

Kobalt an der LME

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SETTING THE GLOBAL STANDARD



London Metal Exchange

From 1877 to today

The origins of the LME goes back even further...

1. Origins in The Royal Exchange, London from 1571
2. The Jerusalem Coffee House, Cornhill, London early 1800
3. The London Metals and Mining Co. 1877

Originate from the need to formalise trading into one market place

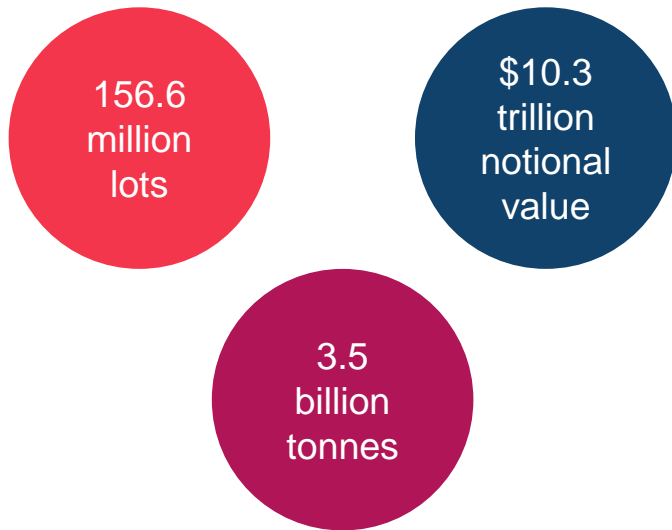
- fixed trading times
- standard contracts specifications
- source of price 'discovery'



The LME is the leading global venue for metal market participants to manage their price risk

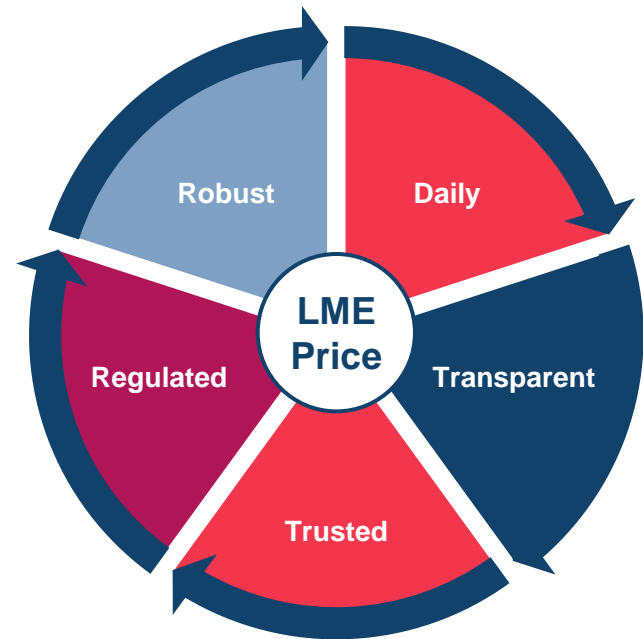
LME is the leading global exchange in all non-ferrous metals

In 2016, the LME traded



This equates to an average daily turnover of 618,627 lots

LME provides market leading pricing of futures contracts



LME is ideally positioned to delivery efficient, transparent and regulatory compliant risk management tools for the battery materials market

Linking physical sales contracts to reference prices brings substantial benefits

Benefits of reference prices

- Always pay/receive a fair price, derived from market supply and demand
- Yearly negotiations are simplified, and focus on premiums/discounts
- Easier to negotiate longer term contracts
- No need for renegotiations
- EV battery material industries sustainable in the long term
- Attractive for mining investors
- No basis risk when hedging on exchange

Benefits of on exchange trading

- Manage price risk exposure according to firm's individual risk profile (i.e. liquid market to transfer undesired risk)
- Lock in profit margins
- More flexibility on pricing structure
- Visibility on the market expectation of future price movements (i.e. the forward curve) allows for better planning

Reference pricing and on exchange trading are natural steps in the evolution of a commodities market

Hedging on the LME allows market participants to lock future prices today

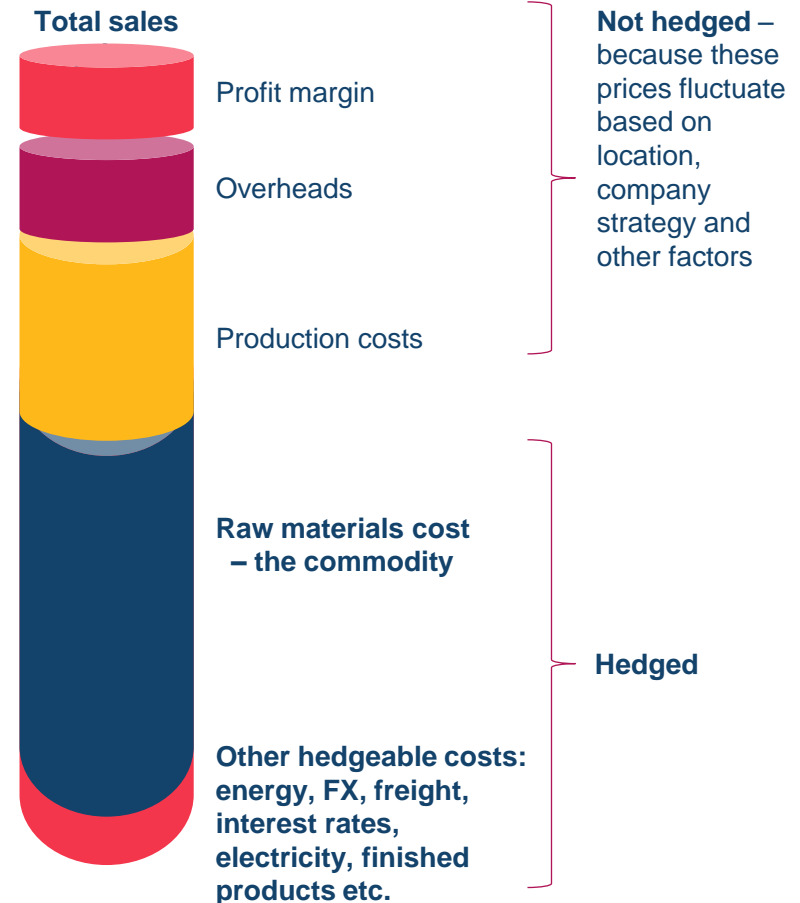
What is hedging?

Definition: Establishing a position in a commodity futures market (LME) which is equal and opposite to a risk on a physical market

Protects against adverse price movements by locking in expected profit margin and protect inventory value

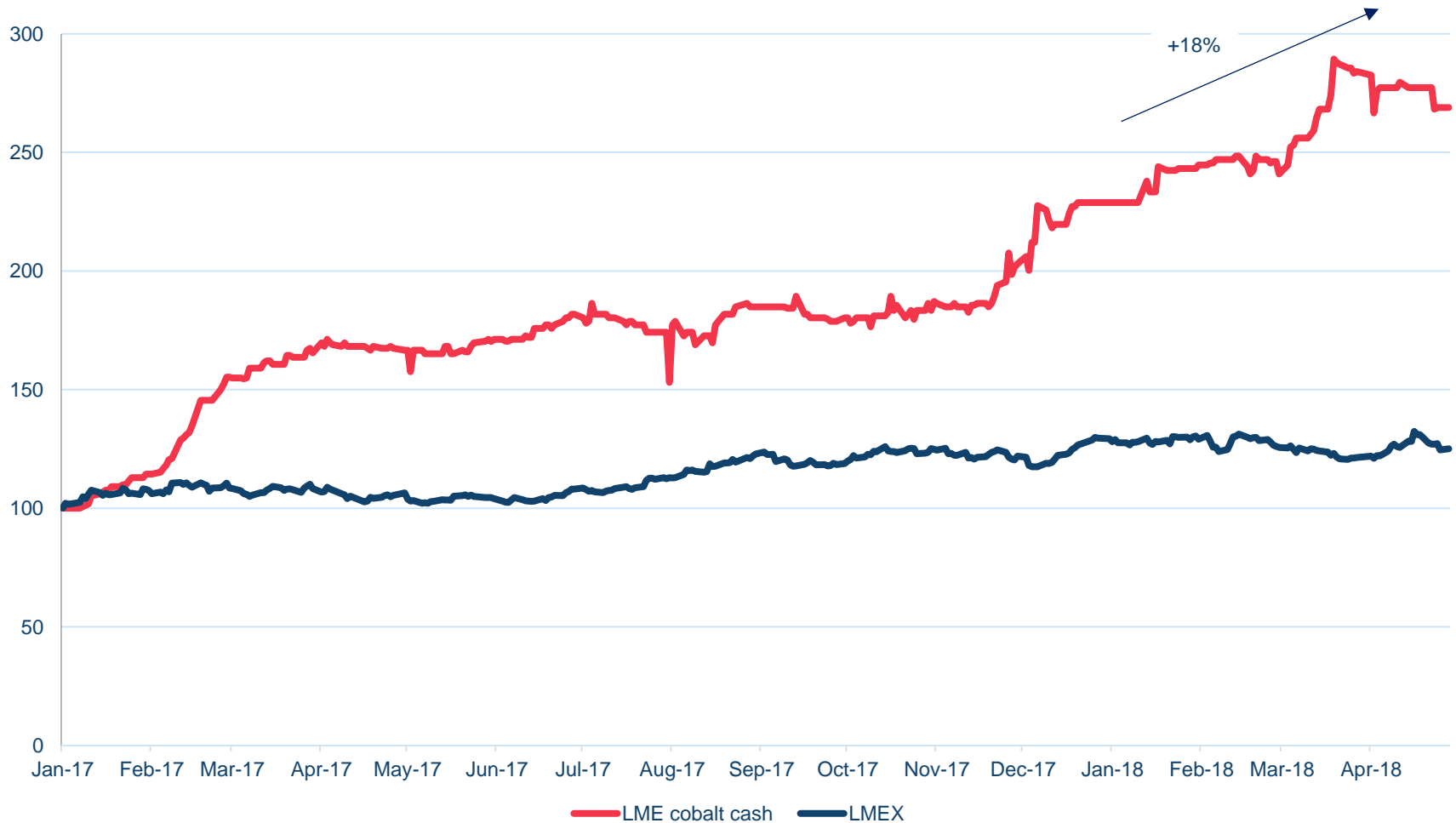
- By hedging you reduce the uncertainty and your exposure to price movements
- The financial hedge allows the buyer/seller to lock in a certain price to be paid/received in the future
- If hedged, any losses on the physical market (affecting the inventory value) are offset by an increased value in the financial position.

What can I hedge?



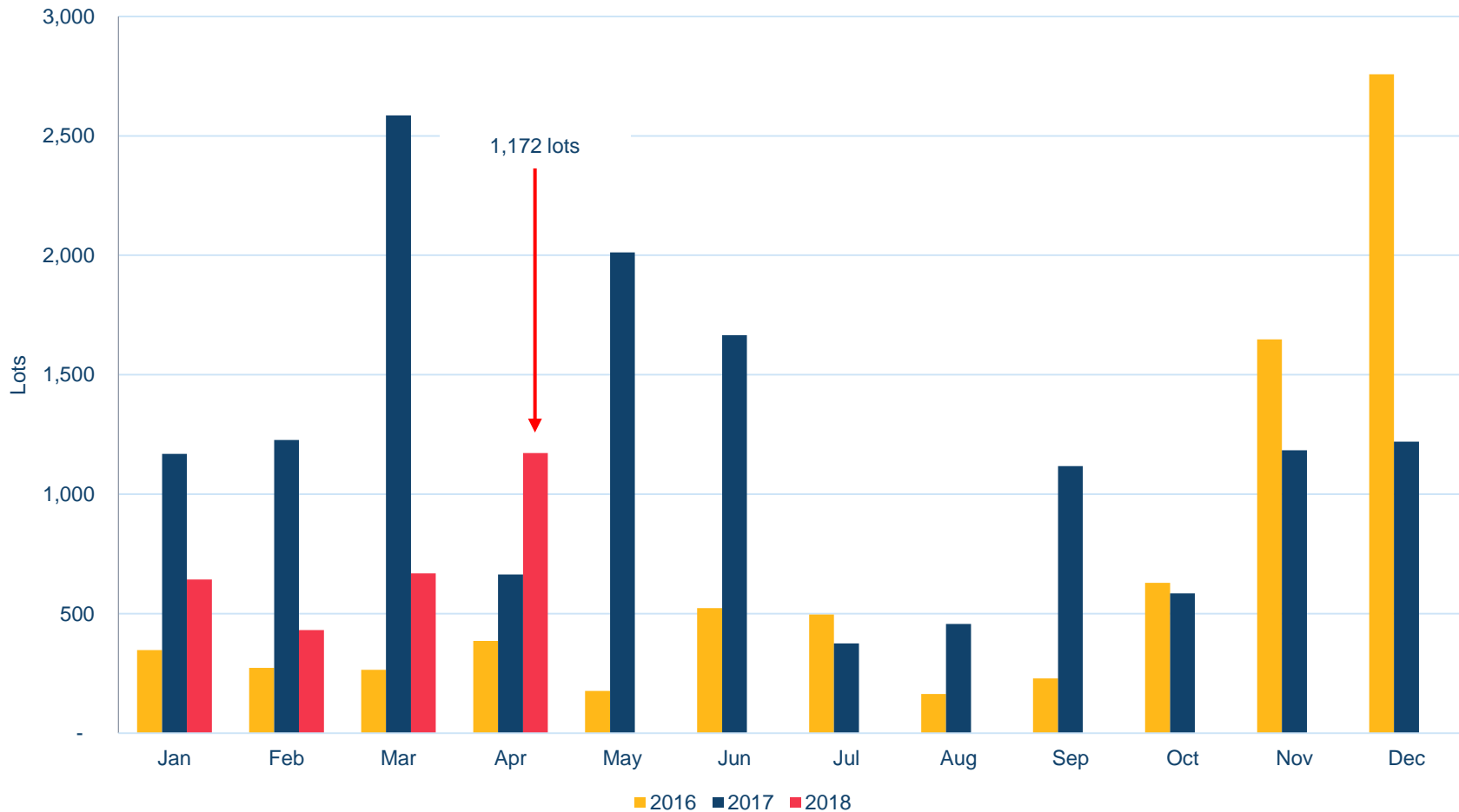
Development of the LME cobalt contract

LME cobalt price performance



Data as of 30-Apr-18. Price and index performances rebased at 100.

LME cobalt monthly volumes



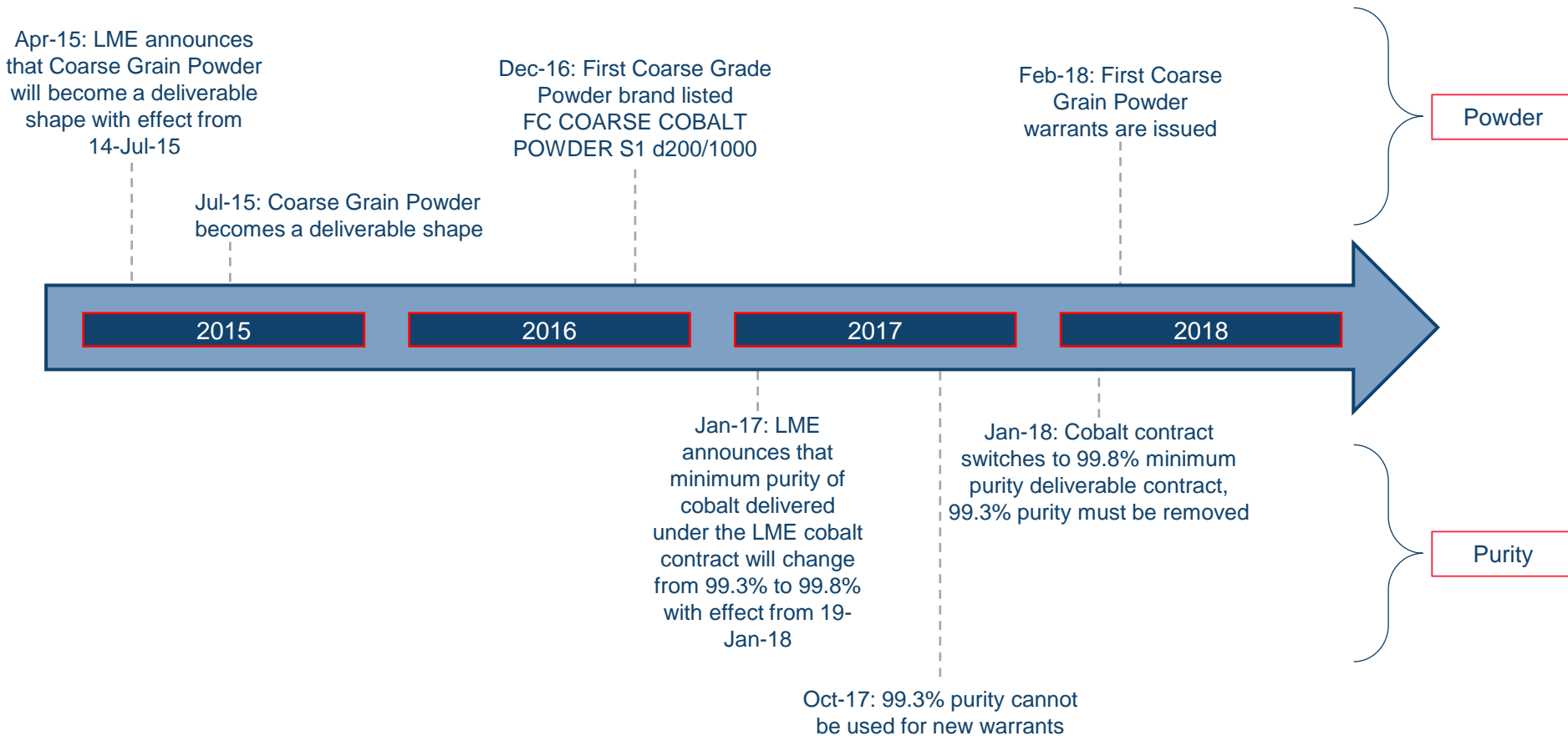
Volumes data as of 30-Apr-18

LME cobalt futures open interest



MOI data as of 30-Apr-18

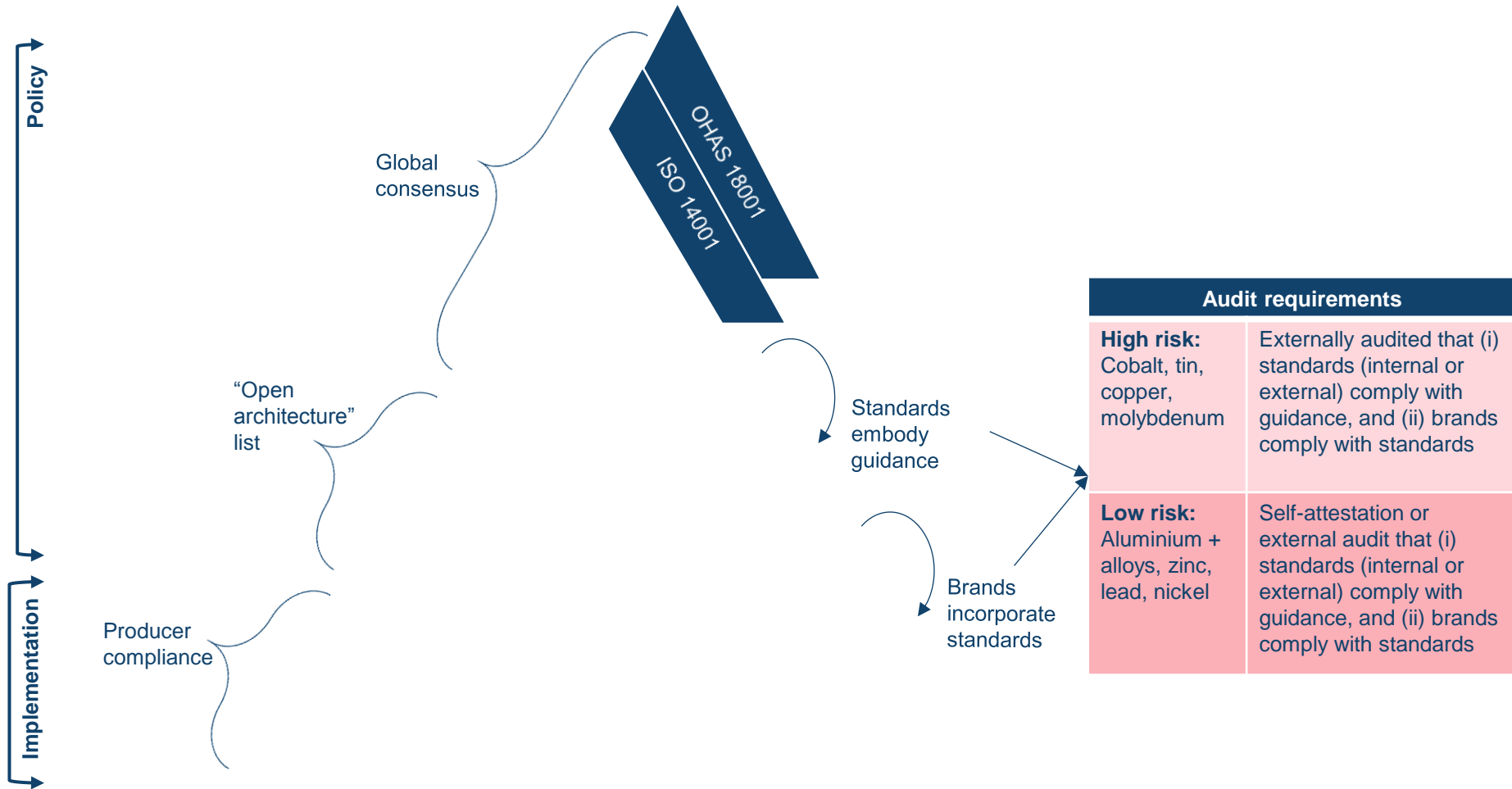
Recent evolution of the LME cobalt specification



Responsible sourcing for LME cobalt

Potential LME framework for responsible sourcing

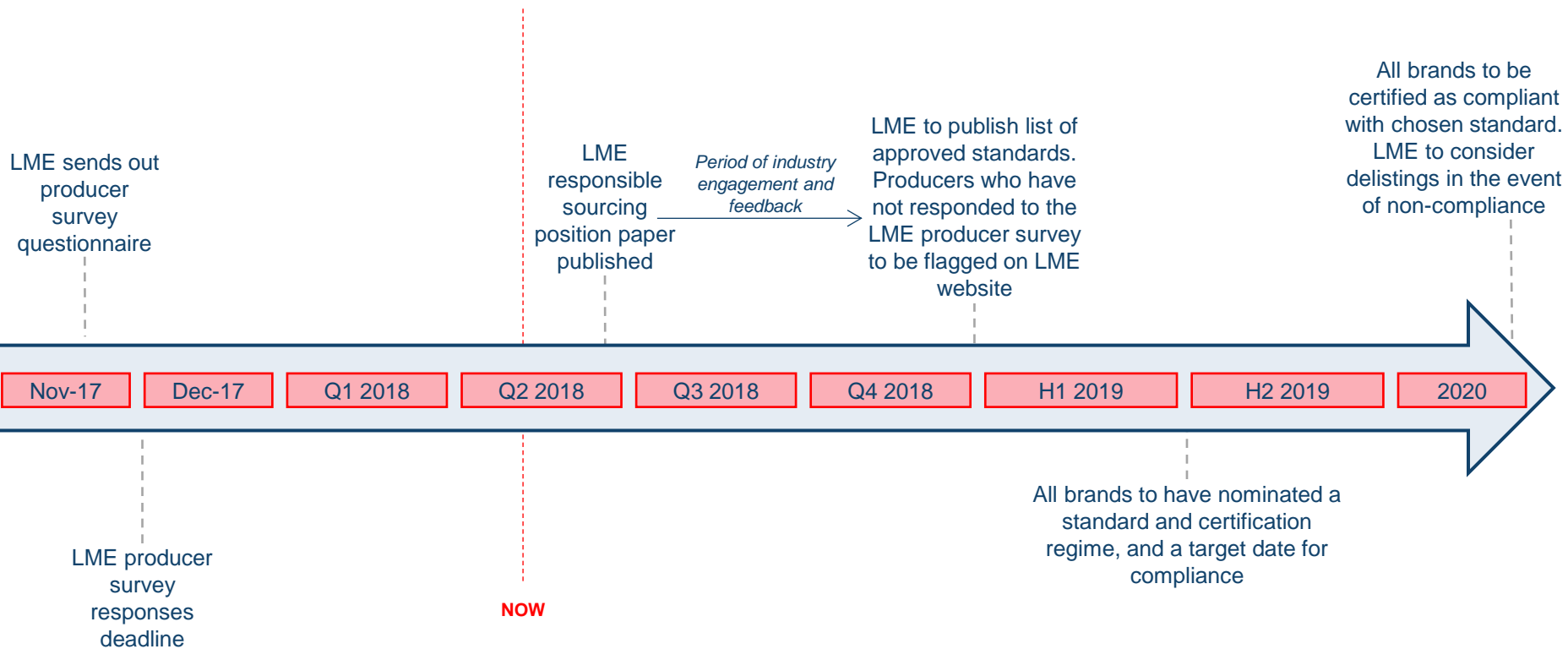
LME aims to enhance and support existing initiatives rather than further complicate



Indicative LME timeline

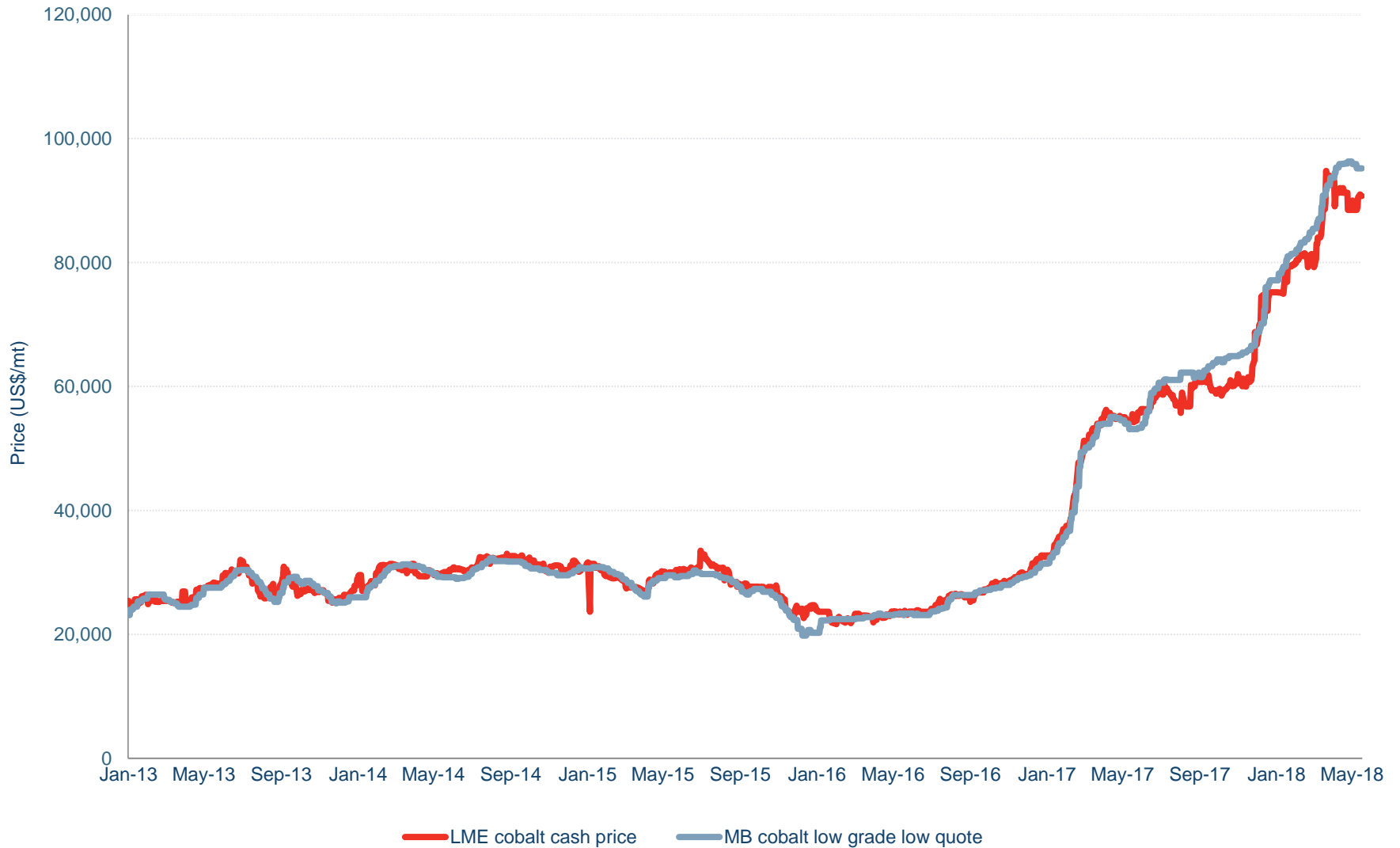
Outline of potential pathway to implementation

3 step plan of (i) disclosure, (ii) engagement and (iii) compliance to meet growing industry concern on responsible sourcing issues and increased demand for expanded LME remit to reflect this through amended brand specifications



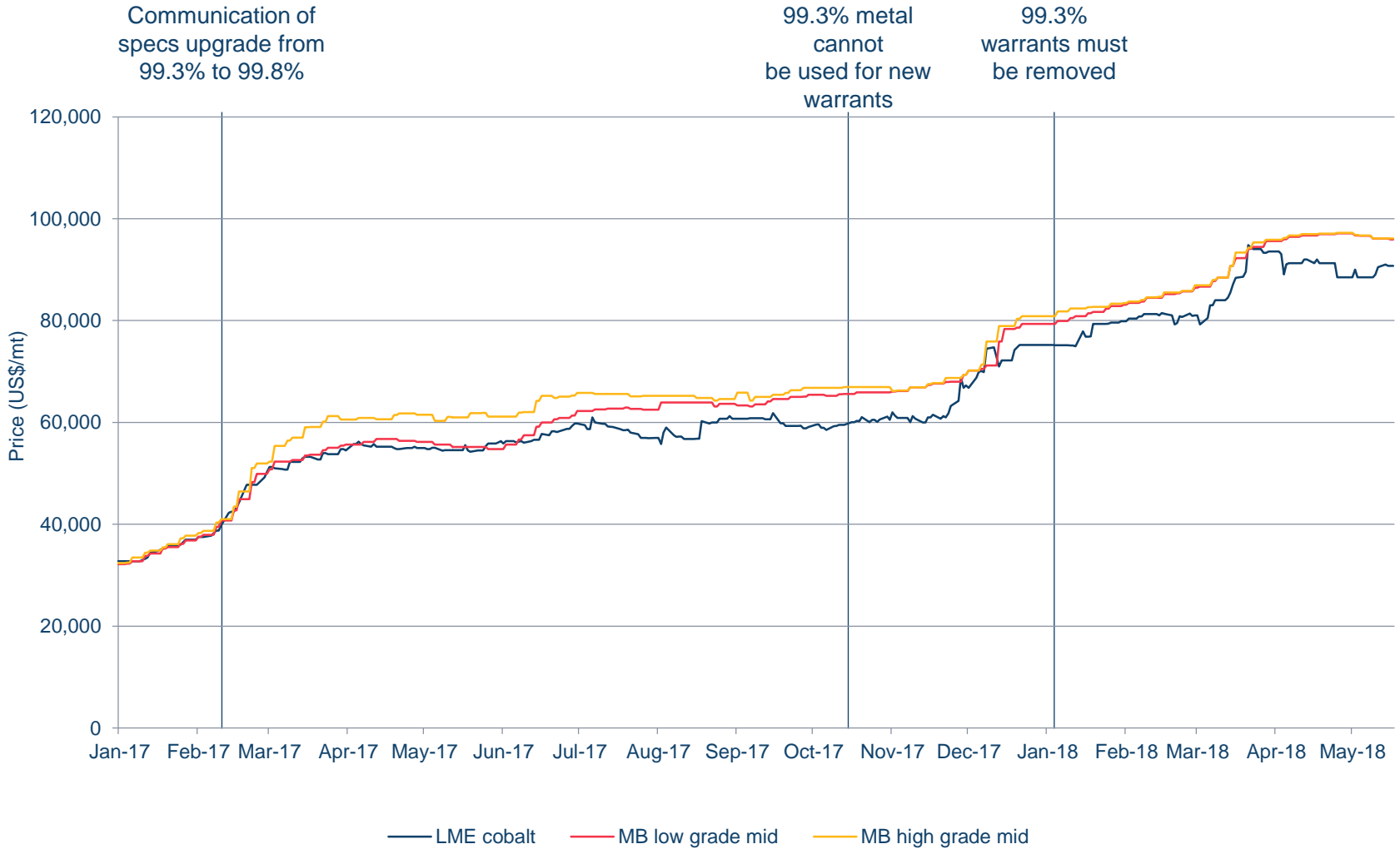
Considering a cash settled cobalt contract

Market uses both exchange and PRA pricing...



Data as of 17-May-18

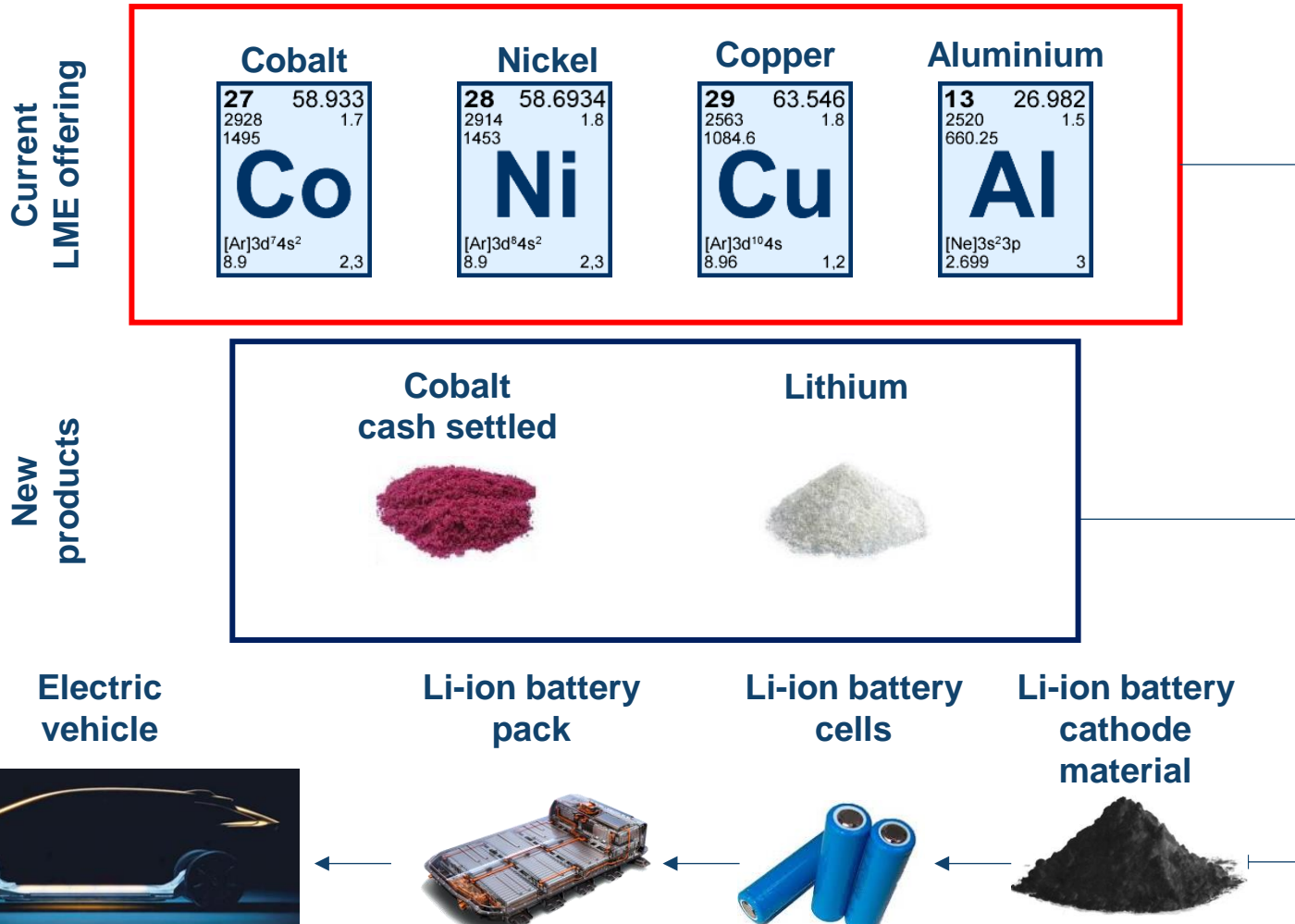
...but divergence between LME and PRA...



...creates need for a new contract...

| | | |
|-----------------------------------|--|---------------------------|
| Contract name | Cobalt | |
| Contract type | Futures | |
| Delivery type | Cash settled | |
| Lot size | 1 metric tonne | |
| Contract period | Monthly out to 15 months | |
| Price quotation | USD / metric tonne | |
| Clearable currencies | USD | |
| Termination of trading | Last business day of the contract month | |
| Daily settlement procedure | LME Market Operations will calculate daily settlement values based on its published procedure | |
| Final settlement procedure | Final settlement, following termination of the trading for a contract month, will be based on the PRA reported price | |
| Trading venues | LMEselect and inter-office | |
| Trading hours | LMEselect | 01:00 – 19:00 London Time |
| | Inter-office | 24 hours a day |
| Margining | Realised variation margins applied | |

...as part of the LME's EV initiative



LME's roadmap for EV metals

Work with industry to serve the growing market's needs



Formation of Advisory Group and discussion with existing Cobalt Committee

- Bring together key participants across the value chain to acknowledge the shared goals and challenges
- Discuss the rapid growth of electric vehicles and the impact on the development cycle of the commodities involved



Discuss key questions for battery complex pricing

- Gather feedback from the industry regarding the pricing methodology currently adopted
- Assess need for risk management per battery ingredient
- Develop understanding of the structure and specificities of the markets in the scope of the analysis



Identify and refine best-practice pricing methodology

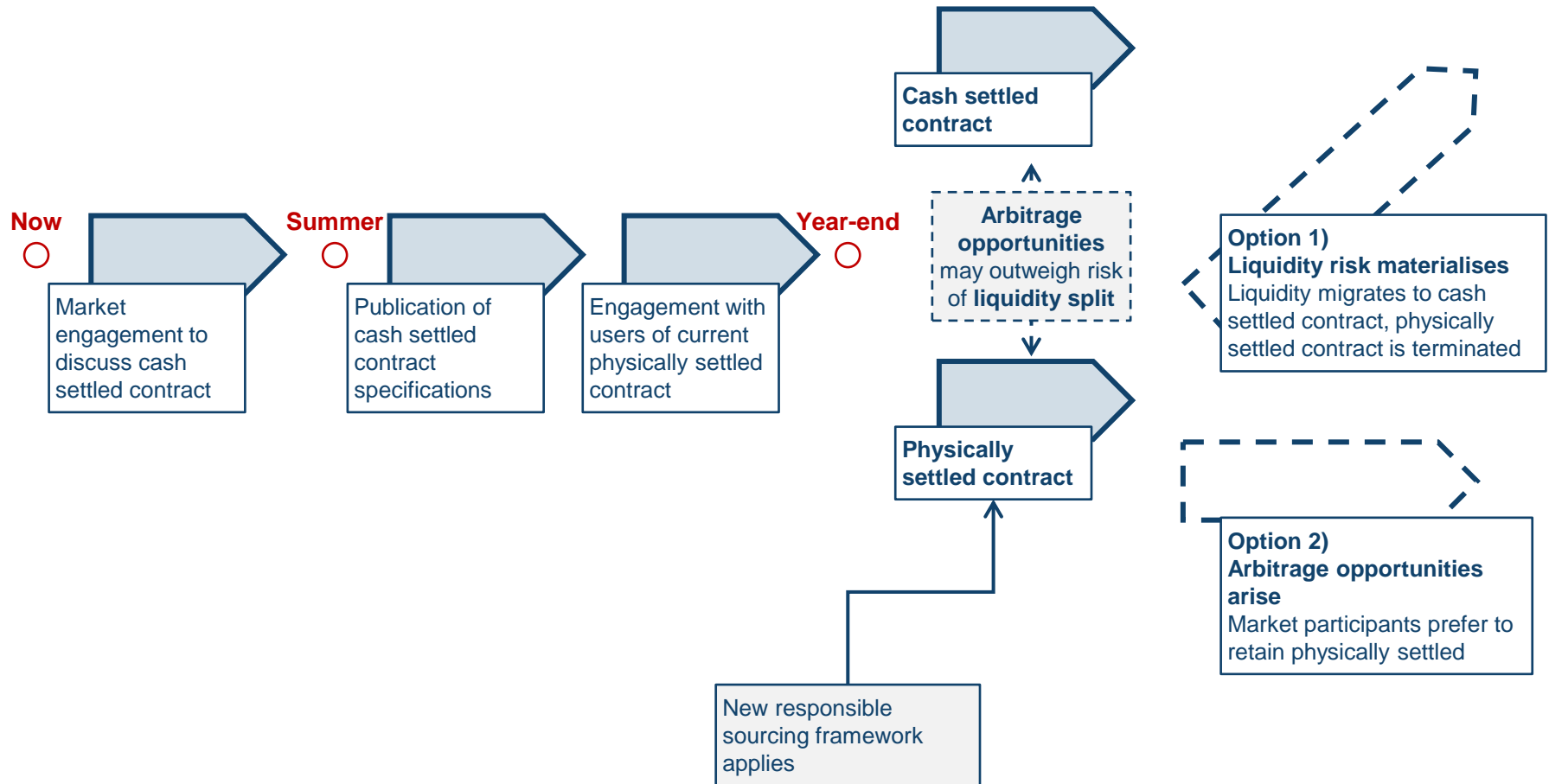
- Identify, support and endorse the leading index providers
- Work with the industrial community to encourage industry wide adoption of index linked pricing
- Work with index providers to ensure compliance with appropriate regulations



Launch risk management tools

- Use LME's know-how of price risk management to assess the needs of the battery materials market
- Launch effective, transparent, regulated and secure tools for price risk management
- Work with the industry to promote education, market participation and liquidity

Feedback from market participants and monitoring of trading activity will determine the best option



Contact

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