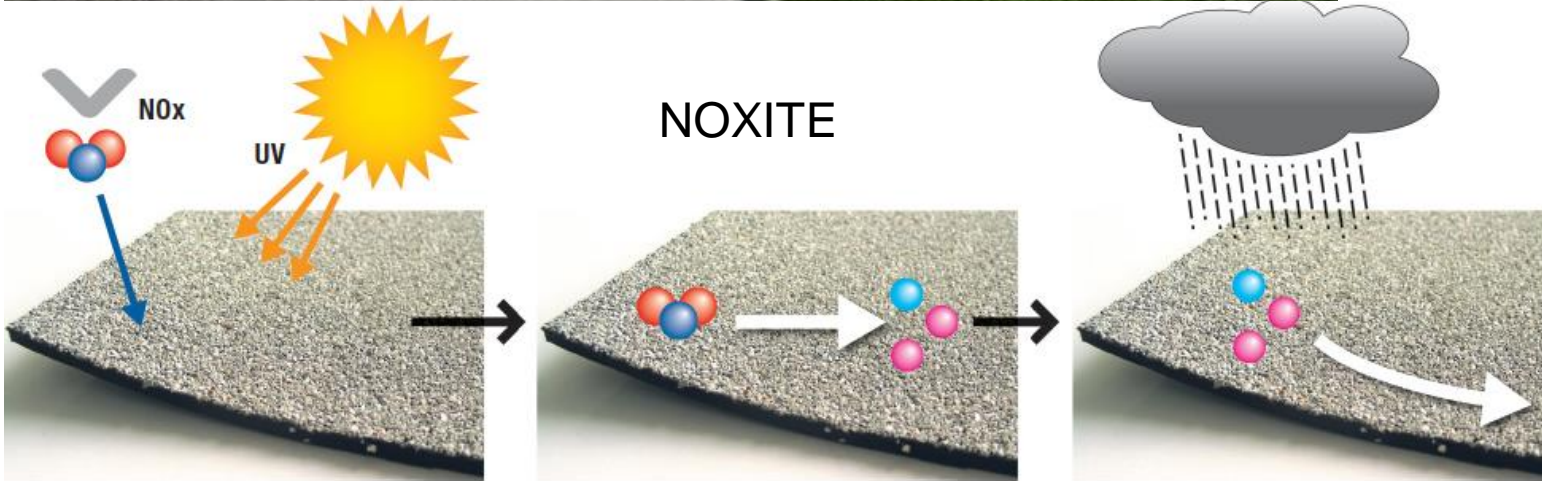
The airplane and space industry
discovered the advantages early:
strength, weight, temperature





Titanium oxide has photocatalytic properties

**REMA
1000**



Arrival of the pollutant (NO_x)
Excitation of the TiO₂

NOXITE

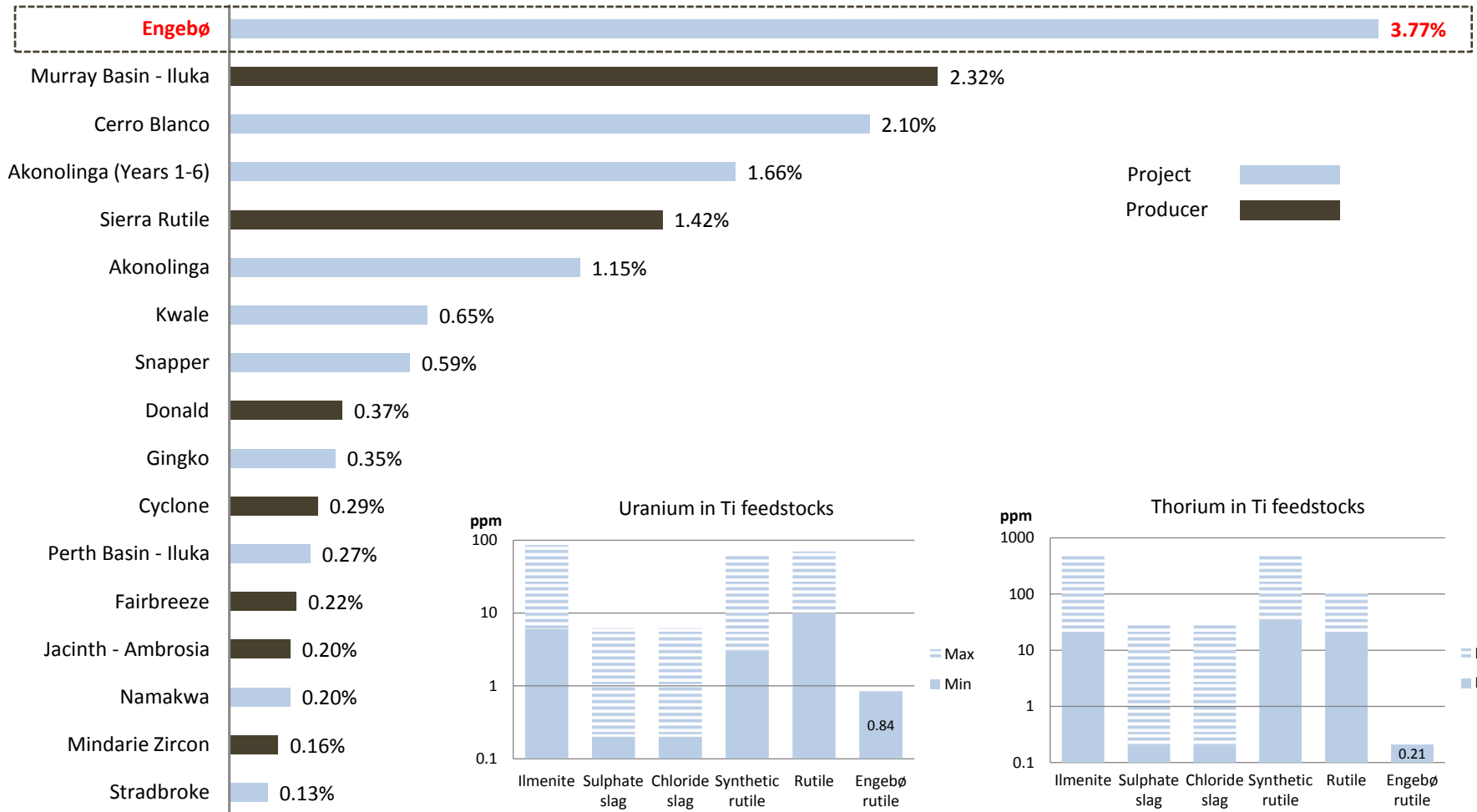
Transformation
of the pollutant

Nitrates diluted and washed
away in rainwater



The highest rutile grade and lowest impurity content

Rutile grade for current feedstock producers and planned projects



High grade ore with low impurities brings processing benefits and premium pricing



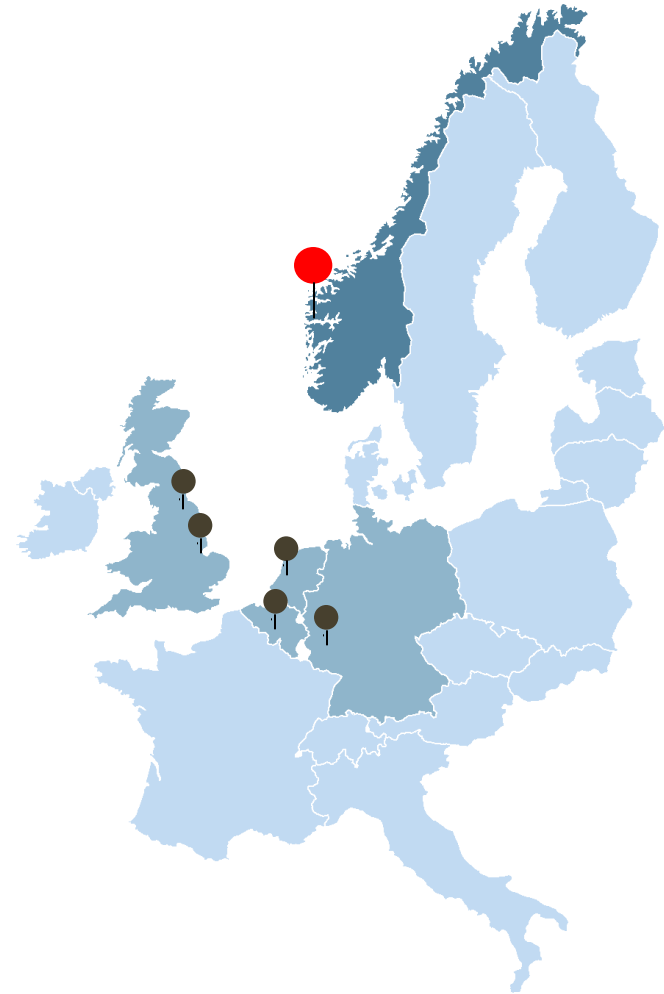
European pigment majors will be future customers

Regional, stable supply brings customer benefits

- Substantial freight reduction compared to existing supply
- Plant-to-plant shipment
- Simple logistics improve working capital, storage and planning
- Several European customers can each take Engebø's annual production

Large pigment plants for high grade feedstock

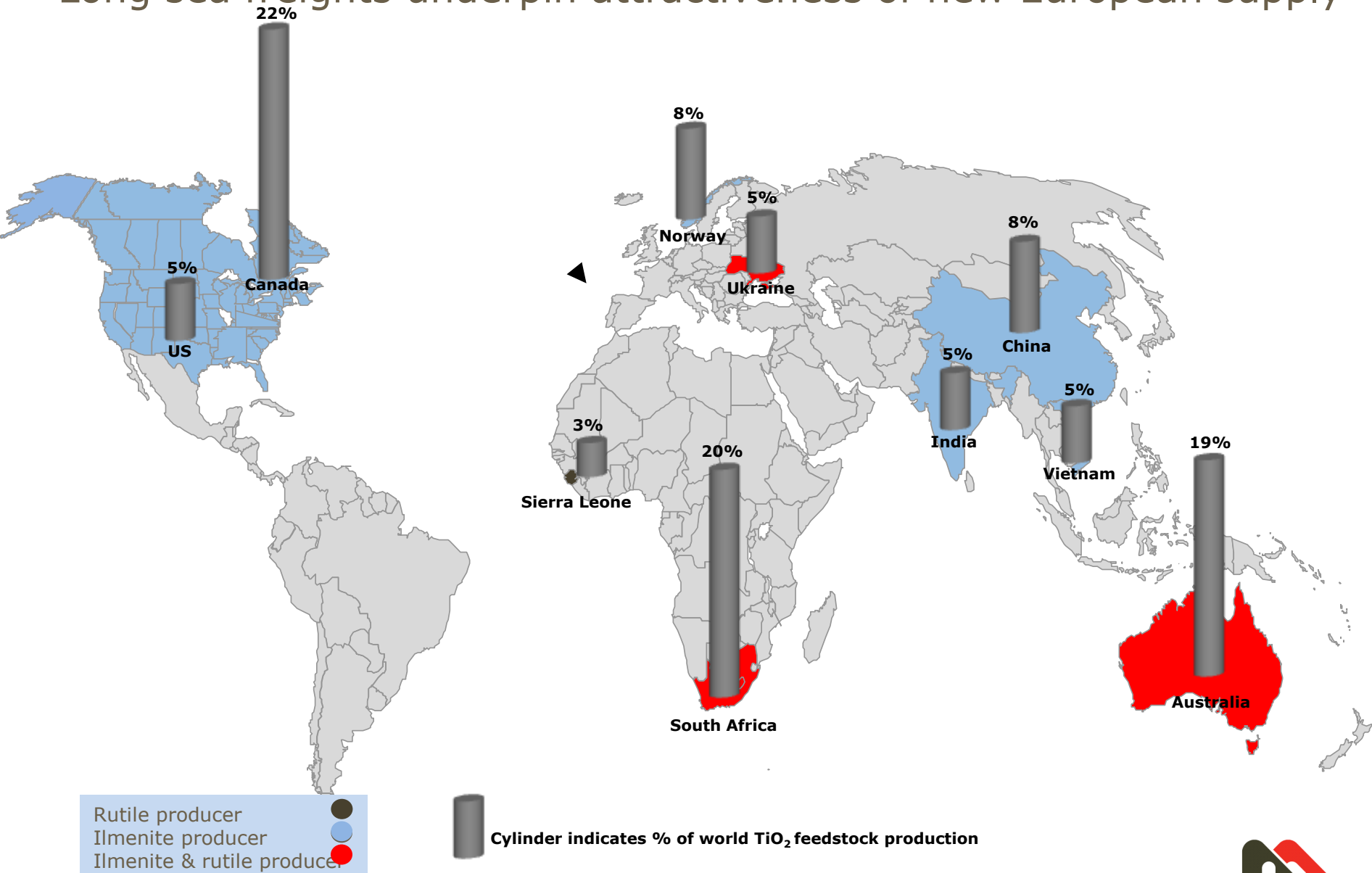
Company	Plant location	Country
Huntsman Tioxide	Greatham	UK
Cristal Global	Stallinborough	UK
Kronos	Gent / Leverkusen	Belgium / Germany
Tronox	Rotterdam	Netherlands



Significant supply deficit in Europe makes regional rutile production attractive



Long sea freights underpin attractiveness of new European supply

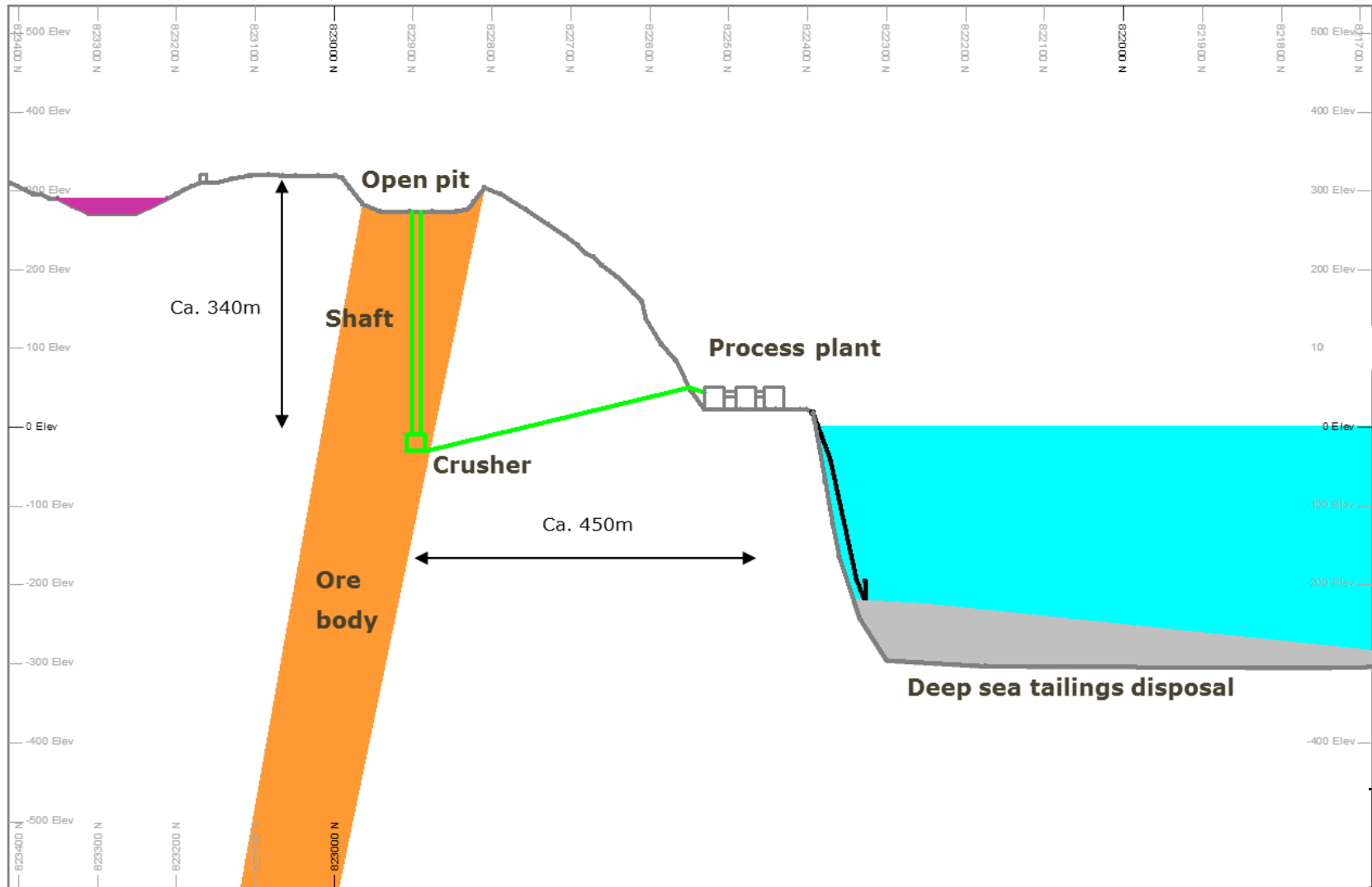


European feedstock consumption is 30% of world total; production less than 13%





Favourable project logistics and configuration

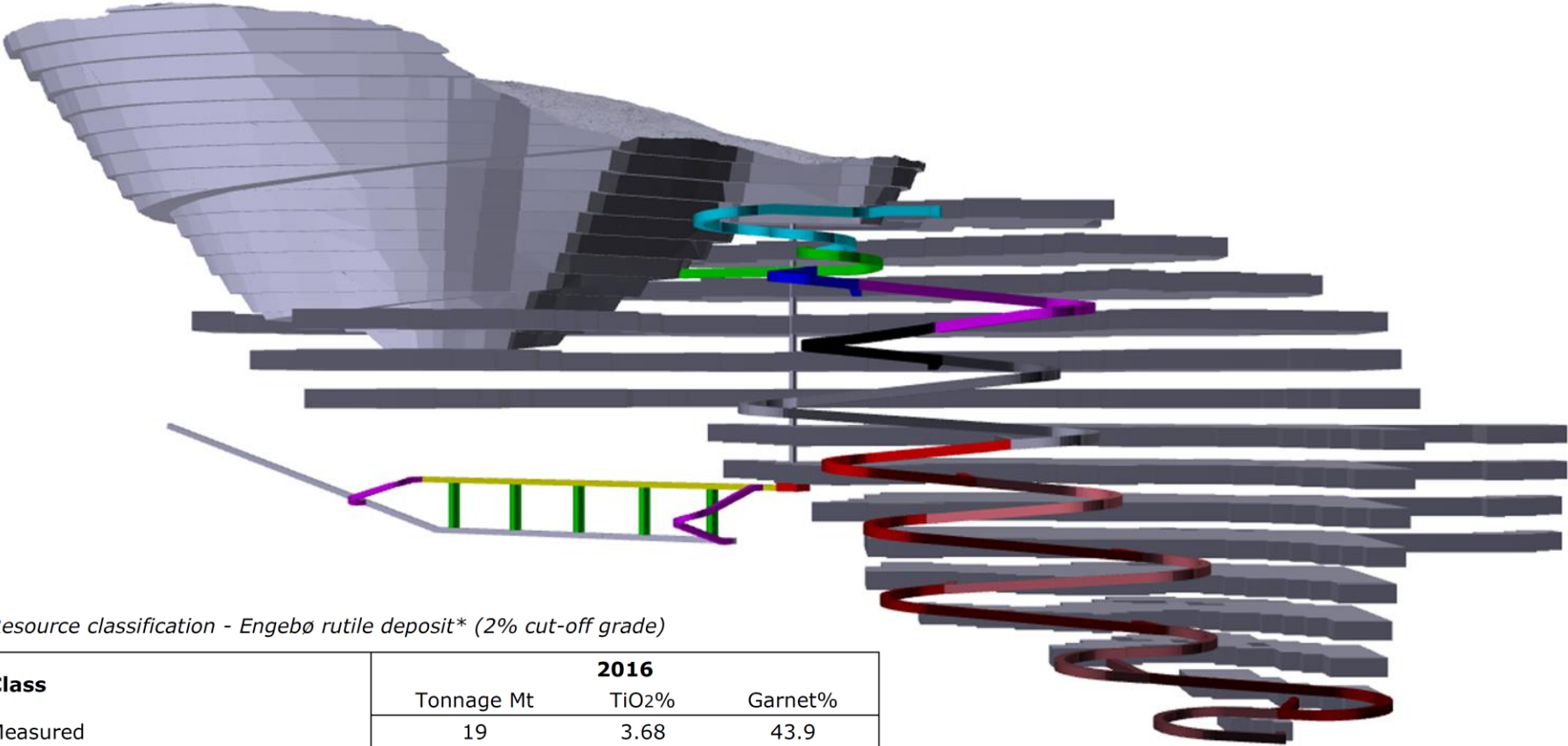


Principle illustration

Efficient and area-tight concept, minimum transportation costs



Preliminary mine and extraction 2016



Resource classification - Engebø rutile deposit* (2% cut-off grade)

Class	2016		
	Tonnage Mt	TiO2%	Garnet%
Measured	19	3.68	43.9
Indicated	106	3.51	43.0
Measured & Indicated	125	3.53	43.2
Inferred	255	3.22	42.5

* Resource estimates completed by Competent Person Adam Wheeler, corresponding to the guidelines of the JORC Code (2012 Edition).



PFS – study, ongoing activities

Crushing and milling

- Test work ongoing with NTNU and misc. foreign vendors/laboratories.

Mine and extraction planning

- Simulation modelling by Hatch
- Mine and production scenario screening
- Preliminary financial modelling

Processing

- Various test work ongoing in Norway, US and Australia
NTNU, IHC Robbins

Tailings disposal system

- Refined, conceptual lay-out and cost analysis

Market and Infrastructure

- Various studies ongoing



PFS completion targeted in Q2 2017



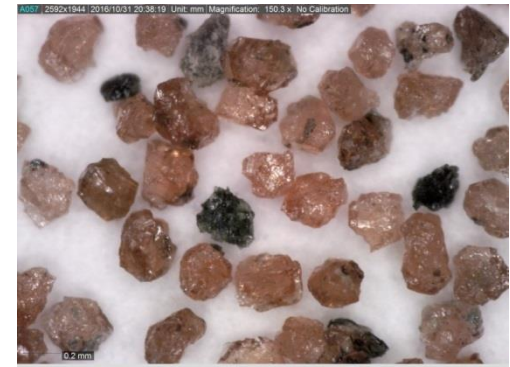
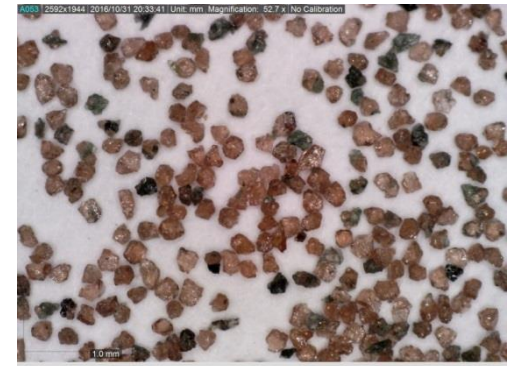
Process test work ongoing with full scale equipment



Garnet, update on market and sales target

Sales target for garnet is doubled to 200,000 tpy (up from 100,000 tpy)

- Primary markets for garnet are in waterjet cutting and abrasive blasting with additional market of coarse product in water filtration.
- In waterjet cutting, garnet is the dominant abrasive medium.
- Previous test work has demonstrated that the Engebø garnet is of high quality, well suited for waterjet cutting applications.
- Coarser garnet from Engebø may also be applied in the blasting markets.
- MoU signed with reputable international minerals producer
- The potential for the Engebø garnet is considered to be more favourable than previously assumed.



Positive long-term price outlook for rutile

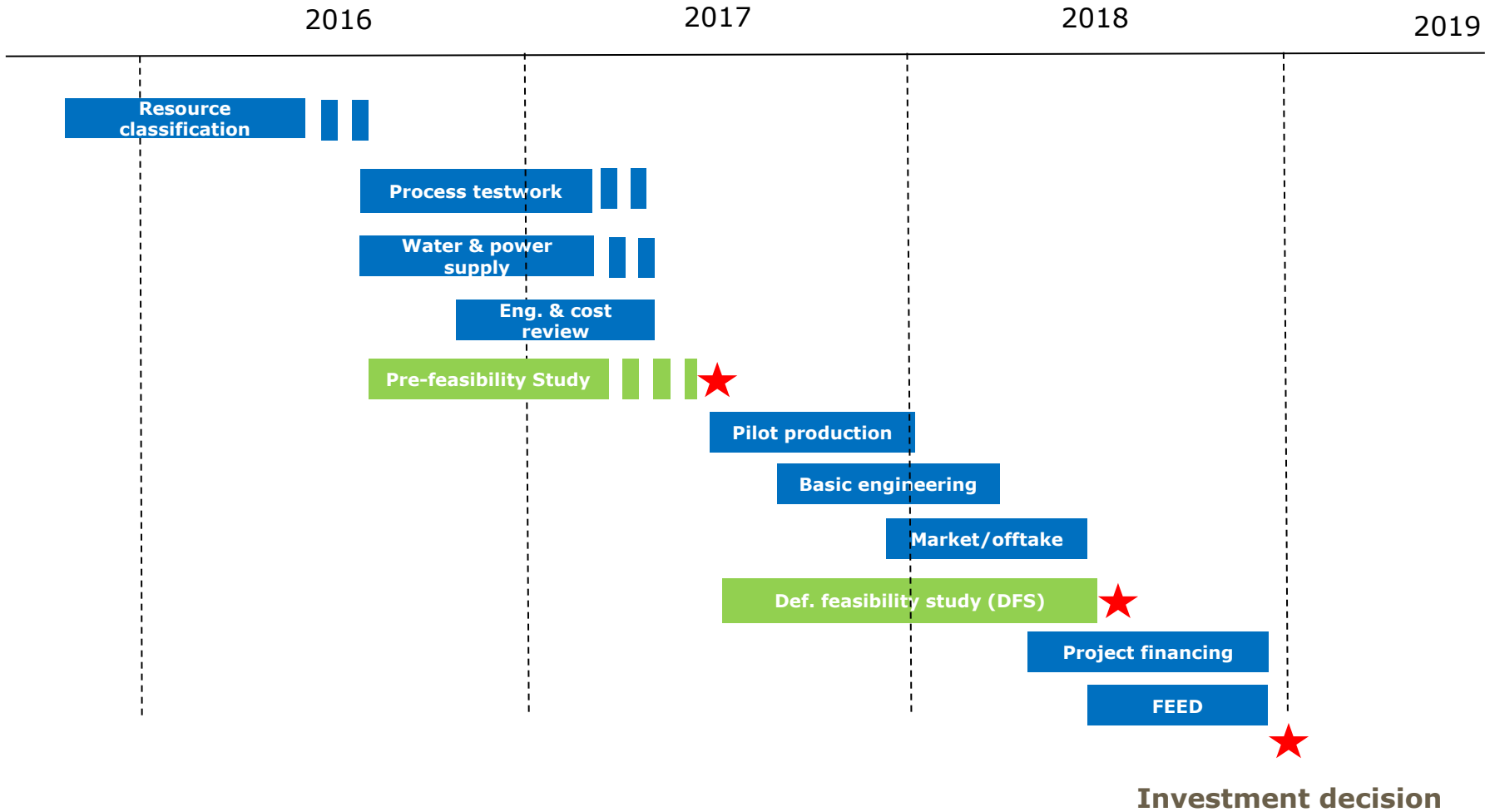
Selected research reports from Q1 2016 (Price forecasts in USD per tonne rutile)	2016	2017	Long-term
Royal Bank of Canada (RBC)	813	900	1,100
UBS	800	875	1,300
J.P. Morgan	698	677	1,000
Credit Suisse	750	800	1,250
Investec	763	838	1,020
Maquarie	700	680	810
Goldman Sachs	700	700	750
Numis	777	906	1,100

Rutile price sensitivity	Low	Preliminary base case estimate	High
Rutile price (USD per tonne)	800	1,000	1,250
NPV @ 8% (USD million)	281	466	670
IRR	16.2%	20.7%	25.2%

The average long-term price estimate is around USD 1,050 per tonne



Towards construction – tentative timeline



Well financed into DFS





Macro and timing fits nicely for Keliber

- **Target to be the first lithium producer in Europe**
 - EU is the second largest market for lithium 21% of total world wide consumption in 2015
- **Robust market**
 - According to different studies lithium demand is expected to grow by 6,4 – 11% per year in the base case scenarios and up to 15,7% in the optimistic scenarios driven mainly by increasing demand of automotive industry
- **High quality end product**
 - Target to produce battery grade (99,5%) and high purity (99,9%) lithium carbonate, for the growing demand of the lithium battery industry
- **Permits**
 - Company has environmental permits for Lanttä mine and Kalavesi production plant, revisions ongoing
 - Company has mining permit for Lanttä mine
 - Exploration permits in large areas around



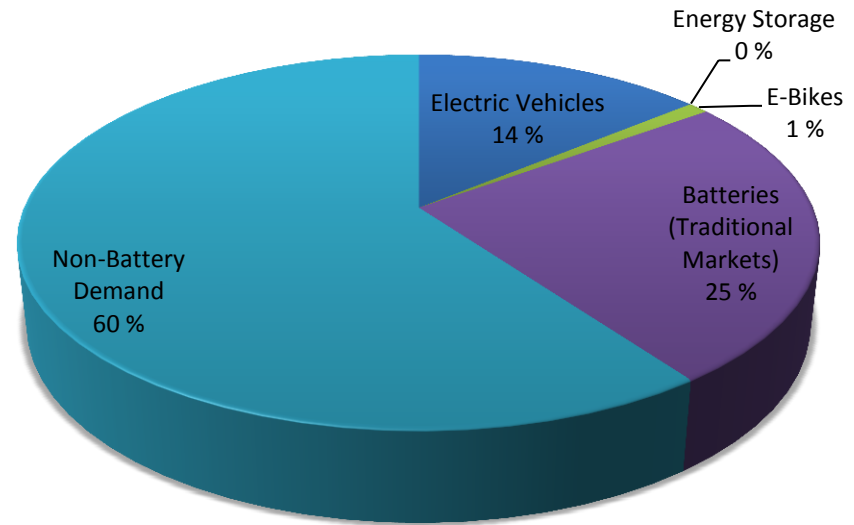
Lithium Demand

Robust market for lithium batteries

➤ Batteries and battery market

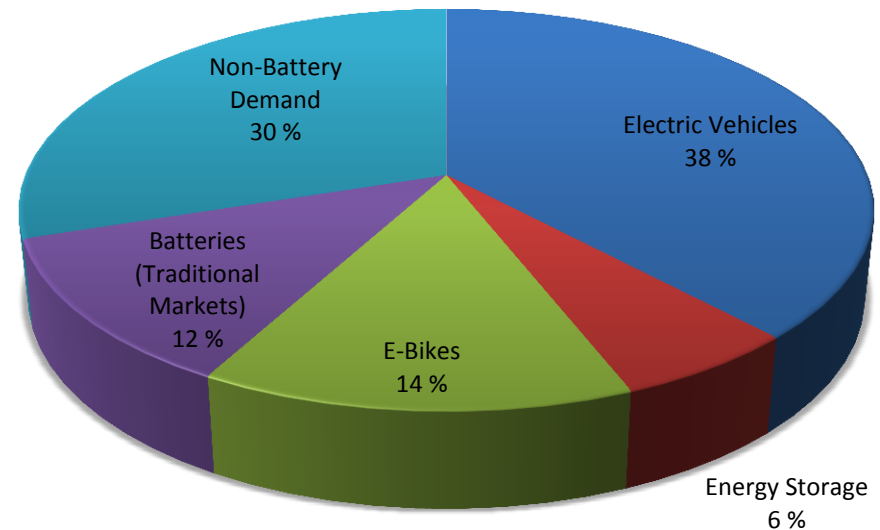
- Due to its high electrochemical potential and low atomic mass, lithium is widely used in batteries
- Hybrid and electric cars present the most promising application for lithium-ion batteries
- Demand for lithium used in the production of batteries for electric vehicles (E-Bikes excluded) was 25,100 LCE tons in 2015
- Deutsche Bank estimates that in 2025 the lithium demand for Electric Vehicles will be over 204,800 LCE tons

Source: Deutsche Bank



Lithium demand by applications 2015

Tot 181 000 tonnes LCE



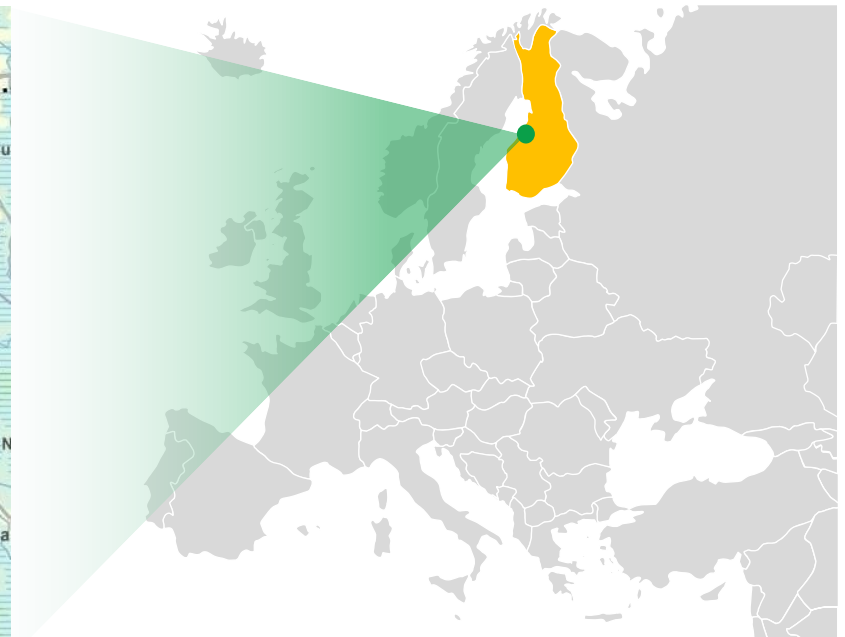
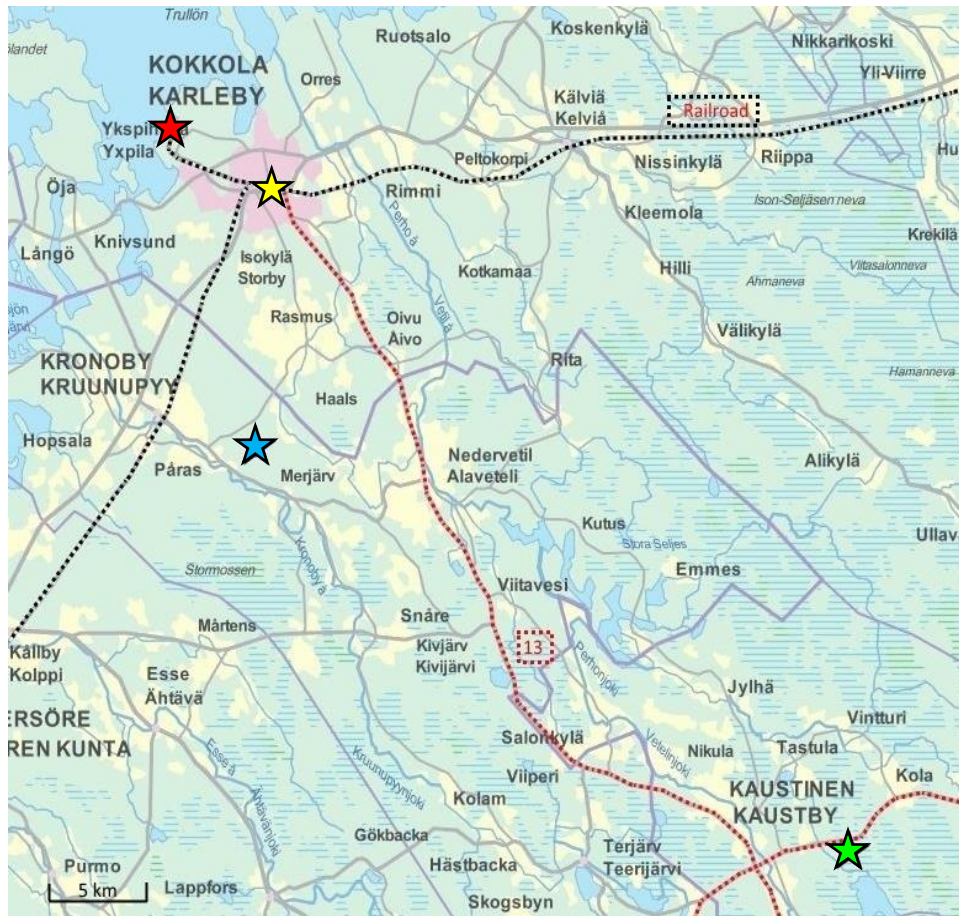
Lithium demand by applications 2025

Tot 535 000 tonnes LCE

Ideal geographical location

Mining friendly jurisdiction and strong infrastructure

Keliber production plant and key transport hubs



- Well positioned for European markets
- Strong, existing infrastructure
- Valid permits, claims and reservations

★ Port of Kollola

★ Railway station

★ Airport

★ Production plant

28 November 2016

Mines & Money spotlight

 **KELIBER**

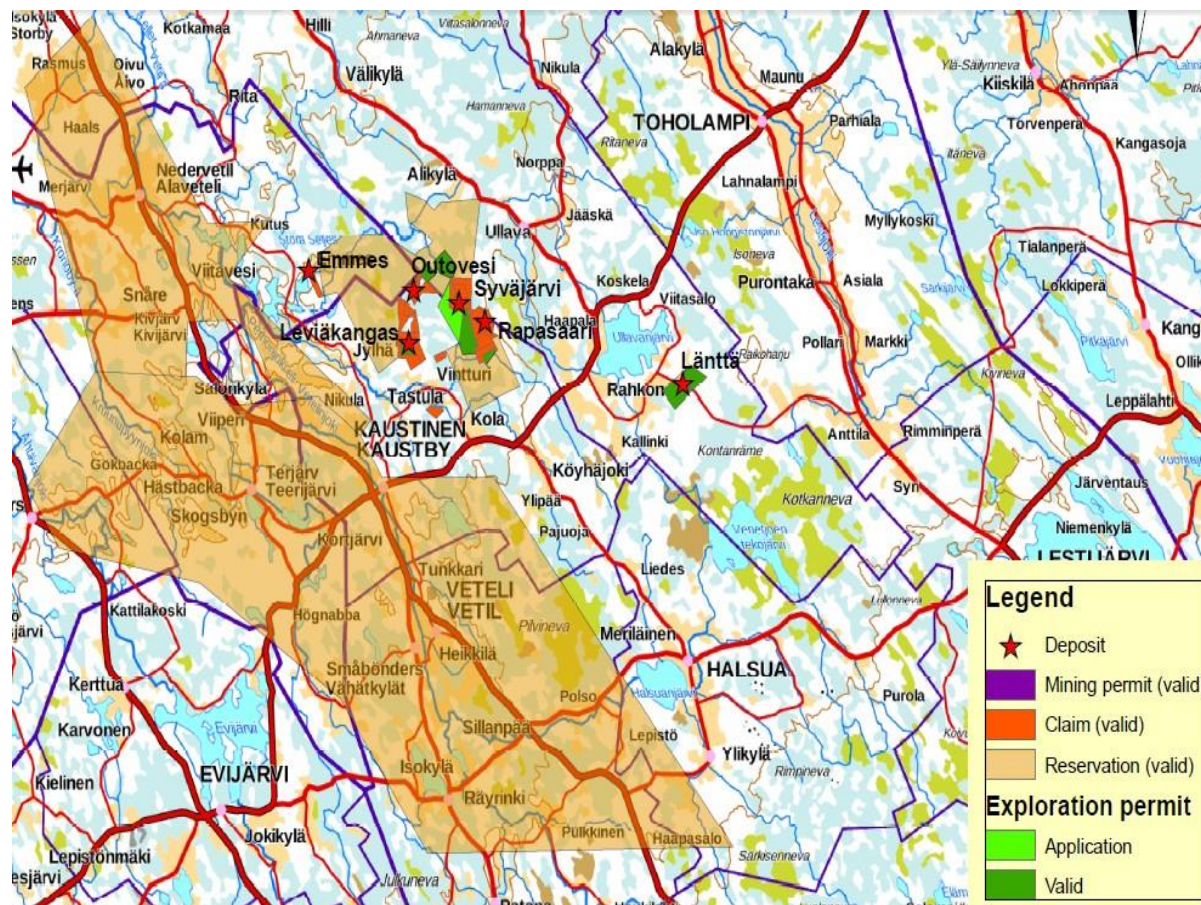
High purity lithium carbonate

Excellent exploration potential

One of the most significant lithium-bearing areas in Europe

Overview of concession areas

- The lithium-rich province of Central Ostrobothnia covers over 500 sq. km
- A number of unexplored areas and excellent potential for further discoveries
- More than 1400 erratic boulders in the area

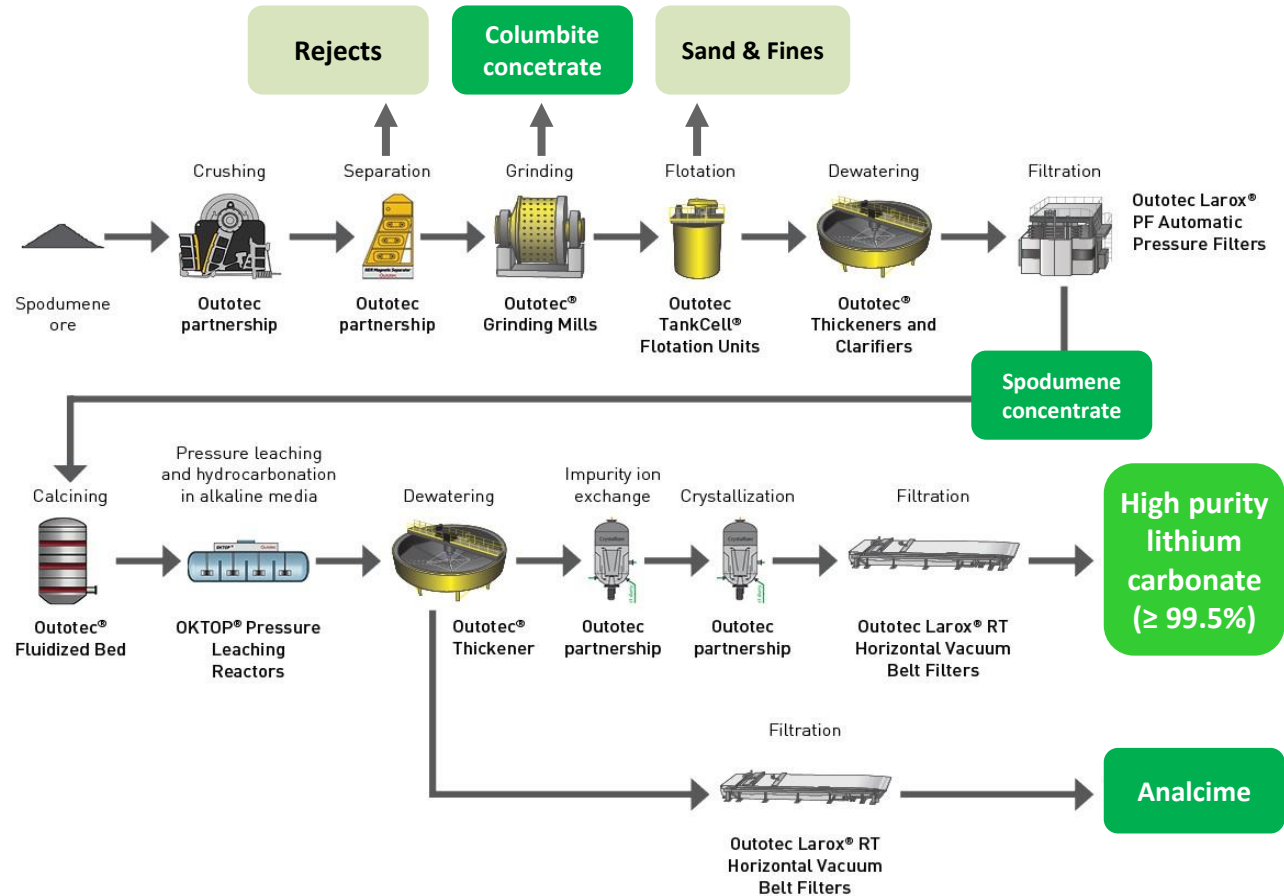


Innovative Process

Efficient and environmentally sound production of high purity lithium carbonate

Customized process developed together with Outotec

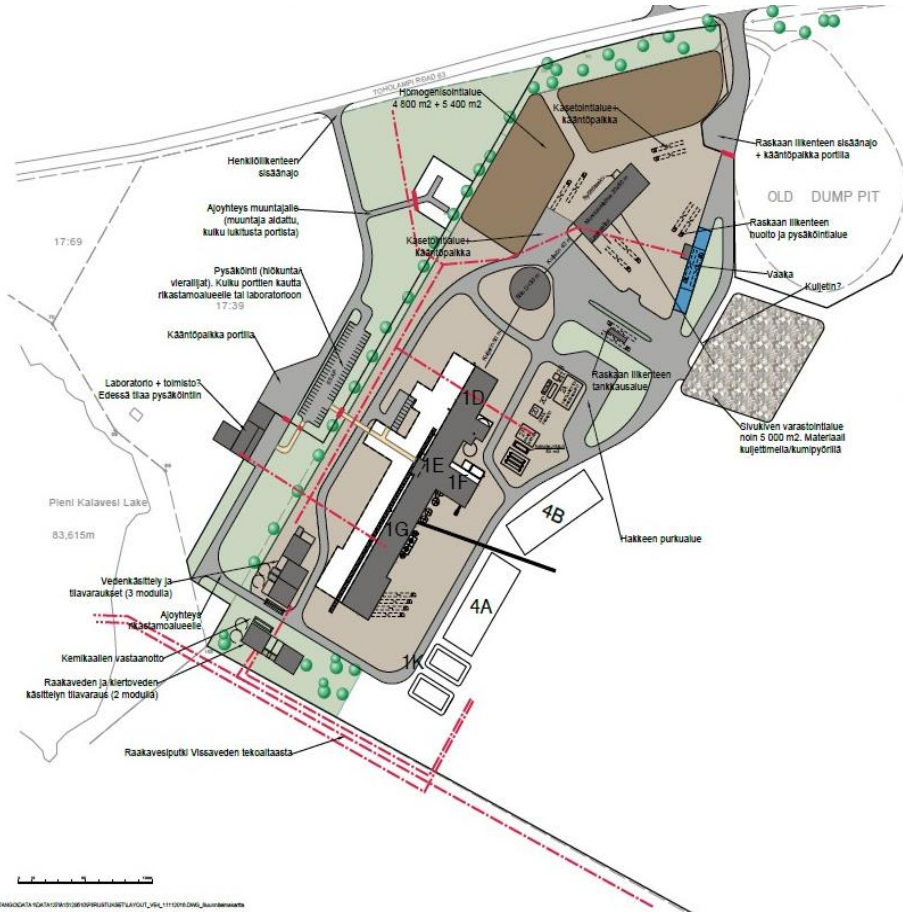
- Optical sorting
- Valuable by-products
- Concentrate grade optimization
- Environment-friendly soda leaching
- Tailings with no heavy metals nor acid generating minerals



Mines and production plant

Easy access between sites

Overview of mines and production site



- Short distances between sites
- Production site has good existing infrastructure (water, sewage, power and electricity)
- No restrictions on layout planning

Clearly profitable project

Pre-feasibility study conducted by Sweco Industry Oy

Key figures of pre-feasibility study and latest management case

	Pre-feasibility study Li ₂ CO ₃ production (9,000 t/a)	Latest management case Li ₂ CO ₃ production (9,000 t/a)
Ore reserves (Mt)	4.5	5.4
Plant capacity ore (t/a)	400,000	438,000
Operative time (years)	11.2	12.4
Basic investment (€m)	164	173
Total CAPEX (€m)	225	235
Total OPEX over the operative time (€m)	381	449
Sales over the operative time (€m)	800	1,090
Payback time from start-up	Approx. 4 years	4-5 years
Average lithium carbonate price 2018-2031	7,927	10,910
Net present value, @ 8% (€m)	97	148
Internal rate of return	21%	25%

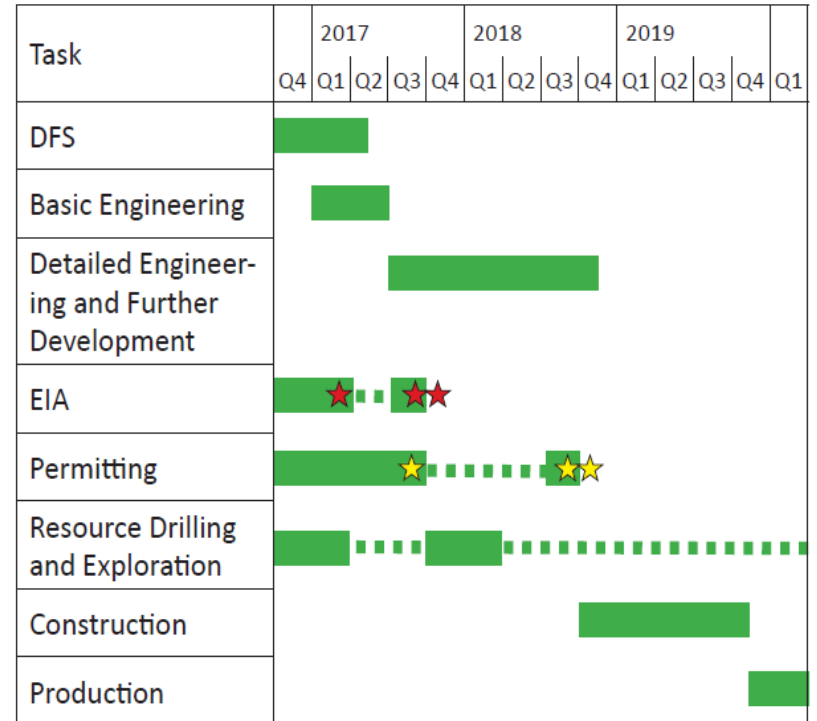
- Management case updates: lithium price, ore reserves, recoveries and by-products
- No immediate threats to the profitability based on sensitivity analysis
- 120–130 new jobs created

Project timeline

Continuing to definitive feasibility study and preparation for production

Tentative timeline for the next stages (2016-2020)

- Definitive feasibility study on-going
- Basic engineering to begin soon
- EIA and permit processes are ongoing
- Further drilling and exploration 2017–2018
- Construction to be completed in 2018



Production estimated to start late 2019

Filing the EIA to the authorities ★

Statement from authorities ★★

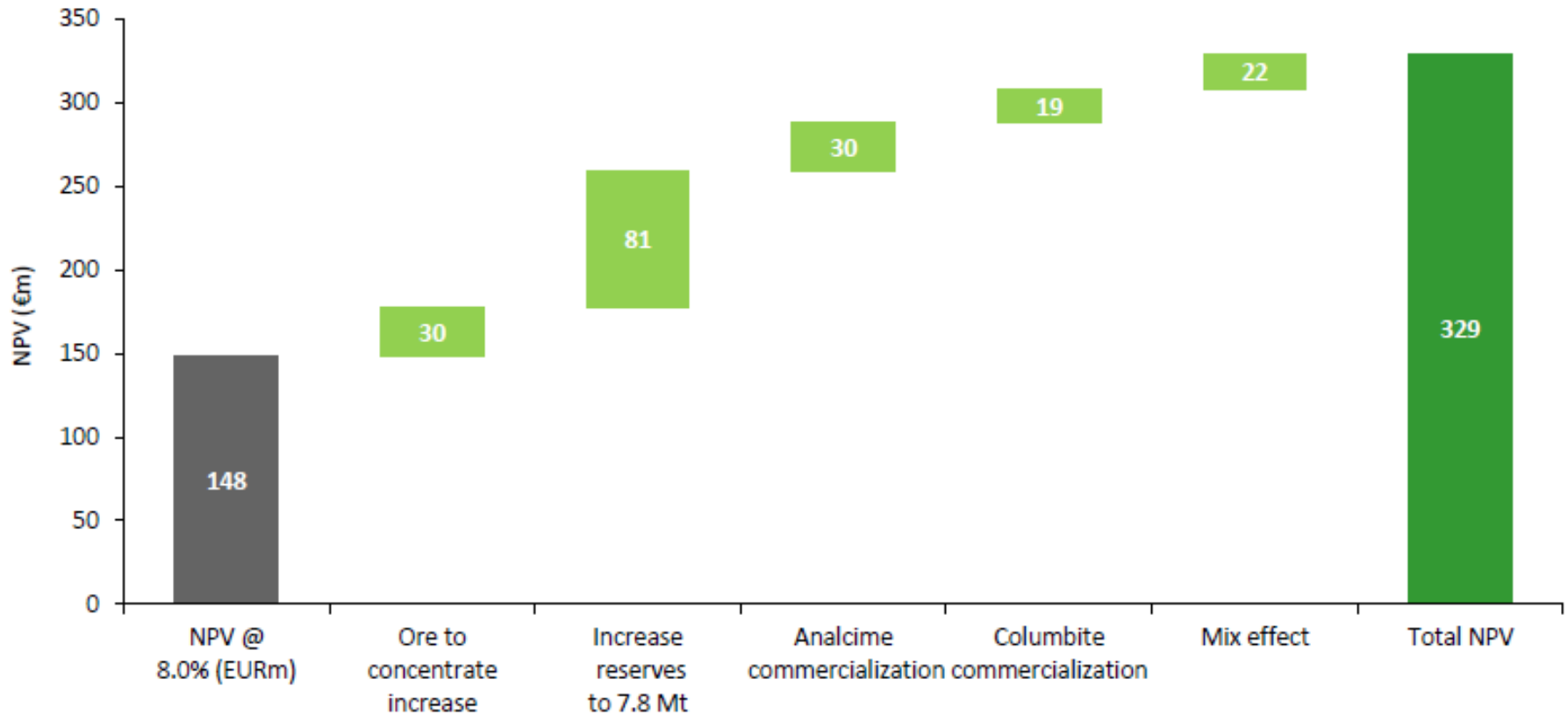
Filing the permit applications to the authorities ★

Decision from authorities ★★

Significant upside potential

Further process efficiency, exploration and commercialization of by-products

Management estimate of the upside potential of value creation initiatives



Summary

Lithium carbonate production with high value creation potential

1 Production of high purity lithium carbonate

- 9,000 tonnes of lithium carbonate per annum for +11 years
- Attractive market driven by EV industry

2 Innovative process developed with Outotec

- Efficient and environmentally sound production
- Recovery of valuable by-products

3 Ideal geographical location

- Mining friendly jurisdiction and strong infrastructure
- Well positioned for attractive European markets

4 Profitable project with significant upside potential

- Latest management case estimates NPV of €148 million
- Significant upside potential from value creation initiatives

Finland reaches out for the battery value chain



Vasa in Finland will approach Tesla for gigafactory – based on Keliber



Safety – Environment - Innovation



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