CLEANTEQ
Powering innovation

IVANHOE MINES
NEW HORIZONS

VRB ENERGY
Vanadium Redox Battery Solutions

An Electrifying World

Materials efficiency and value creation in the supply chain

Robert Friedland

Nancy, June 2019

WORLD MATERIALS FORUM

Cautionary statement

Certain statements in this presentation constitute “forward-looking statements” or “forward-looking information” within the meaning of applicable securities laws. Such statements involve known and unknown risks, uncertainties and other factors, which may cause actual results, performance or achievements of Clean TeQ Holdings Limited, Ivanhoe Mines Ltd., the Clean TeQ Sunrise Project (“Sunrise”, the “Project” or the “Sunrise Project”), or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements or information. Such statements can be identified by the use of words such as “may”, “would”, “could”, “will”, “intend”, “expect”, “believe”, “plan”, “anticipate”, “estimate”, “scheduled”, “forecast”, “predict” and other similar terminology, or state that certain actions, events or results “may”, “could”, “would”, “might” or “will” be taken, occur or be achieved. These statements reflect the Company’s current expectations regarding future events, performance and results, and speak only as of the date of this presentation.

Statements in this presentation that constitute forward-looking statements or information include, but are not limited to: statements regarding the negotiation and conclusion of further offtake agreements; the settlement of completion of a term sheet from the MLA group prior to the FID; the potential investment by a strategic investor and/or additional financing; completing of final design and detailed engineering work; making a Final Investment Decision; statements relating to the timing of commencement and/or completion of construction of the Clean TeQ Sunrise Project, commissioning, first production and ramp up; and the potential for a scandium market to develop and increase.

In addition, all disclosure in this presentation related to the results of the Sunrise Project’s Definitive Feasibility Study (the “DFS”) announced on June 25, 2018, constitute forward-looking statements and forward-looking information. The forward-looking statements includes metal price assumptions, cash flow forecasts, projected capital and operating costs, metal recoveries, mine life and production rates, and the financial results of the DFS. These include statements regarding the Sunrise Project IRR; the Project's NPV (as well as all other before and after taxation NPV calculations); life of mine revenue; average annual EBITDA; capital cost; average C1 operating cash costs before and after by-product credits; proposed mining plans and methods, the negotiation and execution of offtake agreements, a mine life estimate; project payback period; the expected number of people to be employed at the Project during both construction and operations and the availability and development of water, electricity and other infrastructure for the Sunrise Project, as well as the indicative project schedule.

Readers are cautioned that actual results may vary from those presented.

All such forward-looking information and statements are based on certain assumptions and analyses made by Ivanhoe and Clean TeQ’s management in light of their experience and perception of historical trends, current conditions and expected future developments, as well as other factors management believe are appropriate in the circumstances. These statements, however, are subject to a variety of risks and uncertainties and other factors that could cause actual events or results to differ materially from those projected in the forward-looking information or statements including, but not limited to, unexpected changes in laws, rules or regulations, or their enforcement by applicable authorities; changes in investor demand; the results of negotiations with project financiers; the failure of parties to contracts to perform as agreed; changes in commodity prices; unexpected failure or inadequacy of infrastructure, or delays in the development of infrastructure, and the failure of exploration programs or other studies to deliver anticipated results or results that would justify and support continued studies, development or operations. Other important factors that could cause actual results to differ from these forward-looking statements also include those described under the heading "Risk Factors" in the Company's most recently filed Annual Information Form available under its profile on SEDAR at www.sedar.com.

Readers are cautioned not to place undue reliance on forward-looking information or statements.

Although the forward-looking statements contained in this presentation are based upon what management of the Company believes are reasonable assumptions, the Company cannot assure investors that actual results will be consistent with these forward-looking statements. These forward-looking statements are made as of the date of this presentation and are expressly qualified in their entirety by this cautionary statement. Subject to applicable securities laws, the Company does not assume any obligation to update or revise the forward-looking statements contained herein to reflect events or circumstances occurring after the date of this presentation.

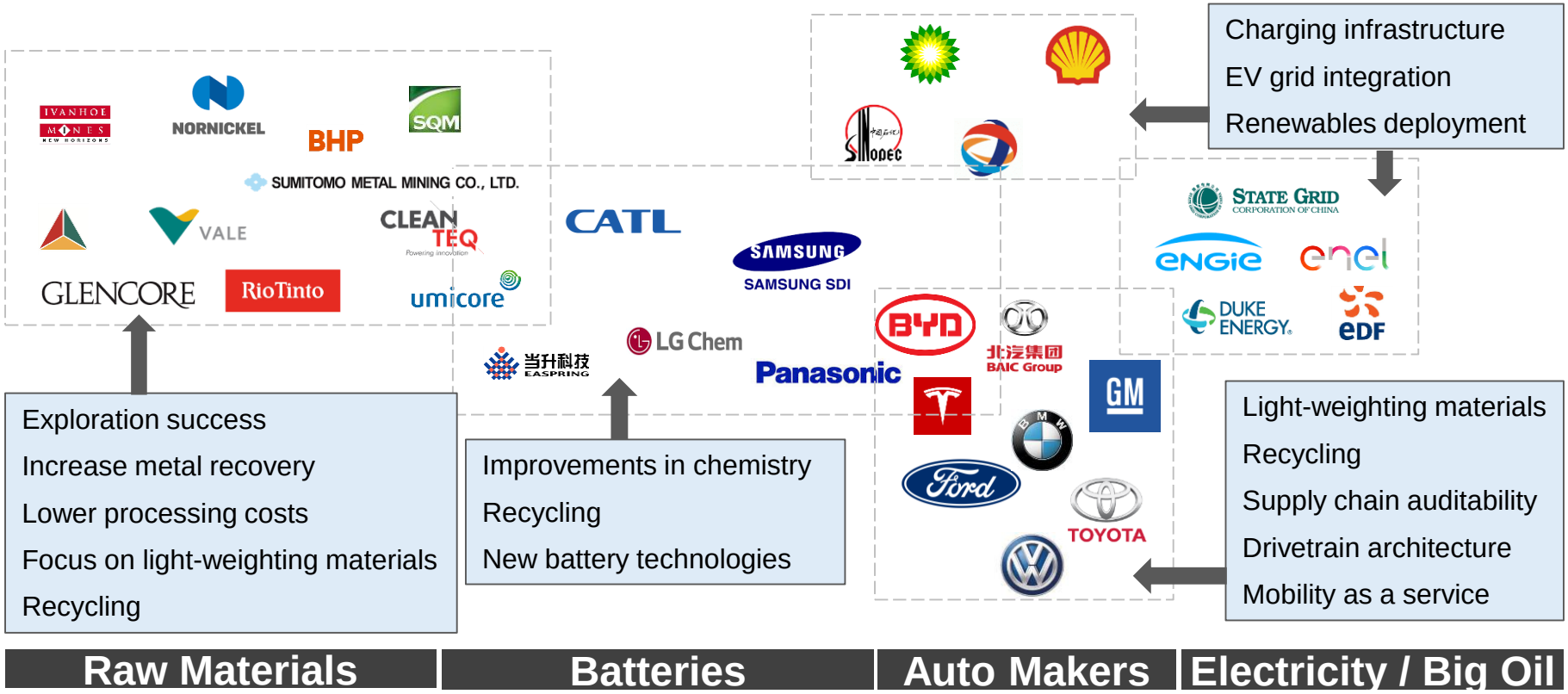
WORLD MATERIALS FORUM

We need to use metals efficiently

Note: Area represents the global sales value of the commodity at today's prices

WORLD MATERIALS FORUM

Areas for efficiency in materials use



Supply chain problems are emerging

Pressure builds on mining industry over supply chains

FINANCIAL TIMES May 2019

Exclusive: Tesla expects global shortage of electric vehicle battery minerals -sources

REUTERS May 2019

Audi Delays First Electric Car Due To Battery Shortage

übergizmo April 2019

LME to ban metal tainted by child labor or corruption

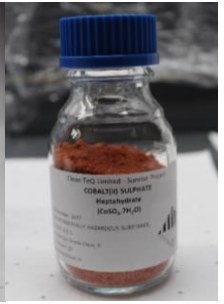
REUTERS April 2019

EV battery maker LG Chem sues SK Innovation, alleges trade secret theft

REUTERS April 2019

WORLD MATERIALS FORUM

New modern mines are needed such as Sunrise... but it takes time



High-value products: ‘direct to sulphate’ technology, to by-pass intermediates

Light-weighting: scandium for next-generation aerospace and automotive alloys

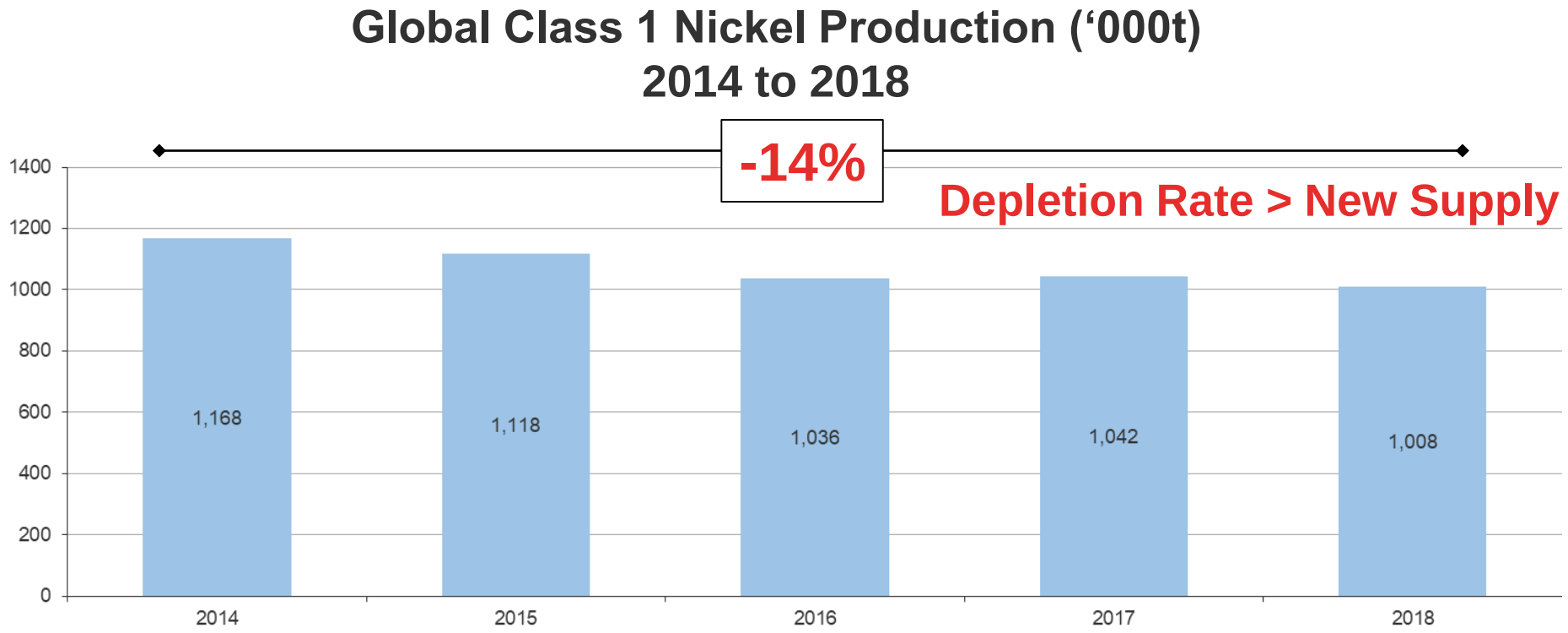
Recycling: Recover secondary metals using the same facility

Reliability: Long-life, low cost operation focused on chemical processing

Reputation: Auditability and small environmental footprint

Location: Established mining jurisdiction in Australia close to Asian markets

Battery metals – mine development takes time



WORLD MATERIALS FORUM

Substitution risk for raw materials

OEM outsourcing of battery development shifts risk to the auto industry (at least until the technology matures)

Cobalt thrifting in NCM811 and NCA cathodes comes with risk

Not all materials can be easily substituted

Replacing cobalt with too much nickel improves energy density but at the expense of stability

WORLD MATERIALS FORUM

Recycling battery metals

- **Regulations will require auto OEMs to take back spent batteries (see China)**
- **There are low recycling rates for lithium ion batteries today**
- **Recycling will be a local activity (transporting batteries is expensive)**
- **We can build a new generation of mines that can also recycle spent cathode**
- **Chemical separation is well understood; the cost of mechanical separation is the challenge**

WORLD MATERIALS FORUM

Cooperation in the supply chain (1)

The world's first bespoke mining operation for the auto and battery industries

- **Clean TeQ's early engagement with the battery industry identified ion exchange as the best process for producing battery-grade nickel and cobalt sulphate**
- **Avoids production of intermediate feedstocks (mixed precipitates) that require additional processing**
- **Removes expensive reagents and increases recoveries through the metal extraction circuit = less waste**
- **Auto industry has identified scandium as a key for light-weighting initiatives**

WORLD MATERIALS FORUM

Cooperation in the supply chain (2)

Practical grid-scale solutions being deployed with China State Grid

- **VRB Energy provides grid-scale energy storage solutions using vanadium redox flow batteries**
- **Recognises the inherent limitations to using lithium chemistries for grid-scale applications**
- **Redox batteries can be discharged over an almost unlimited number of charge and discharge cycles – 25+ year lifecycle with no degradation in all climates**
- **Vanadium electrolyte easily recyclable and retains its value at end of life – more stable and safer**

WORLD MATERIALS FORUM