



OAX: NOM

Company presentation  
May 2016



*Exploration and production of high-end minerals and metals*

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# Developing high-value assets in the Nordic Region



Titanium - natural rutile



High Purity Quartz



Seabed minerals



Platinum, Palladium



Lithium







Lighter aircrafts



Clean air



Minerals for a sustainable future



Renewable energy



Electric cars

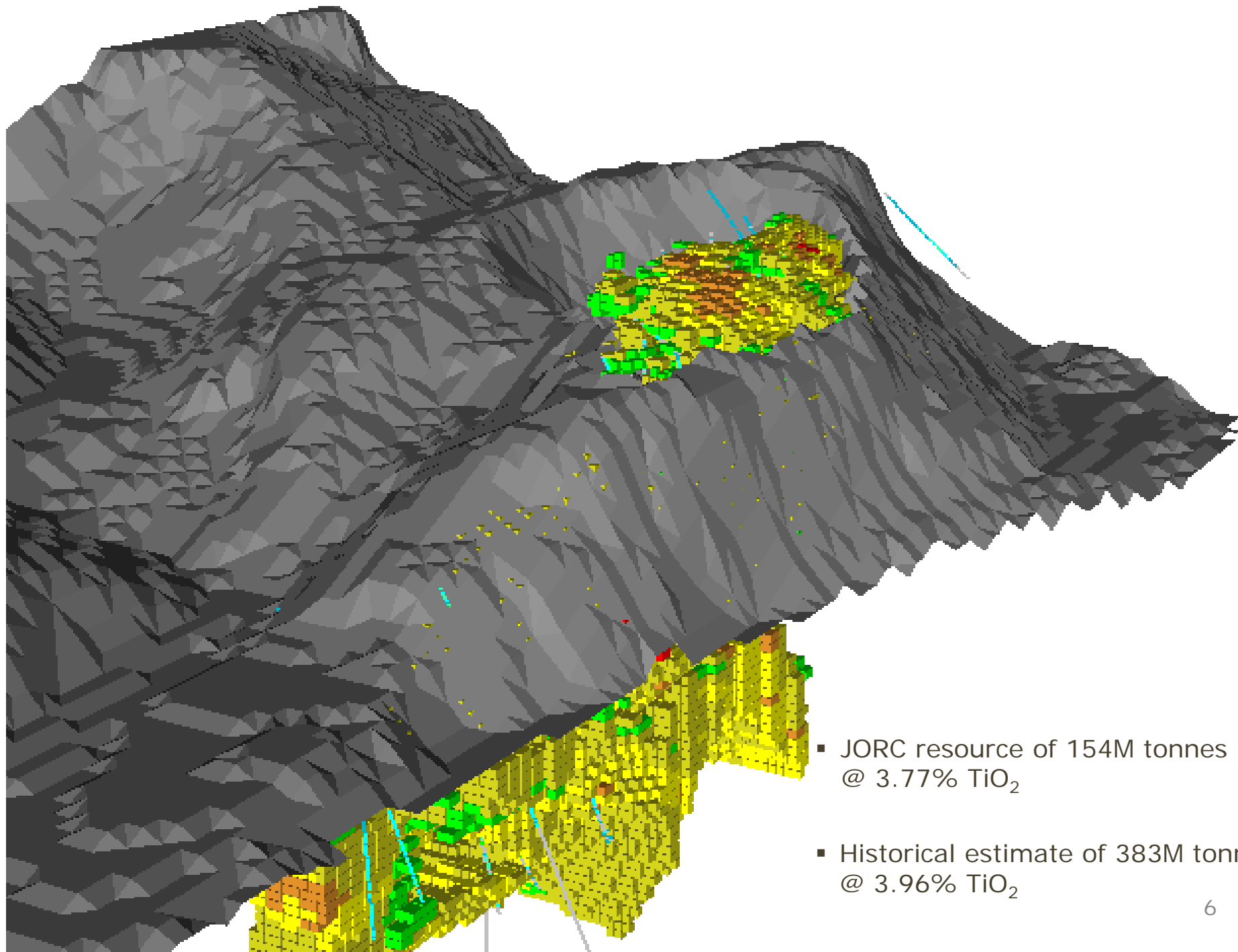




An aerial photograph of a mountainous region with dense green forests. A river flows through the valley, and a lake is visible in the distance. The sky is clear and blue.

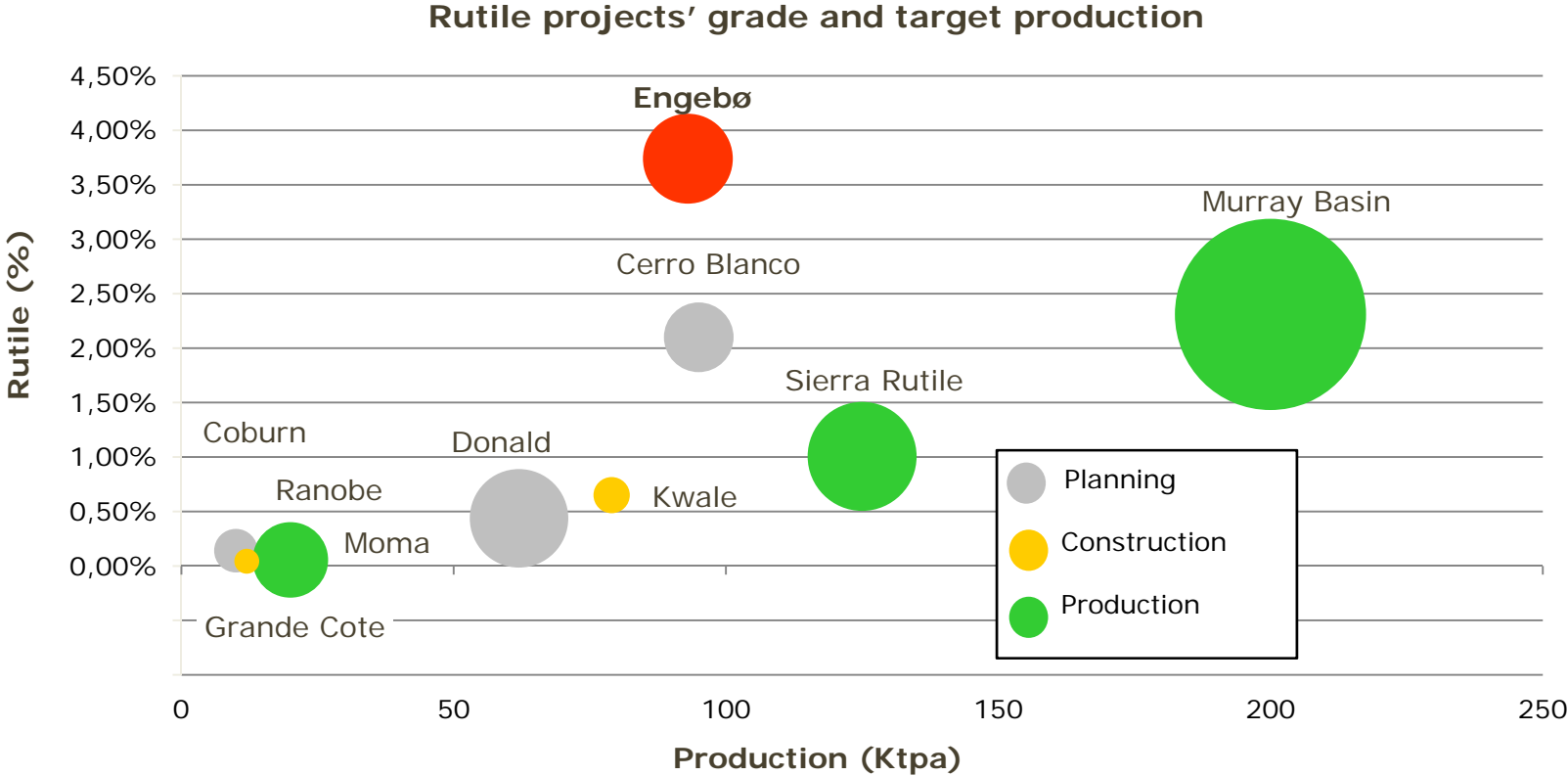
## Engebø

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



- JORC resource of 154M tonnes @ 3.77%  $\text{TiO}_2$
- Historical estimate of 383M tonnes @ 3.96%  $\text{TiO}_2$

# Engerbø is among the largest rutile deposits in the world



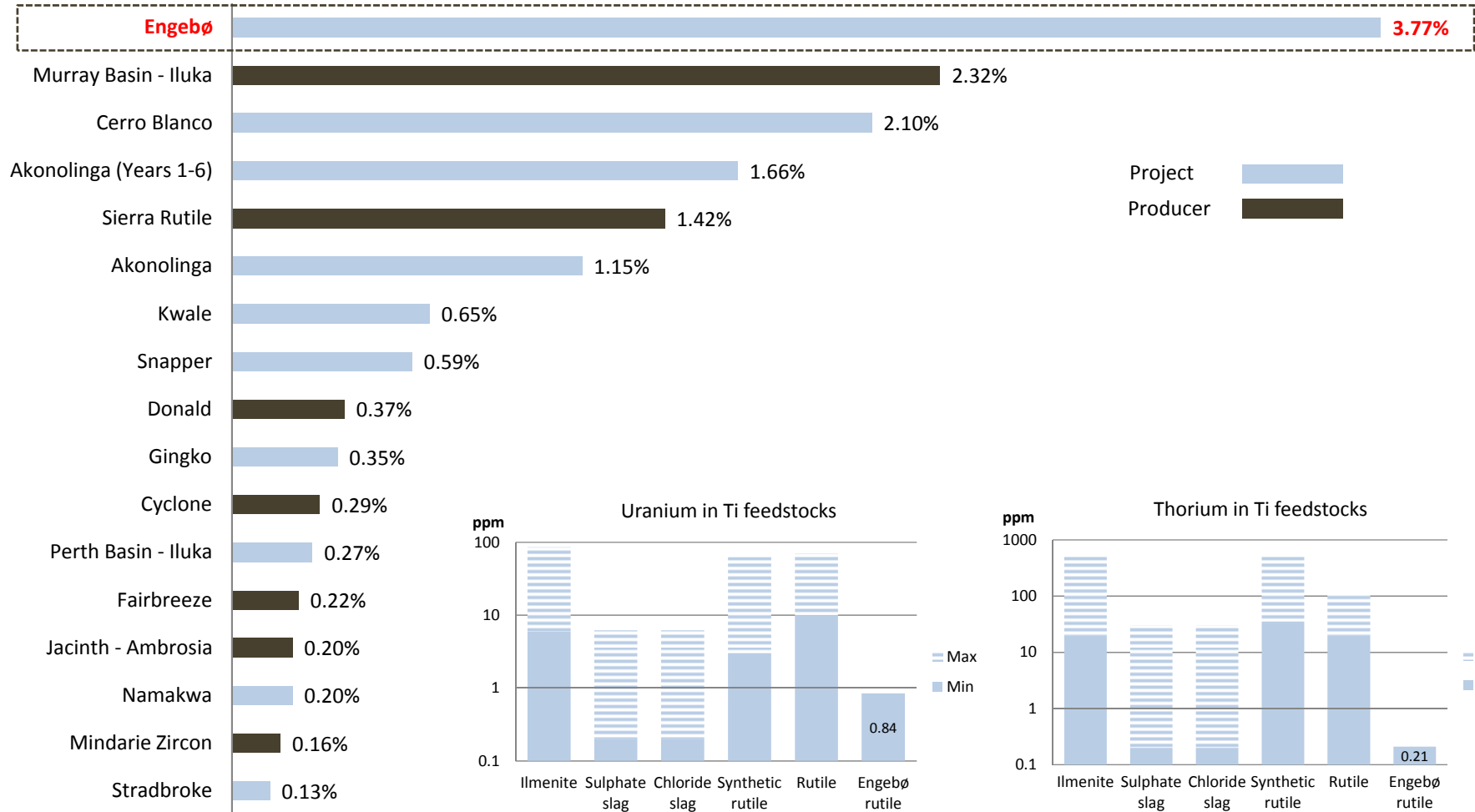
Size of bubble indicates resource size



Source: Company websites

# 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



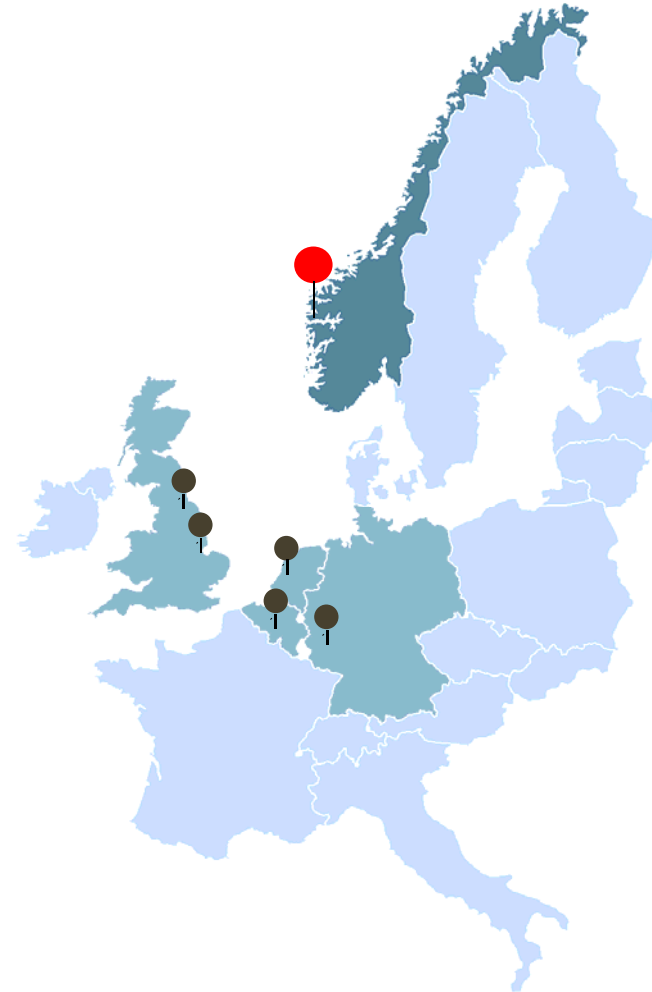
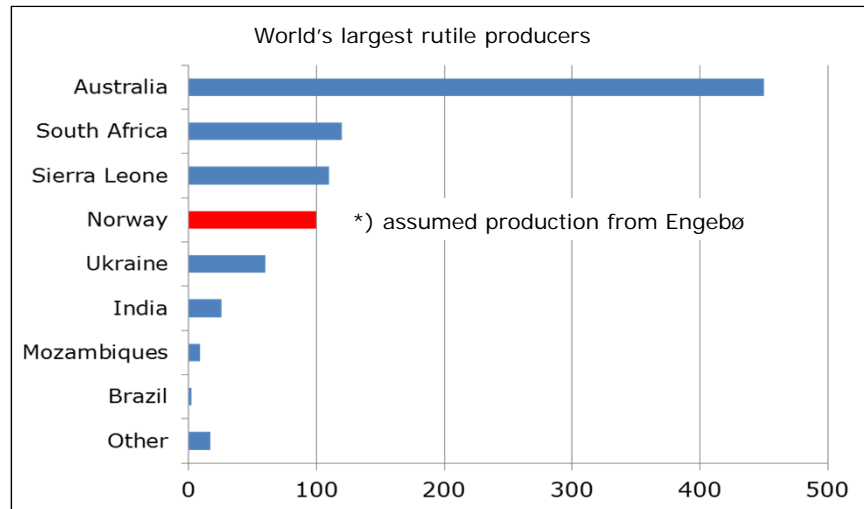
Source: Company websites, "Production of titanium dioxide" (2007) by Fahli and Martin-Matarranza



# 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



Significant supply deficit in Europe makes regional rutile production attractive



## Why is rutile an attractive mineral?

- *Has unique opacity and reflection characteristics*
- *Environmentally friendly, and the most effective pigment component*
- *Biocompatible, gives no reactions from the human body*
- *Effective reflection of UV radiation*
- *Becomes a strong, light and 100% non-corrosive metal*





# The TiO<sub>2</sub> value chain from mine to consumer



Mining

- Rutile is mined from ore or mineral sands producing a rutile concentrate



Processing

- Rutile is processed through chlorination in reactors which produces TiO<sub>2</sub> pigment
- Optional metallurgical process to produce titanium and related alloys



End use

- Majority of TiO<sub>2</sub> feedstock is used in production of pigment for paints, plastics and paper
- Approximately 5% is used for titanium

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Natural rutile implies improved production and less waste vs ilmenite and other feedstock:

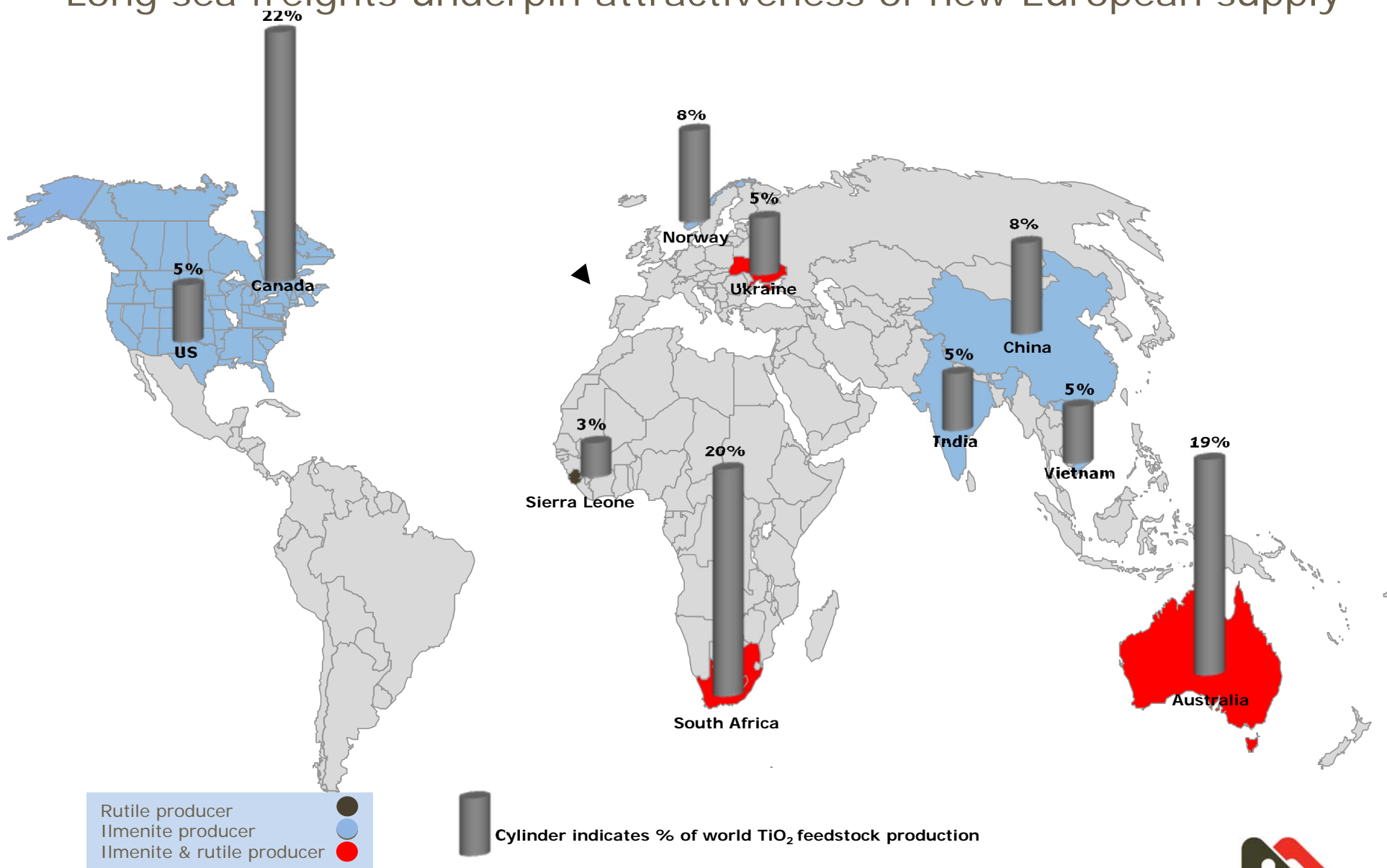
- ✓ **Lowest consumption of ore**
- ✓ **Lowest consumption of chloride**
- ✓ **Less waste**
- ✓ **Lower production costs**

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TiO<sub>2</sub>; small part of total cost for end-use manufacturers with few viable substitutes



# Long sea freights underpin attractiveness of new European supply



European feedstock consumption is 30% of world total; production at approx. 13%



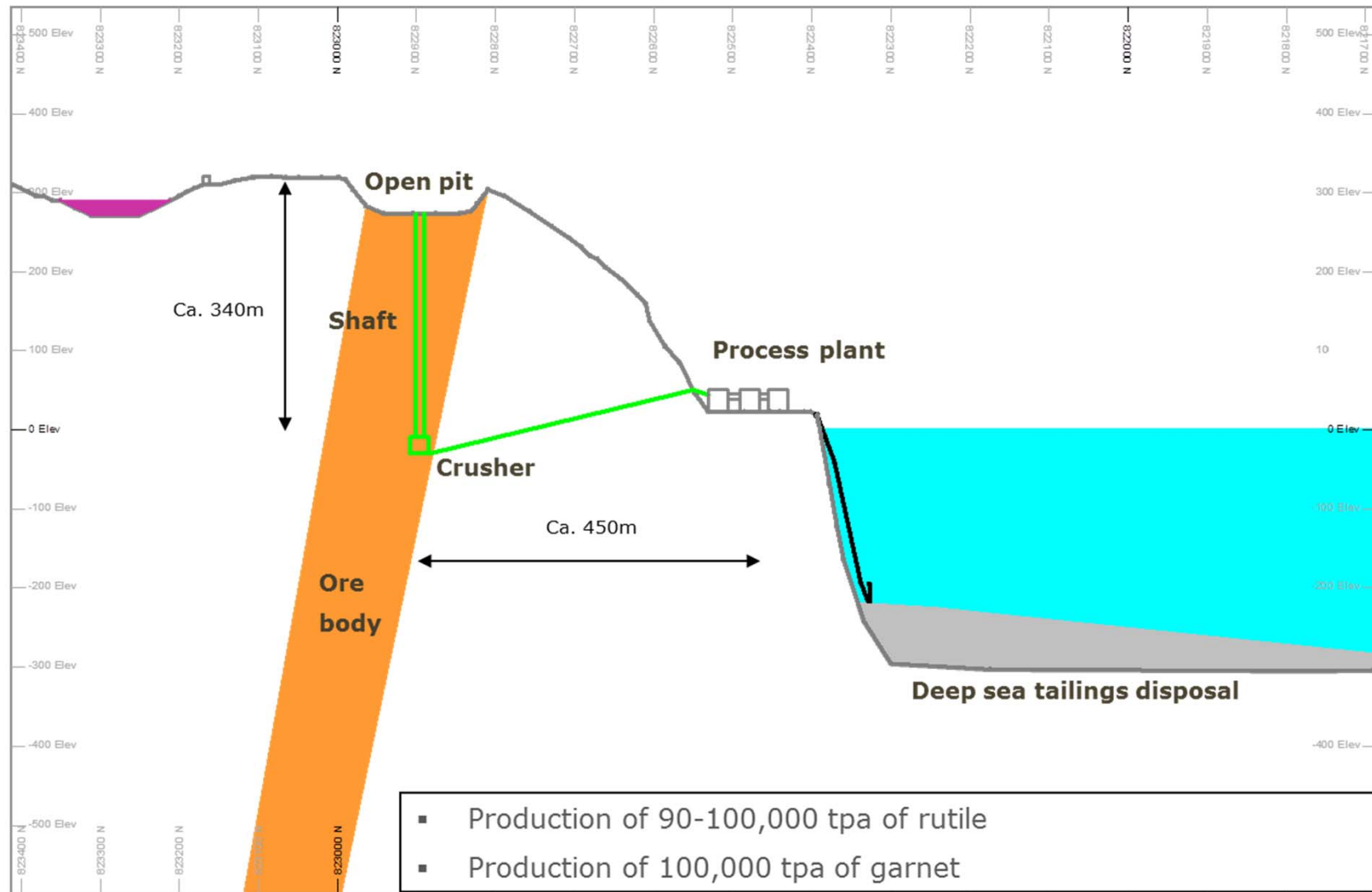


## Garnet, by-product with benefits for the environment

- Preferred sand-blasting medium, replacing sand with contents of free silica
- Garnet is used as the primary cutting medium in water-jet cutting machines
- Annual global production of garnet is approximately 2 million tonnes
- Broad price range depending of qualities
- Water-jet quality is typically sold for USD 445 per tonne delivered in Norway
- MOU signed with a reputable international industrial minerals producer



# Favourable project logistics and configuration



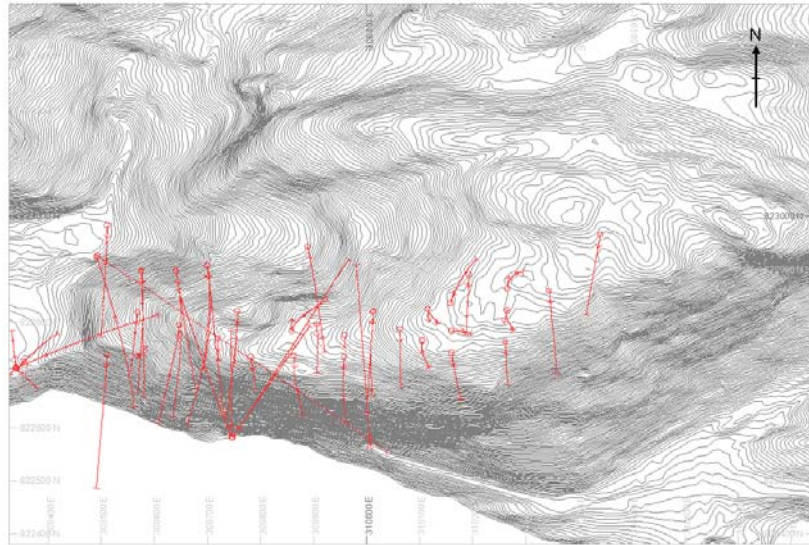
Principle illustration

Efficient and area-tight concept, minimum transportation costs



# Well-defined deposit

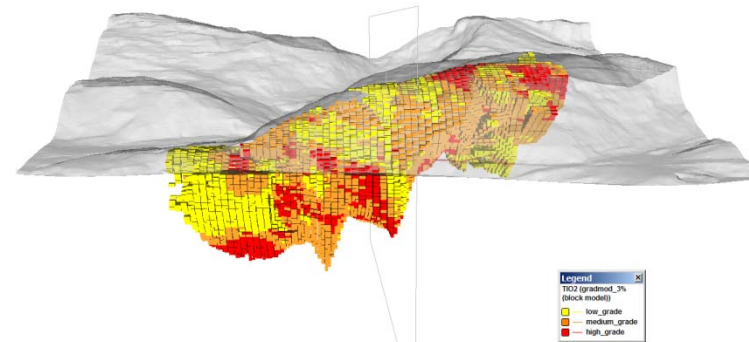
Total of 50 exploration drill holes



- 50 drill holes (15,000 meters)
- 1,129 surface samples
- > 50 000 TiO<sub>2</sub> analysis
- Block model - ordinary kriging

JORC Resource\*

Resource class JORC	Mill tonnes	TiO <sub>2</sub> % @ 3% cut-off
Indicated	31.7	3.77
Inferred	122.6	3.75
<b>Total</b>	<b>154.3</b>	<b>3.77</b>



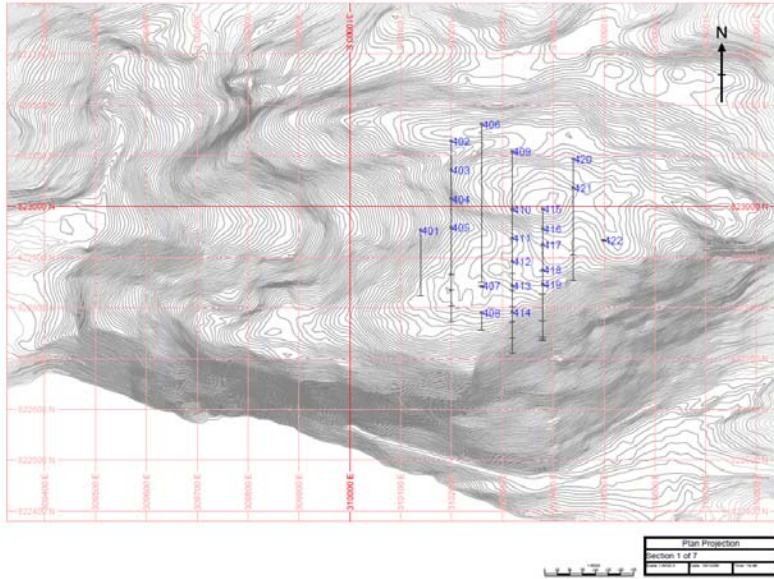
- Planned drilling program of approx. 6,500 meters
- Open pit mining for 10 - 15 years,  
35 - 40 years underground mining
- Open pit strip ratio of 0.45:1 (waste/ore)

Considerable JORC compliant resource estimate with upside potential from additional drilling



Note (\*): Refer to Scoping Study by Wheeler and Dowdell for resource statements

# Core and geo-stat drilling program completed in April 2016



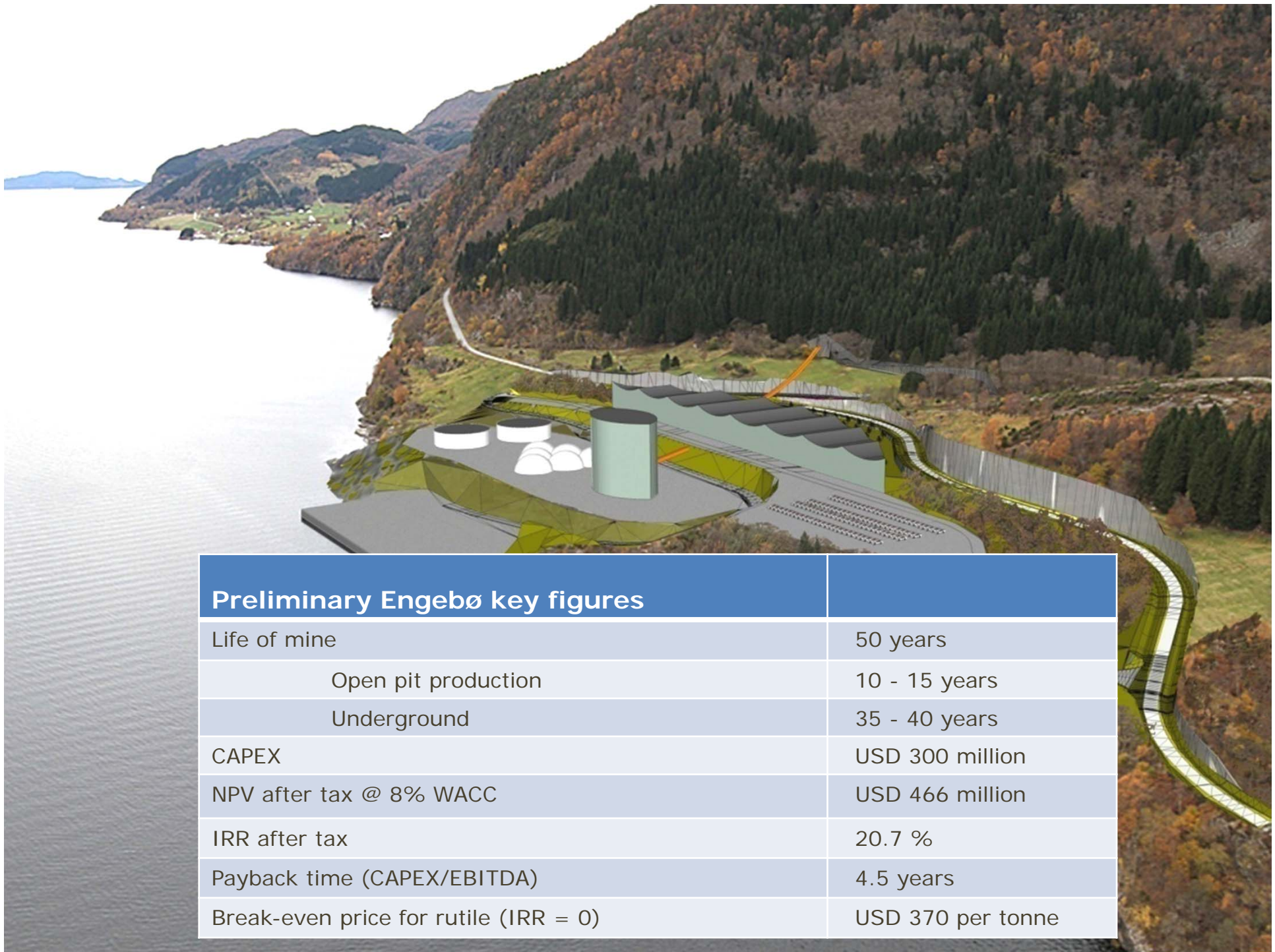
- 38 drill holes of approximately 6,400 meters, primarily in the open pit area – Finnish company Kati contracted
- Geotechnical assessments – is carried out by Wardell Armstrong, UK
- Resource modeling and estimations by Competent person Adam Wheeler, UK



Resource estimations and reclassification expected to be completed in Q3 2016







Preliminary Engebø key figures	
Life of mine	50 years
Open pit production	10 - 15 years
Underground	35 - 40 years
CAPEX	USD 300 million
NPV after tax @ 8% WACC	USD 466 million
IRR after tax	20.7 %
Payback time (CAPEX/EBITDA)	4.5 years
Break-even price for rutile (IRR = 0)	USD 370 per tonne

## Preliminary capital cost and OPEX estimates\*

Capex estimate	USDm
Royalties and land acquisition	13
Infrastructure and civil	83
Mine	17
Crushing facility	22
Wet process package	107
Dry process package	55
Laboratory and misc.	4
<b>Total</b>	<b>300</b>

OPEX estimates (open pit)	USD/t rutile
Ex. by-product credit	550
Incl. by-product credit	185

Peer comparison Sierra Rutile **	USD/t rutile
Incl. by-product credit 2014	646
Incl. by-product credit 2015est.	595-615

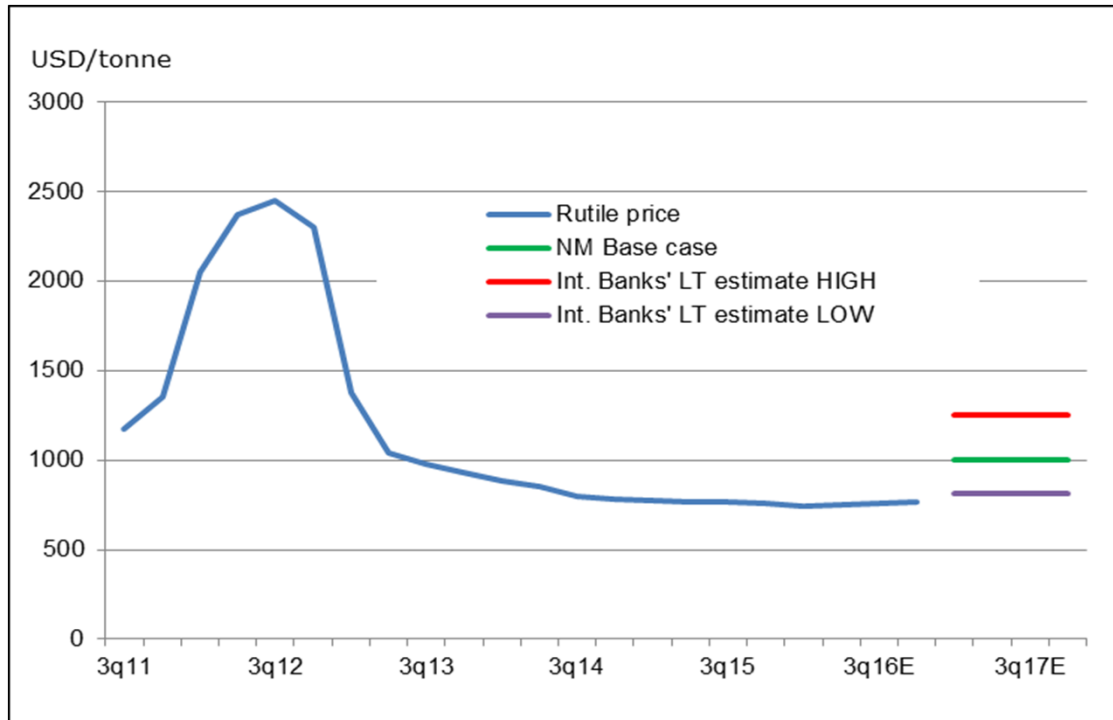
- The preliminary capital cost estimate includes approx. 20% contingency
- Capex review will be part of the continued project planning process
- Total construction time of 24 months
- Deep sea key already in place, ready to use
- Estimates based on comparable operations in Norway and internationally
- By-product credits mainly from garnet which is produced without significant additional costs

Simple ore and product logistics reduce investments, OPEX and overrun risk



Note (\*): Assumptions and estimates are based on preliminary internal assessments  
 Note (\*\*): Company reports

# Positive long-term market outlook - robust project financials\*



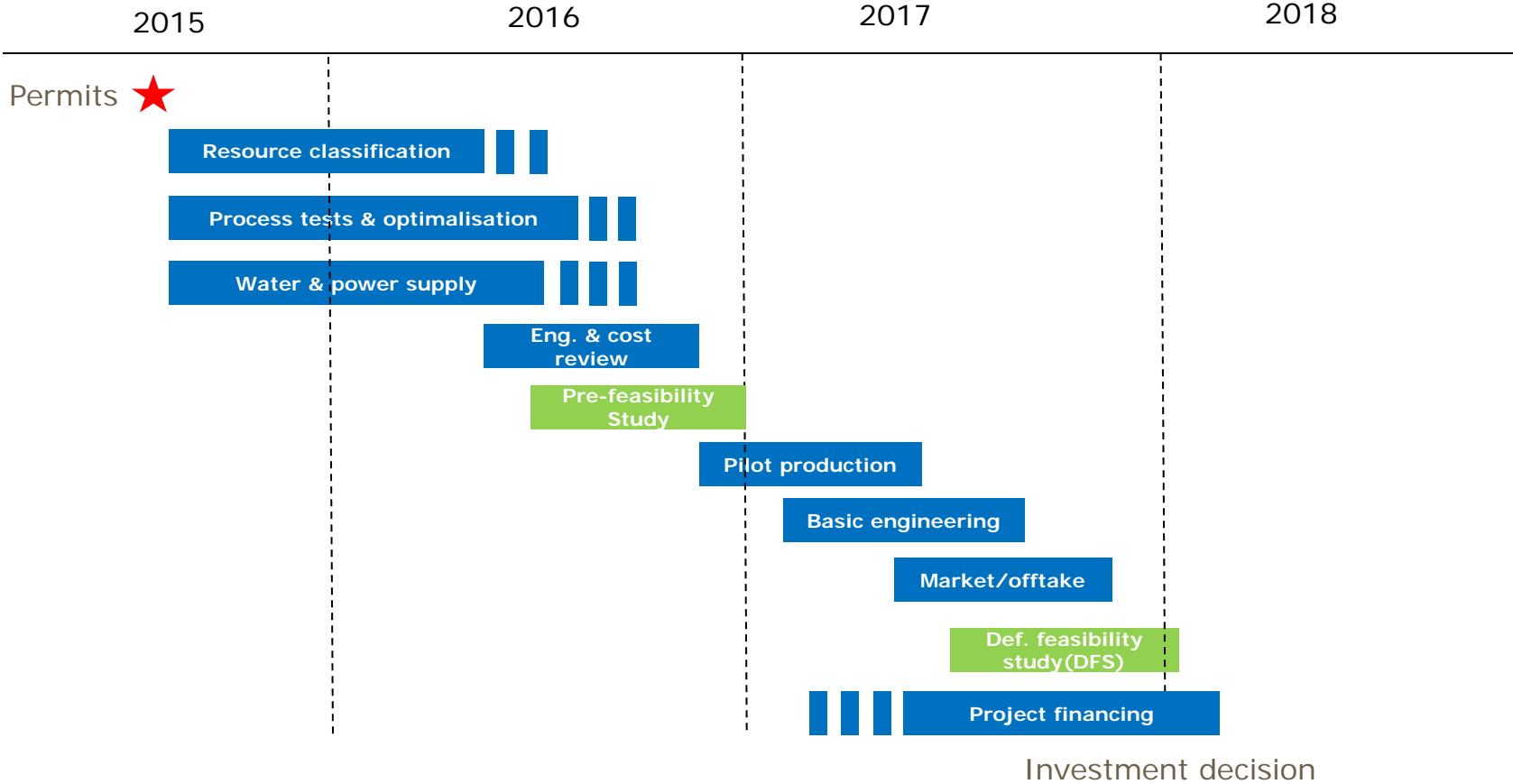
Rutile price scenarios	Low	NM base case	High
	800 USD	1,000 USD	1,250 USD
NPV @ 8% (USD million)	281	466	670
IRR	16.2%	20.7%	25.2%

Market trends and long project lifetime are favourable for project financials



Note (\*): Assumptions and estimates are based on preliminary internal assessments. Long-term rutile prices are Q1 2016 estimates from various international banks following the titanium feedstock industry.

# Project development – tentative timeline





## Development activities towards PFS

Activity	Further description	Cost estimate
Resource classification	<ul style="list-style-type: none"> <li>Core drilling of approx. 6,400 meters completed in the open pit zone; drill core analysis and geotechnical assessments ongoing</li> <li>Resource modeling and estimations in accordance with the JORC Code 2012; targeted completion in Q3 2016</li> </ul>	USD 1.4 million
Process testwork and optimisation	<ul style="list-style-type: none"> <li>Further process tests and optimisation of flowsheet</li> <li>Target: Increased rutile recovery and define cost-effective process solutions</li> <li>Reduce or avoid flotation?</li> </ul>	USD 2.0 million
Engineering and cost review	<ul style="list-style-type: none"> <li>Pre-engineering</li> <li>Updated estimates for Capex/Opex</li> </ul>	USD 0.5 million
Supply of process water and hydropower	<ul style="list-style-type: none"> <li>Assessment of alternatives</li> <li>Applications with supporting documentation</li> </ul>	USD 0.6 million
Technical advisor and PFS coordination	<ul style="list-style-type: none"> <li>Assessment of candidates ongoing</li> </ul>	USD 1.5 million
Project management and overhead	<ul style="list-style-type: none"> <li>Lean project team; project leader and 2– 3 key persons</li> <li>General corporate overhead</li> </ul>	USD 3.4 million
Contingency	<ul style="list-style-type: none"> <li>Approximately 10%</li> </ul>	USD 0.9 million
Total		USD 10.3 million

Permits in place – project development advancing towards PFS



# Keliber - Moving forward in high-grade lithium



## Project highlights

- Estimated 4.5 million tonnes Ore Reserves at an average grade of 1.10%  $\text{Li}_2\text{O}$  in the Proven and Probable categories (JORC Code 2012)\*
- Demonstrated +99.9% Lithium Carbonate product suitable for advanced battery applications, i.a. for EV/HEV
- Estimated NPV after tax @ 8% of EUR 97 million in Pre-Feasibility Study completed in March 2016
- Estimated payback time of approx. 4 years



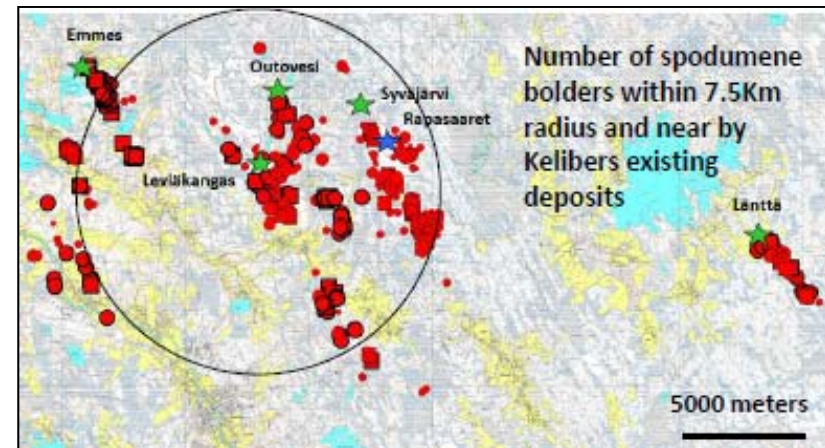
## Key features

- Mining licence and environmental permit in place for the Länttä deposit, and environmental permit also valid for the Kalavesi processing plant
- Located close to processing industry cluster with excellent infrastructure and port facilities
- Expected high growth rate for rechargeable batteries; both for EV/HEV and for renewable energy storage
- Tightening supply/demand balance for Lithium Carbonate; ongoing price surge expected to continue



## Prosperous lithium province provides exploration opportunities

Ore Reserves				
Category	Deposit	kt	Li2O%	JORC
Proven	Länttä	470	0,95	2012
Probable	Länttä	540	0,93	2012
	Syväjärvi	1 480	1,19	2012
	Rapasaari	1 750	1,09	2012
	Outovesi	250	1,20	
<b>Proven and Probable</b>		<b>4 490</b>	<b>1,10</b>	



- Keliber's exploration drilling programs have tripled the JORC compliant Mineral Resource tonnage during 2013–2015
- All deposits will be mined as open pits
- All deposits are located within a 10–20 km distance from the processing plant
- The Central Ostrobothnia lithium province covers over 500 km<sup>2</sup> and is one of the most significant lithium areas in Europe
- The province provides excellent opportunities for exploration
- Keliber has secured several Exploration Rights and targets to increase the operative time for the project through successful exploration

## Positive Pre-Feasibility Study financials

Preliminary Keliber key figures	
Production capacity, Lithium Carbonate (Li <sub>2</sub> CO <sub>3</sub> )	9,000 tpy
Ore processing capacity	400,000 tpy
Operative time (current open pit deposits)	11 years
CAPEX	EUR 164 million
NPV after tax @ 8% WACC	EUR 97 million
IRR after tax	21%
Payback time from start-up	4 years

- Market analysis and assumptions for the Pre-Feasibility Study (PFS) provided by the consultancy company signumBOX in November 2015
- The price development in the last part of 2015 and 2016 YTD has significantly outperformed the price assumptions in the PFS
- According to market information, technical grade Lithium Carbonate (99%) is currently trading at a price level of USD 13,000 – 14,000 per tonne; battery-grade qualities (>99.5%) trade higher
- Bankable Feasibility Study targeted for completion mid-2017



# Nordic Quartz (100%) - Development in High Purity Quartz



## Project highlights

- JORC compliant resource estimates of 2.9 million tonnes (indicated) and 1.3 million tonnes (inferred), with average quartz content of 65%\*
- Substantial volumes in massive quartz zones (>95% quartz content)\*
- Estimated NPV of USD 60 million @ 8% WACC in scoping study (2012) based on annual production of 5,000 tonnes of HPQ
- Demonstrated superior product quality for advanced applications/markets

## Key features

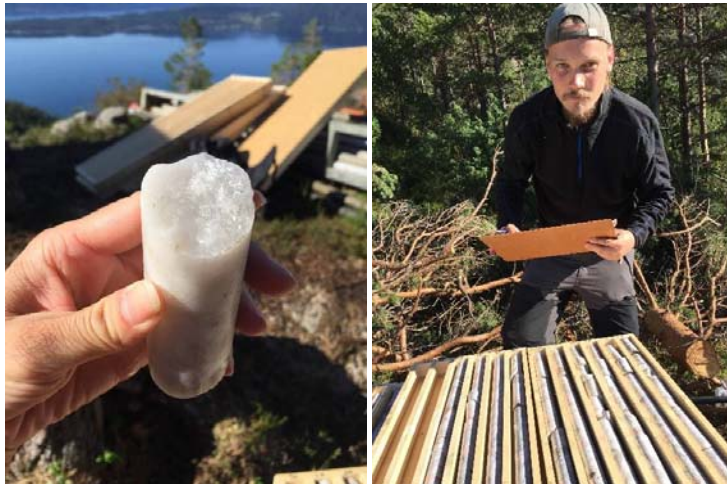
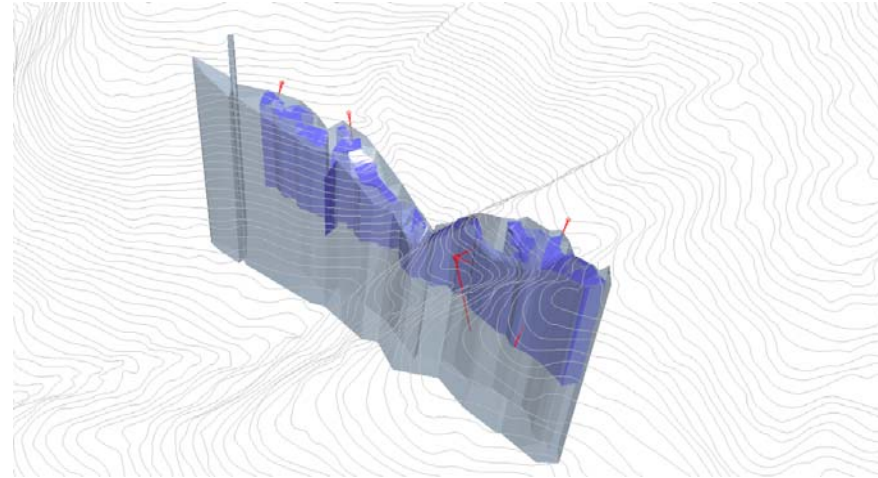
- Outcropping hydrothermal quartz deposit
- Low in critical elements as Ti, Al, Fe, P, Na, K, Li, B
- Ideally situated, close to infrastructure and port
- Small-scale mining operation for HPQ production; 20 – 30,000 tonnes ore per year
- Limited environmental impact

Bringing a new long term supplier to the HPQ industry



Note (\*): Competent Person Lars-Åke Claesson, a titled European Geologist in accordance with the Federation of European Geologists

# Preliminary core drilling completed in 2015



Indicated: 2,9 million tonnes  
Inferred: 1,3 million tonnes



# Scoping study\* reveals robust project financials

## Project highlights

- Small-scale mining operation; 20,000 – 30,000 tonnes per year
- 30 - 40 employees
- Limited environmental impact
- High purity and high value products require advanced processing facilities

Quality	Total impurities (ppm)	SiO <sub>2</sub> %
<b>Nordic Quartz</b>	13	99.9987
IOTA Std	19	99.9981
IOTA 4	12	99.9988
IOTA 6	11	99.9989

Key assumptions and figures	Units	Scoping study
Annual production/sales of HPQ	Tonnes	5,000
Average HPQ product price	USD/tonne	6,700
Operating cost	USD/tonne	4,000
CAPEX	USD million	49
NPV after tax @ 8% discount rate, 30 yrs LOM	USD million	60
IRR after tax	%	20.5
Pay-back time (CAPEX/EBITDA)	Years	4.3

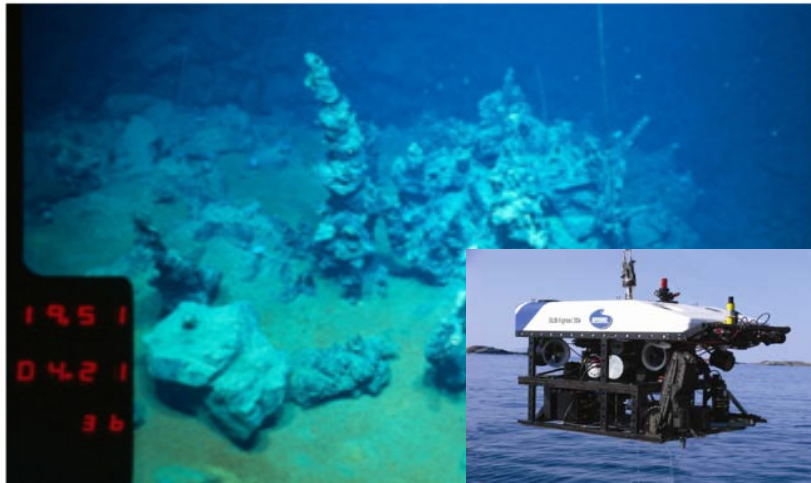






**NORDIC OCEAN  
RESOURCES AS** (80%)

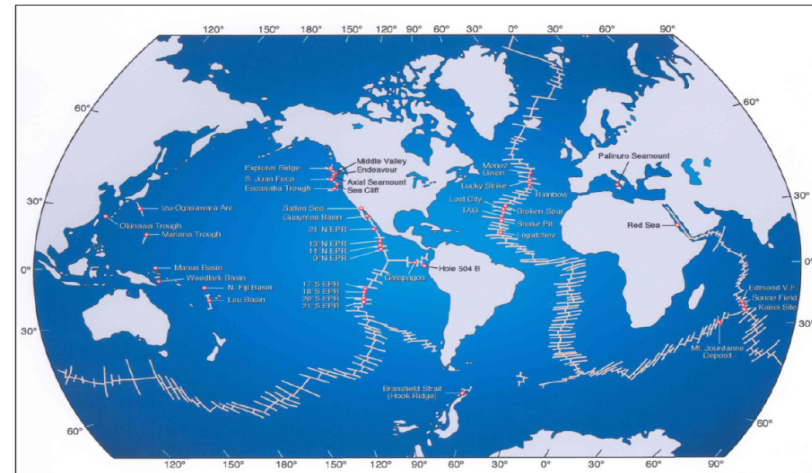
## Pioneer in seabed mineral exploration in Norway



Company highlights

- Nordic Ocean Resources (NORA) has taken a pioneering initiative for exploration of Norway's seabed mineral resources
- NORA has established in-house competence and excellent network with national and international companies and institutions
- NORA has participated in a pre-project for the first estimation of possible mineral resources in the Norwegian Economic Zone (EEZ)

Leveraging Norway's subsea technology



Company highlights

- NORA has applied for exploration licenses in the Norwegian Economic Zone, and has ambition to be the first company exploring for seabed minerals in Norway
- NORA participates in the MARMINE project having received NOK 25 mill. in grants from the Norwegian Research Council
- The MARMINE project will follow up the pre-project and contribute to the knowledge base for seabed mineral resources





# MarMine – A new R&D initiative with significant financial support

- The MarMine project was formally established 17 December 2015 with approximately NOK 25 million in financial support from the Norwegian Research Council
- NORA participates together with 13 industrial partners with a joint financial contribution of approximately NOK 6 million
- MarMine participants, companies and institutions:
  - Statoil
  - Nordic Ocean Resources AS
  - Technip Norge AS
  - DNV GL
  - DCNS, France
  - Scan Mudring
  - Kongsberg Maritime
  - Fugro Norway AS
  - NIVA
  - Ecotone
  - Store Norske Spitsbergen Kulkompani AS
  - Leonhard Nilsen AS
  - National Oilwell Warco
  - GCE Node (77 member companies from the southern part of Norway)
- The project is managed by NTNU and include i.a. an exploration cruise on the MAR in 2016, with i.a. mineral sampling, analyses and process test work



# Investment highlights

OAX: NOM

## Titanium - Natural Rutile

- World class rutile deposit; 50 years mine life and highest global TiO<sub>2</sub> grade
- Favourable location and logistics; competitive Capex/Opex
- Internal NPV estimate (8%) of USD 466 million
- Environmental permit for 50 years operation (zoning plan and discharge permit)



Titanium – Natural Rutile

## Lithium

- JORC classified Ore Reserves in the Proven and Probable categories; 4.5 million tonnes at an average grade of 1.10% Li<sub>2</sub>O
- Pre-Feasibility Study finalised in March 2016; Estimated NPV (8%) of EUR 97 million



Lithium

## High Purity Quartz

- JORC compliant resource in green-tech mineral
- Estimated NPV (8%) of USD 60 million in 2012 Scoping Study



High Purity Quartz

- ***With a sum of the projects' NPVs in excess of USD 550 million compared to current market capitalisation of c. USD 35 million, NOM has a significant value potential***
- ***High equity ratio (92% as per 31.12.2015) and no interest-bearing debt***
- ***Well positioned to exploit its full potential through, amongst other, taking more advantage of international industrial and financial relations***



*Safety – Environment - Innovation*



*[www.nordicmining.com](http://www.nordicmining.com)*

# Appendix





# Board of Directors and Management

## Board of Directors



### **Tarmo Tuominen, Chairman**

Chief Supply Chain Officer in the Finnish mineral group Nordkalk. Geologist with broad mining experience. Chairman of the Geological Survey of Finland (GTK).



### **Kjell Roland, Deputy chairman**

CEO of Norfund, the Norwegian Investment Fund for Developing Countries. Roland holds a Master of Science in Economics from the University of Oslo, Norway. Roland has been a partner and CEO in ECON Management AS and ECON Analysis.



### **Mari Thjømøe, Board member**

Extensive executive and board experience from oil and gas, finance and investment management (e.g. Statoil, Norsk Hydro and KLP). Thjømøe holds a Master of Science in Business Administration from the Norwegian School of Management (BI) in Oslo, Norway.



### **Hilde Myrberg, Board member**

Extensive executive and board experience from oil and gas, power and consumer industries (e.g. Norsk Hydro and Orkla). Myrberg is a lawyer from the University of Oslo, Norway and has a MBA from INSEAD, France.



### **Tore Viana-Rønningen, Board member**

VP in Dag Dvergsten AS, Norway. Previous experience from Barclays Capital and Barclays Natural Resource Investments. Viana-Rønningen holds a Master of Science in Economics and Business Administration from the Norwegian School of Economics (NHH) in Bergen, Norway.

## Management



### **Ivar S. Fossum, CEO**

Fossum holds a Master of Science in Mechanical Engineering from the University of Science and Technology in Trondheim, Norway. He has 20 years experience from management positions in Norsk Hydro (oil/gas and fertilizers) and FMC Technologies. Fossum has a broad international experience and has been general manager of Norsk Hydro East Africa Ltd. in Nairobi, Kenya.



### **Lars K. Grøndahl, CFO**

Grøndahl holds a Master of Science in Economics and Business Administration from the Norwegian School of Economics in Bergen, Norway. He has broad experience from industrial management positions in i.a. Aker, Scancem Group and HeidelbergCement.



### **Mona Schanche, Exploration Manager**

Resource geologist from the University of Science and Technology in Trondheim, Norway with 10 years experience from the mining sector. She has previous experience as project geologist in Titania (Kronos Group), a major producer of pigment feedstock.



### **Thomas B. Addison, MD Nordic Rutile**

Mining Engineer from the University of Science and Technology in Trondheim, Norway. Addison has 30 years experience within mining and mineral processing for Elkem, SNSK, Orkla Exolon, Hanson Quarry Products Europe and Franzefoss Minerals.

Differentiated mining and industrial experience combined with extensive network



# Shareholder structure and share price development

## Largest shareholders\*

	Name of shareholder	No. of shares	%
1	NORDNET BANK AB (NOMINEE)	30 299 980	7,9 %
2	SKAGEN VEKST	15 819 516	4,1 %
3	NORDEA BANK PLC FINL. CLIENTS ACC. (NOMINEE)	14 482 524	3,8 %
4	NORDNET LIVSFORSIKRING	12 140 846	3,1 %
5	DYBVAD CONSULTING AS	9 384 366	2,4 %
6	OVE KLUNGLAND HOLDIN NIL	7 023 696	1,8 %
7	DANSKE BANK A/S (NOMINEE)	6 889 104	1,8 %
8	MAGIL AS	6 500 000	1,7 %
9	SNATI AS	6 000 000	1,6 %
10	CITIBANK N.A. S/A POHJOLA BANK PLC (NOMINEE)	5 885 697	1,5 %
11	INFOSAVE AS	5 144 863	1,3 %
12	LITHION AS	4 167 898	1,1 %
13	OLE KRISTIAN G. STOKKEN	3 736 721	1,0 %
14	AUDSTEIN DYBVAD	3 156 000	0,8 %
15	FEMCON AS	3 080 316	0,8 %
16	ADURNA INVEST AS	3 079 993	0,8 %
17	OLAV BIRGER SLETTEN	3 040 000	0,8 %
18	REIDAR JARL HANSEN	2 810 124	0,7 %
19	JON HOVDEN	2 700 000	0,7 %
20	FRANK MOLANDER	2 600 000	0,7 %
	<b>Top 20 shareholders</b>	<b>147 941 644</b>	<b>38,4 %</b>
	Others	237 563 161	61,6 %
	<b>Total</b>	<b>385 504 805</b>	<b>100,0 %</b>

## Share overview and share price development\*

### Share overview

Stock symbol	NOM
Stock exchange	Oslo Axess
Number of issued shares	385 504 805
Owned by Norwegian shareholders	82%
Owned by international shareholders	18%
Owned by management	2.6%
Options (valid to 18 May 2016)	12 750 000
- of which owned by management	11 500 000
Fully diluted number of shares	398 254 805
Current share price (NOK)	0,71
Market capitalisation (NOKm)	274
Trading range YTD (NOK)	0.53 - 0.82



# Consolidated Statements of Financial Position

<i>(Amounts in NOK million)</i>	31.12.2015 Audited	31.12.2014 Audited
<b>ASSETS</b>		
Exploration and evaluation assets	9.8	6.8
Property, plant and equipment	0.1	-
Investment in an associate	6.2	11.1
<i>Total non-current assets</i>	<i>16.1</i>	<i>17.9</i>
Cash and cash equivalents	29.8	14.4
Trade and other receivables	1.0	2.1
<i>Total current assets</i>	<i>30.8</i>	<i>16.5</i>
<b>Total assets</b>	<b>46.9</b>	<b>34.4</b>
<b>SHAREHOLDERS' EQUITY AND LIABILITIES</b>		
<i>Total equity</i>	<i>43.2</i>	<i>30.8</i>
Total non-current liabilities	1.9	1.4
Total current liabilities	1.9	2.1
<i>Total liabilities</i>	<i>3.8</i>	<i>3.6</i>
<b>Total equity and liabilities</b>	<b>46.9</b>	<b>34.4</b>



# Preliminary financial estimates for the Engebø rutile project\*

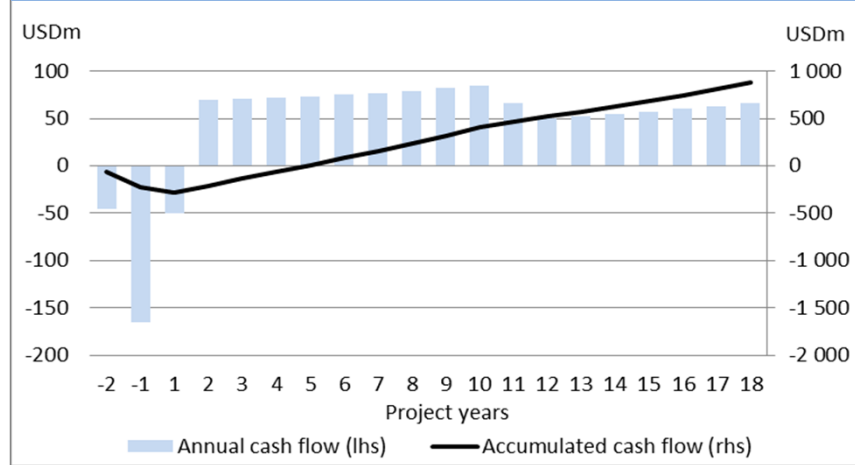
## Main assumptions

CAPEX:	USD 300m
Rutile recovery rate:	55%
Ore production:	4 million tonnes p.a.
Rutile production:	87,000 tonnes p.a.
Rutile price:	USD 1,000/t
Garnet price:	USD 300/t
Mine life:	50 years
OPEX (open pit):	USD 550/t ex. by-product credit
	USD 185/t incl. by-product credit

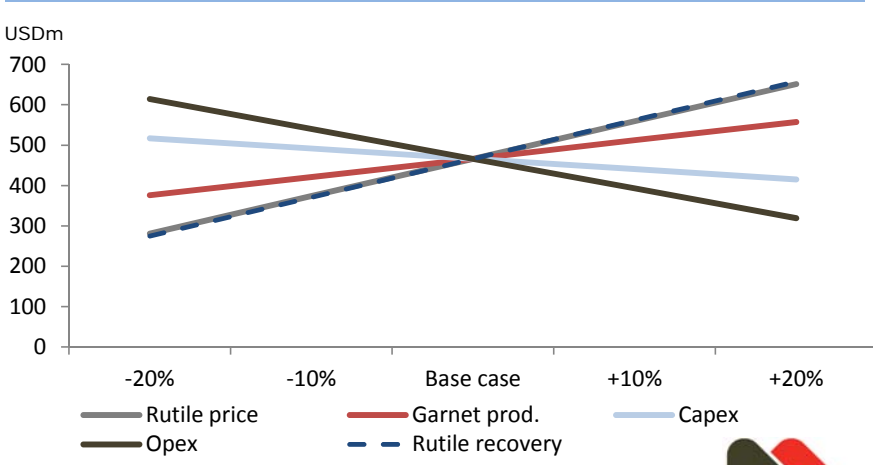
## Key figures

NPV @ 8% WACC:	USD 466m (after tax)
IRR	20.7%
Payback time:	4.5 years
EBITDA % open pit:	55-60%
EBITDA % underground:	30-35%
Break even price, rutile:	USD 370/t (IRR = 0)

## Cashflow projection



## NPV sensitivity to key input factors



Long project lifetime - short payback time

Note (\*): Assumptions and estimates are based on preliminary internal assessments





# Completed core drilling has provided JORC compliant quartz resource estimates

6 holes drilled of a total of 600 meters

	tonnage ton	hydrothermal quartz %	hydrothermal quartz content ton
<b>Indicated resources</b>			
Transition zone	1 467 000	40	587 000
Semi-massiv zone	631 000	80	505 000
Massive quartz zone	<u>849 000</u>	<u>95</u>	<u>807 000</u>
	2 922 000	65	1 899 000
<b>Inferred resources</b>			
Transition zone	645 000	41	264 000
Semi-massiv zone	199 000	79	157 000
Massive quartz zone	<u>497 000</u>	<u>95</u>	<u>472 000</u>
	1 341 000	66	893 000

