

The Comparable Transaction Curve – A simplified method to value specialty mineral properties

MiningMatch Network

Agenda – Thursday August 5, 2021

- 5 mins Introduction to the Company
- 5 mins Introduction to Specialty Minerals and Metals
Derick de Wit
- 5 mins Introduction to Valuation of Mineral Assets
Derick de Wit
- 15 mins The Comparable Transaction Curve
Sebastian Vollath
- 10 mins Audience Questions & Answers

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Introduction to M.Plan

MiningMatch Network

Mr. Derick R de Wit
Pr Tech Eng (Chem Eng), FAusIMM, FSAIMM, PMP®, MBA

M.Plan's Integrated Approach

- M.Plan combines the expertise of its shareholding companies Micon International and Dorfner ANZAPLAN
- Full service provider in specialty minerals and metals, and high-value industrial minerals
- Offers integrated technical services from prospect to final product specification:
 - Exploration
 - Mineral Resource and Reserve estimation
 - Analytical testing and continuous pilot campaigns
 - Process development and engineering
 - Environmental and social
 - Market intelligence and economic analysis
- Provides value along entire project development path



We are Experts

Our Focus is Specialties

- M.Plan draws on over 30 years of experience within shareholding companies
- Impressive track record providing consulting services to a range of international clients:
 - Mining companies
 - Financial institutions and investors
 - Trading houses
 - Chemical and automotive industries
- Assignments completed in the following commodities:
 - Lithium
 - Cobalt
 - Nickel
 - Graphite
 - Scandium & Rare Earth Elements
 - Vanadium
 - High purity alumina
 - High purity quartz



Introduction to Specialty Minerals and Metals

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What are Specialty Commodities

Characteristics and Differentiation

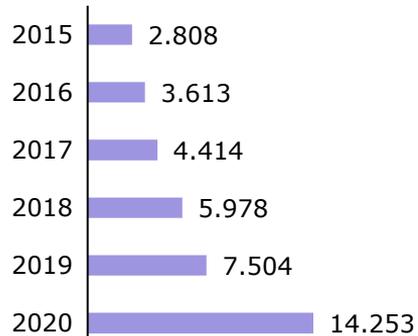
- Highly refined commodities such as battery metals, rare earth elements and high-value industrial minerals
- Excludes base and precious metals, bulk minerals and the energy metals
- Are rare, or geographically limited
- Require novel processing and refining
- Associated with low annual production
- Used in niche, high value and high technology applications
- Unique characteristics limit substitution



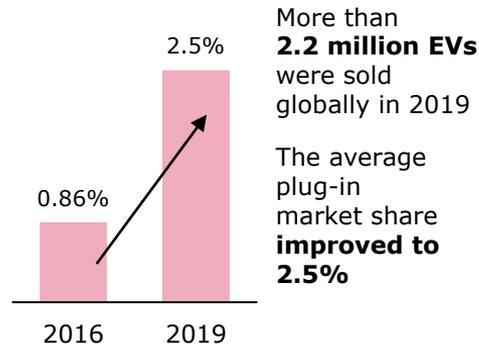
Future Growth Potential of Specialty Commodities

The Global EV drive

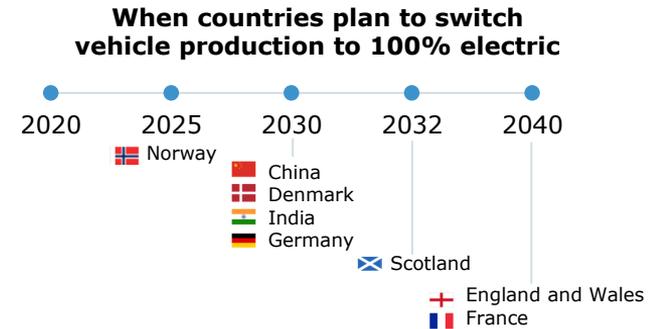
- Deloitte predicted in July 2020 a global EV market CAGR of 29% over the next ten years with EV sales increasing from 2.5 million (2020) to 11.2 million (2025)
- Heavy-duty EV market predicted in 2020 to grow at 9% CAGR to 2025 due to adoption of electric trucks
- EV market growth due to strict automotive emissions limits - EU set 2050 zero greenhouse gas emissions target
- Europe is looking to have a total ban on ICE by 2040
- In 2019, >90% of global car markets by sales had EV incentives
- In Australia EV registrations almost double in 2020



Source: ABS, Motor Vehicle Census, Australia



Source: <https://muchneeded.com>



Source: <https://muchneeded.com>

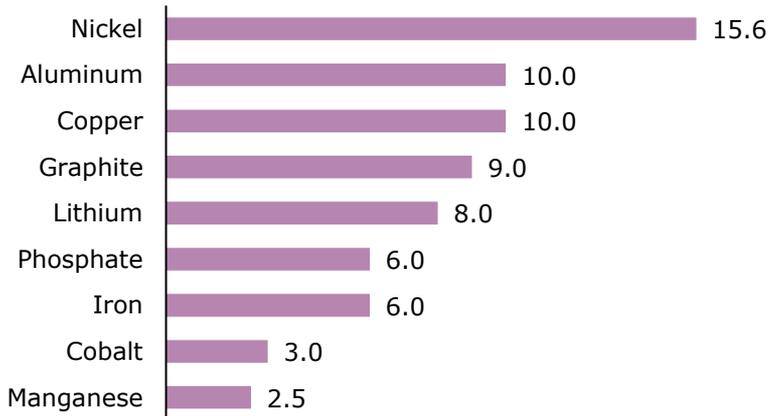
Future Growth Potential of Specialty Commodities

Battery Boom

Rising EV demand supercharges demand forecast for Specialty Commodities

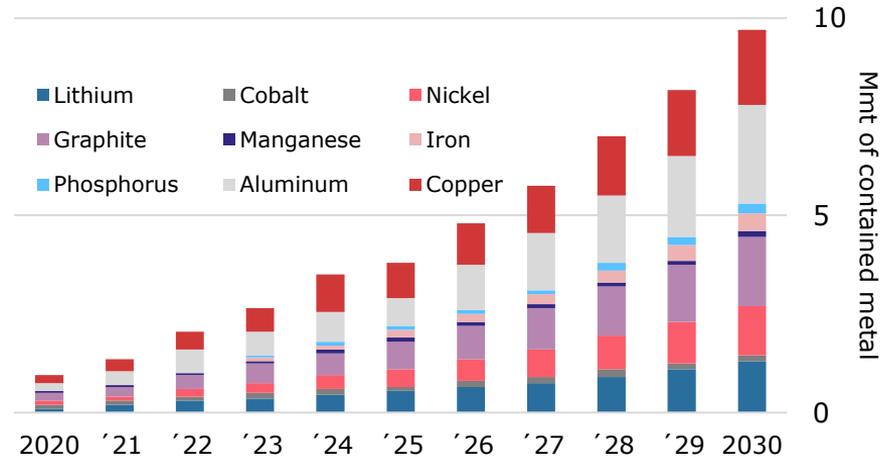
According to Simon Moores, Managing Director of Benchmark Mineral Intelligence: "By 2029, demand for nickel will double, cobalt will grow three times, flaked graphite and manganese by four times, lithium by more than six times. **The tectonic plates of this industry have shifted**"

2018 vs. 2030 projected demand growth from EVs



Source: Bloomberg NEF

Projected demand

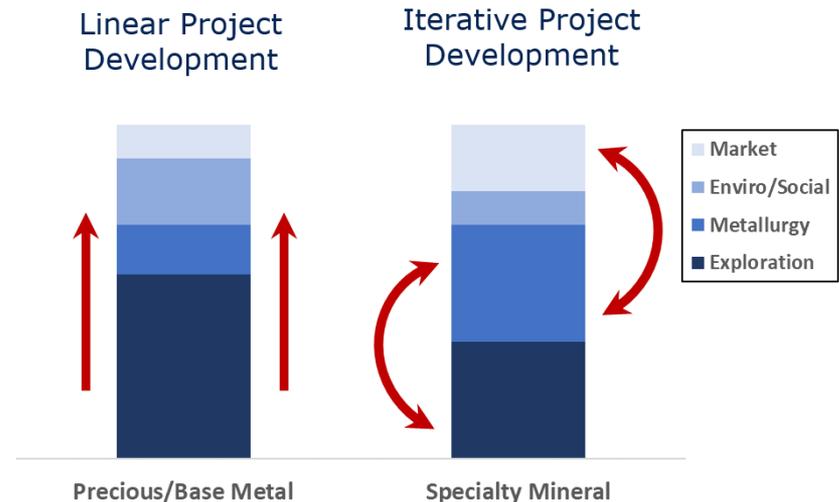


Source: Bloomberg NEF

Specialty Projects are Different

- Contrast with precious and base metals projects
- Specialty commodity projects require an iterative approach
- Key steps:
 - Early testwork evaluates potential market applications and product specification
 - Helps define exploration strategy and targets
 - Further testwork identifies possible process flowsheets, costs and economic potential
 - Complete Mineral Resource and Reserve estimation
- The uniqueness of Specialty Commodities requires a distinctive development and due diligence approach
- M.Plan are specifically tailored for the distinctive requirements of Specialty Commodities

Development Phase Project Risk



Introduction to Mineral Asset Valuation

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Valuation of Mineral Assets

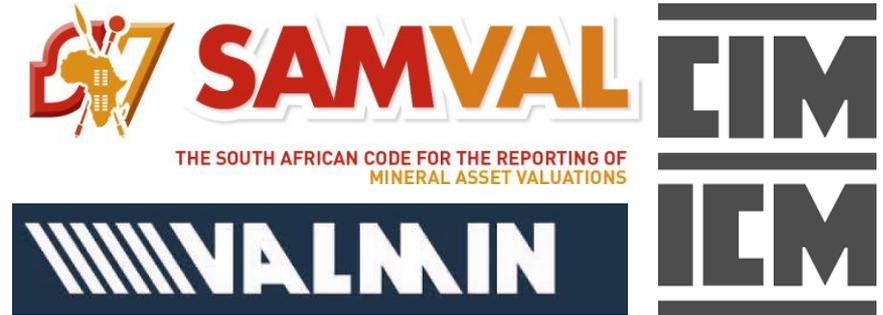
- Valuation of mineral assets is the determination of the monetary value for which the property will transact on a particular date
- Mineral assets are valued for various reasons, e.g.
 - Purchase and sale
 - Insurance
 - Tax assessment
 - Investment and financing
- The three major international mineral asset valuation codes are VALMIN (Australasia), CIMVAL (Canada) and SAMVAL (Southern Africa)
- The standard for mineral property valuation is guided by the IMVAL Template

INTERNATIONAL
MINERAL
VALUATION
COMMITTEE
(IMVAL)

INTERNATIONAL MINERAL PROPERTY
VALUATION STANDARDS TEMPLATE
("IMVAL Template")

(Includes Petroleum)

Third Edition, May 2018



Valuation Approaches for Different Types of Mineral Properties

Cost Approach

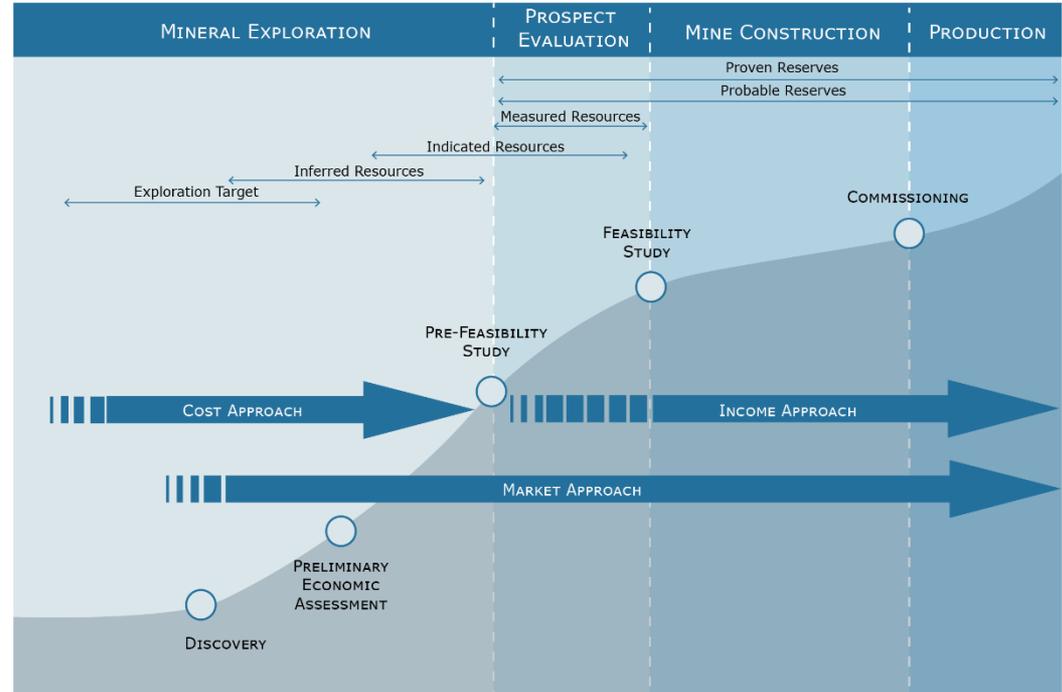
- Based on principle of contribution to value
- Methods include geoscience or Kilburn¹ method, appraised value method², historic cost method

Market Approach

- Based on principle of substitution
- Methods include comparable transactions, market capitalization analysis, and option agreement terms analysis

Income Approach

- Based on principle of anticipation of benefits
- Includes methods based on the income or cash flow generation potential



Note 1: asset value is determined by assigning a value to various, predetermined technical factors

2: an exploration asset is worth the meaningful past exploration expenditures plus warranted future costs to test remaining exploration potential

Market Approach

Applicable to all Development Stages

- Assumption – similar assets have similar (comparable) transaction values under the same:
 - Circumstances
 - Conditions
- Application of a market proxy
 - A basis (simile) to establish a comparable value
- Advantages
 - Straightforward calculations
 - Based on actual market data
 - Applicable to all development stages
- Limitations
 - Difficult to compare mineral assets

Valuation Approach	Exploration Properties	Mineral Resource Properties	Development Properties	Production Properties
Income	No	In some cases	Yes	Yes
Market	Yes	Yes	Yes	Yes
Cost	Yes	In some cases	No	No

Source: CIMVAL Code (2019)

The M.Plan Comparable Transaction Curve

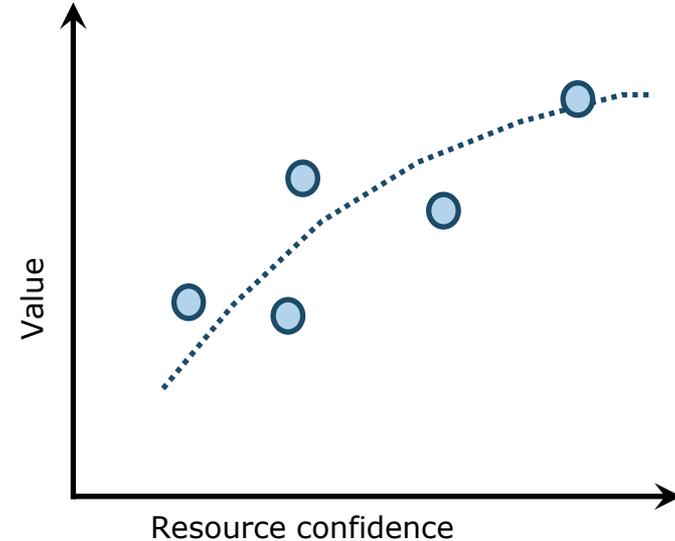
Exemplified through a lithium curve

MiningMatch Network

Mr. Sebastian Vollath
Minerals Economist

Comparable Transaction Curve

- Straightforward display of realistic Market Values for comparable mineral assets in a graphical plot
- Utilization of Market Approach
 - Applicable to assets from exploration to operation
 - Comparable transaction method
 - Market capitalization method
- US\$ per tonne of contained metal as comparable unit
- **Methodology recently independently endorsed by one of the four major international accounting firms**



Comparable Transaction Curve

Well established Approach – Applied both in industry and academia

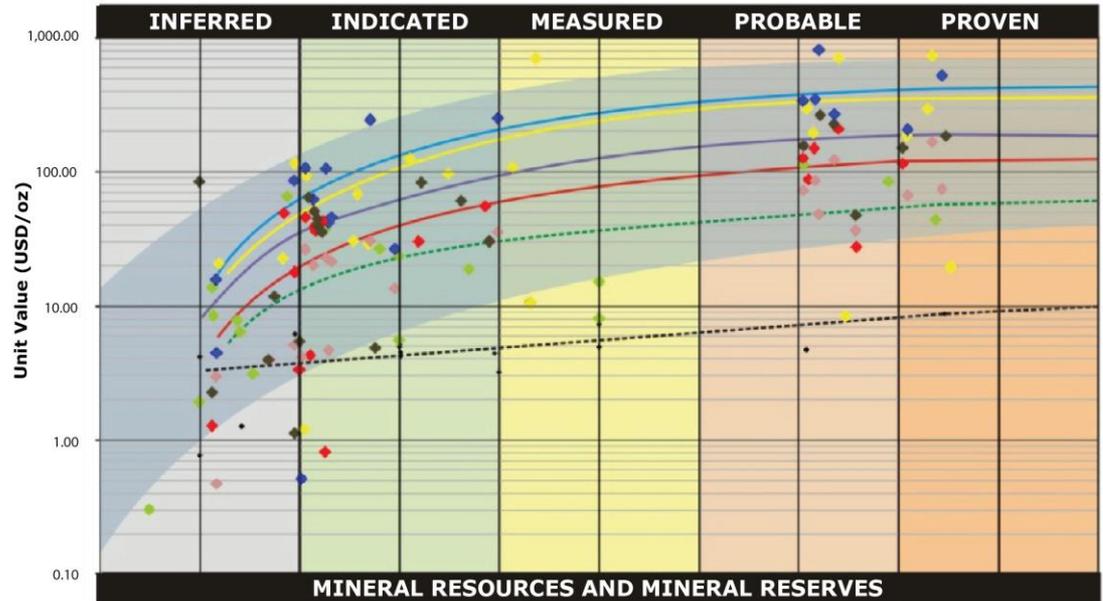
Development and implementation of a PGE mineral asset valuation curve

G. NJOWA*, C. MUSINGWINI†, and A. CLAY*

*Venmyn Rand

†School of Mining Engineering, University of Witwatersrand

Deloitte.



Njowa et al. (2010)

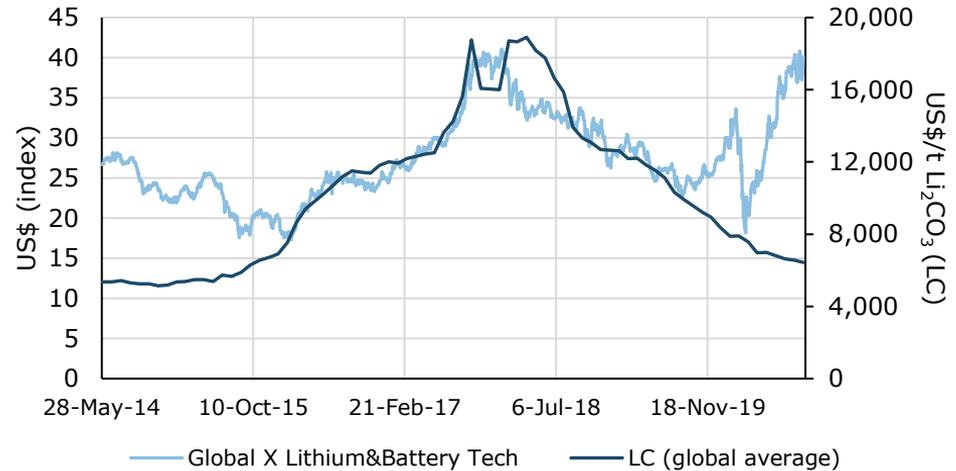
Comparable Transaction Curve

Data Requirements

- Data sources
 - S&P Global Market Intelligence database as reliable data source
 - Publicly available reports and SX filings
- Code-compliant Mineral Resources and Reserves
 - Resource and Reserve size
 - Grade
 - Potential by-products
- Transaction costs
 - Correction based on commodity index or price
- Asset owners' market capitalization
 - 3-month-average

S&P Global

Market Intelligence



Comparable Transaction Curve

Constructing the Lithium Curve

X-Axis

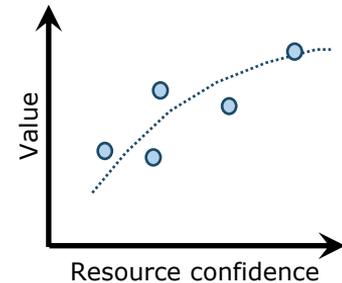
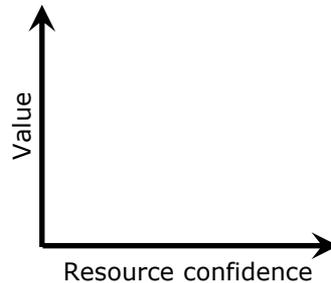
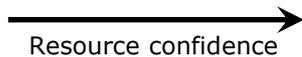
- Resource and Reserve classification - weighted average
- Account for variable proportions of different confidence classes
- Calculation of attributable Resource and Reserve base

Y-Axis

- Value as US\$ per tonne contained Li_2O
- Generation of one data point for each asset
- Usage of Resource or Reserve depends on comparable assets

Data

- Based solely on comparable types of assets
- Only assets with code-compliant Resources and Reserves considered
- Relative recent transactions or commodity index adjustment



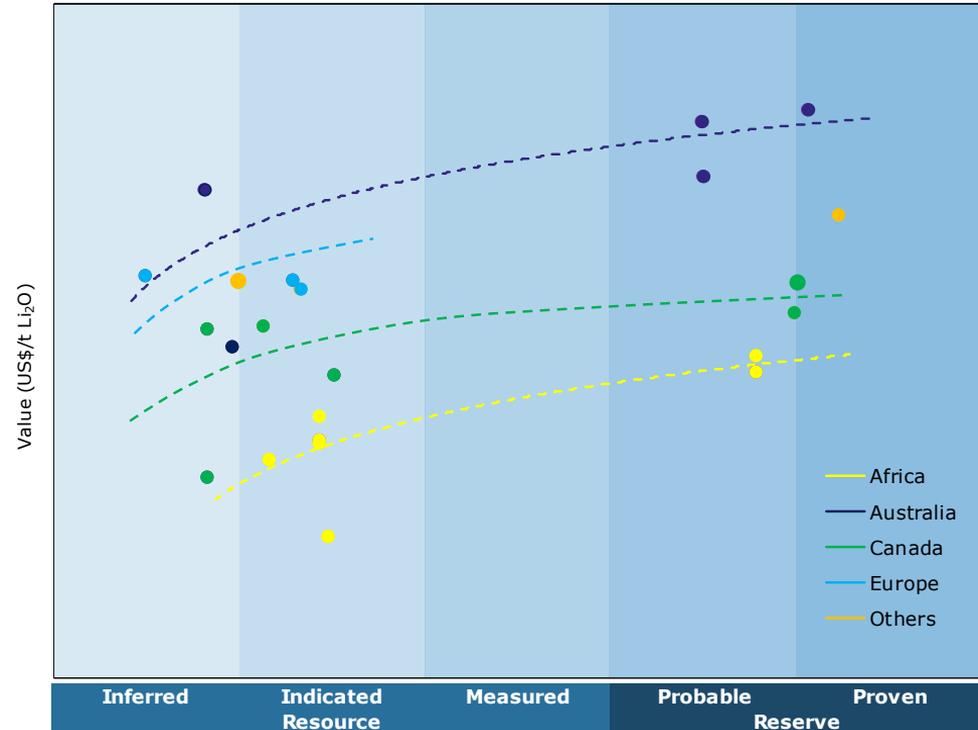
Comparable Transaction Curve

Findings:

- Value increase depending on:
 - Development stage
 - Resource and Reserve certainty
- Policy, infrastructure, and geopolitical risk strongest value driver
- Value influenced by mine type and production of value-added products

Applications:

- Establish relative price range for mineral asset, e.g. for acquisitions and disposals
- Impairment testing
- Comparison against other valuation methods
- Insurance value determination



Complementation of Service Portfolio

Specialty's – from exploration to production

	Exploration	PEA	PFS	FS	Construction	Production
Exploration advice and services	█					
Mineral Resource and Reserve Estimation	█					
Environmental Assessment	█					
Technical Studies (Mine design, etc.)	█					
Process Development and Engineering		█	█	█	█	█
Economic Analysis and Valuation		█	█	█	█	█
Analytical Testing and Pilot Plant Facilities		█	█	█	█	█
Product Specs, Market Intelligence, Introductions		█	█	█	█	█
Technical Support		█	█	█	█	█
Lender's Independent Engineer					█	█

Audience Questions & Answers

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