

SUSTAINABLE SUPPLY CHAIN MANAGEMENT & RAW MATERIAL SOURCING. 20.11.2019

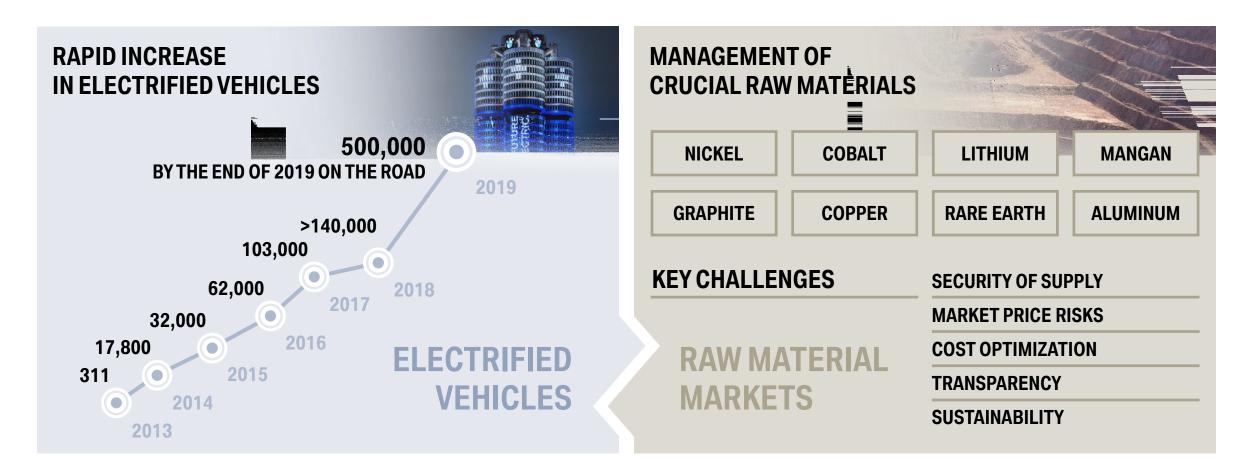
NIELS ANGEL

HEAD OF SUSTAINABILITY AND INNOVATION MANAGEMENT SUPPLIER NETWORK

FREDRIK ALTMANN DIRECTOR CORPORATE FINANCE, STEERING TREASURY CENTERS

PETER ZISCH SENIOR MANAGER CHEMICALS AND BATTERY RAW MATERIAL PURCHASING

THE BMW GROUP MANAGES THE CHALLENGES OF E-MOBILITY.



RAW MATERIAL MANAGEMENT – AN INTEGRAL PART OF CORPORATE PERFORMANCE.

BMW CONSIDERS THE TOTAL VALUE CHAIN OF BATTERY CELL: FROM CRADLE TO GRAVE.

RAW MATERIALS AND REFINING

Environmental and social standards

Raw material optimized for chemistry design

Use of recycled raw materials

Securing raw material supply



CELL DESIGN AND PRODUCTION

Optimized performance/ costs based on BMW Group application

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Securing production capacity

Reduction CO₂ footprint

BATTERY »2ND LIFE«

Cell/module/pack design

Application on BMW Group sites

Business Models to secure markets

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RECYCLING

Cell/module/pack design to foster recyclability

Development of recycling processes with ability to close material loops

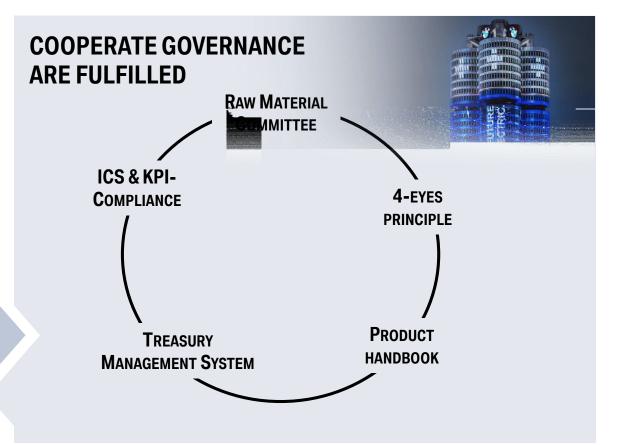
Securing recycling capacities

Sustainable Supply Chain Management & Raw Material Sourcing @ BMW Group

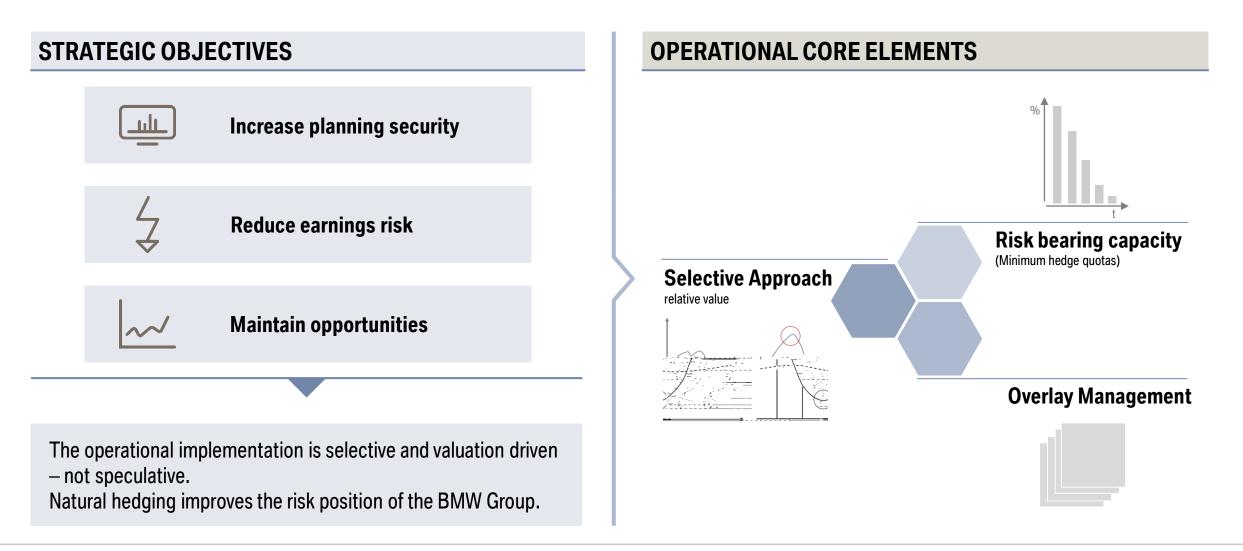
BMW CORPORATE FINANCE SUPPORTS THE BMW GROUP ALONG THE ENTIRE AUTOMOTIVE VALUE CHAIN IN ITS RISK MANAGEMENT FUNCTION.

HEDGING OF MARKET PRICE RISKS HAS A LONG TRADITION AT BMW GROUP

| • 1998 | HEDGING OF PRECIOUS METALS (PLATINUM, PALLADIUM, RHODIUM) HEDGING OF NON-FERROUS METALS (ALUMINUM, COPPER, LEAD) |
|--------|---|
| 2009 | HEDGING STEEL RAW MATERIALS (IRON ORE, COKING COAL) |
| | HEDGING OF ENERGY |
| | HEDGING OF CO ₂ |
| | COMPLETE STRATEGY REVIEW: VALUATION BASED APPROACH CONFIRMED |
| 2019 | SUPPORT OF RAW MATERIAL MARKET PRICE RISK MANAGEMENT BBA (JV CHINA) |
| | INCREASED FOCUS ON BATTERY MATERIALS: HEDGING OF NICKEL |
| 2020 | HEDGING OF ADDITIONAL BATTERY MATERIALS |



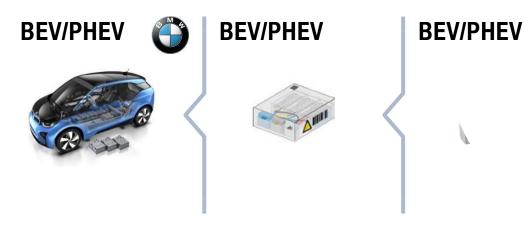
FINANCIAL MARKET RISK MANAGEMENT ADDRESSES THE COMPANY'S NET RISK POSITIONS AGAINST THE VOLATILITY OF THE CAPITAL MARKET.



THE NEED FOR BATTERY MATERIALS INCREASES SUBSTANTIALLY.

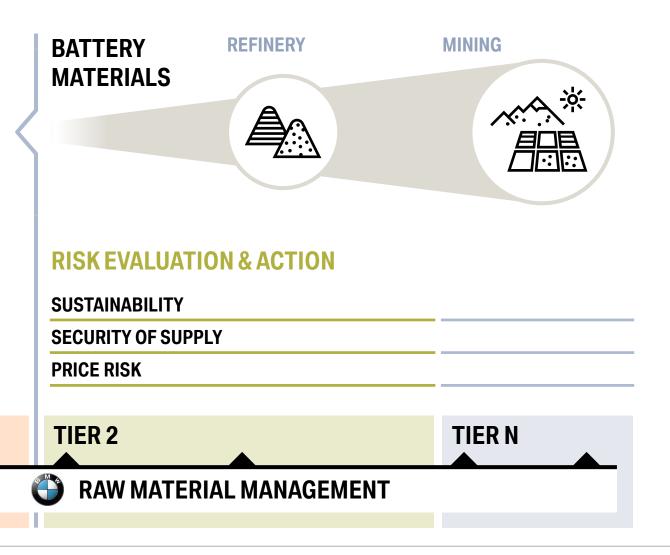
| | | PROCUREMENT | FINANCE |
|----------------------------|-----------------------|--|---|
| 2025 | Manganese Graphite | | No financial market for derivative hedging |
| | Cobalt | Ensure physical supply of the material | Financial market for derivative hedging slowly developing |
| | Lithium | Ensure physical supply of the material | Financial market for derivative hedging not sufficiently developed |
| Cobalt Lithum Nicket | Nickel | | Derivative hedging since 2017 |
| | | | O Indication of financial market readiness |

BMW GROUP'S ROADMAP: LEADING POSITION IN MANAGING RAW MATERIAL RISKS AND SECURING LONG-TERM PROFITABILITY.



SECURING LONG-TERM, STRATEGIC ACCESS TO CRUCIAL RAW MATERIALS

To secure the long-term supply for raw materials and to improve the traceability of ESG critical materials, BMW Group is working closely with it's TIER n suppliers.



TIER 1

BATTERY SUPPLY CHAIN – KEY CHALLENGES.

SENSIBLE

ECOSYSTEMS

SUSTAINABILITY

COMPLIANCE AND HUMAN RIGHTS



WORK



RIVER-DUMPING SEDIMENTS

HEALTH / CLIMATE CHANGE



SECURITY OF SUPPLY

RAW MATERIAL DEMAND



STABILITY









SECONDARY

RESOURCES

PRODUCTION







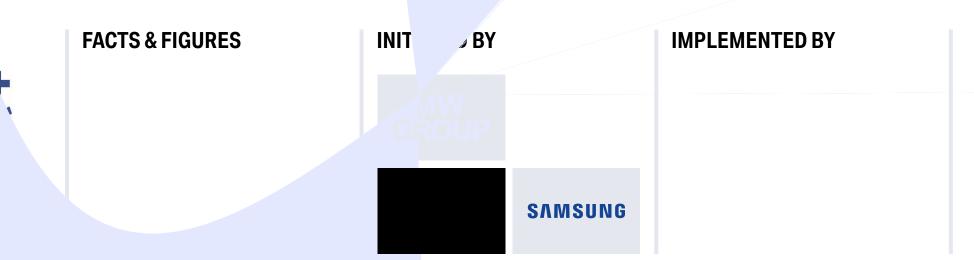


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Sustainable Supply Chain Management & Raw Material Sourc

COMMITME PROMOTE SUSTAINABLE ARTI

S-INDUSTRY PILOT MINING.





THE BMW GROUP COBALT STRATEGY IS THE BENCHMARK FOR THE INDUSTRY.



SECURING SUPPLY OF COBALT FROM MOROCCO/AUSTRALIA FOR GEN5 WITH HIGH SUSTAINABILITY STANDARDS

INVOLVEMENT IN INITIATIVES



CROSS-INDUSTRY PILOT PROJECT TO PROMOTE SUSTAINABLE ARTISANAL MINING

Sustainable Supply Chain Management & Raw Material Sourcing @ BMW Group

WE ARE SHAPING THE MOBILITY OF THE FUTURE.

