NORNICKEL

# Expanding the Horizons of Sustainable Growth


London, November 2019

# Disclaimer

The information contained herein has been prepared using information available to PJSC MMC Norilsk Nickel ("Norilsk Nickel" or "Nornickel" or "NN") at the time of preparation of the presentation. External or other factors may have impacted on the business of Norilsk Nickel and the content of this presentation, since its preparation. In addition all relevant information about Norilsk Nickel may not be included in this presentation. No representation or warranty, expressed or implied, is made as to the accuracy, completeness or reliability of the information.

Any forward looking information herein has been prepared on the basis of a number of assumptions which may prove to be incorrect. Forward looking statements, by the nature, involve risk and uncertainty and Norilsk Nickel cautions that actual results may differ materially from those expressed or implied in such statements. Reference should be made to the most recent Annual Report for a description of major risk factors. There may be other factors, both known and unknown to Norilsk Nickel, which may have an impact on its performance. This presentation should not be relied upon as a recommendation or forecast by Norilsk Nickel. Norilsk Nickel does not undertake an obligation to release any revision to the statements contained in this presentation.

The information contained in this presentation shall not be deemed to be any form of commitment on the part of Norilsk Nickel in relation to any matters contained, or referred to, in this presentation. Norilsk Nickel expressly disclaims any liability whatsoever for any loss howsoever arising from or in reliance upon the contents of this presentation.

Certain market share information and other statements in this presentation regarding the industry in which Norilsk Nickel operates and the position of Norilsk Nickel relative to its competitors are based upon information made publicly available by other metals and mining companies or obtained from trade and business organizations and associations. Such information and statements have not been verified by any independent sources, and measures of the financial or operating performance of Norilsk Nickel's competitors used in evaluating comparative positions may have been calculated in a different manner to the corresponding measures employed by Norilsk Nickel.

The strategy of Norilsk Nickel and its implementation may be modified, changed or supplemented by decisions of the shareholders and directors of Norilsk Nickel and its subsidiaries. There can be no assurance that any transaction described in this document may occur in the form described in this document or at all.

This presentation does not constitute or form part of any advertisement of securities, any offer or invitation to sell or issue or any solicitation of any offer to purchase or subscribe for, any shares in Norilsk Nickel, nor shall it or any part of it nor the fact of its presentation or distribution form the basis of, or be relied on in connection with, any contract or investment decision.

# CEO Vision

## Vladimir Potanin

President

Chairman of the Management Board

NORNICKEL

# 2013-2019: Delivery on Strategy

## ESG

- ✓ Material progress in environmental programme: shutdown of Nickel Plant resulting in 30-35% emissions reduction within Norilsk residential area
- ✓ Continuous improvement on Health & Safety metrics and independent ESG assessments

## Operational and financial performance

- ✓ Delivery on Efficiency improvement programme targets: productivity growth by 15%
- ✓ Maintaining industry leading EBITDA margin and conservative balance sheet through the cycle

## Delivery of major projects

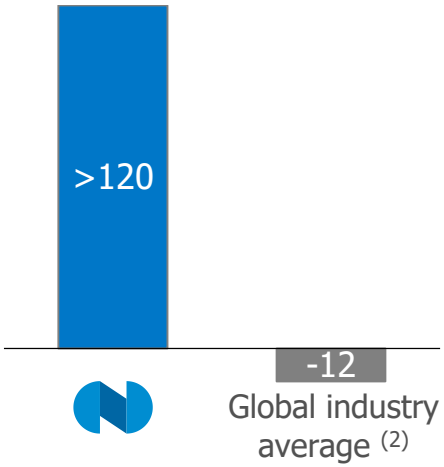
- ✓ Downstream reconfiguration: upgrade of Nadezhda Smelter (2016), Talnakh Concentrator (2017), Kola Refinery (2019)
- ✓ Commissioning of Bystrinsky project (2018-2019)

## Launch of new growth cycle

- ✓ South Cluster development: FID is made
- ✓ Talnakh Concentrator (Phase 3): FID is made

## ✓ Industry leading Shareholder Returns

*TSR [1], 2013–2019 YTD, %*




*Note: 1. Total shareholder returns; 2. Global MSCI Metals & Mining index (incl. dividends)*

# Vision 2030: Expanding the Horizons of Sustainable Growth

**Expanding the horizons…**

- …From 5-year planning to longer term 10-year vision
- …From environmental compliance to broader commitment to sustainable future in the regions we operate
- …From resource supplier to enabler of the global shift towards cleaner mobility
- …From "steady-state" financial model to growth-enabling capital allocation maintaining industry-leading returns through the cycle

**Holistic Environmental Programme:**

- Launching Sulphur Programme 2.0: staged journey towards best practice $SO_2$ capturing
- Maintaining the lowest-in-class carbon footprint while enabling the global shift to cleaner mobility with our metals

**Charging Up the Growth:**

- Setting new ambitious long-term production growth targets to address increasing demand in our core markets
- Continue with comprehensive upgrade and modernization of production assets and auxiliary infrastructure

# Critical Contribution to Global Sustainability Agenda: Enabling the Shift to Cleaner Mobility

## Clean Mobility 2030 Megatrends

### Hybridization and Tightening Emission Standards

While powertrain diversification is set to increase, production of autocatalysts-loaded vehicles (including hybrids) will continue growing in absolute terms

Tightening emission standards will drive higher PGM loadings

### Electrification

Electric vehicles industry is expected to continue growing at 20%+ CAGR driving demand for nickel, cobalt and copper

## Nornickel's 2030 Enabling Potential

Supplying enough resource to produce:

**25-40 mn** PGM-Loaded Autocatalysts (1)




Potential reduction of up to

**170-270 Mt air pollutants (2)**

**3.5–5.5 mn** nickel-rich EV battery packs (3)




Potential reduction of up to

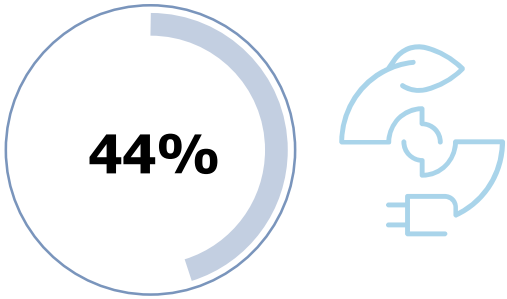
**50-100 Mt $CO_2$ emissions (4)**

*Notes:*

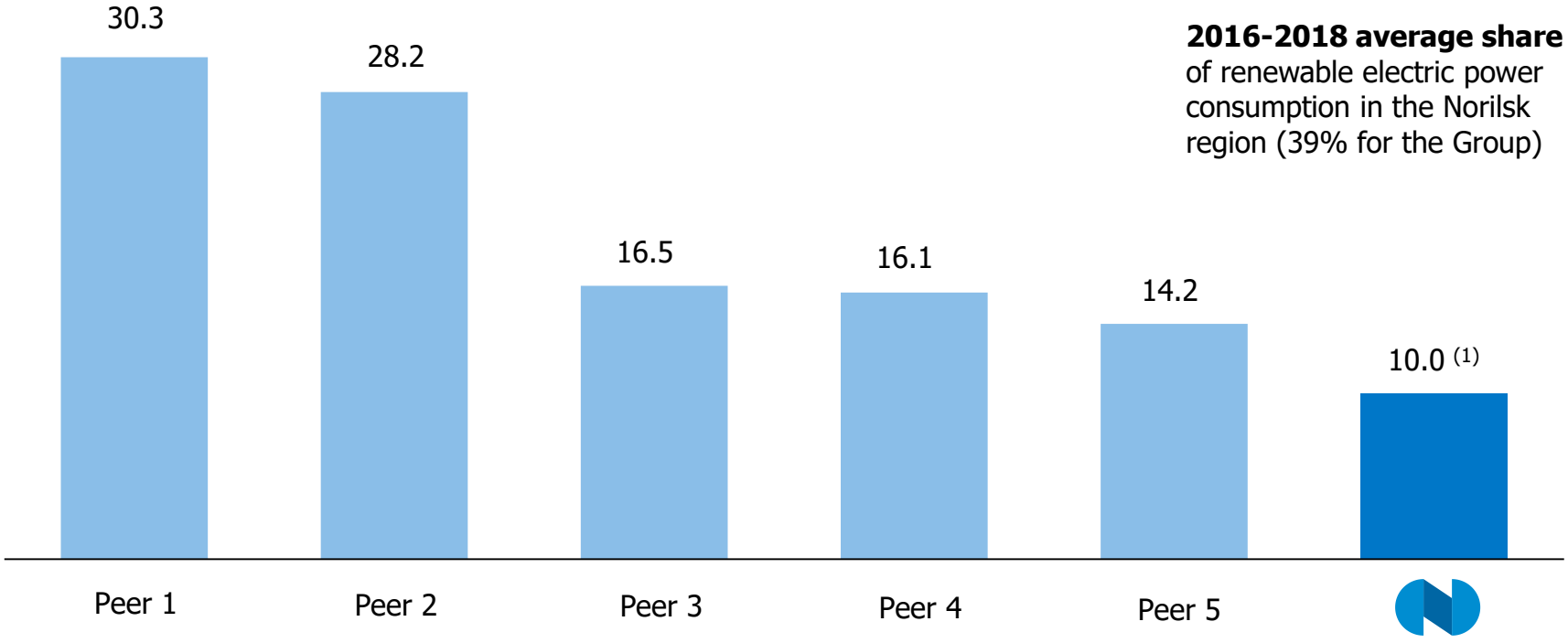
1. *Company estimate based on 2030E PGM production and c. 5g PGM loading per 1 catalyst (rounded)*
2. *Company estimate based on c. 6.8t savings (CO, NOx, Hydrocarbons) per catalyst lifecycle (rounded)*
3. *Company estimate based on c. 50kg nickel loading per EV battery pack (high nickel ternary cathode-based)*
4. *Company estimate based on up to 18t carbon dioxide savings per EV lifecycle run on renewable energy as compared to ICE*

# Nornickel to Maintain One of the Lowest $CO_2$ Footprints Among Peers

*$CO_2$ emissions Scope 1 and 2, Mt*




**2016-2018 average share** of renewable electric power consumption in the Norilsk region (39% for the Group)




*Source: Companies' filings*
*Notes: 1. Assessment made using Russian methodology (Scope 1 + Scope 2)*

# Sulphur Programme 2.0: Staged Journey Towards Best Practice $SO_2$ Capturing

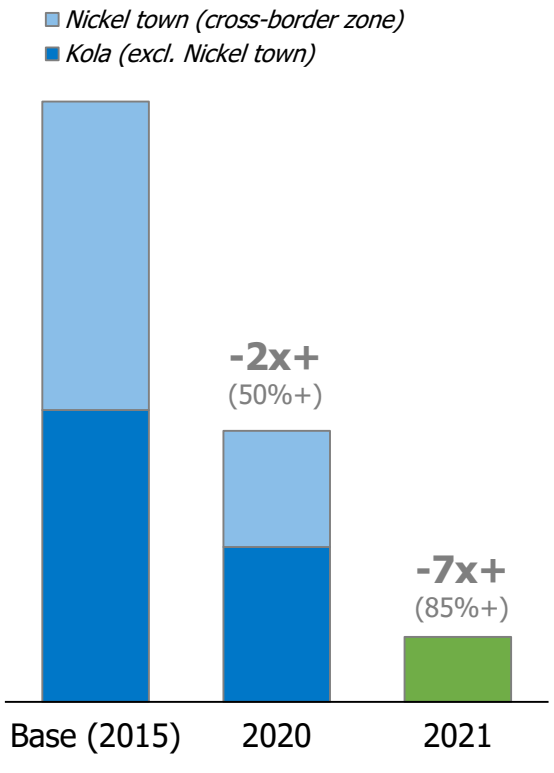
**Advancing Programme at Kola:**

Complete shutdown of nickel smelter located in the Russia-Norway border area and Copper line at Kola Refinery

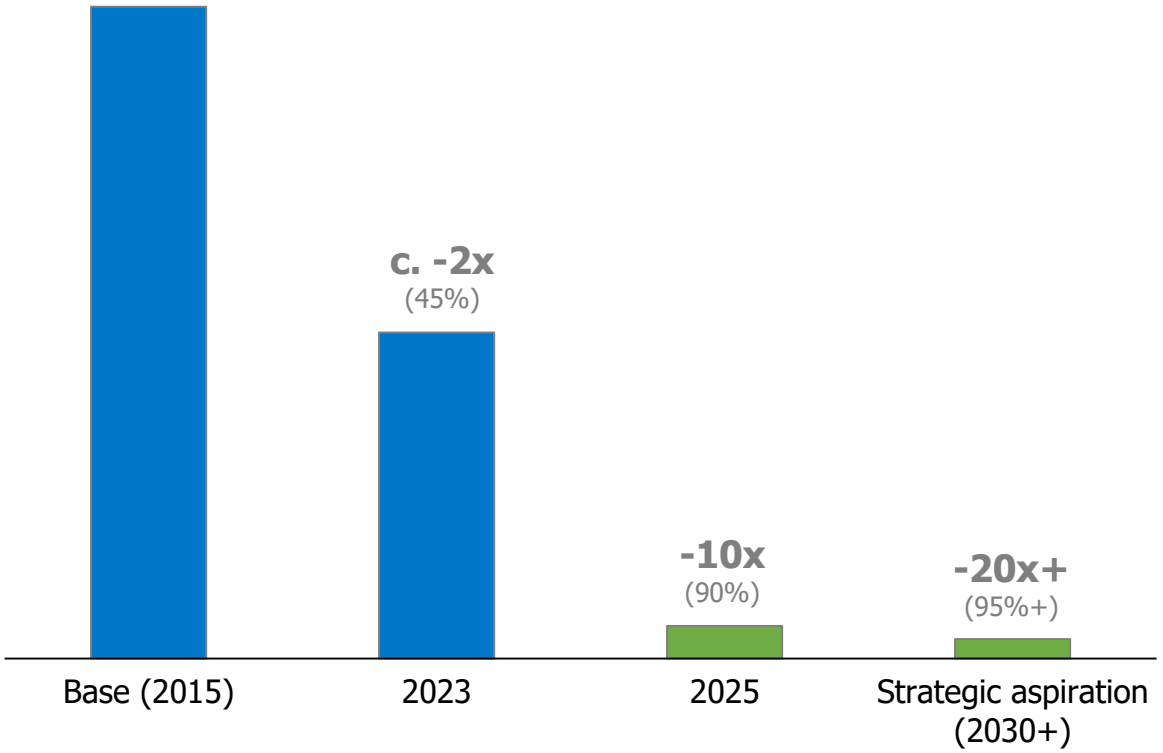
**Comprehensive Environmental Solution at Polar Division:**

Implementation of anchor sulphur utilization project at Nadezhda Smelter to be followed by redesigned project at Copper Plant with a new longer term ambition to achieve 20x reduction in $SO_2$ emissions

*Kola Division $SO_2$ emissions*




*Polar Division $SO_2$ emissions*



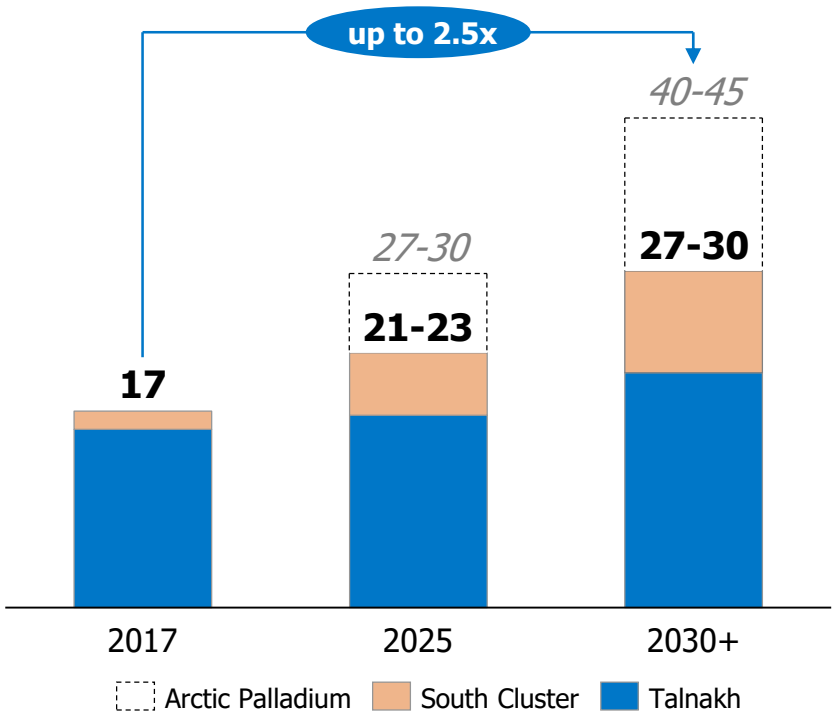

*Source: Company data*

# Sustainable Path to Unlock Nornickel's Resource Base Potential

**Mining** → **Concentrators** → **Smelting & Refining**

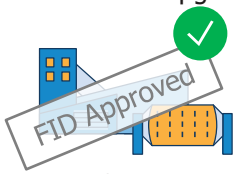
**Ambitious targets to unlock the potential of Nornickel's unique resource base to address increasing demand in our core markets**

*Ore mining in Norilsk region, Mtpa*



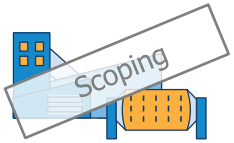

**Fit-to-size expansion of Downstream capacities**

3rd Stage of Talnakh Concentrator upgrade




**+8 Mtpa**

Reconstruction and upgrade of Norilsk Concentrator




Expansion of Nadezhda Smelter (3rd furnace)


Reconstruction and upgrade of Copper refining operations at Kola


*Source: Company data*

# Rebalancing Capital Allocation to Accommodate for Investment Peaks While Sustaining Leading Shareholder Returns Through the 10-Year Cycle

## Phase 1: "Scaling Up"

- Staged roll-out of construction works at key sites
- Excess liquidity distributions to maintain industry-leading dividend yield

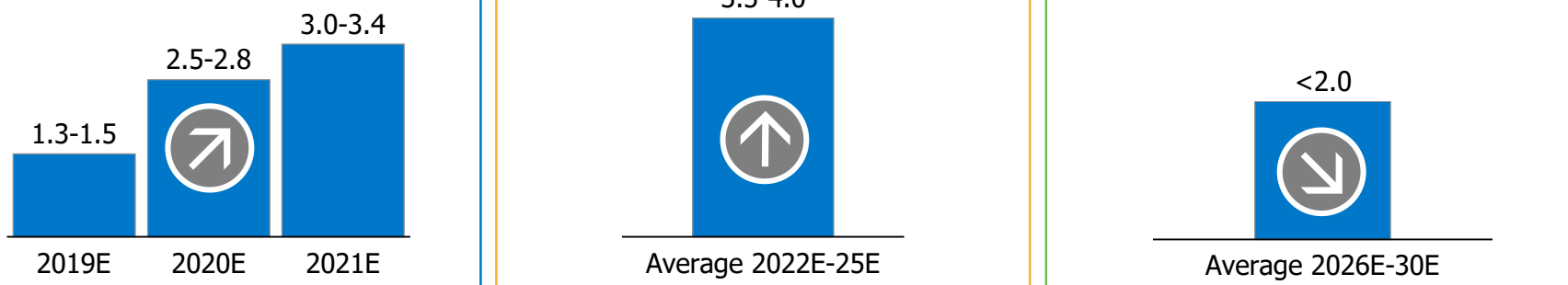
## Phase 2: "Investment Peak"

- Active execution of major growth and environmental projects
- Capital distributions moderated to balance the financial model and to maintain the investment-grade credit rating

## Phase 3: "Back to Normal"

- CapEx steadily declining to historic average levels with new projects entering cash generation phase
- Dividend payout to increase in line with improved free cash flows

*CapEx [1], US$ bn*




*Dividend level*

*Note 1. Not including potential CapEx for Arctic Palladium*

# Operations Update

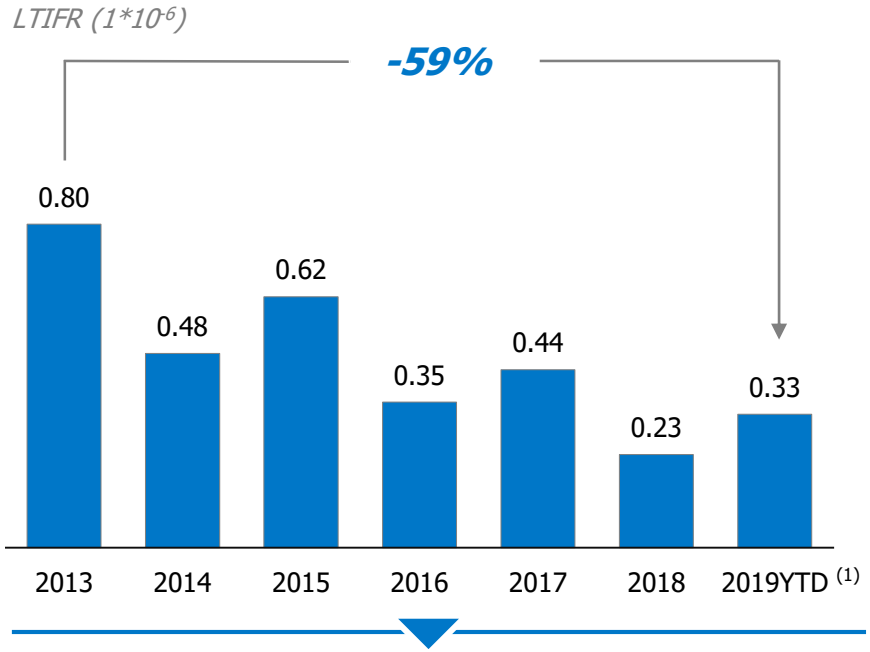

## Sergey Dyachenko

First Vice-President
Chief Operating Officer


NORNICKEL

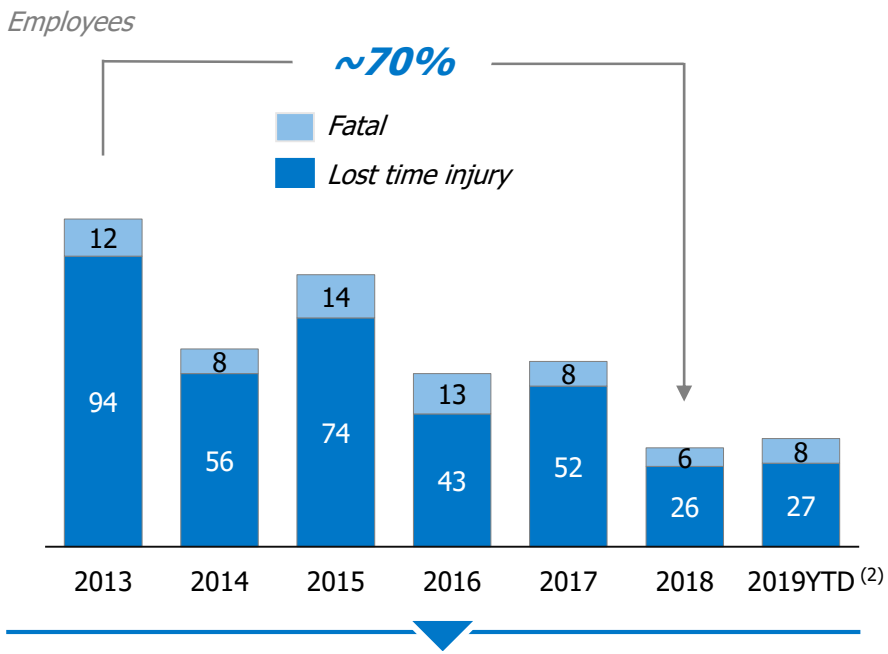
# Health & Safety: Steady Improvements

## LTIFR Reduced by Almost 60% since 2013




- Company is committed to create a strong safety culture at all levels of the organization

## Accident Statistics Improved by Almost 70% since 2013



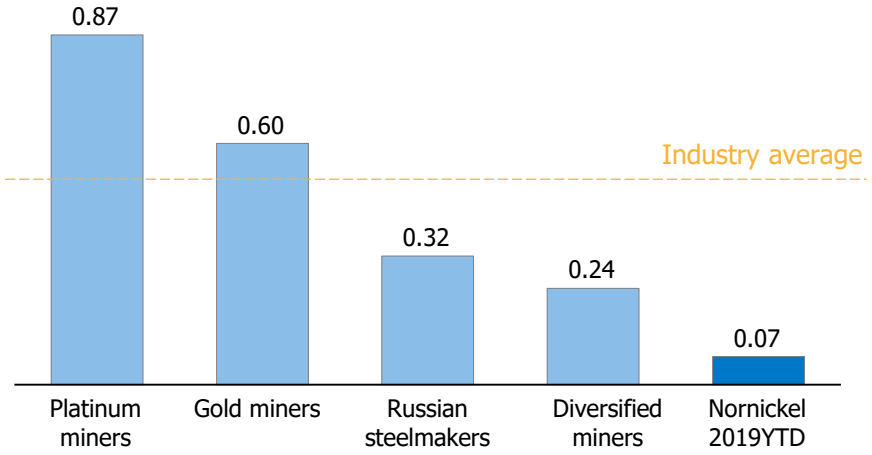

- Regular internal audits of occupational safety and health management system (66 audits in 2019YTD (1))
- Cardinal safety rules introduced in 2014 (105 employees dismissed in 2019YTD (1))

*Source: Company data*
*Note: 1. Data for 9M2019; 2. Data for 10M2019*

# Health & Safety: Strong Performance Relative to Industry

## LTIFR Remains Below the Global Mining Industry Average

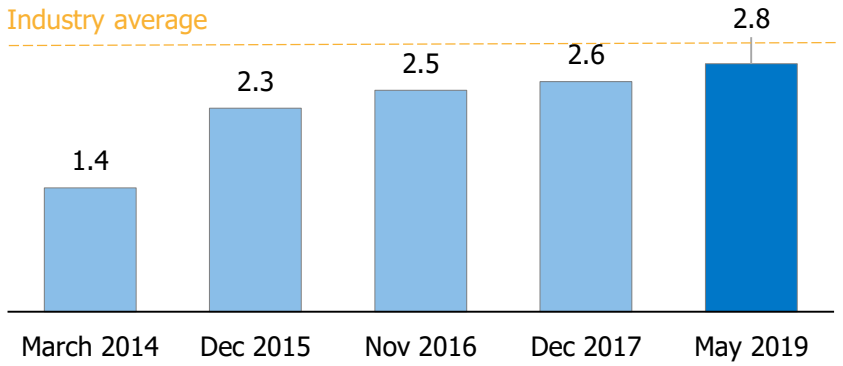
*LTIFR [(1)] per 200k hours*




- LTIFR remains below the global mining industry average
- Commitment to the principles of sustainable development

## Assessment of Occupational Safety Culture: Score Significantly Improved Since 2014

*Bradley Curve Indicator [(2)]*




- Improvements in safety culture driven by application of risk mitigation standards, safety communication campaign and dedicated risk mitigation programmes

## Strategic Objectives

- **Zero-fatality on production sites** – zero tolerance policy towards workplace fatalities
- **Continuous improvement of LTIFR** – reduction of occupational injuries by 15% each year

*Source: Company data, Renaissance Capital*
*Notes: 1. Industry data on LTIFR based on 2018 data; for Nornickel – based on 9M2019 data*
*2. Assessments conducted by leading international consulting companies.*

# The Worlds' Best Tier-1 Mining Assets

**Nornickel**

## Nickel (Mt)

**6.9**
*Proven and probable*

**15.3**
*Measured and indicated*

## Copper (Mt)

**12.1**
*Proven and probable*

**23.5**
*Measured and indicated*

## Palladium (Moz)

**93.0**
*Proven and probable*

**195.9**
*Measured and indicated*

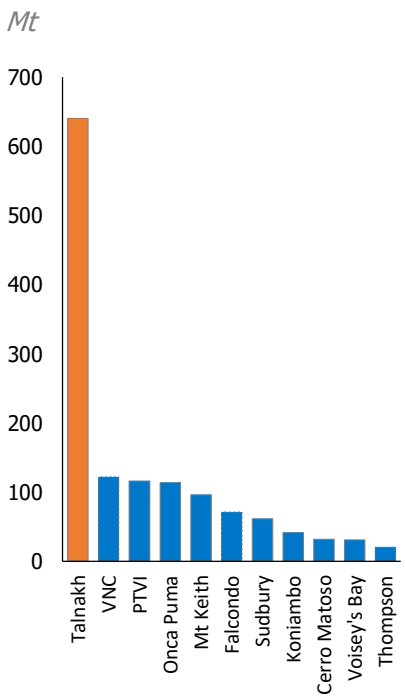
## Platinum (Moz)

**24.7**
*Proven and probable*

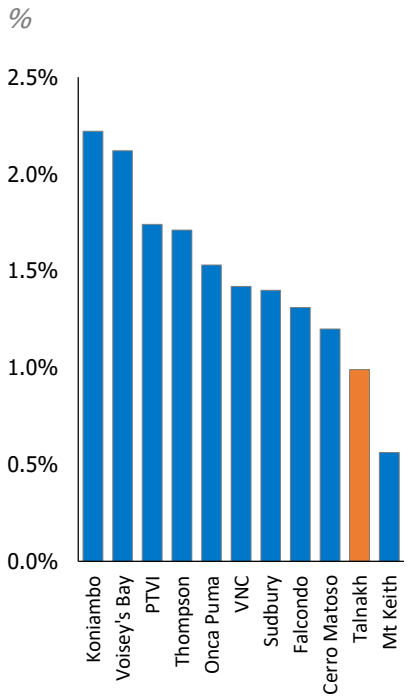
**55.4**
*Measured and indicated*

**Talnakh vs. large-scale deposits**

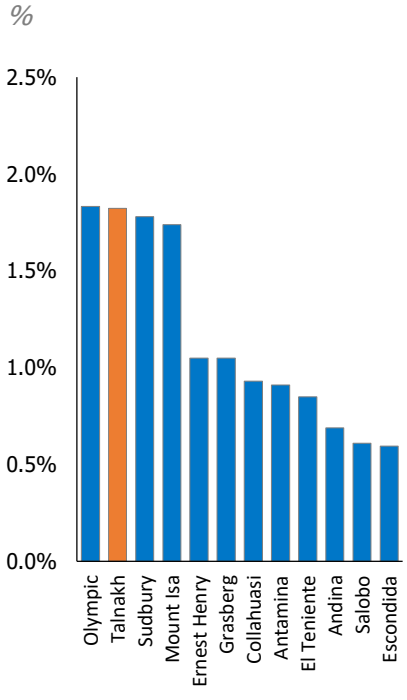
## P&P Ore Reserves



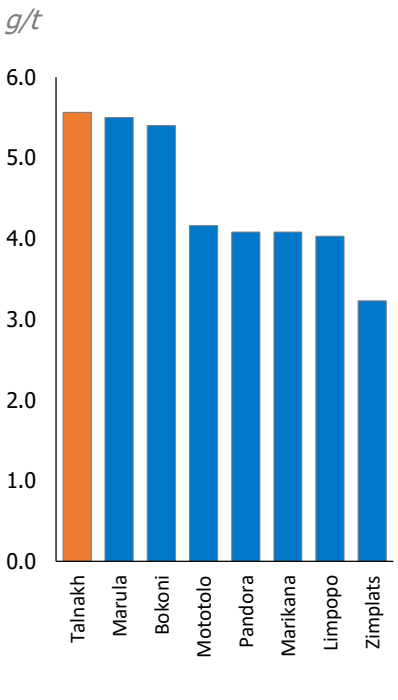

## Nickel Grades




## Copper Grades




## PGM Grades

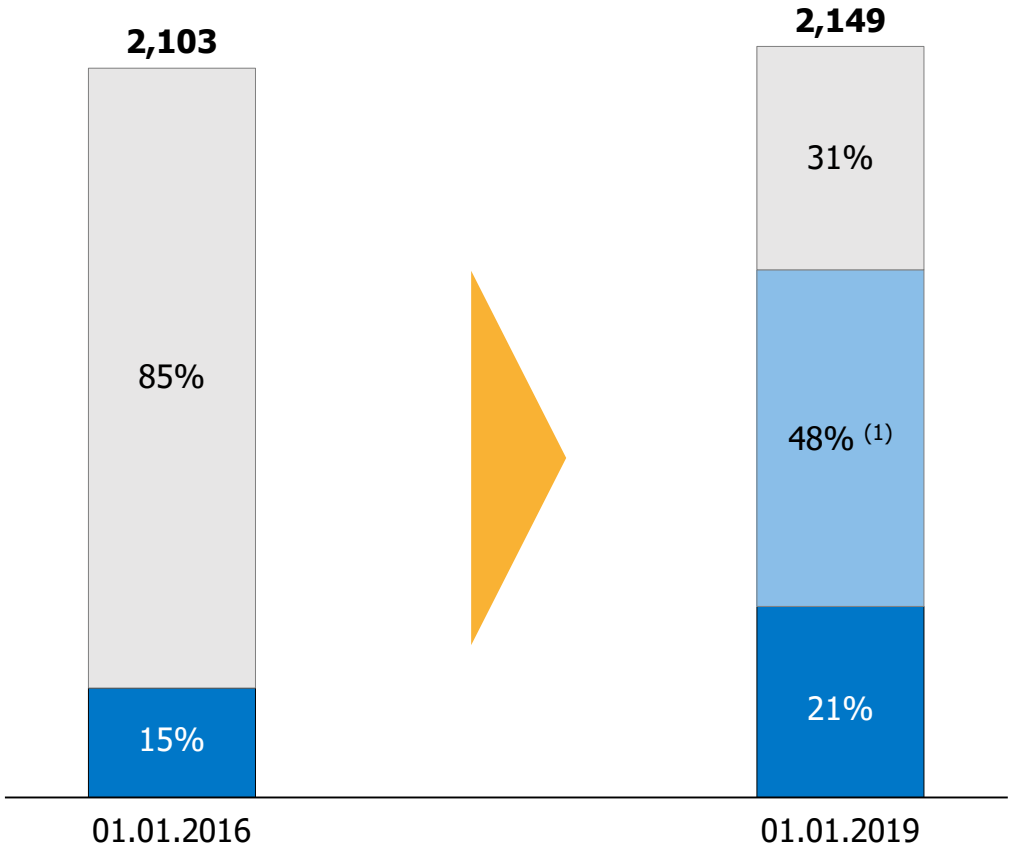



*Sources: Companies' filings, Nornickel estimates*
*Note: Reports and reserves presented on 100% consolidated basis, calculations based on the latest publicly available data*

# Converting Unique Resource Base into Development Projects

## Reserves and Resources, Polar Division + South Cluster

*Mt*




Resources for further review

Reserves and Resources considered in the scope of PFSs

Reserves and Resources covered by approved projects

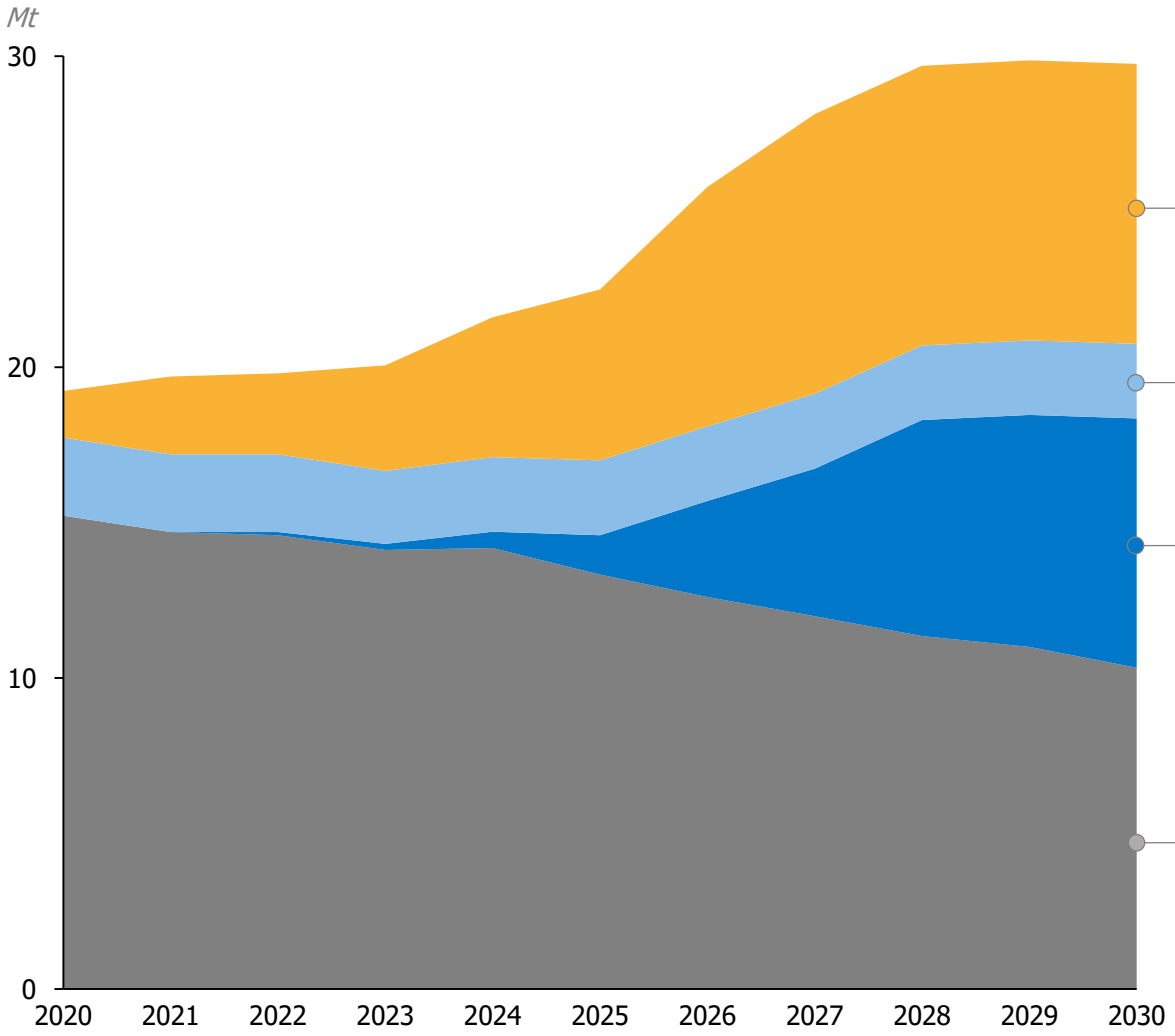
- **New development projects at Talnakh mines:**
  - ✓ Komsomolsky
  - ✓ Oktyabrsky
  - ✓ Taimyrsky
  - ✓ Mayak

- Base-line production and projects in construction
- South Cluster
- Skalisty

*Note: 1. Includes all mineral resources, considered in the scope of pre-feasibility studies*

# Charging Up Mining Growth at Polar Division

## Norilsk Industrial District: Ore Mining Profile




## Key Upstream Growth Projects

- **"South Cluster" Project**
- **Skalisty Mine Development**
- **New Development Projects at Talnakh Mines**
  - Oktyabrsky
  - Komsomolsky
  - Taimyrsky
  - Mayak
- Base-line production and projects in execution

## Downstream and Infrastructure

- Kola Nickel refinery upgrade
- Kola concentrate loading unit
- Infrastructure upgrade
- 3rd Stage of Talnakh Concentrator upgrade

*Source: Company data*

# New Development Projects at Talnakh Mines – Update

| Mining Project | Incremental Reserves in Development | Project Details | Stress-tested IRR [1] | Project Stage |
|---|---|---|---|---|
| Komsomolsky | ▪ +385 Mt of ore<br>▪ +1.4 Mt of Ni<br>▪ +2.8 Mt of Cu<br>▪ +1.2 kt of PGM | ▪ Throughput: +2 Mtpa<br>▪ LOM extension: +46 years<br>▪ Next stage to be launched in 2025 | >20% | PFS |
| Oktyabrsky | ▪ +211 Mt of ore<br>▪ +0.6 Mt of Ni<br>▪ +2.4 Mt of Cu<br>▪ +0.7 kt of PGM | ▪ Throughput: +2 Mtpa<br>▪ LOM extension: +27 years<br>▪ Next stage to be launched in 2026 | >20% | PFS |
| Taimyrsky | ▪ +186 Mt<br>▪ +1.2 Mt of Ni<br>▪ +2.8 Mt of Cu<br>▪ +0.9 kt of PGM | ▪ Throughput sustained<br>▪ LOM extension: +44 years<br>▪ Next stage to be launched in 2026 | >20% | PFS |
| Mayak | | ▪ Preliminary throughput expansion studies to be finalized in 2020 | | Scoping |

*Source: Company data*
*Note: 1. Consensus prices with 20% discount*

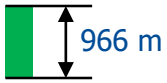
# Skalisty Mine Development Update

## Project Description

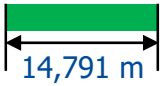
- Production capacity: 2.5 Mtpa
- Ore reserves: 66 Mt
- CapEx 2013–2019: US$1.6 bn
- CapEx 2020–2023: ~US$0.6 bn
- Autonomous operations being considered

## Project Update

- Commissioned mining capacity in 2016-2019: ~1.4 Mtpa
- Expected launch in 2020: 200 ktpa
- #10 ventilation shaft sinking is completed (2,056 m deep)
- Completion of main shaft is scheduled for June 2021
- Lateral development will commence in December 2019
- Scope of work in 2017-2019 (1):




Shaft sinking




Lateral development on the upper levels

| | |
|---|---|
| **Status** | **~2.3 Mt ore mined in 2019** |
| **Target Capacity** | **~2.5 Mt (2)** |

*Notes: 1. For both shafts; 2. With gradual replacement of "old" capacity*

# South Cluster Project Update

## Project Description

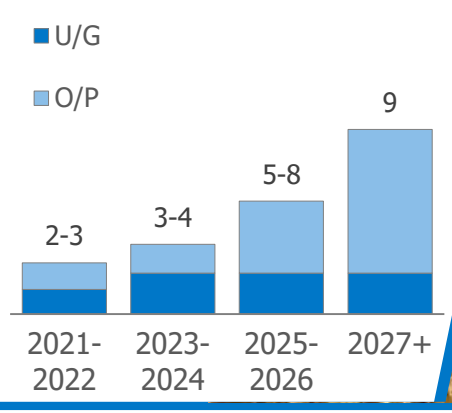
- Large-scale, long life (25+ years) brownfield asset at the bottom of the global PGM cost curve
- Project resources [1]: 165 Mt of ore @ 3.9 g/t PGMs; 0.2% Ni; 0.3% Cu
- O/P and U/G operations leveraging off the existing infrastructure
- Waste stripping commenced in May 2019 and is on schedule with a ramp-up beginning in 2021-2022
- FS and detailed engineering to be completed in 2020

## Operating Performance Outlook

| Target Annual Capacity | | |
|---|---|---|
| Ore | Mt | 9 |
| PGMs | koz | 750-850 |
| Ni | kt | 10+ |
| Cu | kt | 15+ |
| **EBITDA [2]:** | | **US$0.7 bn+** |

Mining CapEx ('19-'27): US$0.9 bn

*Ramp-Up Schedule, Mt of Ore*




*Notes: 1. Unaudited data; 2. Based on long-term consensus price forecasts*

# Kola Concentrate Loading Unit – Project Update

## Project Description

- Environmental project enabling re-direction of Kola concentrates to other facilities post shutdown of nickel smelter resulting in eradication of $SO_2$ emissions in Nickel town (cross-border zone with Norway)
- Key Objects:
  - Construction of the flotation circuit to produce two types of marketable nickel concentrates
  - Construction of the low-grade nickel concentrate loading point
- Total Capex of ~US$90 mn

## Project Update

- The unit is in the hot commissioning stage
- Full completion expected by the end of 2019

*Source: Company data*

# Kola Nickel Refinery Upgrade – Status Update

## Project Description

- Modernization of Tankhouse-2 with 20% capacity increase (from 120 ktpa to 145 ktpa)
- Additional improvements:
  - ✓ increased nickel recovery from high-grade matte by over 1.0%
  - ✓ work-in-progress inventory optimization
  - ✓ reduction of environmental footprint
- Capex for 2019: ~US$100 mn
- Total Capex of US$450 mn

## Project Update

- Current status: Hot-commissioning (70% of cells at full capacity)
- Full design capacity and parameters by the end of 2019

*Source: Company data*

# Energy Infrastructure Modernization to Support New Growth Cycle

## Project Description

- New production growth targets to be accompanied by the staged upgrade of the energy infrastructure
- Energy projects scheduled for 2020-2025:
  - Replacement of 2 and installation of 3 new power-generating units at the thermal power plants 2 and 3
  - Power grid and gas pipeline system modernization
  - Hydro power plant upgrade (replacement of turbines and introduction of an automated dispatch system)
- 2020-2025 energy infrastructure CapEx: ~US$2 bn


## 2019 Project Update

- Replacement of 5th turbine at Ust-Khantayskaya hydro power plant (out of total 7) completed, the other two to go
- Replacement of one of the power-generating units at the thermal power plant 2 is in progress

# Bystrinsky Project Update

## Project Description

- The largest greenfield project in the Russian mining industry
- Location: Chita, Zabaikalsky region
- The 10 Mtpa concentrator was fully commissioned in August
- Regulatory approvals for supporting infrastructure expected by 2019YE
- Ore reserves: 341 Mt, grades: Cu – ~0.7%; Fe – ~21%; Au – ~0.9 g/t (1)
- New jobs: >2,000
- 1H 2019 EBITDA: US$160 mn

## Operating Performance Outlook

| | | 2018 | 2019E | 2020E |
|---|---|---|---|---|
| Ore | Mt (2) | 4 | 8 | 10 |
| Cu in concentrate | kt | 19 | 40-46 | 55-65 |
| Au in concentrate | koz | 90 | 192-212 | 220-240 |
| Iron Ore Concentrate | Mt | 0.4 | 1.0-1.2 | 1.5-1.7 |

*Notes:*
1. *According to the Russian classification (A+B+C1+C2),*
2. *Processed ore*

# Technological Breakthrough

- Nornickel's "Technological Breakthrough" – ongoing programme aiming at the roll-out of advanced digital designing, planning and operational control of mining activities of the Company
- To date, the following tasks have been accomplished:
  - Complete resource model of all mining assets
  - Digital planning starting from LOM down to the short-term scheduling (hour)
  - Dynamic simulation of mining activities
  - Real-time metal accounting
  - U/G personnel and equipment monitoring for safety and operational control
  - Real-time dispatching system
- Newly built control centers at Polar Division mines providing a real-time 24/7 monitoring and correction of mining operations
- Similar digital control centers to be rolled out at Kola Division in 2020
- A fully autonomous smart digital mine project is being designed for a new Skalisty mine

# Efficiency Programme Delivery: Strong Momentum To Continue into 2020

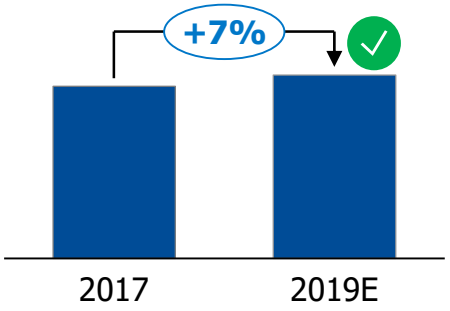
## Targets Announced in 2018

**Production growth**
in 2019-2020
**5-8%**
(2020 vs. 2017)

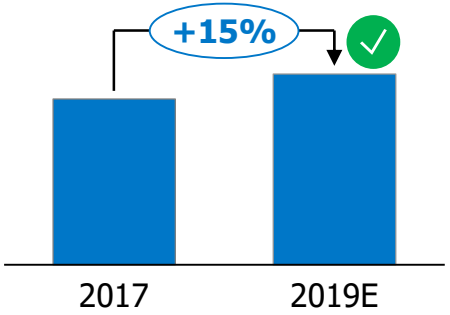
**Labor productivity growth**
in 2019-2020
**12-15%**
(2020 vs. 2017)

## Delivery in 2019

*NiEq production (1)*




*NiEq production per employee (1)*




## Selected Initiatives

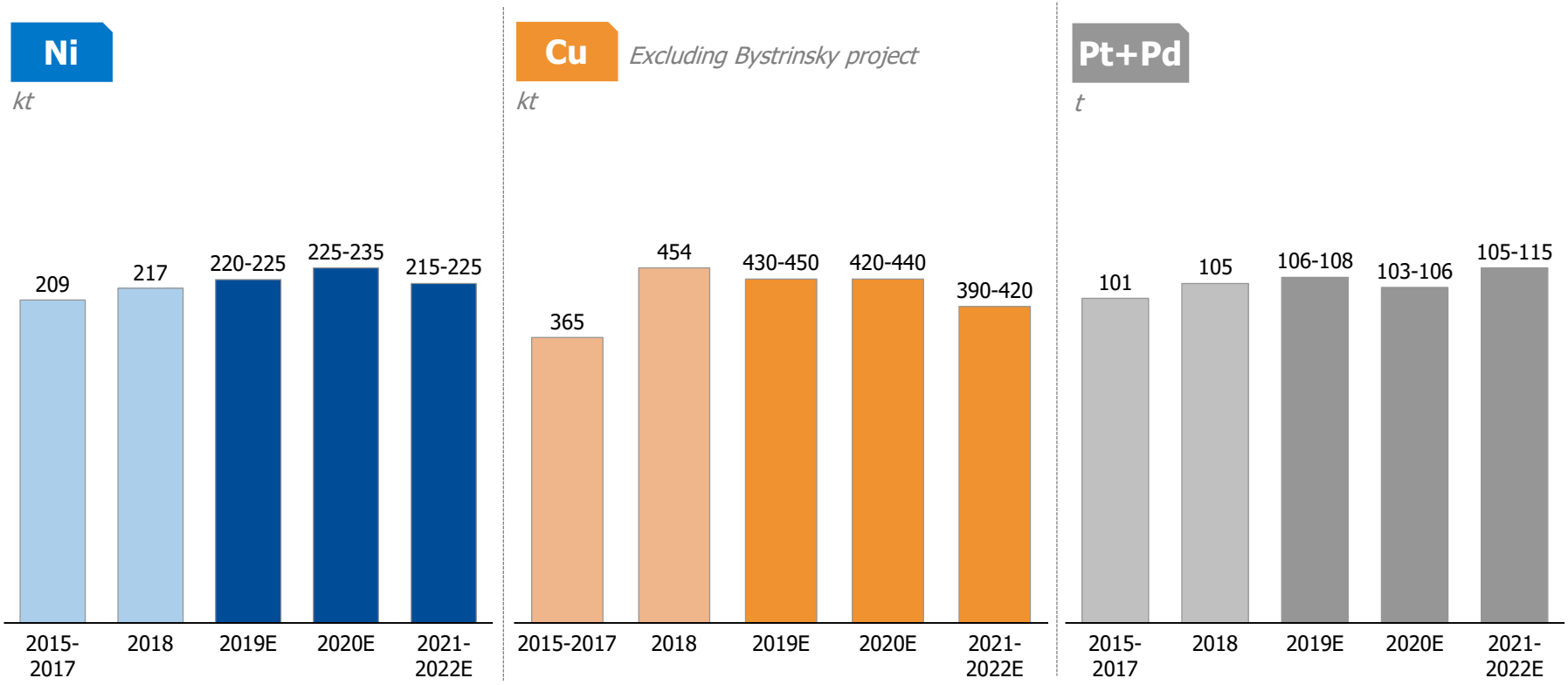
- ✓ Roll-out of advanced mine planning, including simulation modeling
- ✓ Improving equipment utilization rates
- ✓ Full-scale roll-out of digital control centers

- ✓ Nearly half of productivity gains is driven by debottlenecking of existing assets across the value chain
- ✓ Roll-out of shared services to all business units
- ✓ Centralization of support functions
- ✓ "Continuous improvement" programme in action with 10 000+ initiatives under review

**2020 Target: Keep the momentum and continue with roll-out of efficiency initiatives**

*Note: 1. Not including Bystrinsky project*

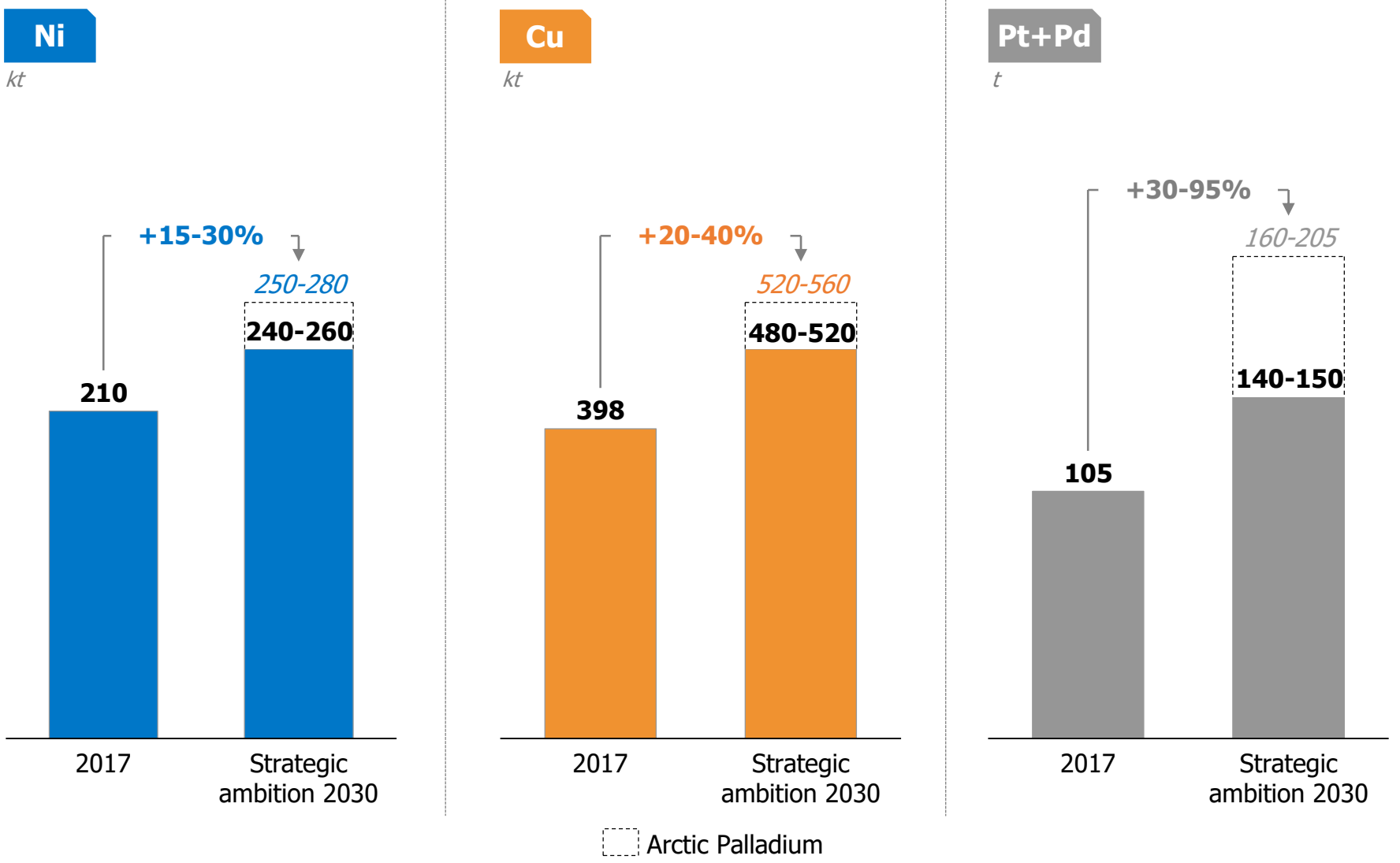
# Production Guidance for 2019-2022 (1)




- Copper production temporary decline in 2021-2022 due to secondary feedstock depletion is expected to recover by ~2024-2025 driven by growth of mined ore volumes
- Nickel and PGM volumes are expected to subside moderately due to and subject to planned furnaces maintenance at Nadezhda smelter

*Note: 1. Metals produced from own feedstock (including metals in saleable semi-products), excluding production of Bystrinsky project and Nkomati*

# Strategic Ambitions for 2030+ Metal Production (1)




*Note: 1. Metals produced from own feedstock (including metals in saleable semi-products), excluding production of Bystrinsky project and Nkomati*

# The Strategy of Sustainable Growth


Sergey Dubovitskiy
Vice-President for
Strategy & Strategic Projects

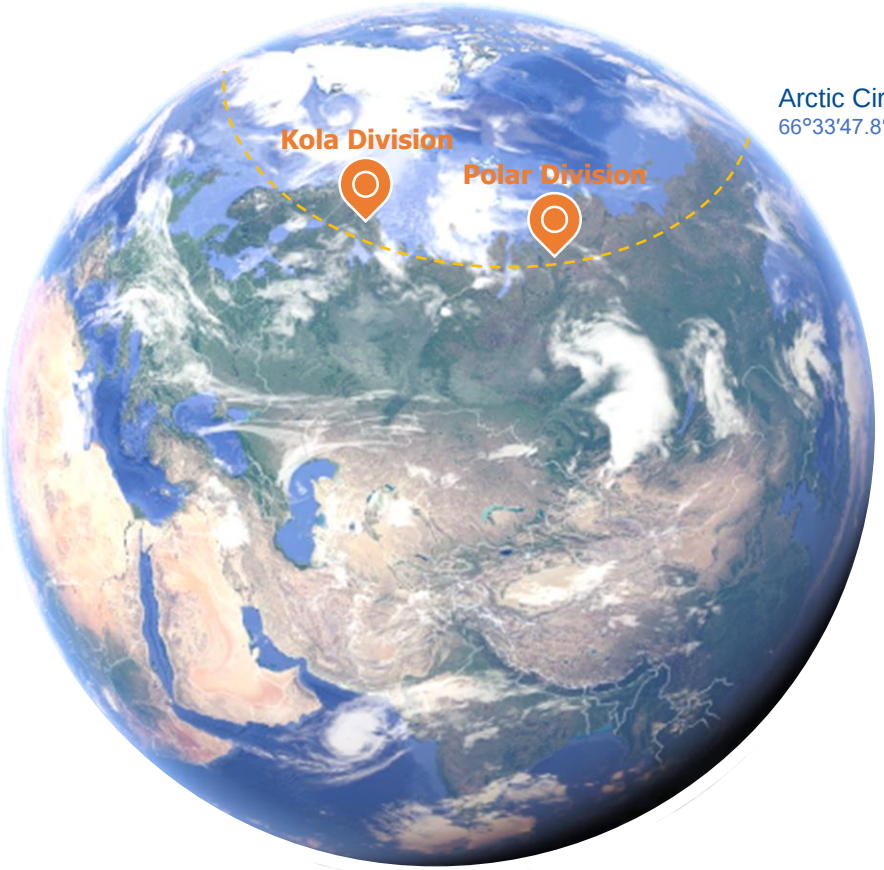

NORNICKEL

# Holistic Environmental Programme: Progressing on Sustainability Journey

## Sustainable Operations

Sulphur Programme 2.0:

**Target:** up to 20x [1] reduction in $SO_2$ emissions at Polar Division and 7x [1] at Kola




## Sustainable Arctics

Commitment to sustainable future for our home regions

Collaboration with think tanks and research institutes on "Sustainable Arctics" topics

## Sustainable World

Maintaining the lowest-in-class carbon footprint

Enabling the global shift to cleaner mobility

*Note: 1. As compared to "base" year (2015)*

# Holistic Environmental Programme: Action Plan

## Sulphur Programme 2.0

- Introduce efficient solution for $SO_2$ capturing at Polar Division, an upgrade to Sulphur Programme 1.0
- Progress further on a comprehensive multi-stage journey towards global industry benchmarks in environmental footprint

## Sustainability Reporting

- Continue working on transition to international standards in sustainability reporting enhancing disclosure in climate change topics

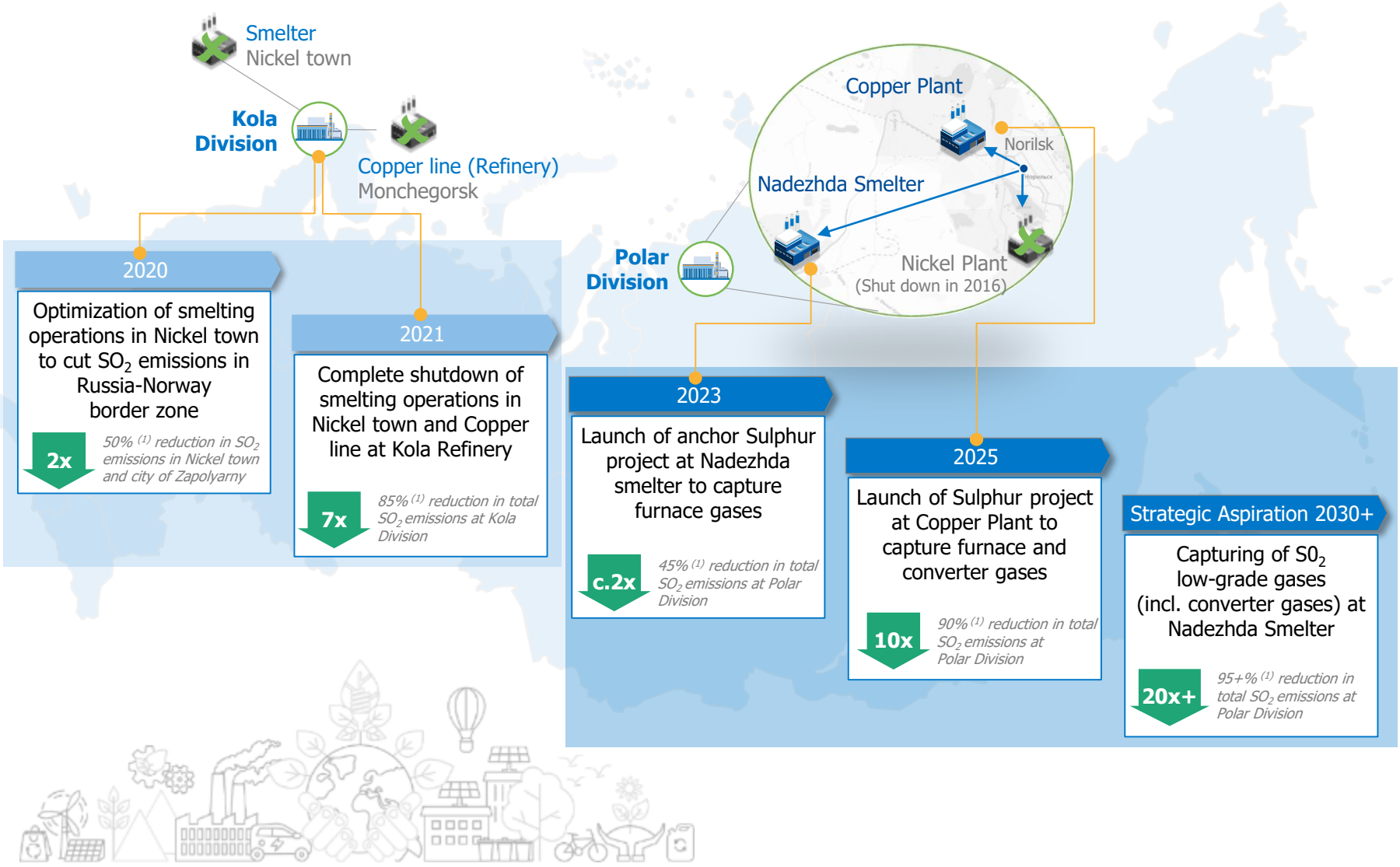
## Research on Sustainability & "Green" Technologies

- Support joint research and collaboration with R&D centers and think tanks with a focus on green technology and broader "sustainable Arctics" agenda

## Organization Enablement

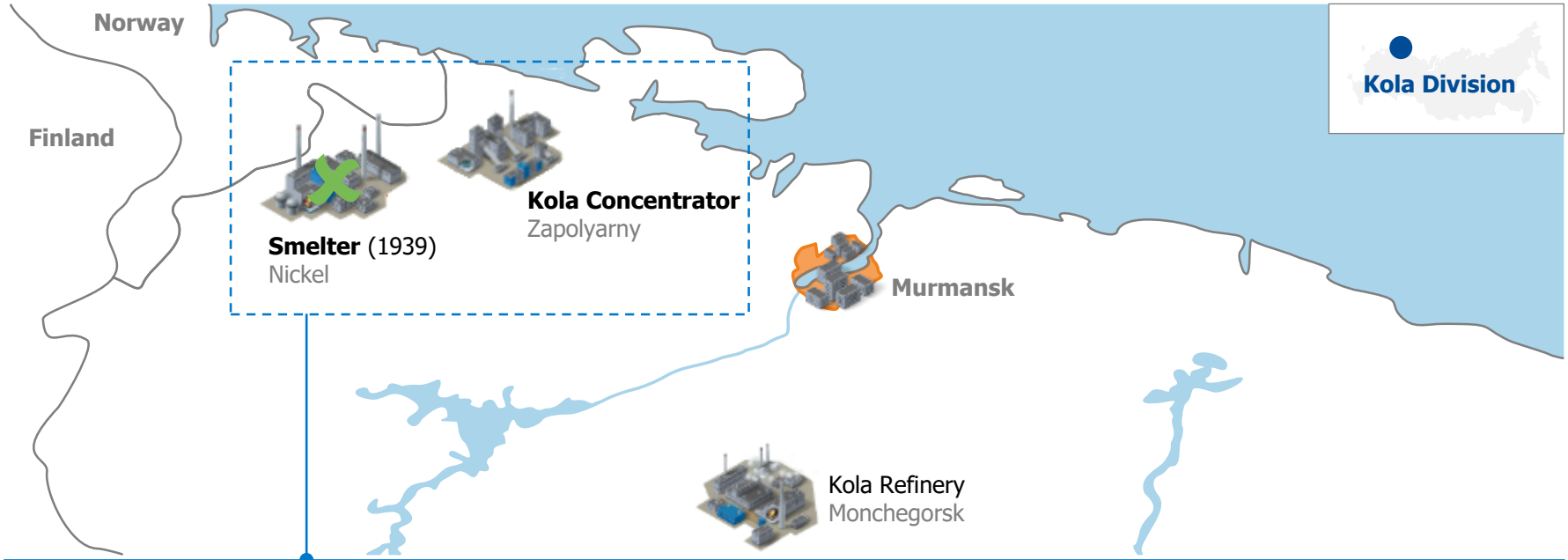
- Set up executive taskforce sponsored by Board Chairman to drive Holistic Environmental Program

# Sulphur Programme 2.0: Environmental Roadmap




*Note: 1. As compared to "base" year (2015)*

# Sulphur Programme 2.0: Eradicating Emissions at Kola Cross-Border Area




## 2020

- ✓ Transition to concentrate briquetting technology (completed in 2016-17)
- Partial shutdown of electric furnaces at the Smelter in Nickel town
- Upgrade of concentrator with additional flotation circuit and loading facility
- "Low-grade" Kola concentrate: sales to third parties

**-50%**
overall reduction of $SO_2$ emissions by Kola Division (2020 vs 2015)

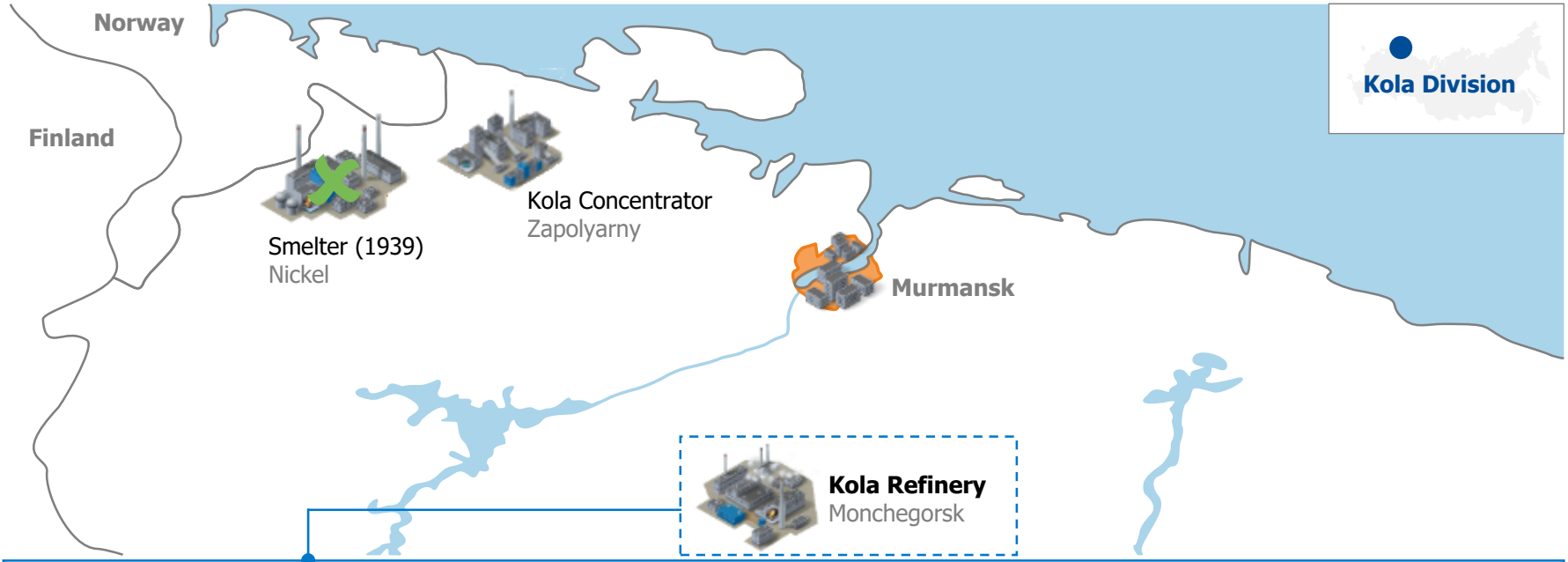
## 2021

- Complete shutdown of smelting operations in Nickel town to eradicate $SO_2$ emissions in the cross-border area
- "High-grade" Kola concentrate: market alternatives could be considered, however priority will be given to own smelting capacities at Polar Division subject to productivity improvements/ debottlenecking initiatives

**-100%**
Smelter's $SO_2$ emissions in cross-border area

*Source: Company data*

# Sulphur Programme 2.0: Dramatically Reducing Emissions at Kola Division




**2021**

- Complete shutdown of Copper line at Kola Refinery eliminating the major source of refinery's $SO_2$ emissions, which is located closest to the residential area
- Product flows to be re-directed to Polar Division where capacity will be available due to secondary stock depletion and debottlenecking initiatives, with optionality of partial sales to third parties
- Longer term options for the site include construction of modern, fit-to-size capacities to process growing volumes, which will be assessed against market alternatives

High-grade matte separation

**Nickel line**

✓ Upgraded to leaching technology (2019)

**Copper line**

2x furnaces | 4x converters | 4x anode EFs | Electro-lysis shop

**-85%+**

overall $SO_2$ emission reduction by Kola Division (2021 vs 2015)

*Source: Company data*

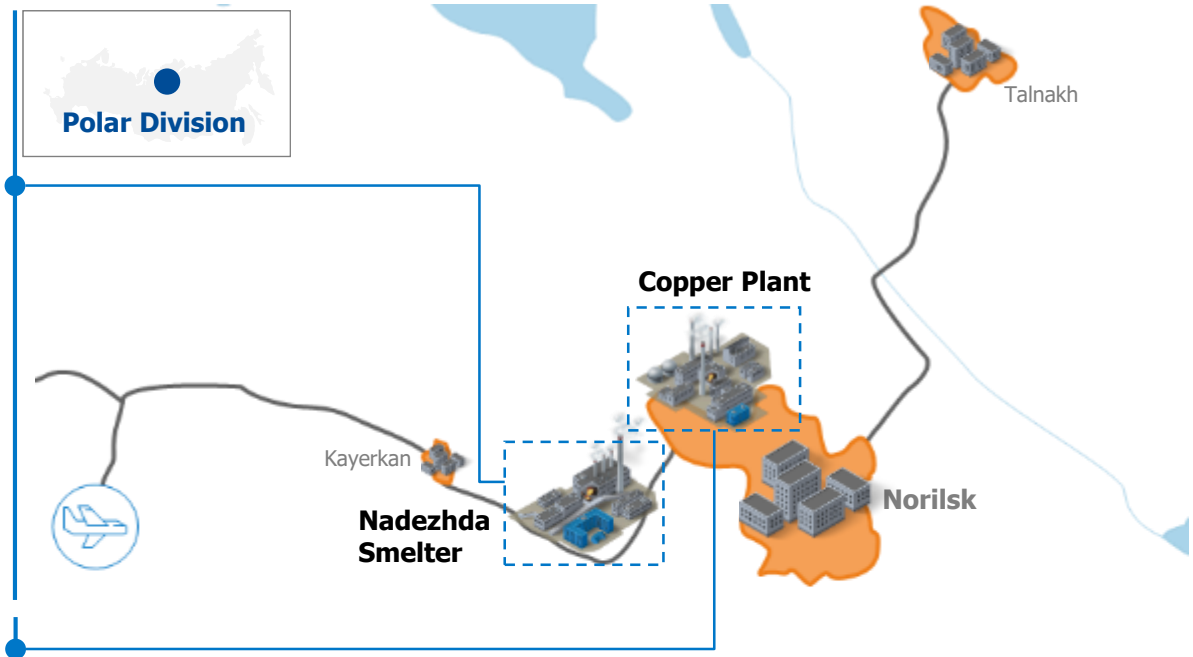
# Sulphur Programme 2.0: Comprehensive Environmental Solution for Polar Division

## Nadezhda Smelter:

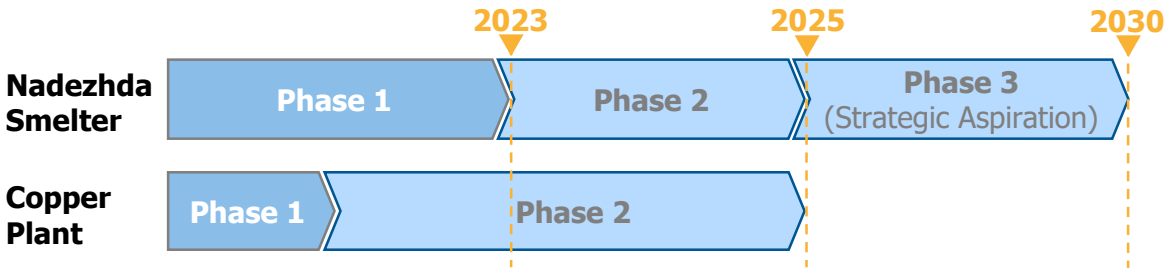
- **Phase 1:** Anchor project to capture furnace gases at Nadezhda and establish acid neutralization facilities and infrastructure (incl. gypsum storage) – to be completed by 2023
- **Phase 2:** Expansion of neutralization infrastructure (for sulphuric acid from Cu stream) by 2025
- **Phase 3 (Strategic Aspiration):** Capturing of sulphur-poor gases from converter furnaces

## Copper Plant:

- **Phase 1:** Preparatory works (incl. construction of gas cleaning unit and infrastructure), design update
- **Phase 2:** Sulphuric facilities to capture 99-99.5% $SO_2$ at Copper Plant by 2025 in line with industry benchmarks




## Projects Timeline and CapEx




**Total CapEx (Phase 1+2): c. US$3.5 bn, of which already committed spend for Phase 1: US$1.2-1.3 bn**

*Source: Company data*

# Sulphur Programme 2.0: Nadezhda Smelter (Polar Division)

2023

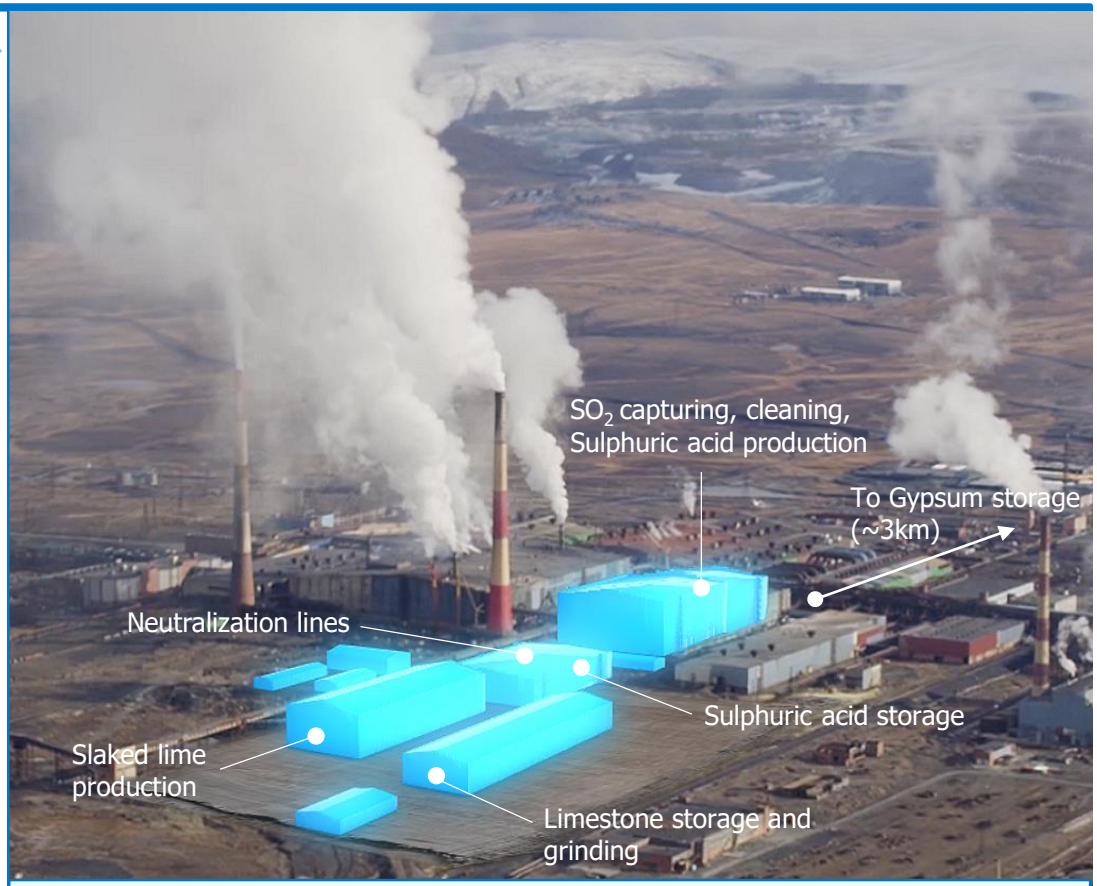
**Strategic Objective:** Achieve 45% $SO_2$ reduction for Polar Division by 2023 and establish scalable solution for sulphuric acid neutralization

**Scope** (Phase 1 to be completed by 2023):

- 2 lines of $SO_2$ capturing from flash furnaces and sulphuric acid production
- Limestone preparation and neutralization lines (sulphuric acid into gypsum)
- Gypsum storage (3 km away from the Smelter)
- Supporting infrastructure

**Project status**:

- Site fully prepared
- Project design completed
- Key contractors selected
- Procurement of long-lead items initiated
- Construction start scheduled for 1H2020




Click to watch the video about Phase 1 of the Sulphur Programme 2.0 at Nadezhda Smelter:

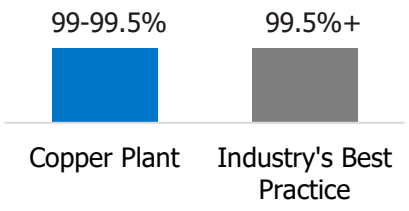
YouTube https://youtu.be/ZuJLH3SGo00

# Sulphur Programme 2.0: Copper Plant (Polar Division)

2025

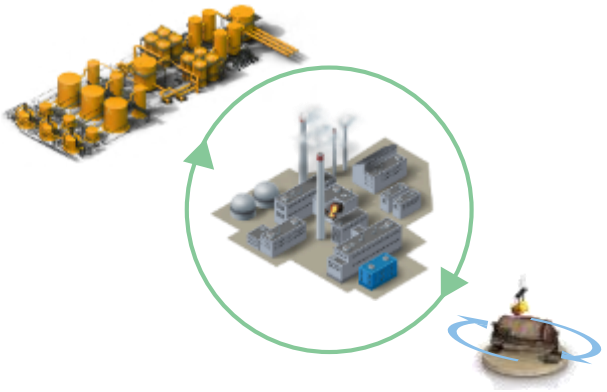
**Strategic objective:**

**99%+ $SO_2$ utilization rate at Copper Plant, located within Norilsk city area, bringing it on par with industry benchmarks**




## Sulphuric Acid Based Technology

- ✓ Adopting proven technology (Double Contact Process) to achieve stated strategic objectives
- ✓ Leveraging off existing design solutions of Phase 1 (at Nadezhda Smelter)
- ✓ Leveraging off / scaling up sulphuric acid neutralization capacities at Nadezhda Smelter



## Continuous Converting Unit (Cu Stream)

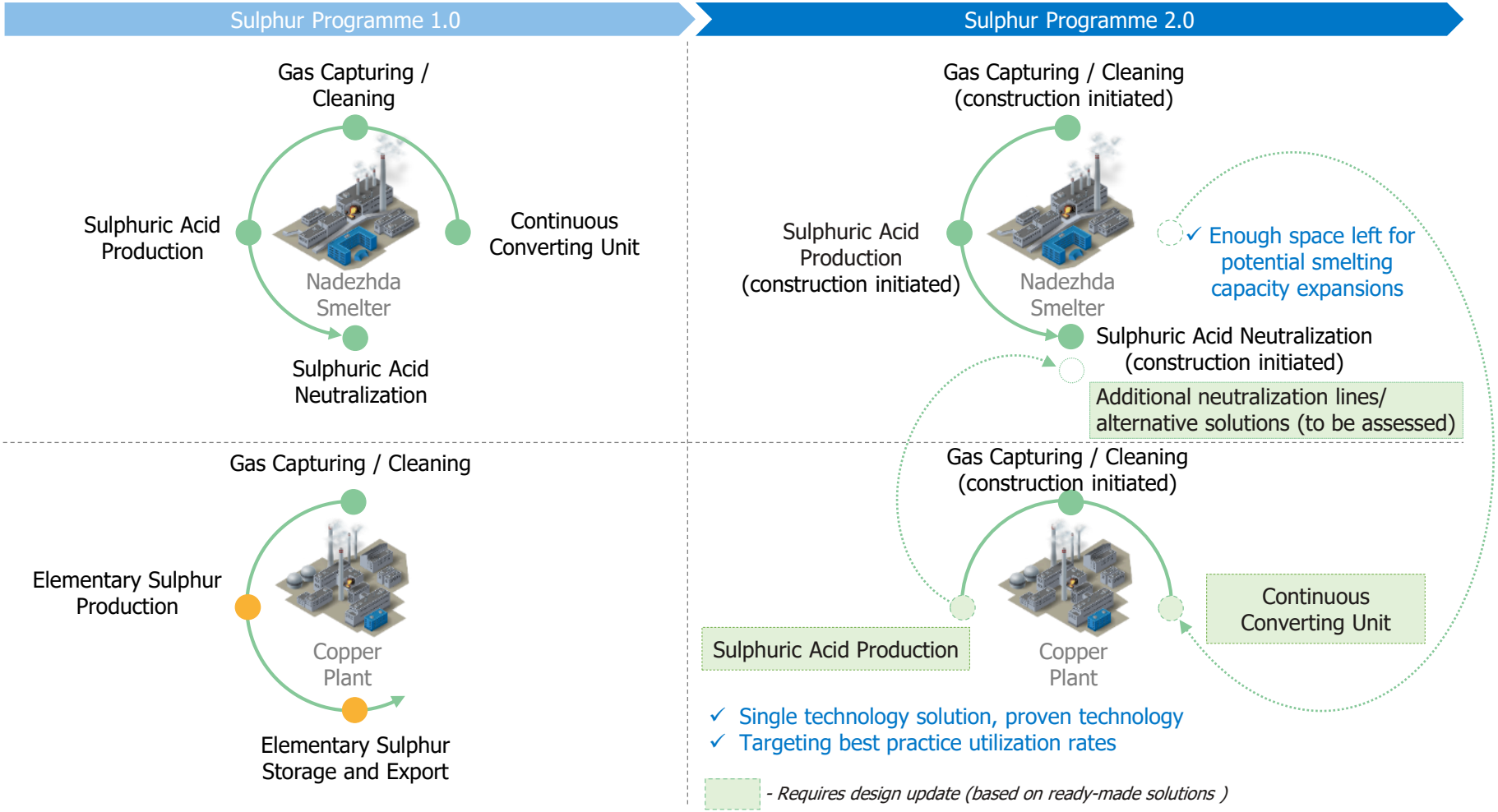
- ✓ Relocating the project back to Copper Plant, leaving enough space at Nadezhda Smelter to unlock strategic optionality for capacity expansion
- ✓ Replicating technological solution from the already developed design
- ✓ Gas capturing solution to be unified with flash furnaces - based on sulphuric acid production

**Action Plan - 2020:**

- ✓ Start construction of Phase 1 objects (gas cleaning unit, auxiliary infrastructure) as designed
- ✓ Update project documentation based on ready solutions prepared for Nadezhda Smelter project (sulphuric acid)
- ✓ Initiate project design for additional neutralization lines in parallel with the assessment of efficient solution for sulphur / sulphuric acid utilization

*Source: Company data*

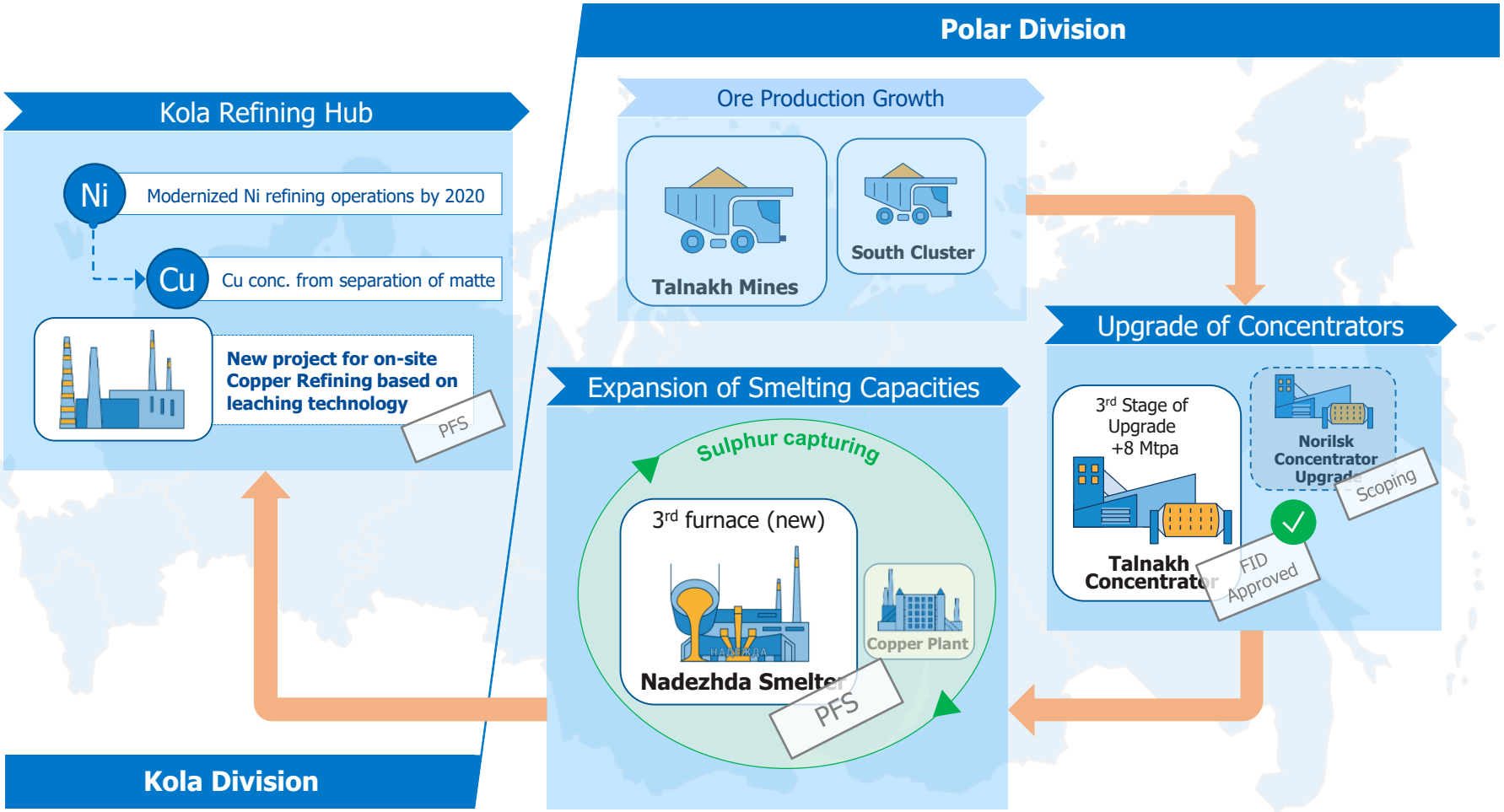
# Sulphur Programme 2.0: Progressing to More Efficient $SO_2$ Capturing




- New configuration designed to achieve higher $SO_2$ utilization rates based on proven technology while leaving enough space at Nadezhda smelter to unlock strategic optionality for capacity expansion

*Source: Company data*

# Strategic Roadmap of Downstream Development




- Long-term strategic roadmap in place for fit-to-size expansion/upgrade of production infrastructure synchronized with the development of mining projects and auxiliary infrastructure
- Staged approach to investment decisions to ensure high level of optionality and continuous project improvements

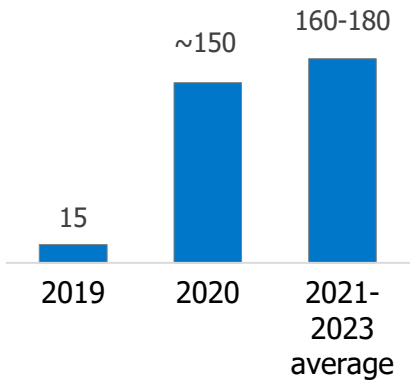
# 3rd Stage of Talnakh Concentrator Upgrade – in Execution

## Project Description

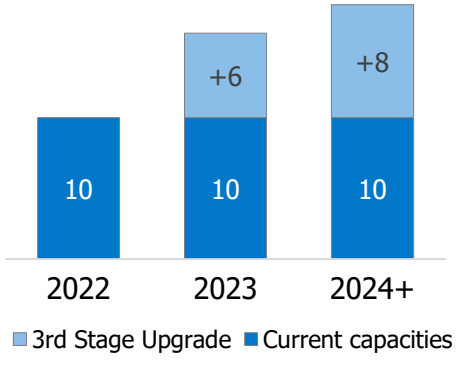
- 3rd stage upgrade of Talnakh concentrator capacity up to 18 Mtpa (+8 Mtpa) to process growing ore volumes
- Proven technology to achieve higher recoveries (+4-7% for all key metals) delivering US$150 mn+ in incremental EBITDA annually
- Capacity expansion unlocks strategic optionality for major growth projects, including South Cluster
- Key contracts to be signed in Q1 2020

## Operating Performance Outlook

*Estimated CapEx (1), US$ mn*




*Ramp-Up Schedule, Mt of Ore*




*Note: 1. Including 2nd stage of the tailing dam*

# Option for Further Growth: Arctic Palladium – Tier 1 Asset Confirmed

## Project Description

- Potentially the world's largest greenfield PGM cluster (750+ Mt M&I resources[1] @5.2g/t PGM, 0.3% Ni, 0.4% Cu)
- Pre-feasibility study confirmed the project as a Tier 1 Asset with over 50 years of mine life
- The project is subject to all due corporate approvals
- JV corporate setup being finalized with further details to be provided in 2020

## Project Development Approach

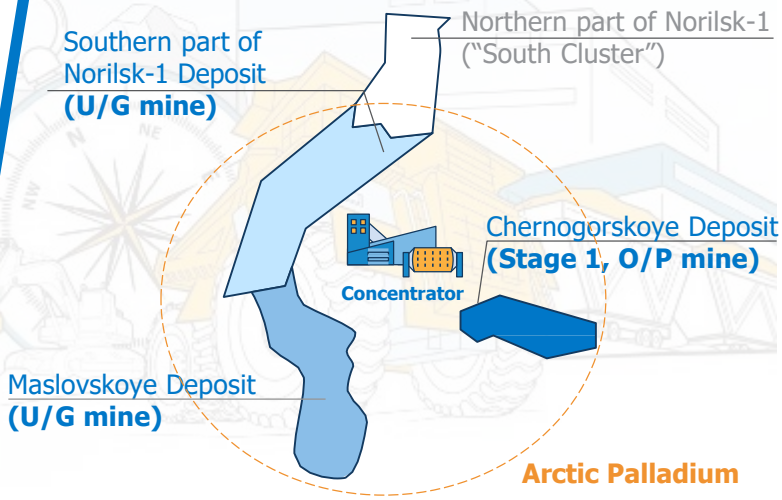
- Staged approach to development of deposits as a single production cluster:
  - ✓ **Stage 1**: 7 Mtpa open pit mine starting production by 2024
  - ✓ **Stage 2**: +7 Mtpa underground mine launch by 2029
  - ✓ **Stage 3**: +7 Mtpa underground operation in 2030s expanding total capacity to 21 Mtpa
- Estimated development CapEx until first production ('19-'24): US$2.8-3.2 bn, of which for Stage 1 – US$1.4 bn

EBITDA margin
> 40%

Revenue
> $1 bn

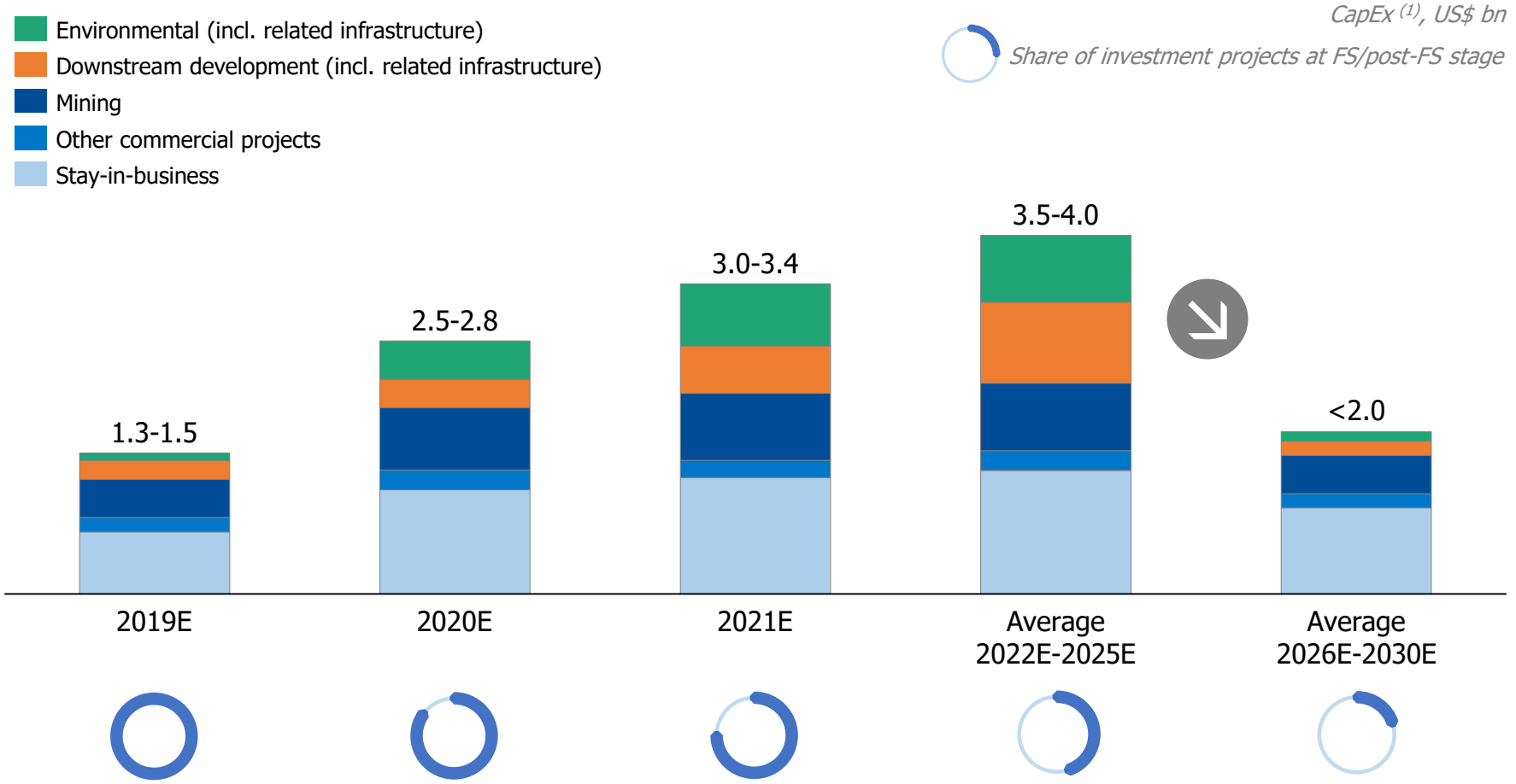
Long Reserve Life
> 20 years

Tier I Asset confirmed




*Note: 1. Unaudited data*

# CAPEX Guidance




- *Shift of advance payments to 1H2020*
- *Optimization of execution schedules*

*Guidance for early-stage investment projects to be specified in 2020-2021 based on design documentation, further updates of strategic mine plans as well as pace of scaling up of construction capabilities and resources in Norilsk region*

*Note: 1. Not including potential CapEx for Arctic Palladium*

# Finance and IT: Supporting Growth

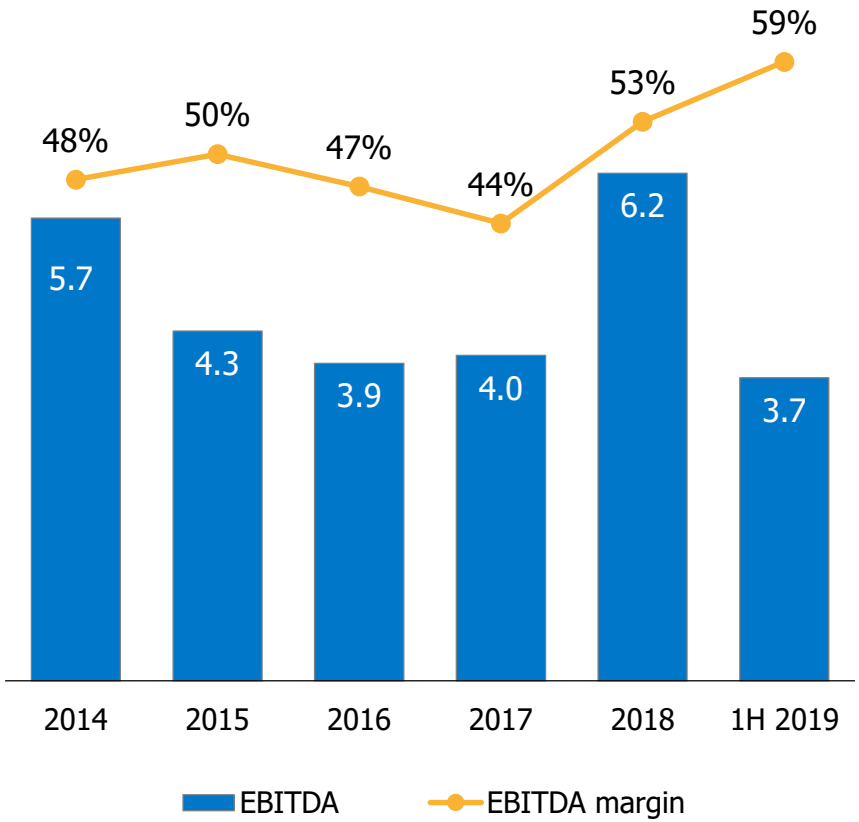
Sergey Malyshev
Senior Vice-President
Chief Financial Officer

NORNICKEL

# Highest EBITDA Since 2007 on the Back of Strong Operating Performance and Favorable Macro Environment

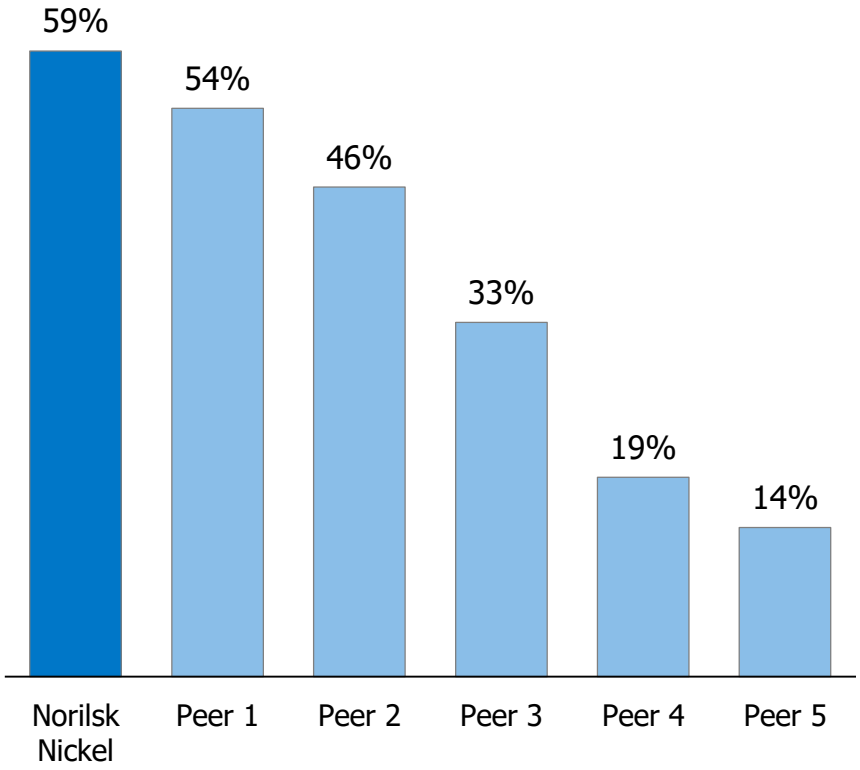
## Industry Leading EBITDA Margin Through the Cycle

*US$ bn*




## Leading EBITDA Margin (1) in Global Diversified Mining (2)

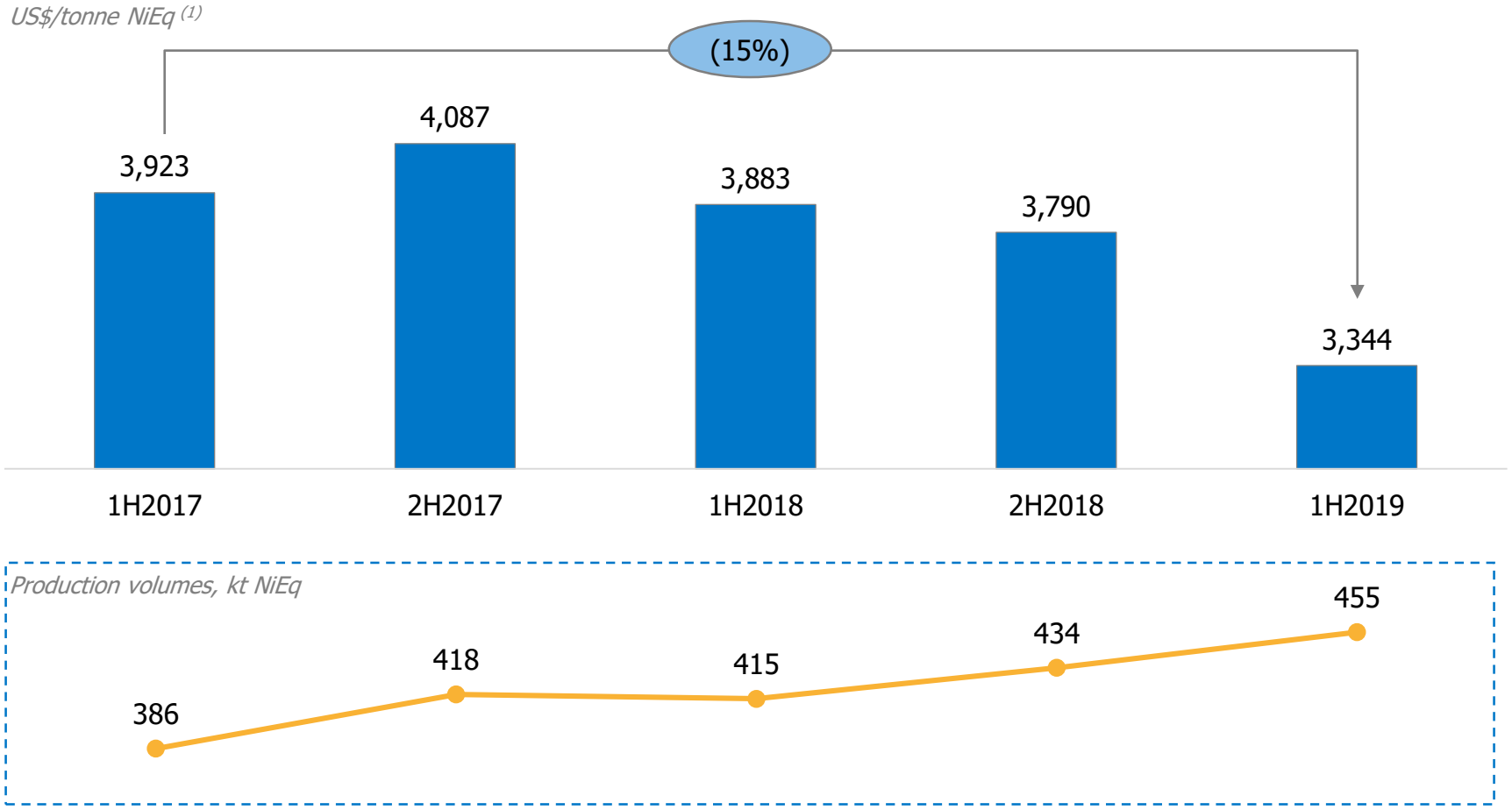
*%*




*Note (1): Norilsk Nickel estimates and company reports.*
*Note (2): peer group includes BHP, Rio Tinto, Vale, Glencore Metals and Minerals, Anglo American.*

# Margins Supported by the 15% Decline in Unit Costs

## Nickel Unit Cash Production Costs




*Note: 1. Ni equivalent calculated based on 1H17 average metals prices*

# The Company Outperformed All of 2017 Financial Targets

## 2017 guidance

- US$200-300 mn of additional EBITDA per annum due to higher volumes and lower unit costs

- US$135 mn annual savings in interest costs assuming flat LIBOR and unchanged gross debt

- ~US$1 bn net working capital level maintained

- Successful implementation of world class IT and shared services infrastructure to support operations

## 2018-2019 Expected Results

- Over US$400 mn of additional EBITDA in 2019 compared to 2017 due to increase in production volumes, labour productivity, WIP release
- Over US$180 mn reduction in interest paid in 2019E compared to 2017 (while gross debt increased)
- NWC expected to fluctuate within a narrow range close to US$1 bn
- ERP platform and Shared services rolled out onto all production assets, new digital initiatives executed

# OpEx and EBITDA Targets Achieved Due to Higher Production Volumes at Core Operations

**Efficiency improvement programme targeting annual cost reduction of US$200-300 mn by 2020 compared to 2017**

## 2020 Target

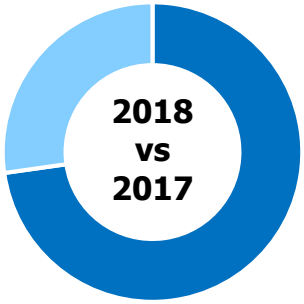
Flat or lower total cash costs in real terms on the back of asset upgrades and increase in labour productivity

Lower unit costs due to increased volumes and release of WIP inventory

Roll-out of first-class IT infrastructure and shared services across all business units

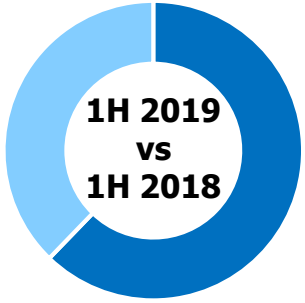
## EBITDA contribution (ex. FX and inflation)

Labour cost
US$58 mn




Production factors
US$155 mn

Release of WIP
US$105 mn




Production factors
US$173 mn

# Digital Solutions are Implemented Across the Value Chain

### Detection of uncrushable material on the conveyor belt

Reducing crusher downtime as unwanted material is screened out

### Industrial exoskeletons

Improved worker strength and endurance when handling heavy loads

### AI assistant for flotation operator

Improved recoveries through control of flotation chemicals, pulp levels

### Protective gear control

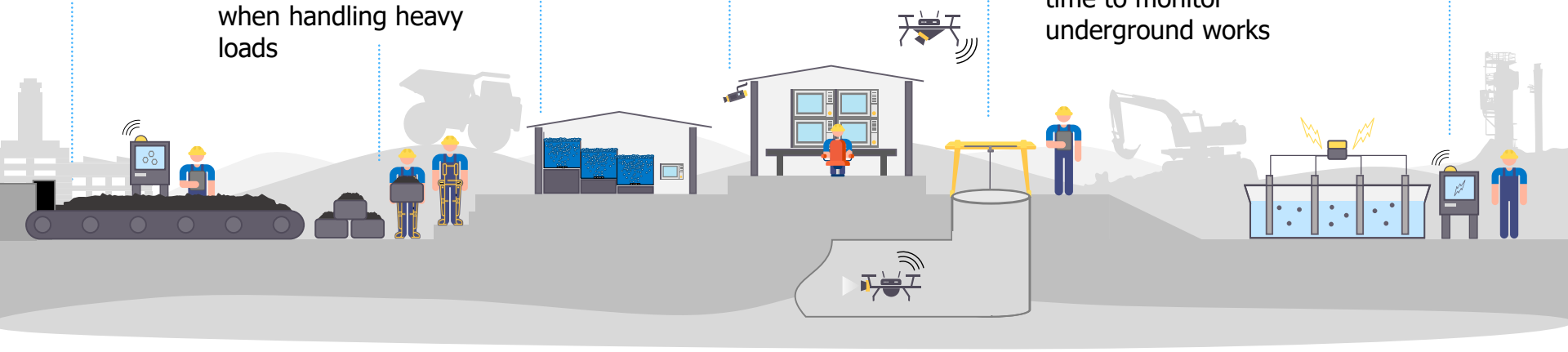
Automated video control of protective gear use to reduce injury rates

### Short-circuit detection in copper electrolysis

Automated thermal imaging detection allows for reduced electrolysis cell downtime and lower work-in-progress inventory

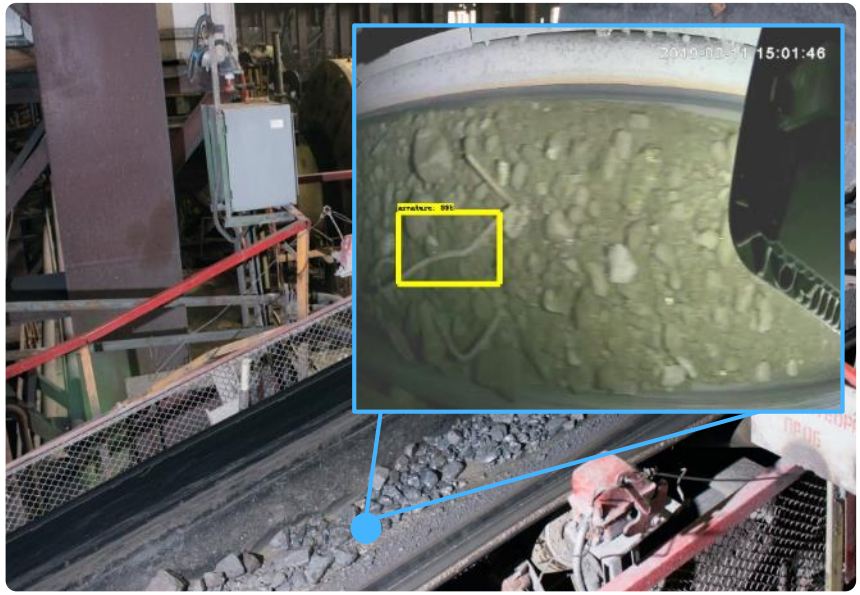
### Underground surveyor drones

Reduced cost and time to monitor underground works



# Examples of Initiatives Being Tested and Deployed

## Detection of uncrushable material on the conveyor belt



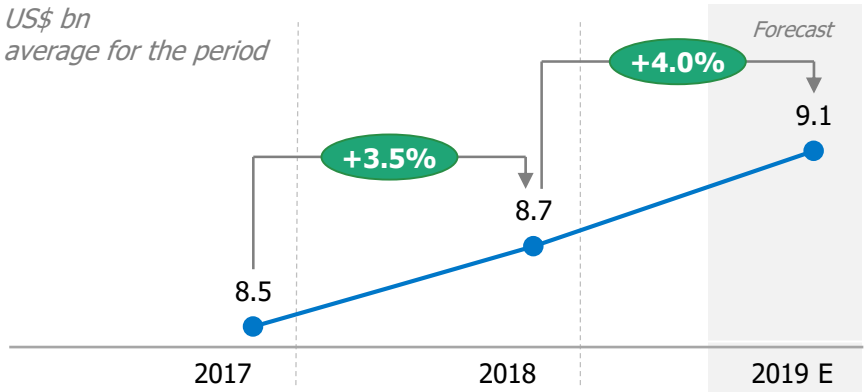

AI-assisted system automatically detects uncrushable material, such as tramp metal, pieces of mine support / drilling equipment. This allows screening out of such material, reducing unscheduled crusher downtime

## Industrial exoskeletons

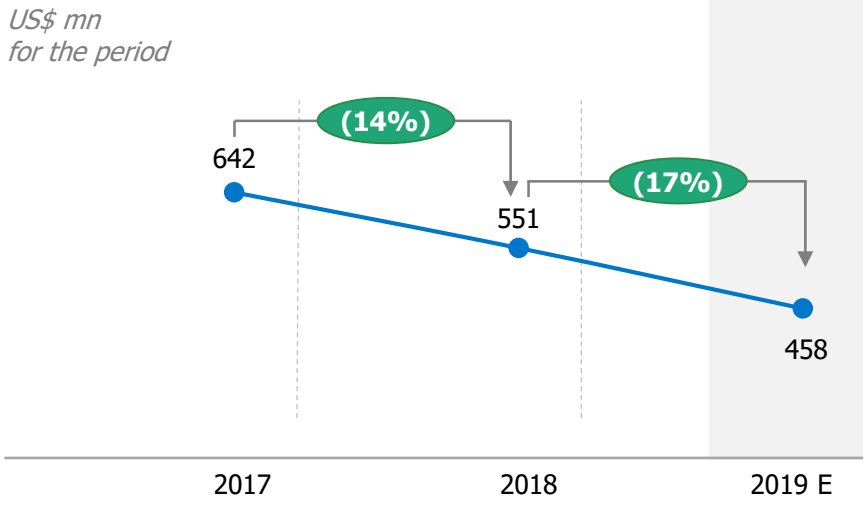
Wearable exoskeletons improve worker strength and performance when loading, unloading and performing certain repair tasks. Reduced load minimizes risk of occupational injury

# Finance Costs Reduced Significantly

## Gross Debt (1)



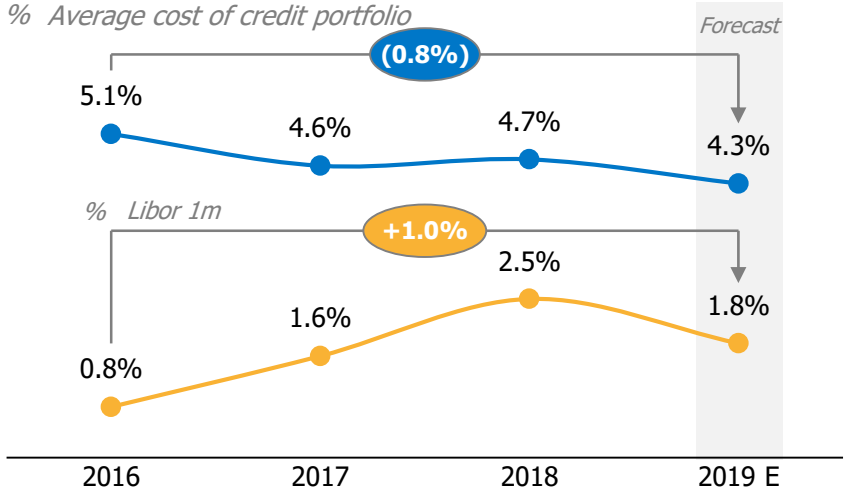

## Cash Finance Costs Expected to Reduce by Almost US$200 mn Relative to 2017




## Reduction of Cash Finance Costs and Decrease of Average Cost of Debt …

- … despite growth in base interest rates (LIBOR) in 2017-2018
- … despite an increase in the average gross debt
- … owing to successful restructuring of debt portfolio and improvements of terms with main debt providers
- and keeping **neutral** balance sheet FX position

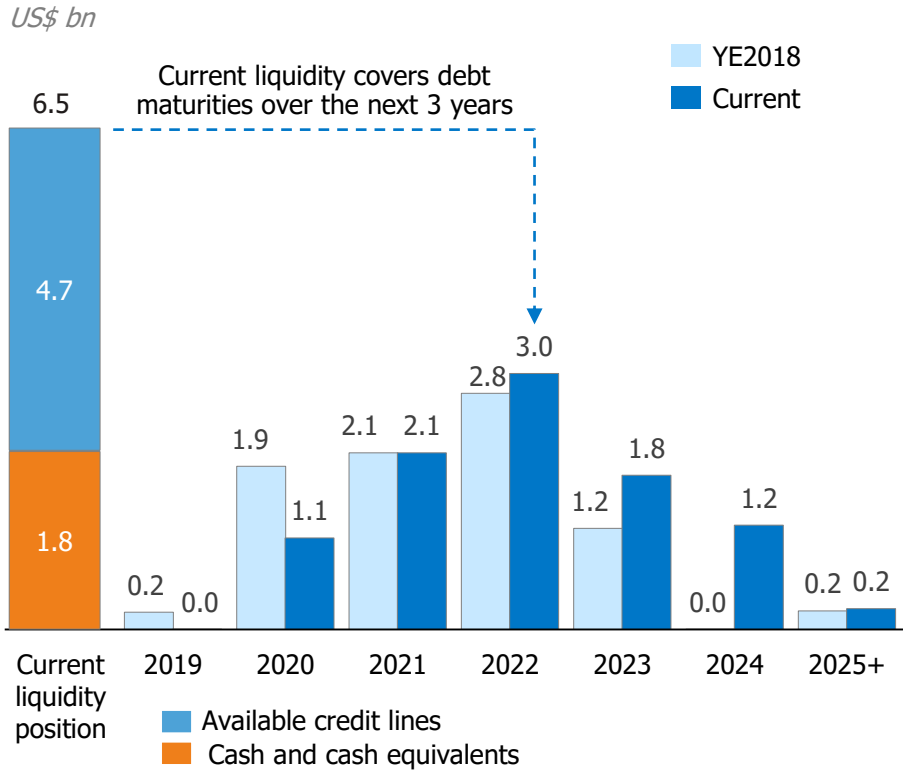
## Average Cost of Debt



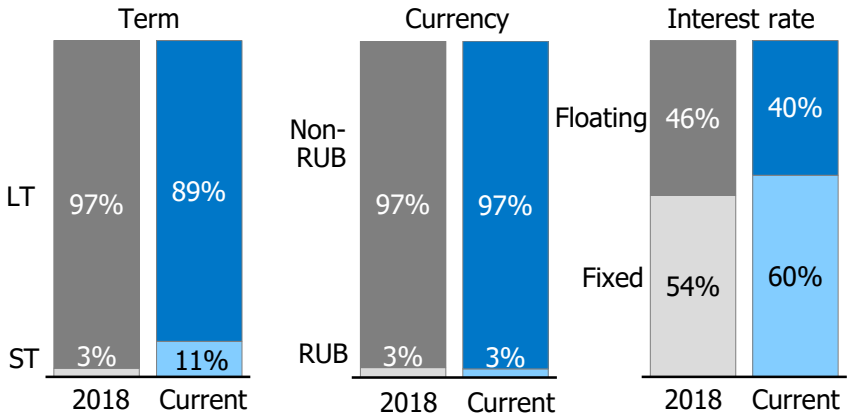

*Note: 1. In 2017-2018, gross debt includes only financial lease liabilities, starting from 2019 it additionally includes other lease liabilities recognized under IAS 16*

# Solid Credit Quality Supported by Prudent Debt Management

## Comfortable Debt Repayment Schedule




## Well-balanced Debt Structure




## Investment-Grade Credit Ratings

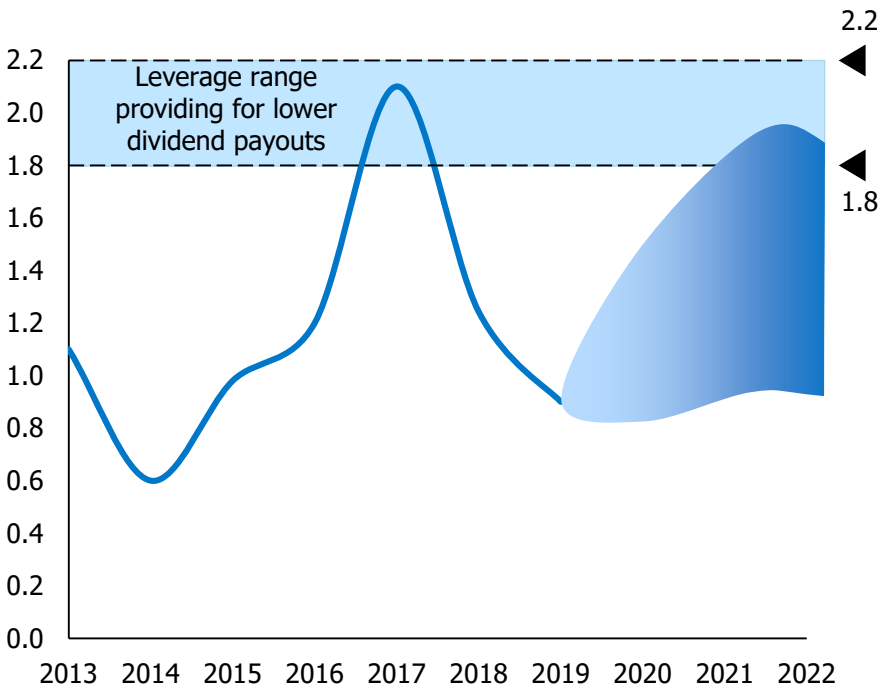
| | |
|---|---|
| Moody's | Baa2/stable |
| S&P Global | BBB-/stable |
| FitchRatings | BBB-/stable |

- The Group's strong liquidity position is large enough to comfortably meet all debt maturities due within a 3 year time horizon
- The Company reiterates its commitment to maintain investment-grade credit ratings from the three major international agencies

# Strong Financial Standing Expected Throughout the Capex Cycle

## Reduced Leverage Provides For Greater Flexibility Going Forward

*Net Debt/EBITDA, x*




## Current Standing and Outlook

- Credit ratios have improved markedly on the back of macro environment, higher production volumes
- Dividend flexibility helps to hold down leverage in the long run, but in the short run ongoing investment cycle may drive leverage up
- Given the current financial standing, the company shall be able to maintain strong balance sheet through 2022

# Markets Update


## Anton Berlin

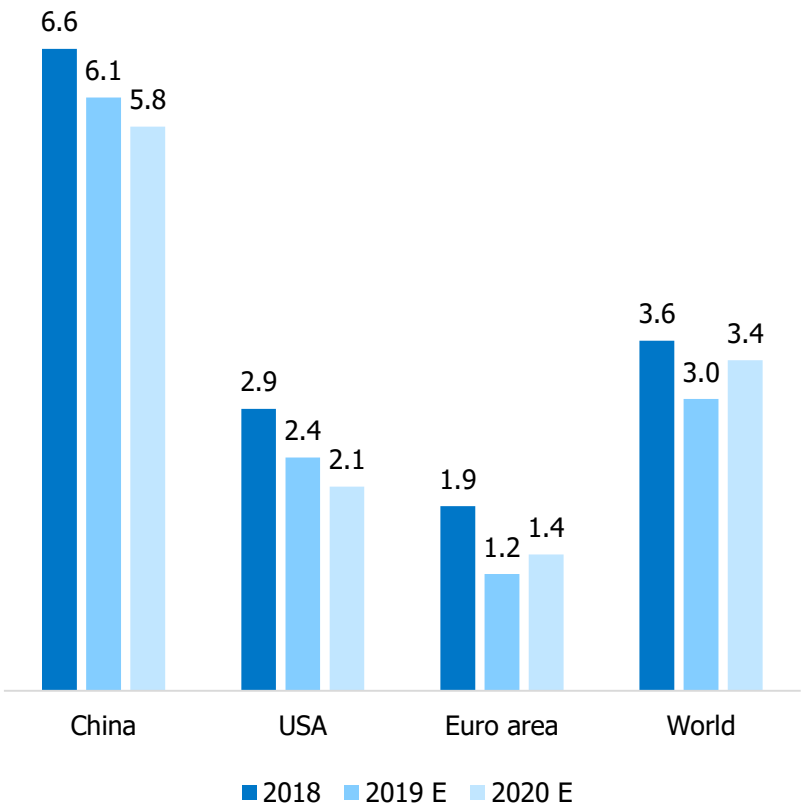
Head of Strategic Marketing


NORNICKEL

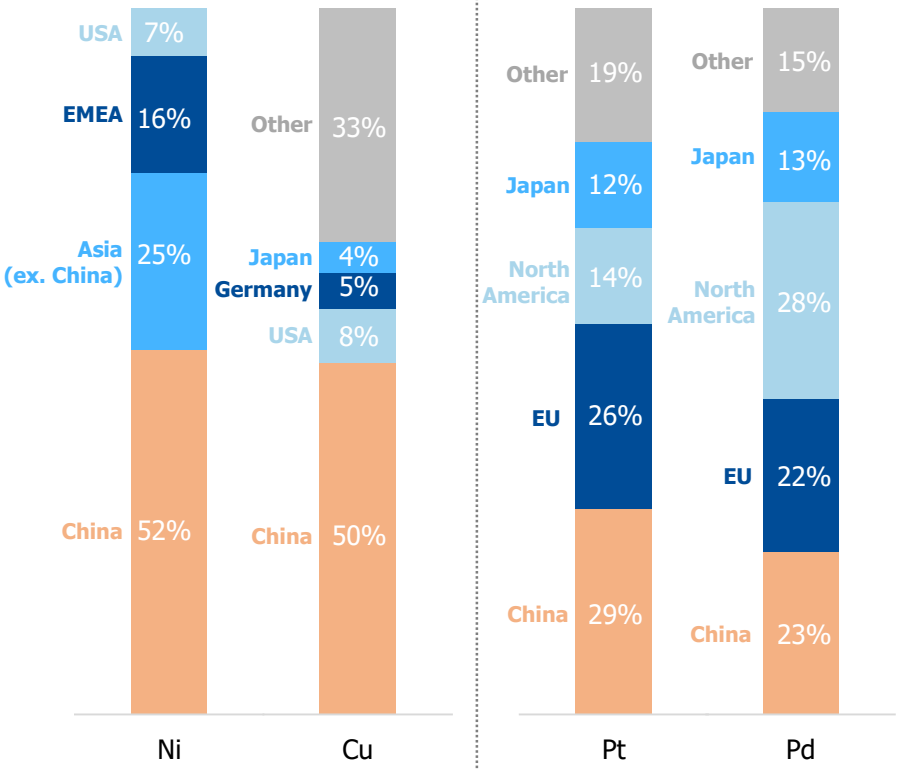
# Challenging Macro Environment

## Global Economic Growth in Major Markets is Subdued

*IMF Forecast for 2019-2020 GDP growth, %*

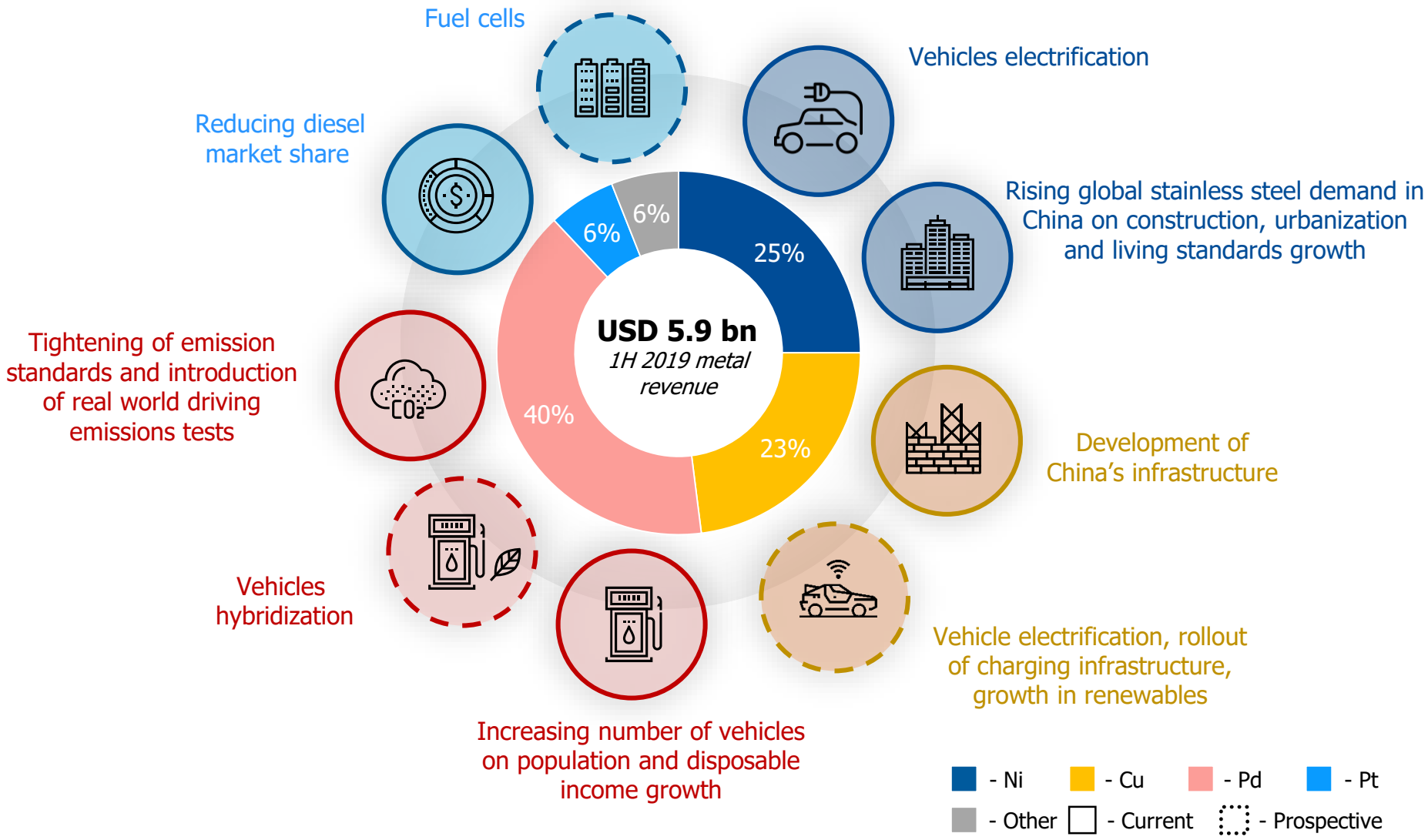



## China is One of the Largest Consumers of Norilsk Nickel's Core Metals



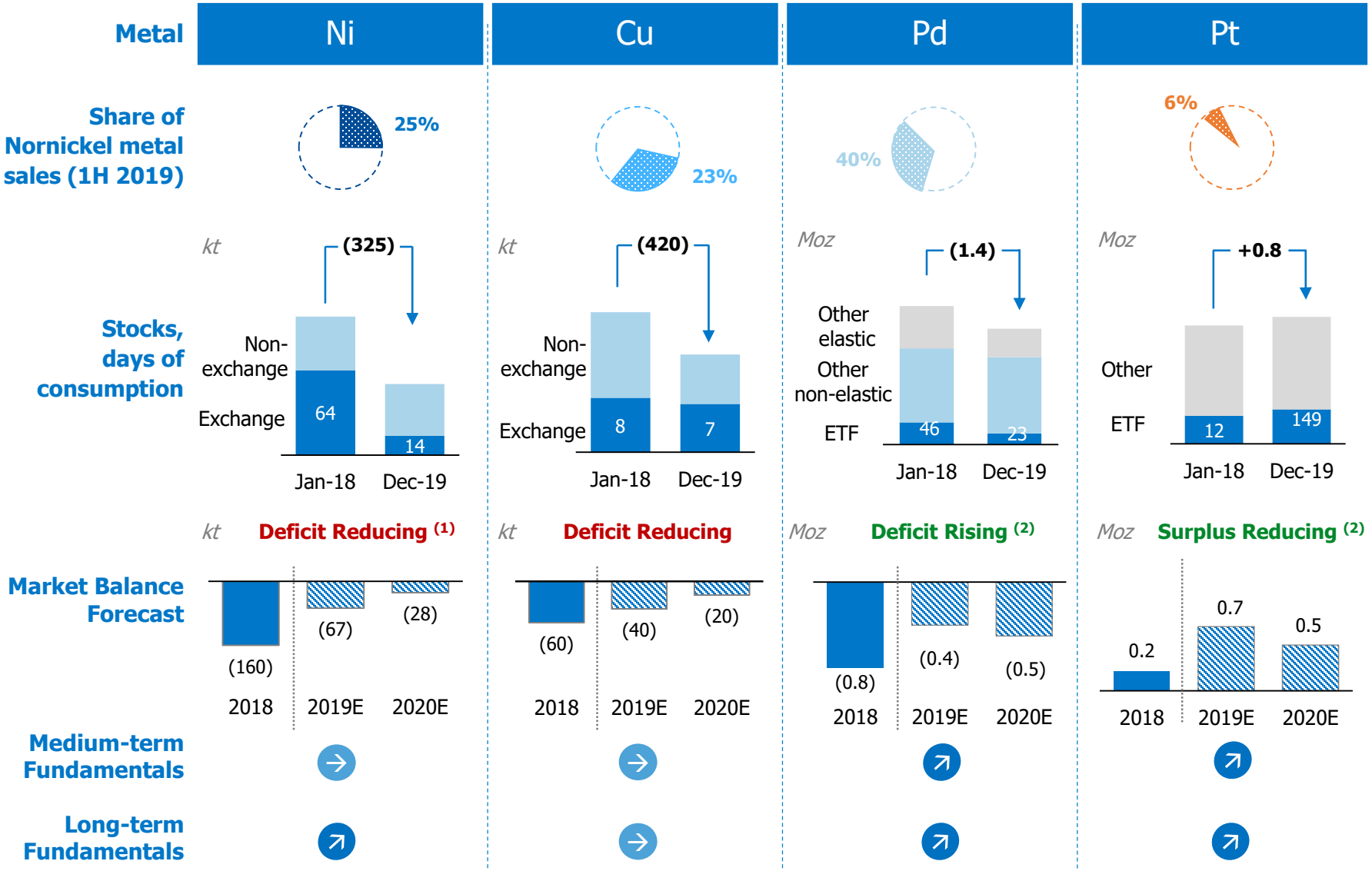

*Sources: IMF, Bloomberg data*

# Long Term Trends Supporting Consumption Growth for Nornickel's Metal Basket




*Source: Company data*

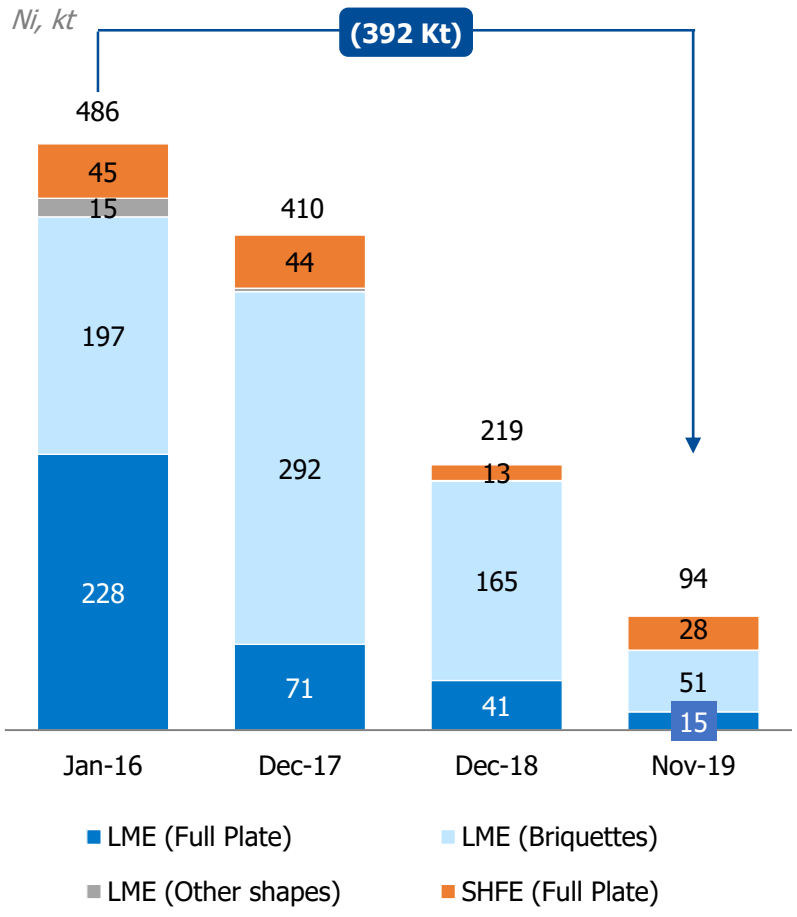
# Metal Markets Outlook — View on Fundamentals



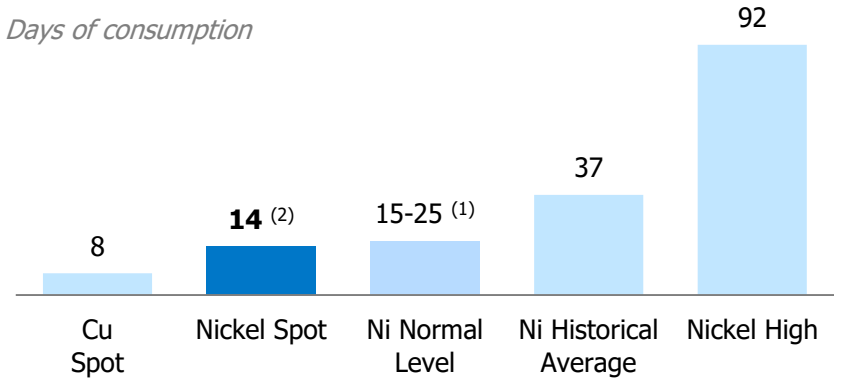

*Source: Company estimates*
*Notes: Figures may not sum up due to rounding*
*1. Assuming that Indonesian ore ban brought forward as scheduled*
*2. Excluding ETFs, investment demand and industry stocks movement. Numbers are rounded separately*

# Nickel Exchange Stocks Reached 7-years Lows

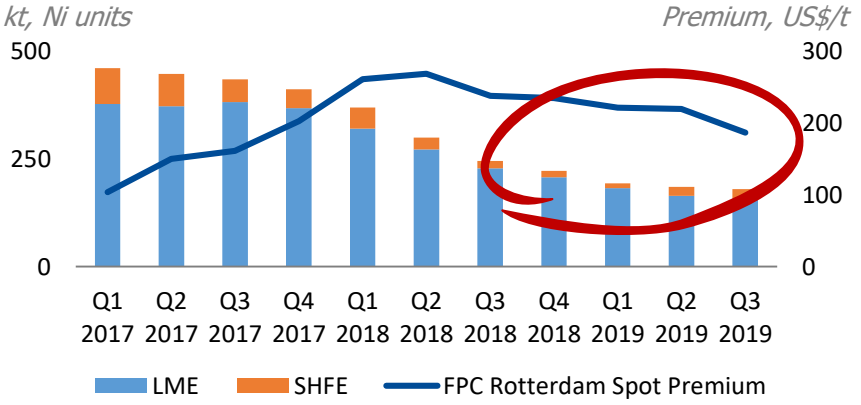
## Drawdown of Exchange Inventories Continues: -129 kt 2019 YTD




## Inventories Declined by Over 80% from Peak Levels to Normal Levels



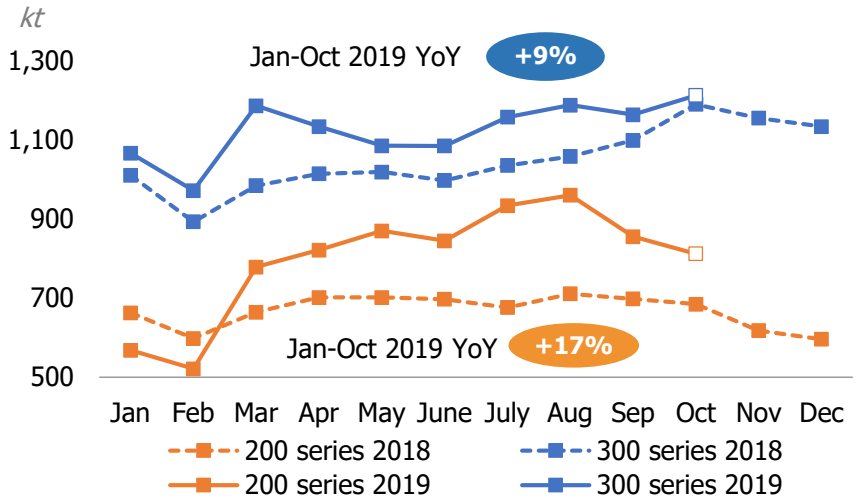

## Inventories Disconnect with Physical and Spot Premia: Reduction of Both



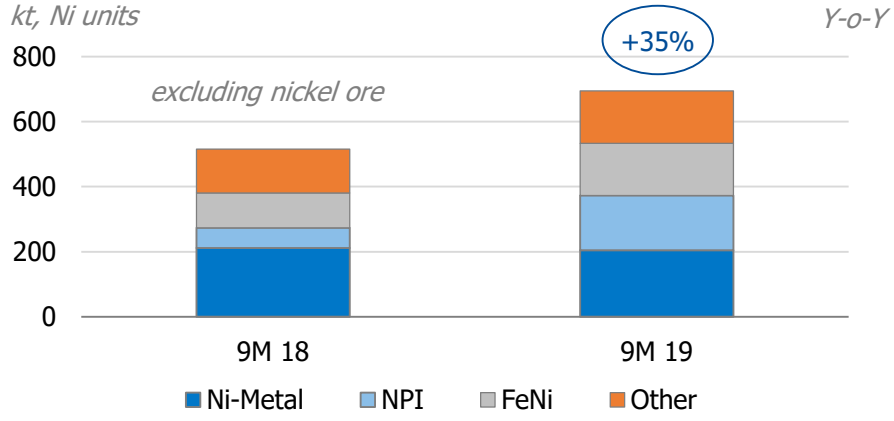

*Sources: Company estimates, LME, SHFE, SMM*
*Notes: 1. According to markets participants, customers*
*2. As of 1 November 2019*

# China Stainless Growth to Lose Steam in 2020

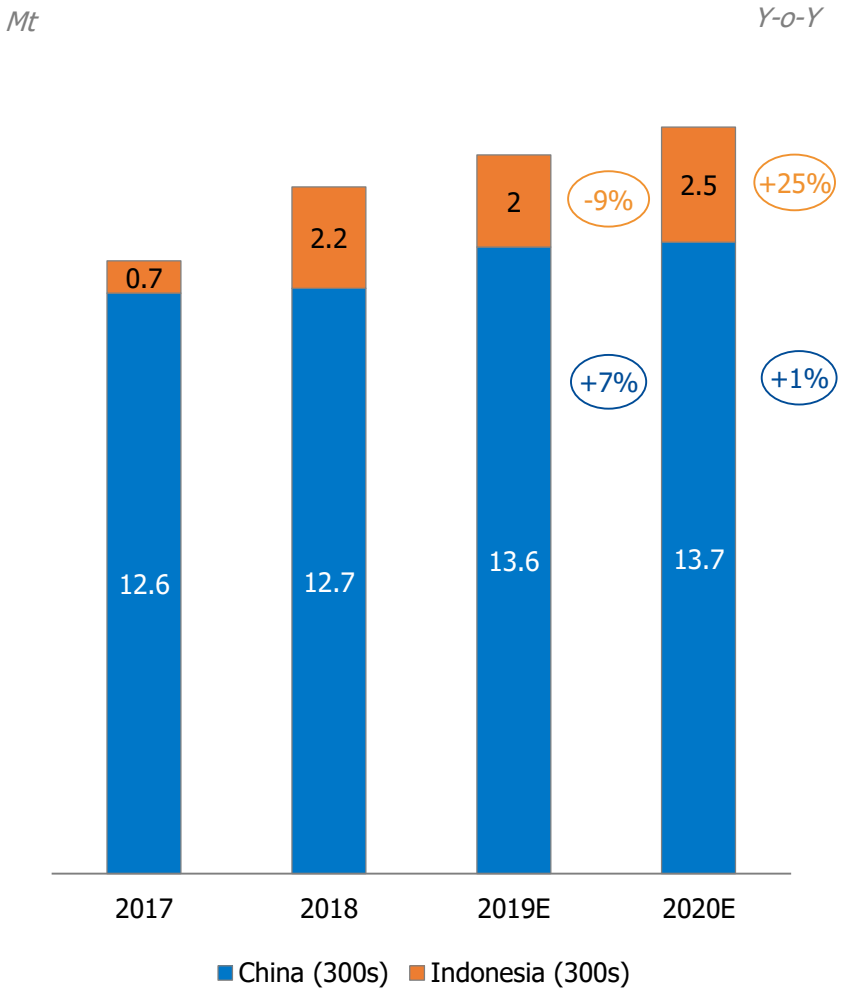
## Strong Stainless Production Growth in China in 2019 YTD




## Increase of Nickel Imports to China in 9M 2019



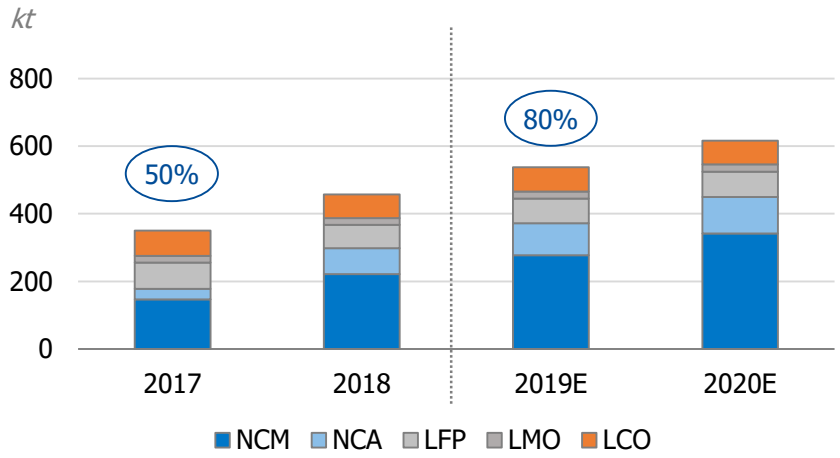

## Growth of 300 Stainless Steel Should be Supported by Indonesia in 2020




*Sources: Company data, Nieba, SMM*

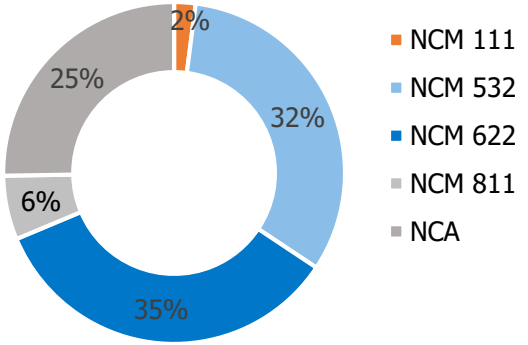
# Nickel Consumption in Batteries — Continues to Rise From a Small Base

## Market Share of Ni-intensive NCM / NCA Cathodes Expected to Reach 80% in 2019 (1)

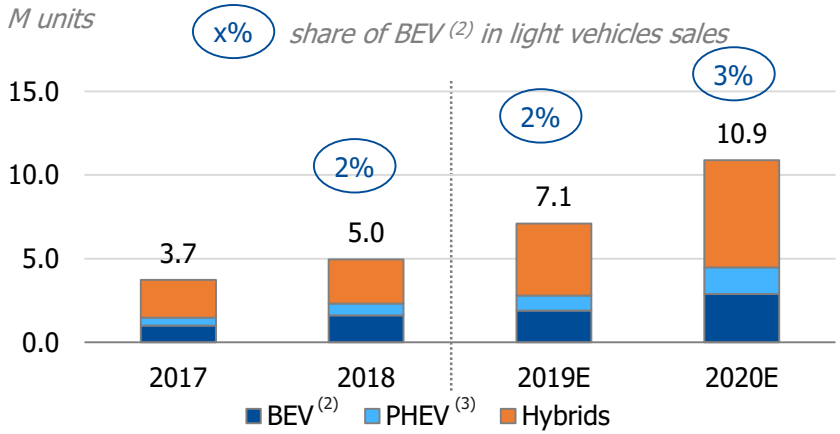



## Within NCM Cathodes Chemistry Shifting towards Higher Ni Loadings

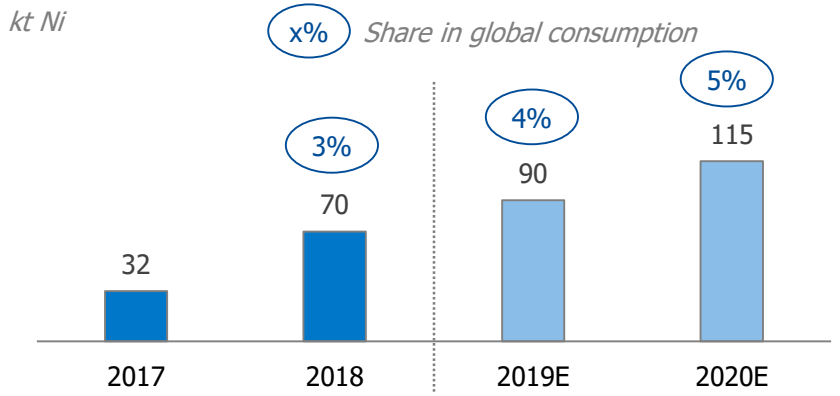
*Breakdown of Global PCAM Production by Type, 2019E*




## Electric Vehicles Maintain Stable Growth Rates

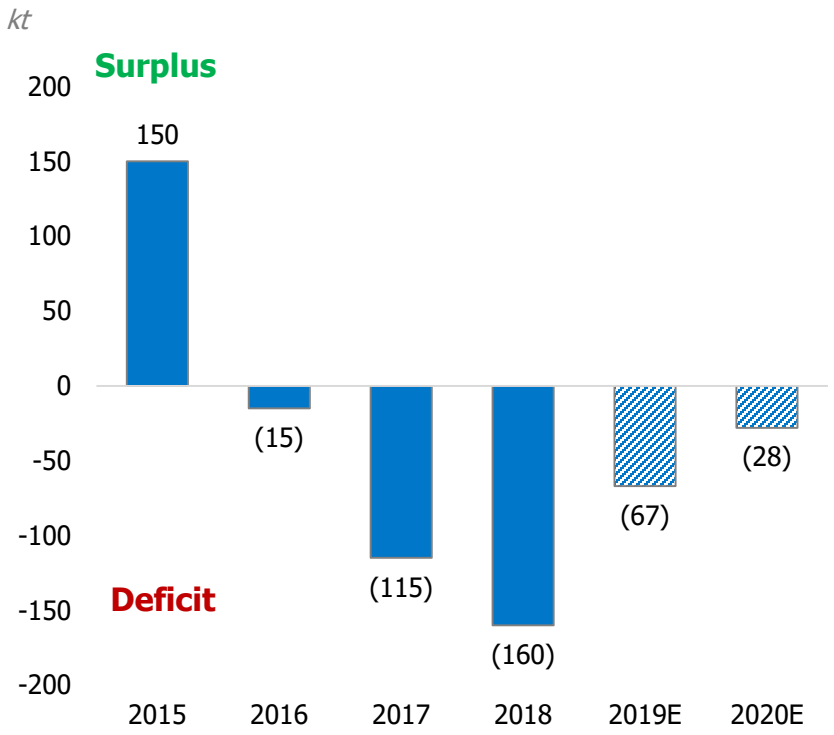



## Ni Demand in EV Li-ion Batteries Rising Fast, but Still Small at 4% of Global Consumption

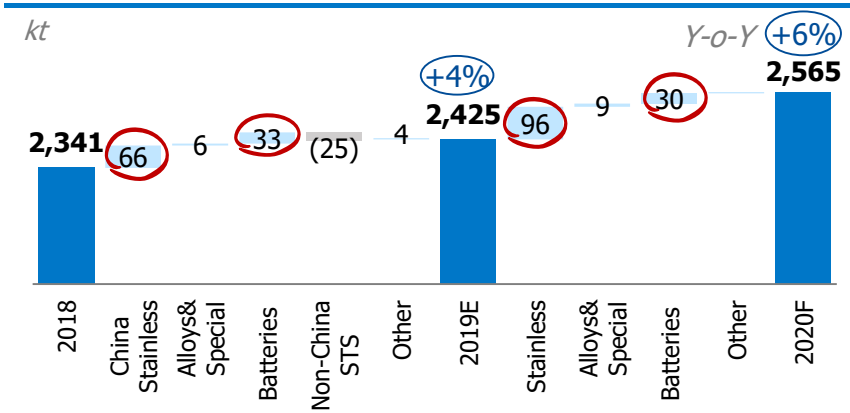


# Nickel Expected to be a Balanced Market in 2019-2020

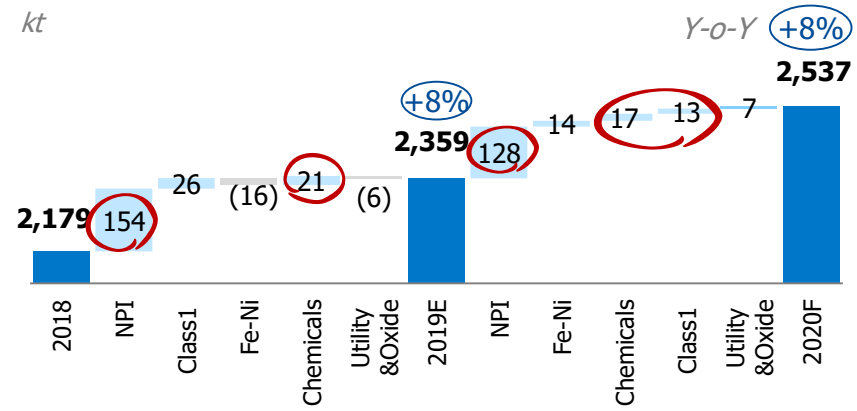
## Balanced Market in 2019-2020




## Demand: Battery Demand Continues to Grow, Stainless Growth Sways between China and Indonesia

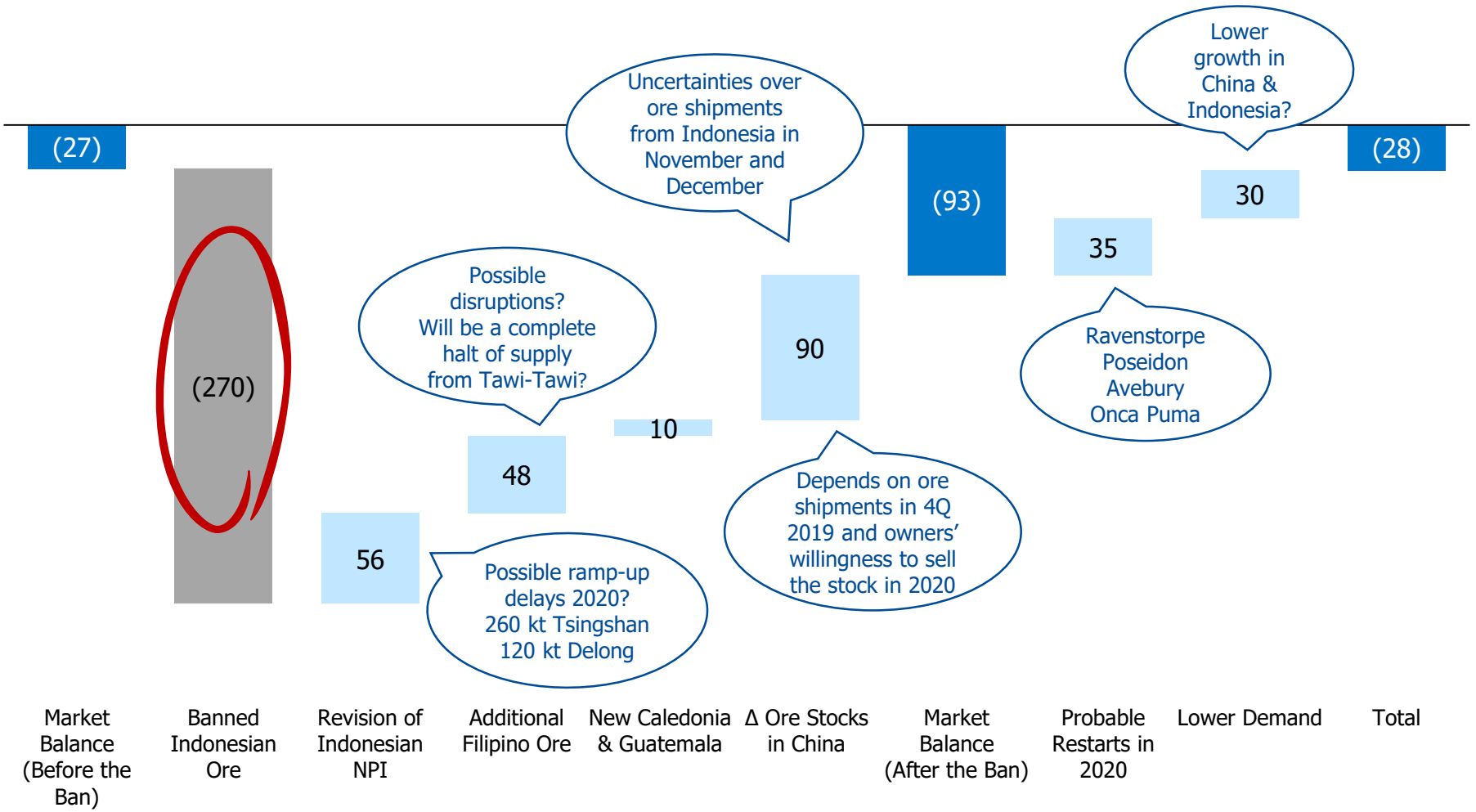



## Supply: Growth Accelerating on NPI Ramp-Up in Indonesia & China and Recovery of Class 1 Ni Production




*Source: Company estimates*
*Note: 1. Assuming that Indonesian ore ban brought forward as scheduled*

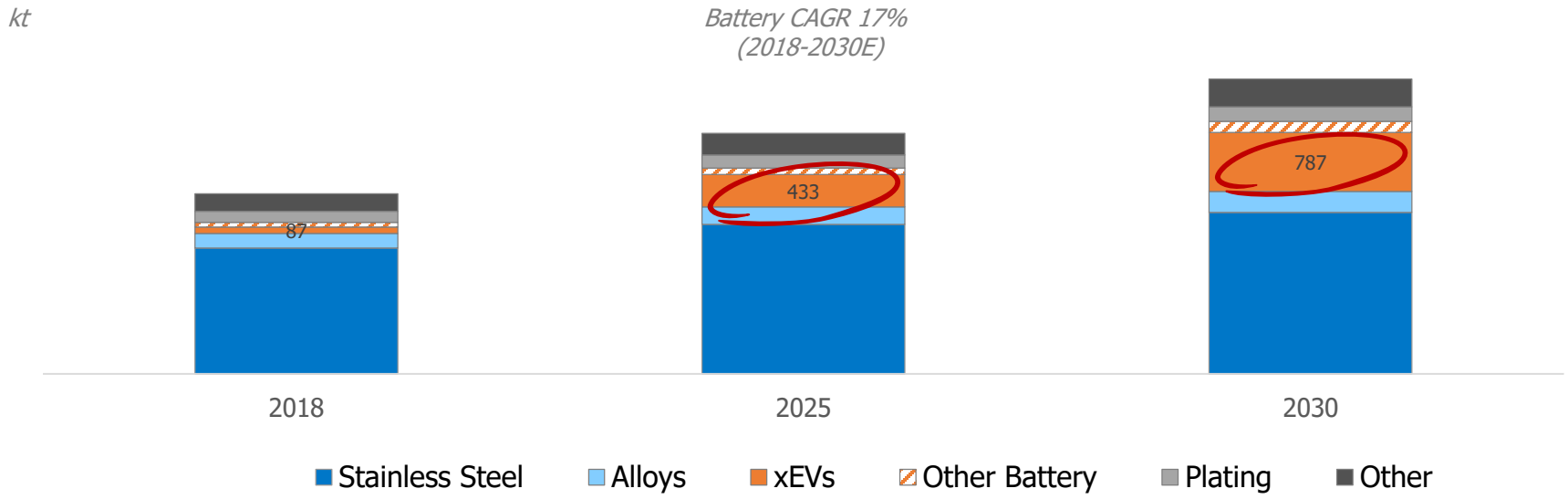
# Neutral Impact of the Indonesian Ban on the Market Balance in 2020




*Source: Company estimates*
*Note: Mirabela relaunch was included in Market Balance (before the ban)*

# Nickel Demand: Positive Long Term Outlook to Keep Market in Deficit

## Growing Stainless Consumption to Compete for Ni Units with the Battery Sector



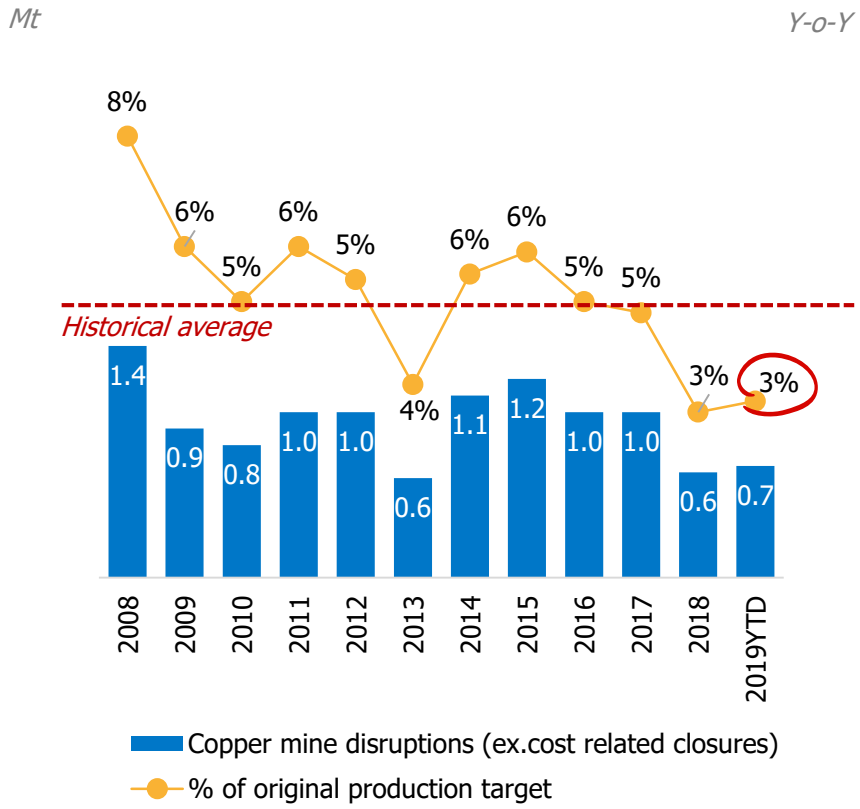

### Long term Trends Supporting Ni Consumption Growth:

- Vehicle Electrification
- Increasing mobility
- Growth in Renewables
- Population growth
- Growing disposable incomes
- Urbanization

*Sources: Company estimates, Wood Mackenzie*

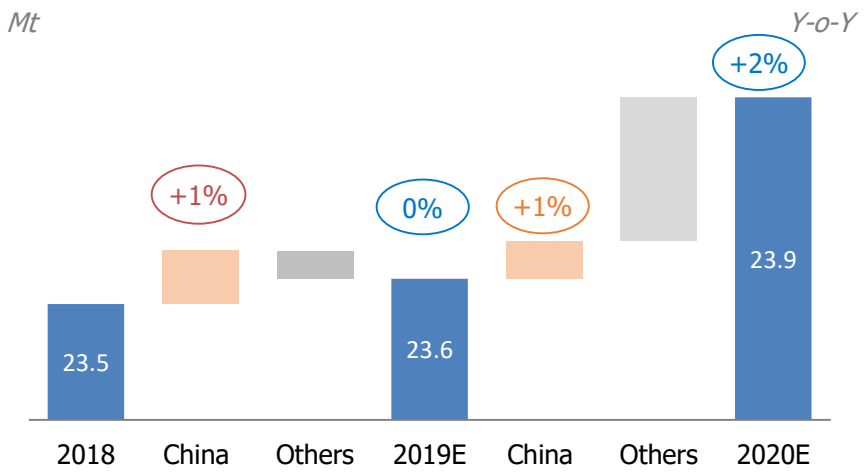
# Copper: Demand Concerns Prevail in 2019

## Copper Supply Disruptions in 2019: Disruption Risks Rising Sharply in 2H 2019

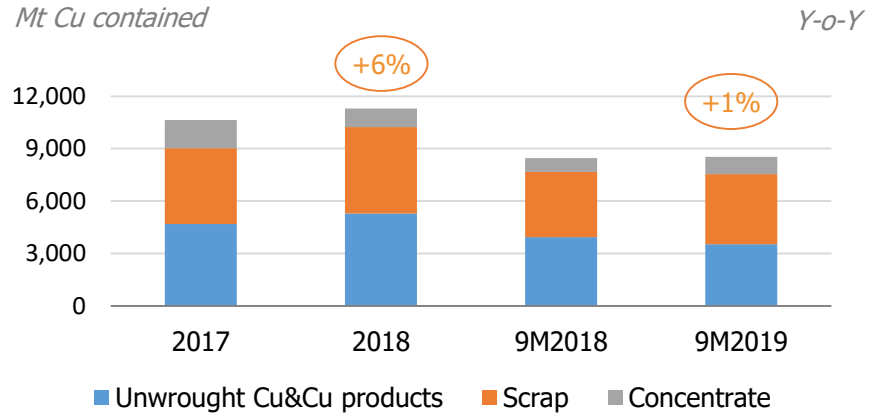



- Recent mine disruptions in Peru, Ecuador and Chile has raised the prospect of near-term market tightness

## Moderating China's Copper Demand Still the Main Driver of Global Consumption Growth



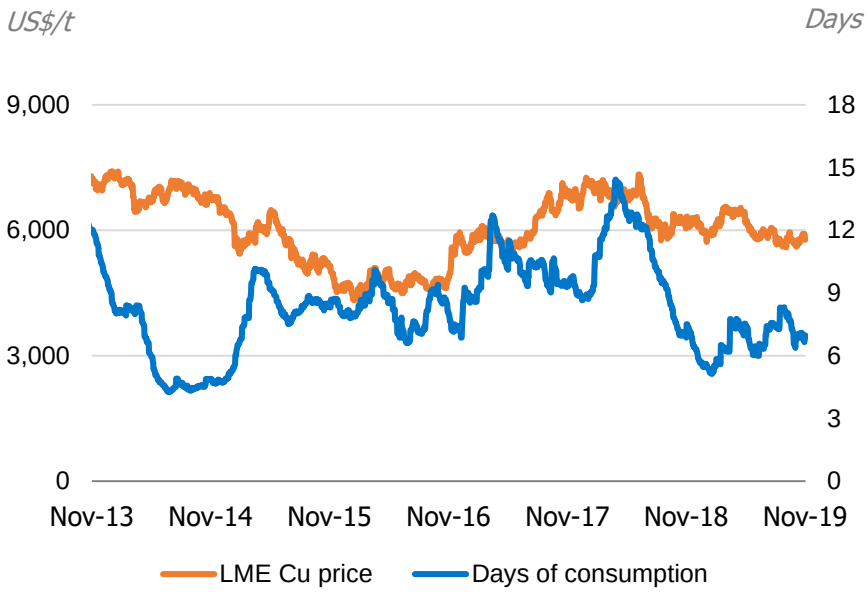

## Copper Imports to China Were Flat in 9M19



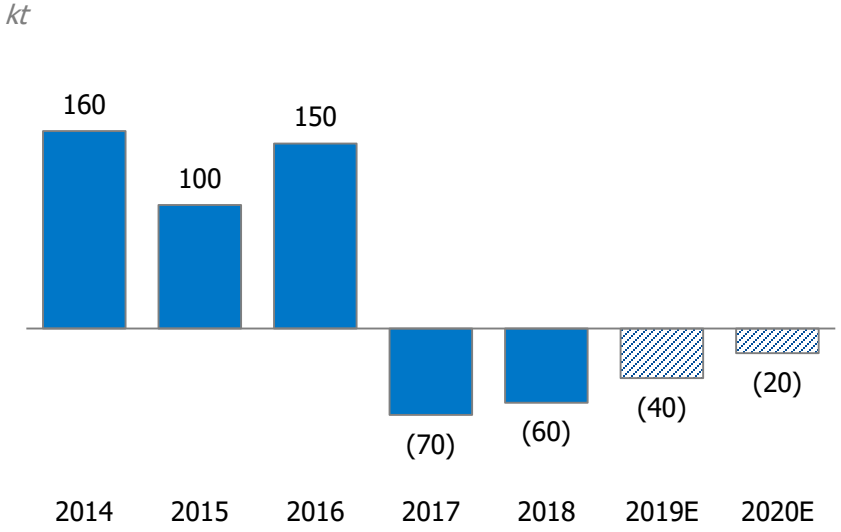

*Sources: Company estimates, Wood Mackenzie*

# Copper Market is Developing Small Deficit, Inventories Have Been Trending Lower

## Visible Copper Inventories Remain Near Multi-Year Lows




## Copper Market Balance: Marginal Deficits to Reduce in 2020



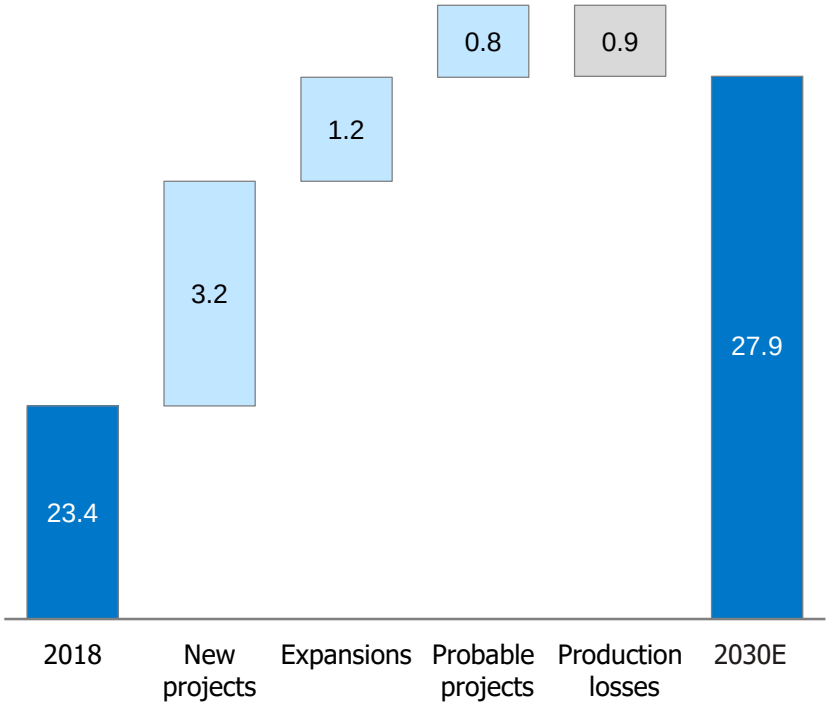

- ⊕ Exchange inventories running near historical lows
- ⊕ Supply disruption risk rising sharply in 2H19
- ⊖ Outcome of trade dispute between USA/China – remains the main driver of investors' sentiment
- ⊖ Growth of Chinese demand normalizing
- ⊖ Global economy is slowing
- ⊕ Potential supply disruption events (e.g. negotiations with labour unions) in sight

*Sources: Company data, Bloomberg, as of November 2019*

# Long-term Copper Outlook: Supply Set to Grow While Demand Growth is Moderating

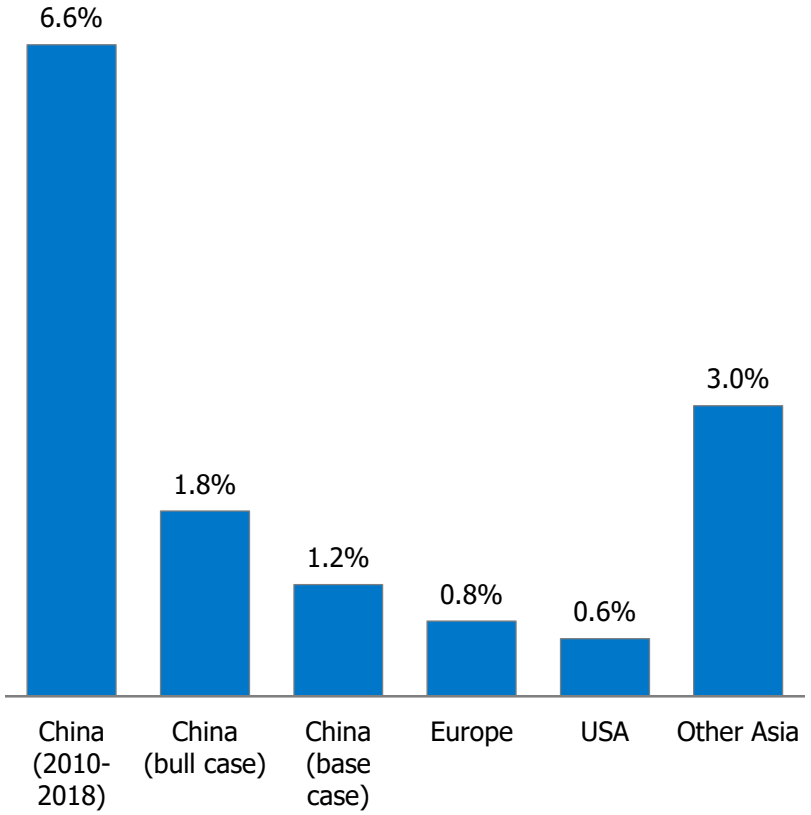
## Supply Addition: Over 4 Mt May Be Added By 2030E

*Mt*




## While China Copper Consumption Growth Rates are Rapidly Normalizing

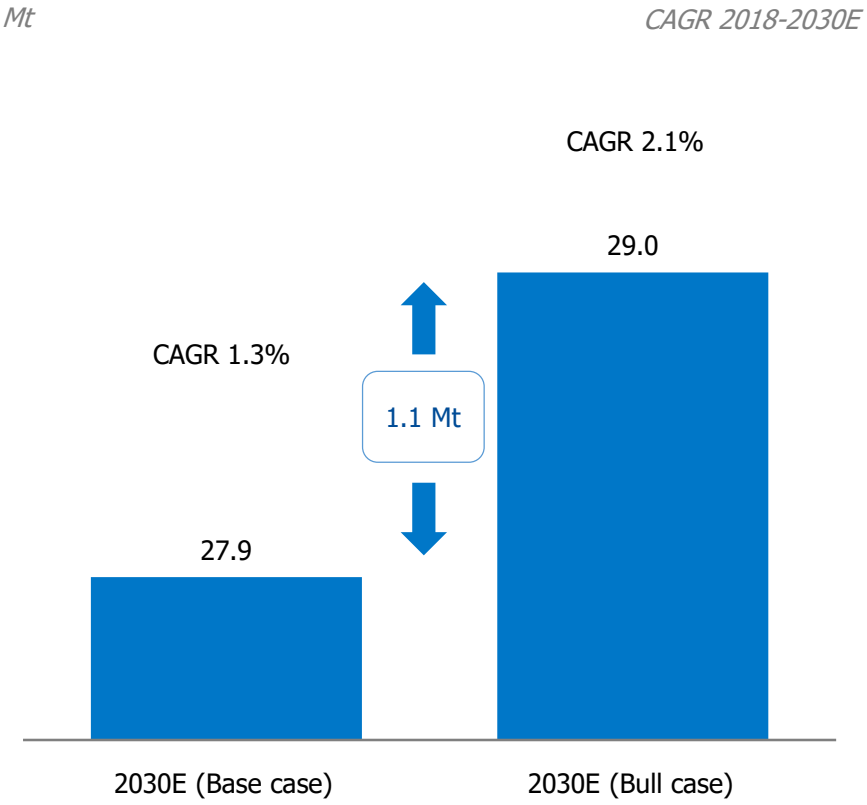
*CAGR 2018-2030E*



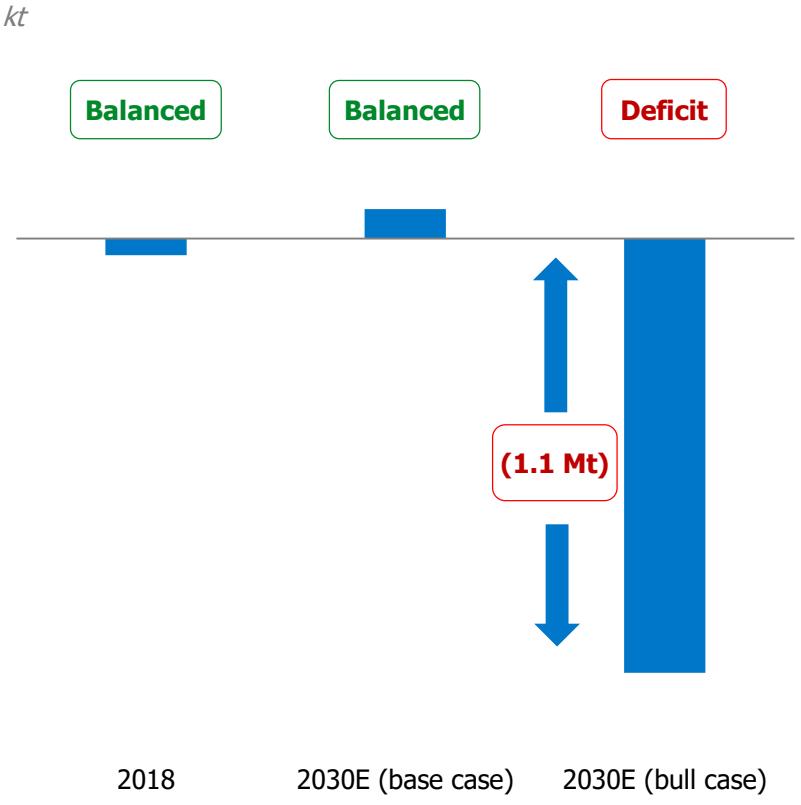

*Sources: Company estimates, Wood Mackenzie*

# Long-term Copper Consumption Outlook

## Uncertain Long-term Global Consumption Outlook…



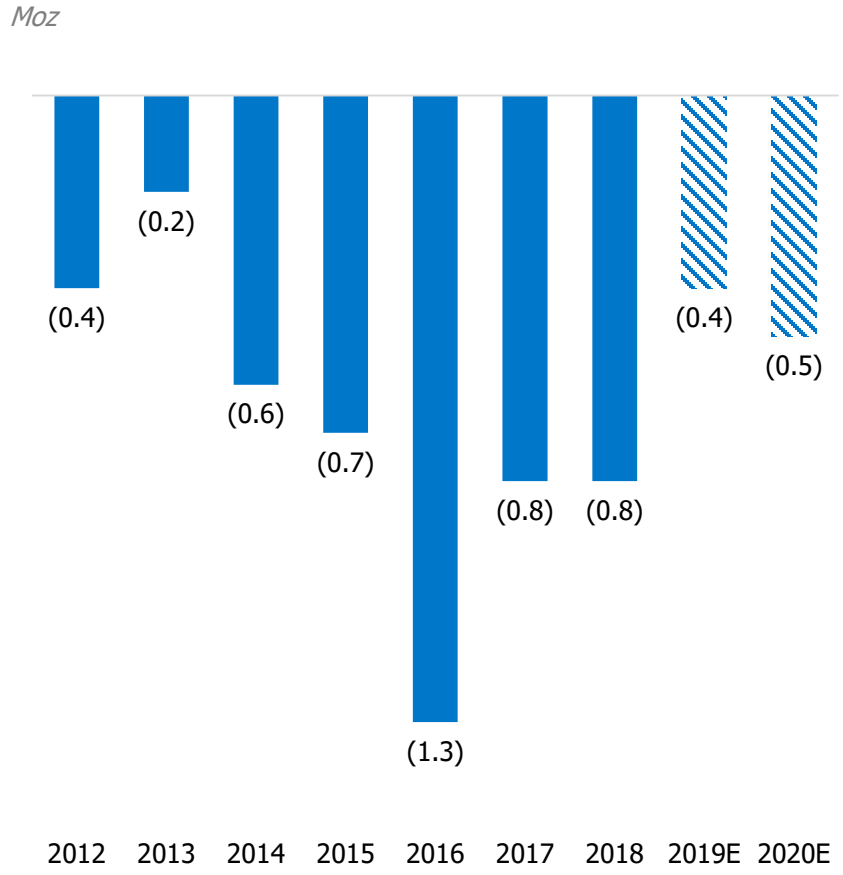

## … Leading to Wide Range of Market Balance Forecasts



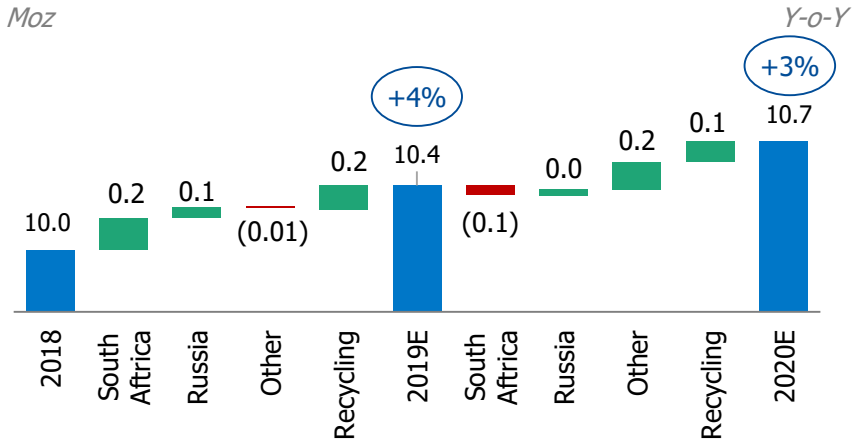

*Sources: Company estimates, Wood Mackenzie*

# Palladium Market Remains in Structural Deficit

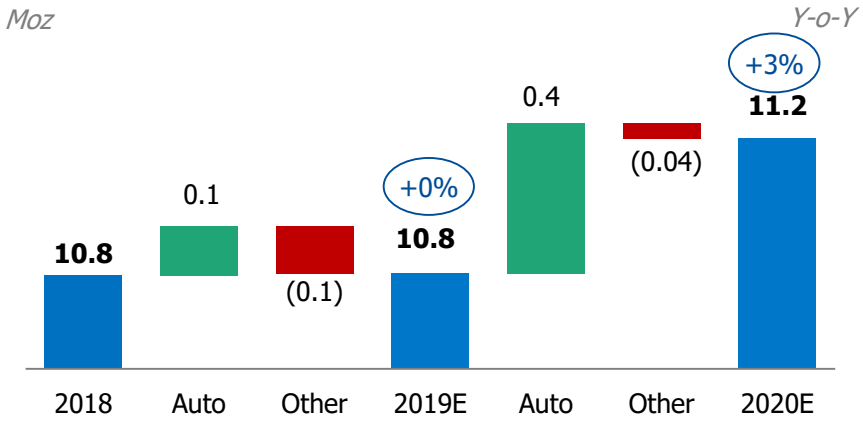
## Global Palladium Market Balance: Major Apparent Deficit (1) Holds




## A Recovery of Supply is Expected in 2019 as a Result of Work-in-Progress Inventories Release



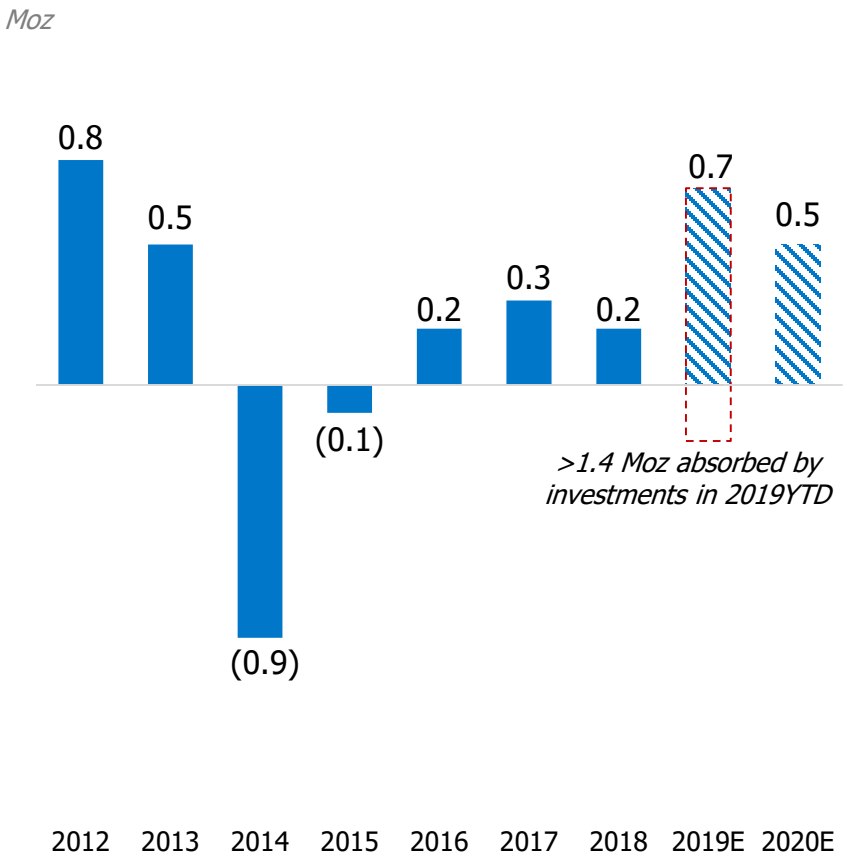

## Tightening Emission Standards Pushing Demand Higher Despite the Slowdown in Automotive Sales



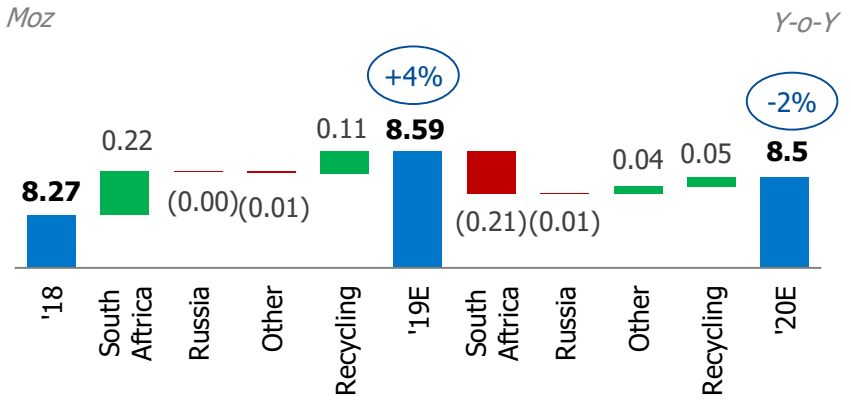

*Source: Company data*
*Note: 1. Excluding ETFs, investment demand and industry stocks movement. Numbers are rounded separately*

# Platinum: Market Surplus is Absorbed by Strong Investment Demand

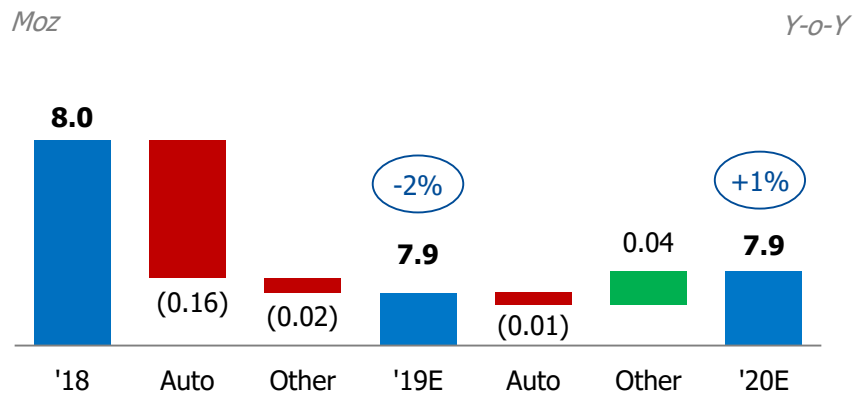
## Platinum Market Balance [1]: Surplus is Expanding in 2019, but Strong Investment Demand Should Absorb Some Excess Supply




## Increase in Supply in 2019 Driven by Release of Work-in-Progress Inventories



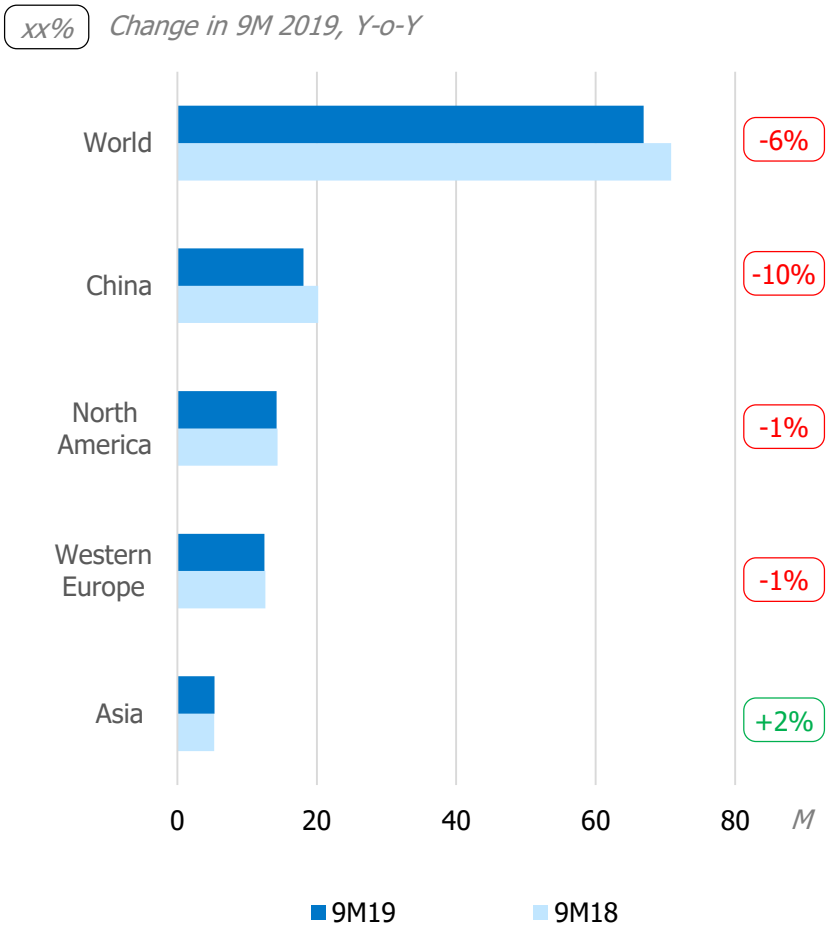

## Demand is Expected to Stabilize in 2019 and Marginally Improve in 2020




*Source: Company data*
*Note: 1. Excluding ETFs, investment demand and industry stocks movement. Numbers are rounded separately*

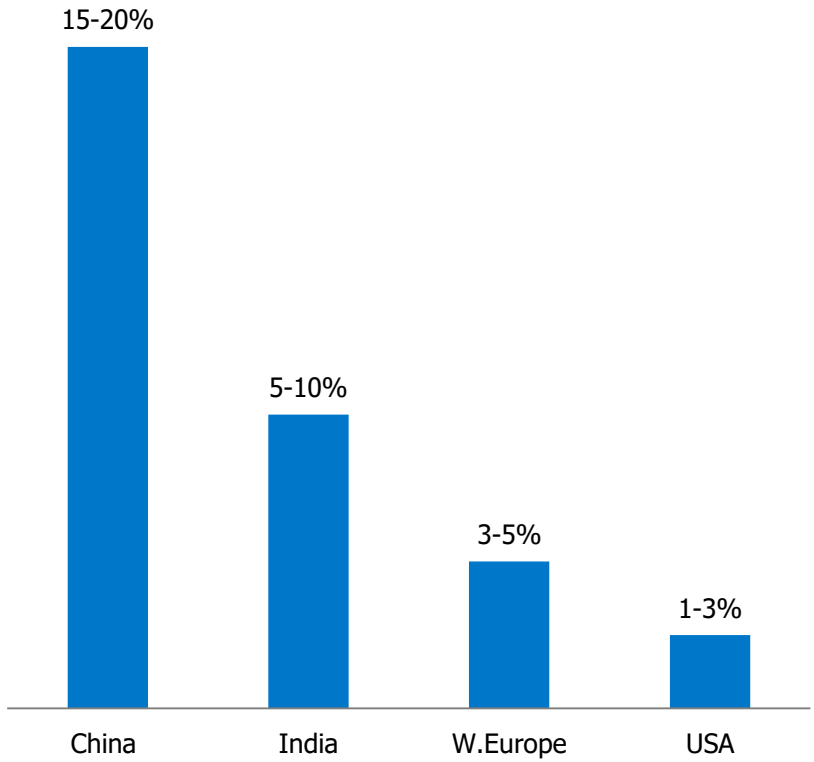
# Automotive Sales Decline but PGM Loadings Increase

## Global Automotive Sales [1] Decreased by 6% in 9M 2019 Y-o-Y




## Expected Increase in Pd Loadings in 2019 due to Stricter Emission Regulations and Introduction of RDE Despite Engine Downsizing

*Average PGM loadings per vehicle, change in 2019, (%)*

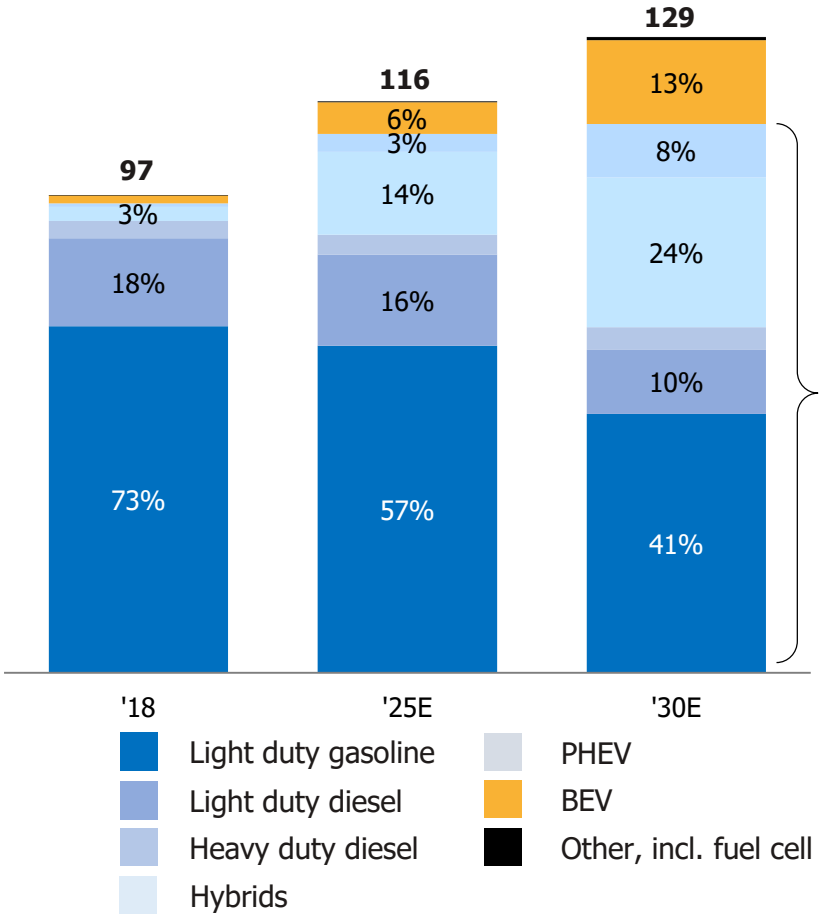



*Source: LMCA, IHS, Marklines*
*Note: 1. Light-duty vehicles (up to 6 tonnes), North America – USA and Canada, Asia including Japan and Korea*

# Long-term Palladium Demand to Remain Strong

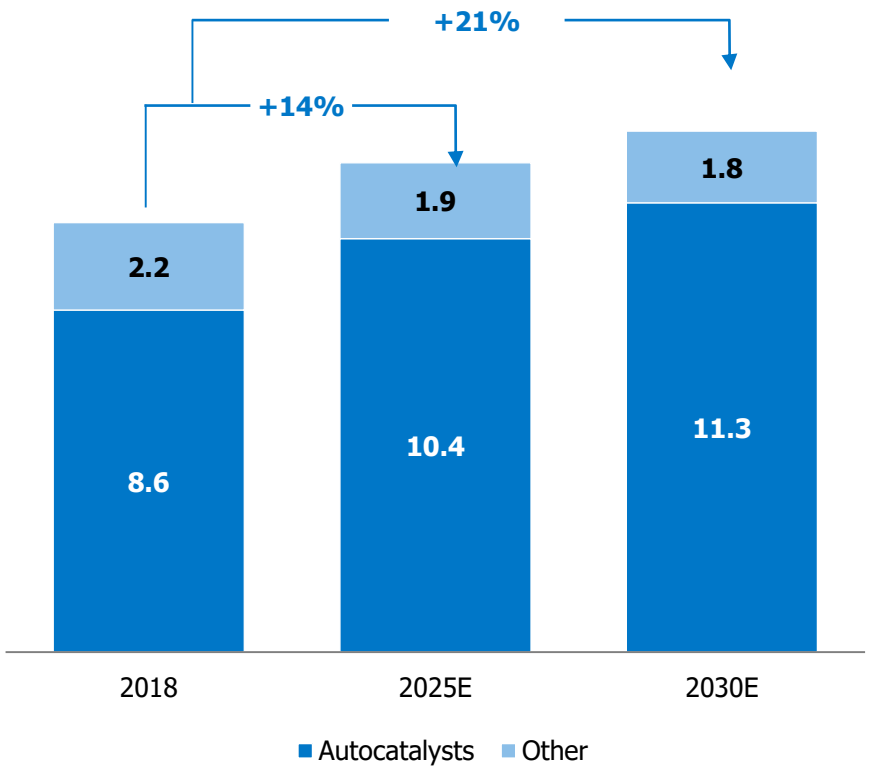
## Automotive Market Is Going To Be ICE-dominated

*M vehicles*




## Autocatalysts Will Remain Key Driver of Demand Growth in the Next 10 Years (>80% Consumption)

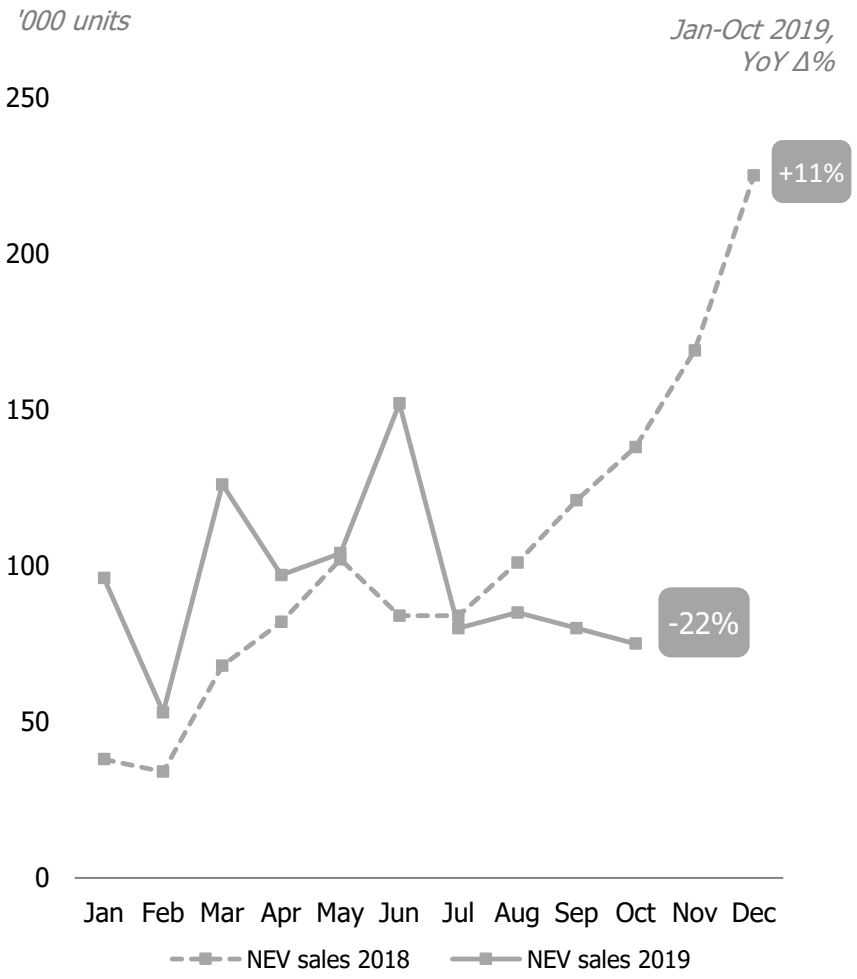
*Moz*




*Sources: Company estimates, LMCA*

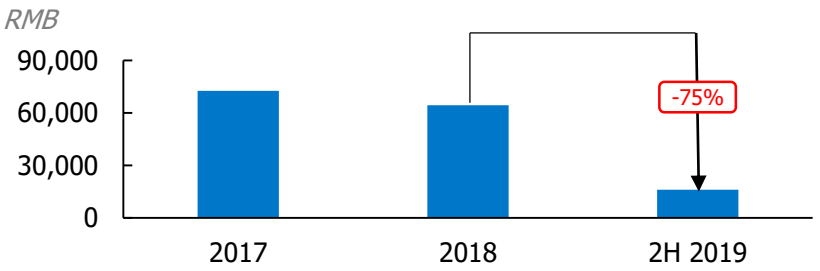
# EV Sales are Very Sensitive to Subsidy Policy: the Case of China

## Sales of NEV Decreased over the Last 4 Months Due to Tightening Subsidy Policies



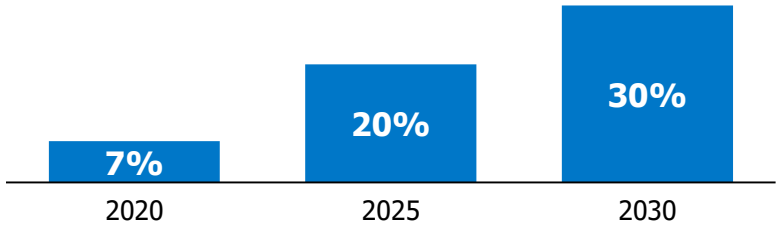

## The Shift from Tax Subsidies to Dual Credit System

### Subsidy per BEV (1)




### New Government Targets for Sales

*NEV share of total vehicle sales in China*



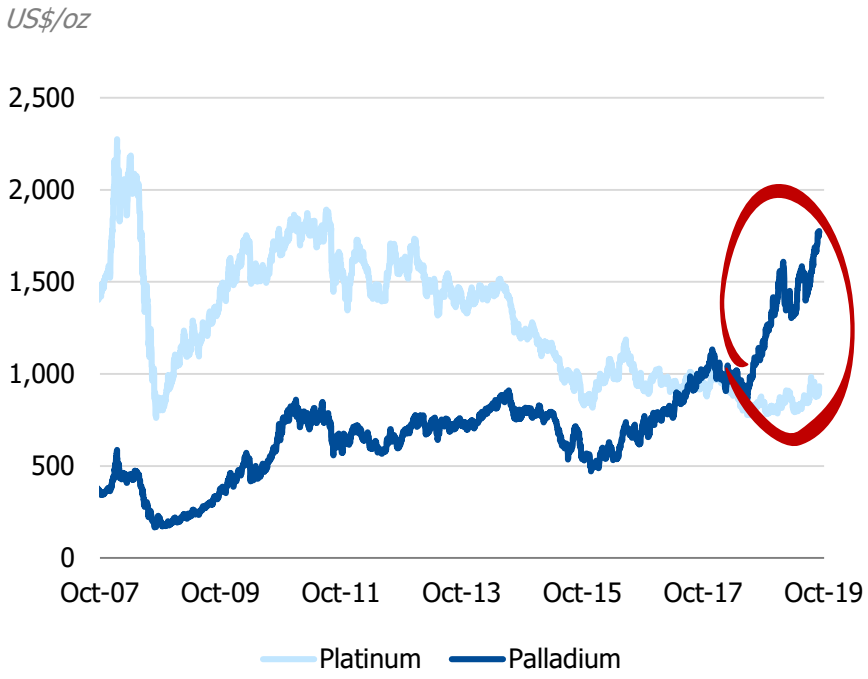

### The Government Incentivizes OEMs to Produce BEVs with Longer Driving Range

| Vehicle type | Max points earned |
|---|---|
| BEV with long drive range (2) | 6 |
| PHEV >80 km | 2 |
| 50 km < PHEV < 80 km | 1 |

*Notes: 1. For a vehicle with 300 km range, 140 Wh/kg, +25% energy efficiency bonus and including maximum provincial incentive*
*2. Points earned for 1 BEV = (0.012 x Driving range (km) + 0.8) x Correction factor for energy efficiency*

# Premium of Palladium to Platinum is Sustainable in the Mid-Term

## Palladium Established a Sustaible Premium to Platinum on Stronger Fundamentals…



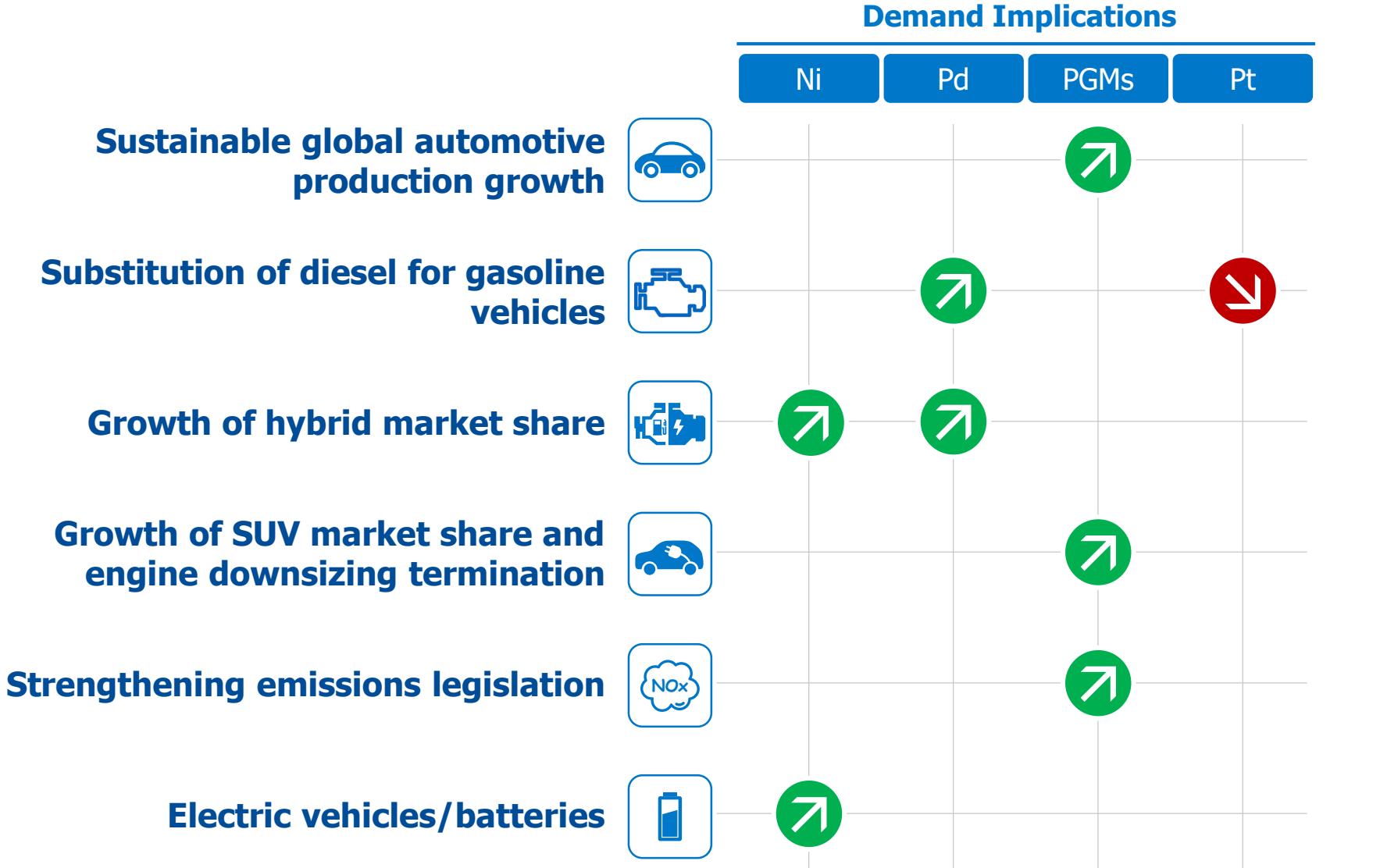

## … as Pd Loadings in Gasoline Vehicles are Supported by Higher Fair Value-in-Use

| | Palladium | Platinum |
|---|---|---|
| Thermal durability | Higher | Lower |
| HC and CO oxidation at low temperatures | Higher | Lower |
| NOx reduction | Higher | Lower |

- Palladium performs better than platinum in gasoline vehicles
- Introduction of Real Driving Emission tests incentivises «over engineering» and higher palladium loadings
- Long-term stability/reliability of supply is supportive of palladium demand
- Progress in the development of prospective mining projects should mitigate structural deficit in the medium-term

*Source: Company data*

# Key Auto Trends Impacting Metals Demand



# Nornickel's Metal Basket Content by Light Vehicle Type

| | Gasoline | Diesel | Hybrid incl. PHEV [1] | BEV [2] | FCEV [3] |
|---|---|---|---|---|---|
| **CAGR [3]** | (1%) | (1%) | +24% | +26% | +30% |
| **Market Share [4]** | 59% | 14% | 17% | 8% | <1% |
| **Ni** | Stainless Steel & Parts: 2-4 kg | 2-4 kg | +Batteries: 5-15 kg | 30-110 kg | 2-3 kg |
| **Cu** | Wires & Parts: 20-25 kg | 20-25 kg | +Electric Motor, Generator Winding: 45-50 kg | 75-80 [5] kg | 70-75 kg |
| **PGM** | Catalysts: 2-5 g | 3-6 g | 2-6 g | - | Fuel Cell: 25-35 g |
| Pt:Pd ratio | 1:4 | 8:1 | 1:4 | | |
| Metal value per vehicle, US$ [6] | 270-590 | 230-420 | 470-920 | Up to 2,400 | Up to 1,500 |

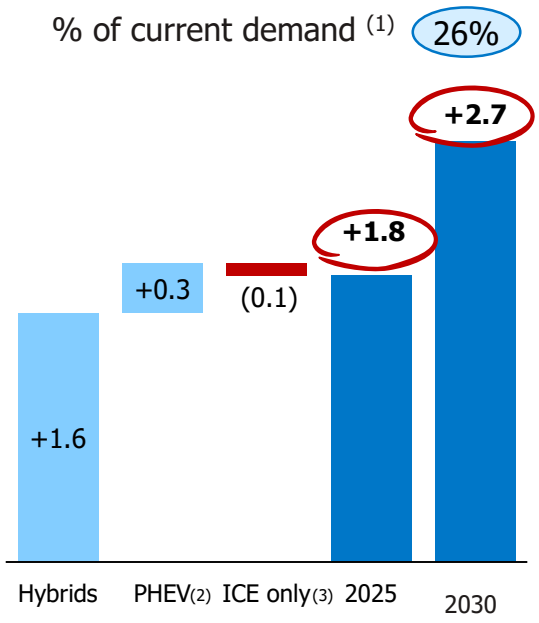
*Sources: Company estimates, LMC Automotive, Bloomberg*
*Notes: 1. Plug-in hybrid electric vehicles, 2. Battery electric vehicles, 3. Fuel cell electric vehicles, 3. CAGR for 2018-2025E, 4. Expected market share in 2025 based on production, 5. Excluding additional infrastructure demand of 1-8 kg per charger, 6. Metal values calculated at spot prices as of 1 October 2019*

# Auto Driven Metal Demand Growth in 2030E vs. 2018

## Metal

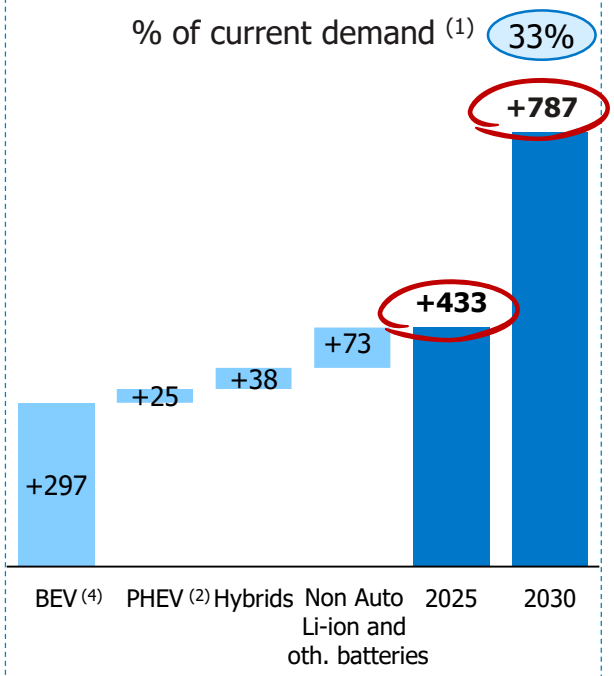
### Pd

*Moz*



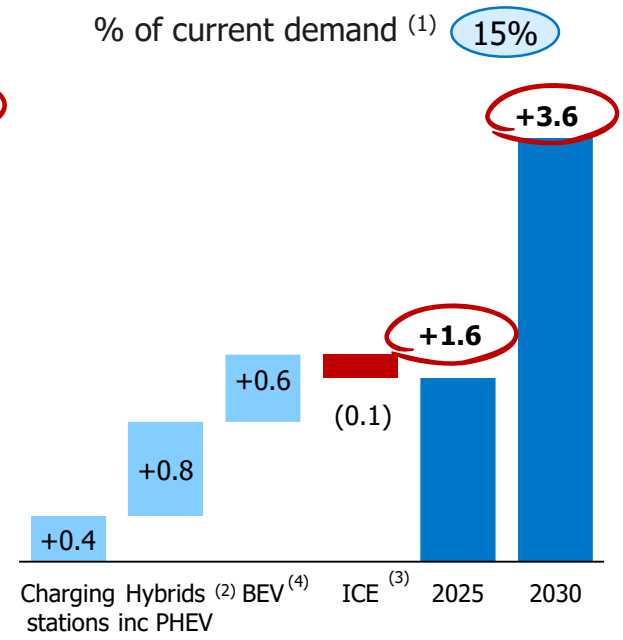

### Ni

*kt*




### Cu

*Mt*




### Consumption

- Pd in catalytic converters
- Ni in batteries
- Ni in stainless steel, alloys and parts
- Cu in electric engines and generators
- Cu in wires
- Cu in charging stations

*Sources: Company estimates, LMCA*
*Notes: 1. Based on consumption of palladium (physical), nickel and copper for 2018, 2. Plug-in hybrid electric vehicles, 3. Internal combustion engines, 4. Battery electric vehicles*

# Sales & Marketing Strategy

## Strategic principles

- Fully captive global sales & marketing network
- Sales of 100% of metals produced within the financial year
- Prioritization of direct long-term relationships with industrial consumers
- Diversification of sales of strategic metals such as nickel and palladium by region and industry
- Creation of economic value added for the Group

## Objectives

- Diversification of nickel sales into non-stainless applications (alloys, plating, batteries, etc.)
- Strong alliance with the evolving battery sector through nickel product mix and strategic liaison
- Improvement of nickel product range to better fit the changing demand structure
- Maintenance of stable palladium supply to anchor clients via the Global Palladium Fund
- Digitalization of selected sales contracts

# Digitalization Of Sales Contracts

## A new era in metal trade

- Digitalization of metal sales contracts is opening new exciting prospects in physical metal trade and industrial value chain – a new and better ecosystem for consumers as well as traders and commodity investors
- Digital assets (tokens) are backed by commodities and can be settled physically or financially
- We envisage offering a part (up to 10-15%) of our sales in 2020 through digital transactions
- The transactions will be done via a digital platform built by IBM and based on a modified Hyperledger Fabric


## Benefits for industrial players

- Unique opportunities to manage upstream value chain and supply risks – tokens can be transferred to upstream processors, sold to third parties or used as collateral
- Safer, quicker transactions with lower costs
- Responsible sourcing made easier as digital tokens are backed by verified physical metal
- Smaller metals inventory to support sustainable manufacturing

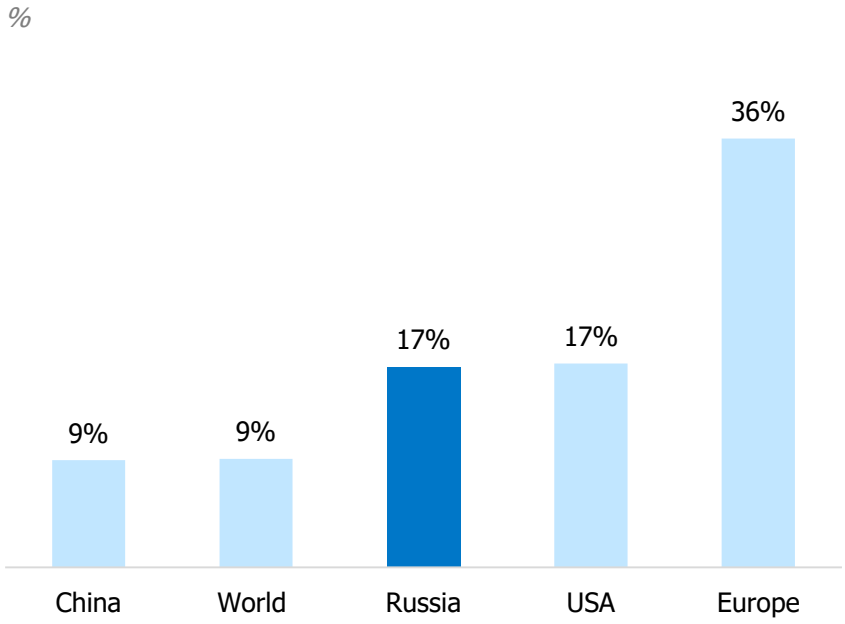
# Sustainable Development


Andrey Bougrov
Deputy Chairman of the Board
Senior Vice-President

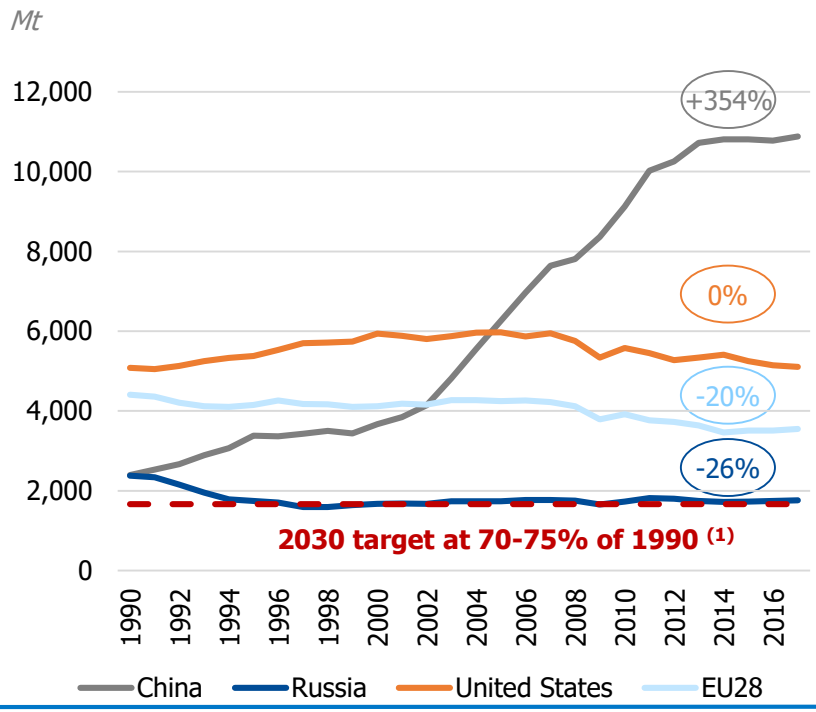

NORNICKEL

# Russia Significantly Reduced Its Carbon Footprint

## Renewable Energy: Russia – One of the World's Largest Producers as % of Electricity Generation




## $CO_2$ Emissions: Russia Reduced $CO_2$ Emissions The Most Among Industrial Nations Since 1990




- Russia is the world's sixth largest producer of renewable energy
- Including nuclear, which has a low carbon footprint, the total low or no carbon footprint energy accounts for 35% of the Russia's total

- Russia reduced $CO_2$ emissions 26% since 1990, the date set as the base for global climate change treaties
- In spite of major economic growth, Russia's $CO_2$ emissions remained by and large unchanged in the past two decades

*Source: Emission Database for Global Atmospheric Research, ENTSO-E*
*Note: 1. According to Paris Agreement*

# Nornickel Approach to Climate Change

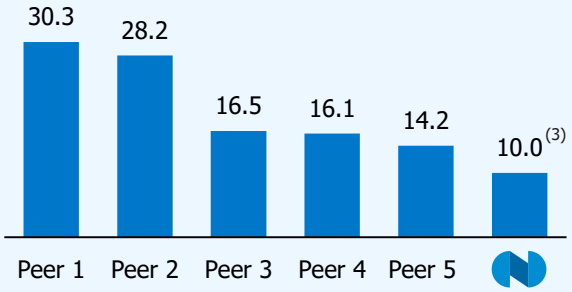
**Leading global supplier** of **materials** critical to **building a low-carbon economy**

## GHG Emissions

**10 Mt**
**of $CO_2$ emissions (1)**

**The lowest level of emissions among global mining diversified majors**

*Direct GHG emissions intensity Scope 1, 2 Mt*

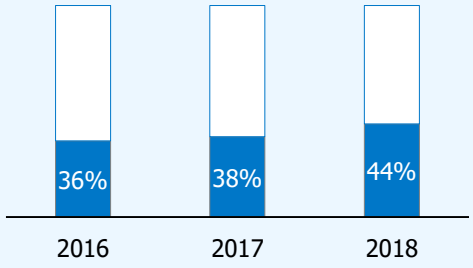



## Energy efficiency

**44%**
**electric power generated from renewable sources**

**US$ 2 bn**
**investments into infrastructure (2) in 2020-2025**

*Electric power generated from renewable sources, %*

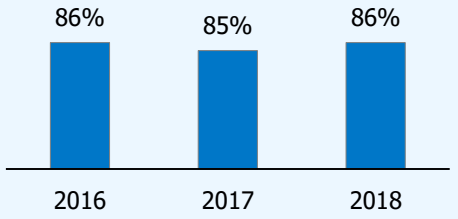



## Water

**86%**
**reused and recycled water of total water consumed by the Group**

**Access to abundant water resources**

*Percentage of water reused, %*




*Source: Company and public data*
*Note: 1. Scope-1, 2. Peer group includes BHP Billiton, Glencore, Rio Tinto, Anglo American and Vale. 2. Including CapEx for gas assets. 3. Assessment made using Russian methodology*

# Nornickel – Critical Facilitator of the Global Low-Carbon Future

## Supplying the materials critical for the development of a low-carbon economy

### 50-100 Mt of $CO_2$ emissions

*Potential savings per EV lifecycle enabled by nickel produced in 2030 (3)*

### 170-270 Mt of air pollutants (1)

*Potential savings per autocatalyst lifecycle by PGMs produced in 2030 (2)*

- **Ni** in batteries for green mobility
- **5-10 million t of annual $CO_2$ reduction**

- **Pd** in catalytic converters reduce local emissions of air pollutants
- **Pt** in fuel cells – zero carbon footprint
- Gain of 2,500 days of average life expectancy per kg of **Pd** due to avoided local emissions


- **Ni** in stainless steel rebar in critical infrastructure
- **6 million t $CO_2$ reduction**

- **Cu** used as a primary conductor in the global electrical infrastructure essential to support roll-out of clean mobility

- **Ni** in stainless steel for clean and safe water
- **5.5 million t $CO_2$ reduction**

- Recycling of **Ni** containing stainless steel
- **46 million t $CO_2$ reduction**

- Ni - PGM - Cu

*Sources: Company data, Nickel institute, BASF reporting, IHS*
*Notes: 1. CO, Hydrocarbons and NOx; 2. Assuming annual PGM volume produced by Nornickel in 2030 would be used for catalytic converters; 3. Assuming annual volume of nickel produced by Nornickel in 2030 would be used for EV batteries*

# Best-in-class Corporate Governance Standards

**Balanced Board Led by Independent Chairman**

**Gareth Peter Penny** – Independent Chairman of the Board
- Member of the Strategy Committee
- 22 years work experience with De Beers and Anglo American
- CEO of De Beers in 2006-2010

**Strengthening of the Board's Financial Expertise**

**Roger Munnings** – Independent Director, Chairman of the Audit and Sustainable Development Committee since 2018
- Member of the Budget Committee, Norilsk Nickel
- Fellow of the Institute of Chartered Accountants in England and Wales
- Ex-head of KPMG Russia and CIS

**Focus on Sustainable Development**

**Evgeny Shvarts –** Independent Director, since 2019
- Member of the Strategy Committee, Norilsk Nickel
- Member of the Board of Biodiversity Conservation Centre (BCC), Charity Foundation
- Ex-director for Conservation Policy, WWF Russia

**Remuneration Linked to ESG Performance**

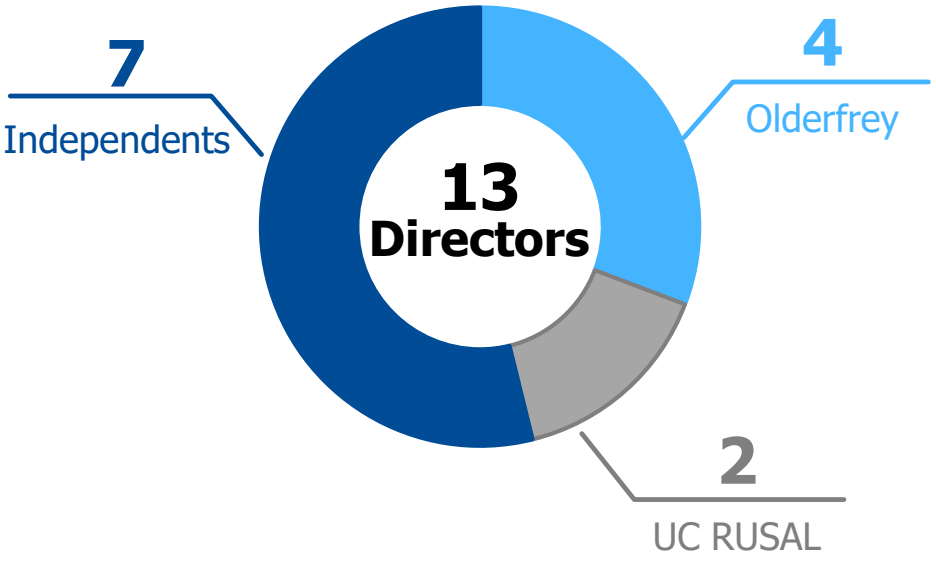
- **Block on the 20-30% of the annual bonuses** of the heads of operating units (including COO) in the case of fatal incidents
- **20% of the Group's KPI is linked to TRI (total recordable injuries)** performance

**Comprehensive and transparent ESG reporting**

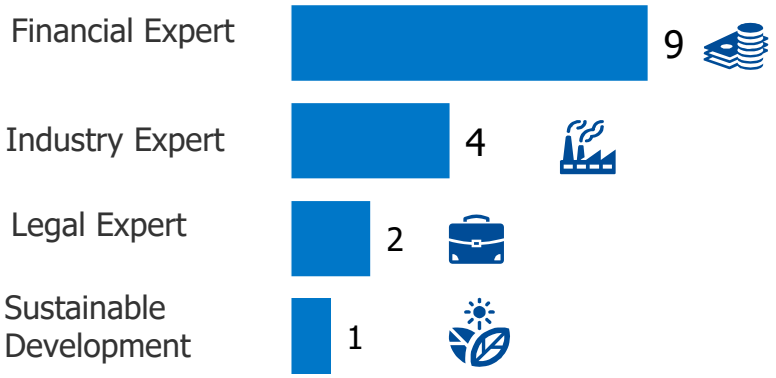
- Annual sustainable development reports prepared according to global reporting standards (GRI) and assured by a third party
- Regular communications with all leading ESG rating agencies/investors

# Majority Independent Board Led by Independent Chairman

The majority of the Board is independent for the first time in the Company's history as a public company, 3 key Board Committees chaired by independent Directors




## Key Expertise of Directors

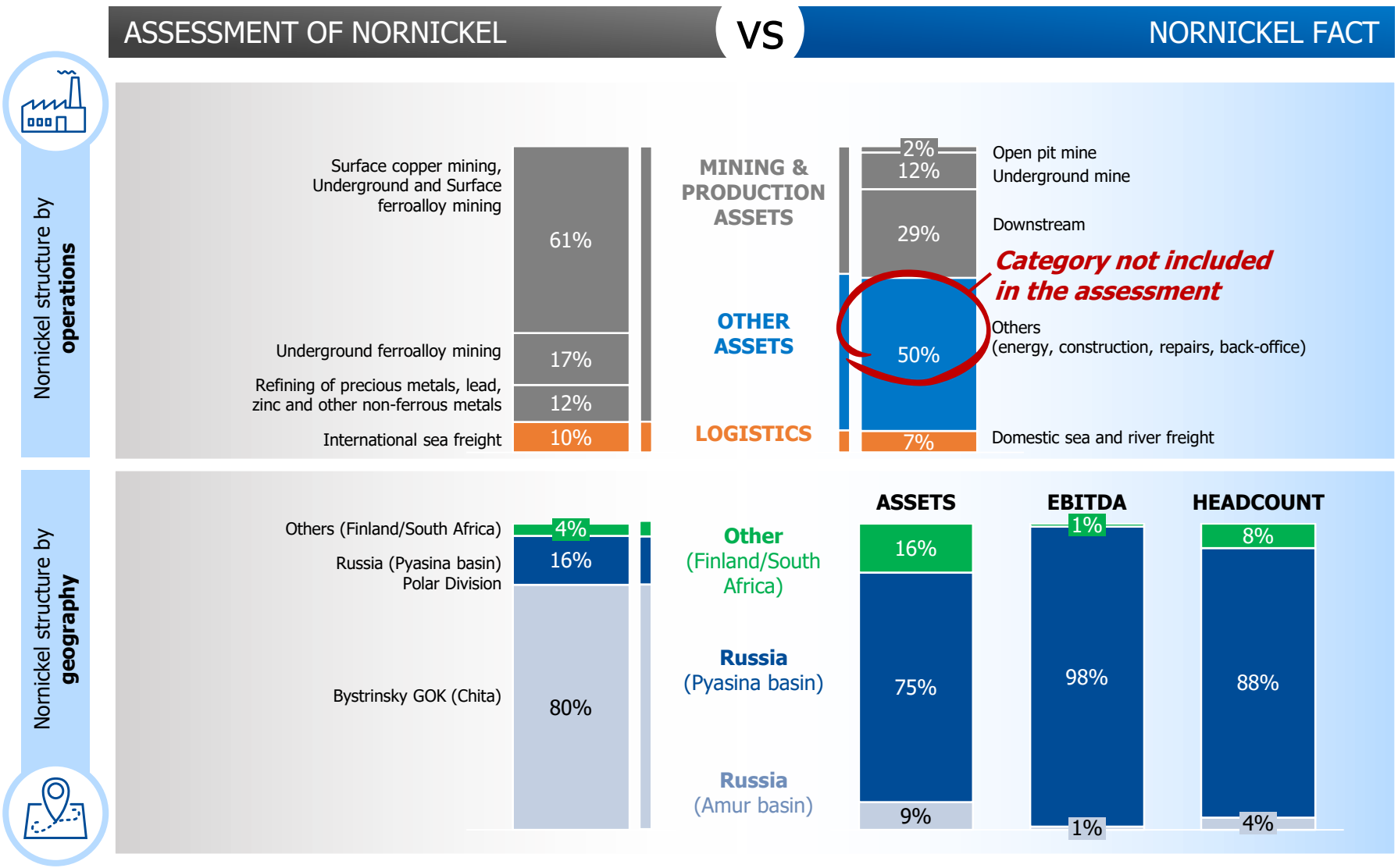



| Board Committees | Chaired by INED |
|---|---|
| Audit and Sustainable Development Committee | Roger Munnings ✓ |
| Budget Committee | Alexey Bashkirov ✗ |
| Strategy Committee | Maxim Poletaev ✓ |
| Corporate Governance, Nomination and Remuneration Committee | Robert Edwards ✓ |

*Source: Company data*

✓ - chaired by INED

# How Well ESG Ratings Know the Corporates




*Source: Company data, MSCI*

# ESG Ratings are Relative … but to What?

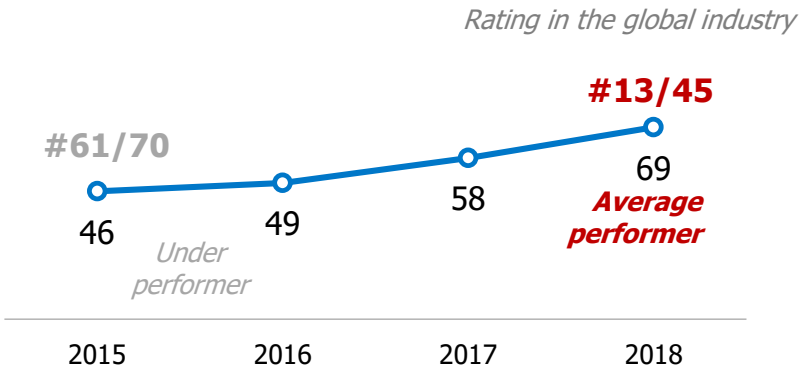
| ASSESSMENT OF NORNICKEL | VS | NORNICKEL FACT |
|---|---|---|
| Red flag due to profitability ratios above industry average | 1 Financial Performance | **Leading profitability** in global mining industry ✓ |
| High risk of labour unrest due to domicile in Russia | 2 Labour Management | **No strikes since 1990s** – historically the lowest number of strikes and lockouts **TOP quartile** |
| Bottom quartile due to exposure to businesses and geographies with high accidents risks | 3 Health and Safety | **LTIFR sustainably well below** relative to global peers ✓ |
| Low rating on carbon emissions due to low management score | 4 Environmental | **The lowest CO2 emission** relative to global peers ✓ |
| High risk of corruption and instability due to country domicile (Transparency International Ranking) | 5 Corporate Governance | **No corruption allegations** against the Company ✓ |

*Source: Company data, MSCI*

# ESG Assessment Highlights

## Gradual Improvement of Independent ESG Assessment

### Sustainalytics ESG Score: 69 points (out of 100), Rated «Average Performer» since 2017



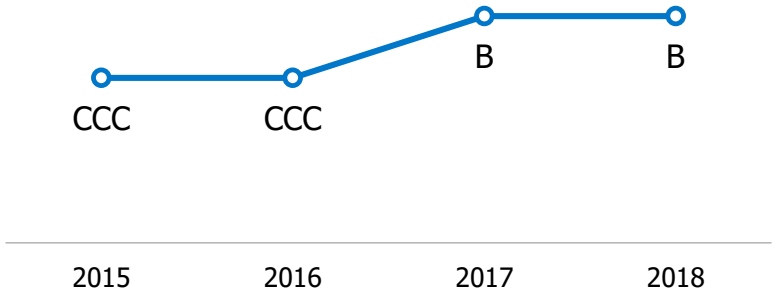

FTSE4Good

**Reiterated as an index constituent in June 2019**
Score of **3.0/5.0** (1) vs. 2.5 sector average (up from 2.4 in 2017)

vigeo eiris

**Ranked in the top 100 Best EM performers in July 2019**
one of the three Russian companies in the ranking

### MSCI ESG Score: Rated «B» since 2017




ISS

**Rating updated in October 2019**
Governance score **4/10** (2)
Environmental score **2/10**
Social score **2/10**

THOMSON REUTERS

**Ranked #65/300 out of global metals and mining companies**
ESG score 58/100

*Read more: https://www.nornickel.com/investors/esg/*

*Source: Company and public data*
*Note: 1. Of which 5 – is the highest; 2. of which 1 – is low, 10 – is high risk*

# Closing Remarks

## Gareth Peter Penny
Chairman of the Board of Directors

NORNICKEL

# Q&A

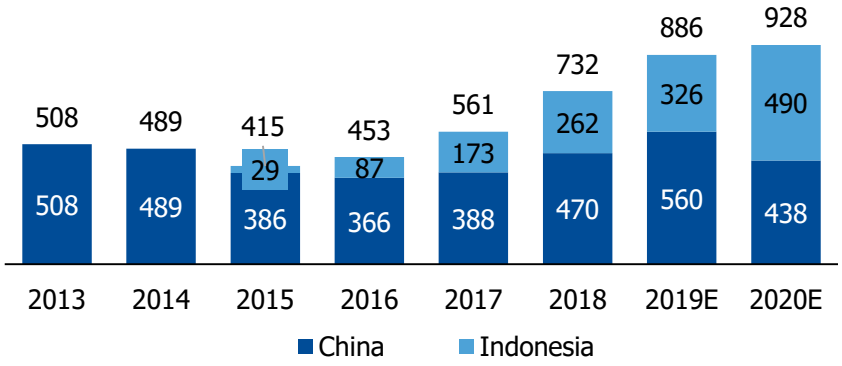
NORNICKEL

# Appendices

# Global NPI Production Volumes Continue to Set Records

## Total NPI Production: Potential NPI Supply Cut of Just 80 kt Ni After the Introduction of the Ban

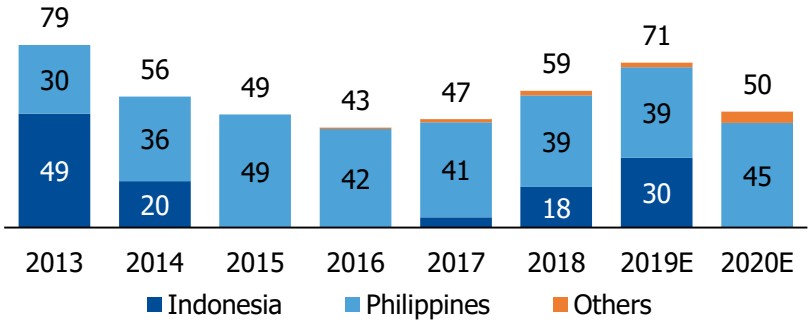
*kt, Ni units*




## Chinese NPI Growth Dependent on Ore Availability: Up to 100 kt Ni in Ore May be Imported to China by the Year End of 2019

*Ore, Mwmt*

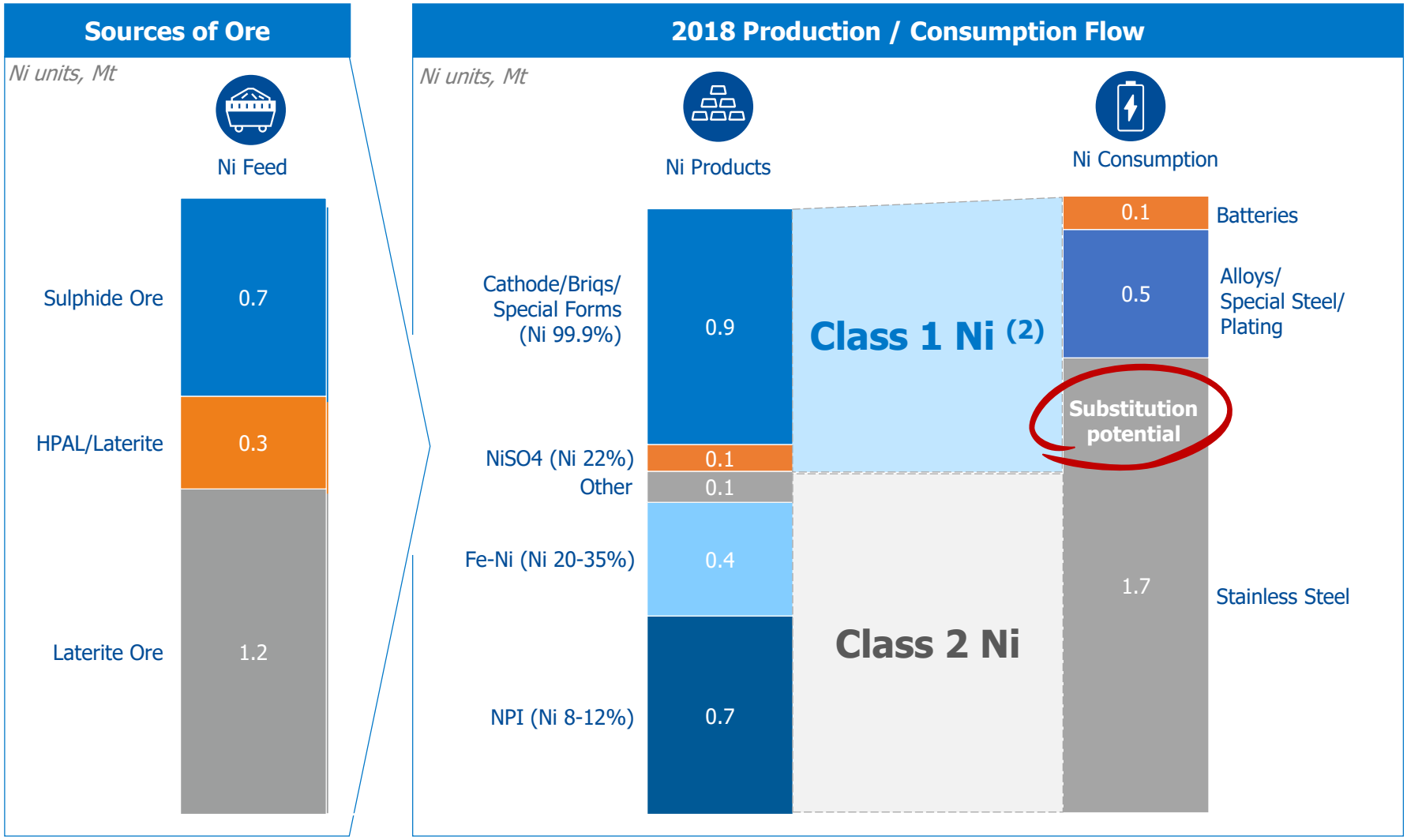
***Jan-Oct 2019: Indonesia +55% Y-o-Y***
***Jan-Oct 2019: Philippines -4% Y-o-Y***




- In April 2017, Indonesia relaxed the ban on export of unprocessed nickel ore for 5 years until 2022
- In September 2019, Indonesian government brought forward a ban on nickel ore exports with grade below 1.7% from 1 January 2020
- In October 2019, export from Indonesia was halted for a few weeks due to the government investigation over massive violations of export rules
- In the long-term, up to 45% of the feed (270kt of Ni or 10% of global supply) for Chinese NPI could be at risk

*Source: Nieba, Company data, LME, BGRIMM*

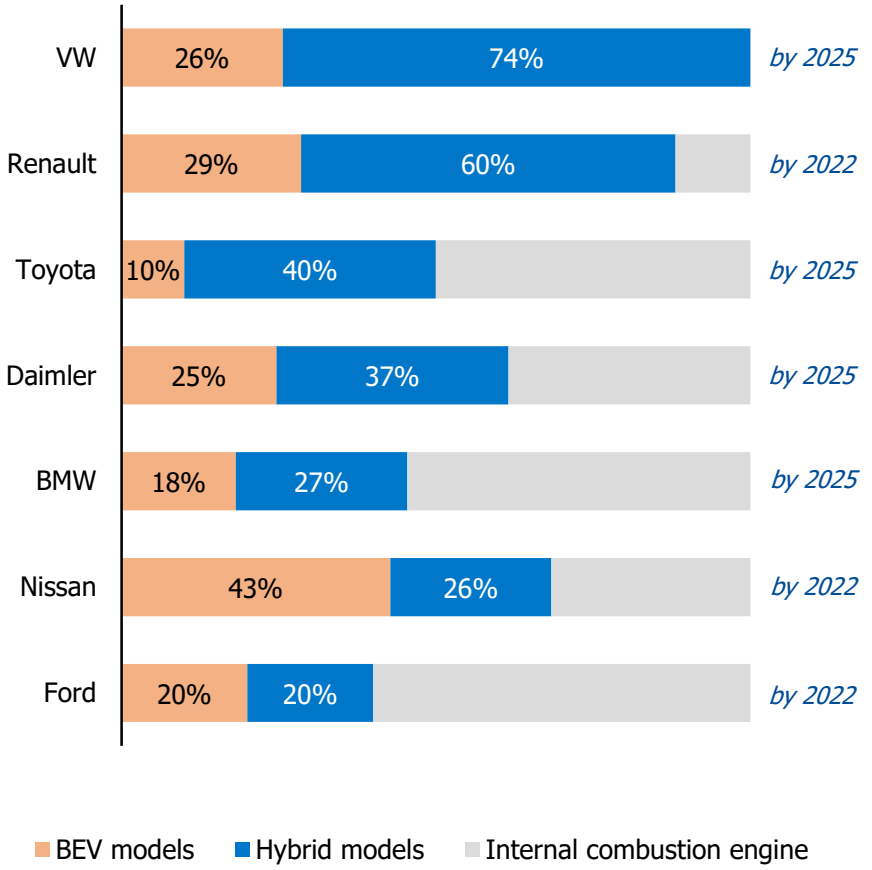
# Growing Supply of Low Grade Ni Feed Unlocks Class 1 Ni for Other Applications



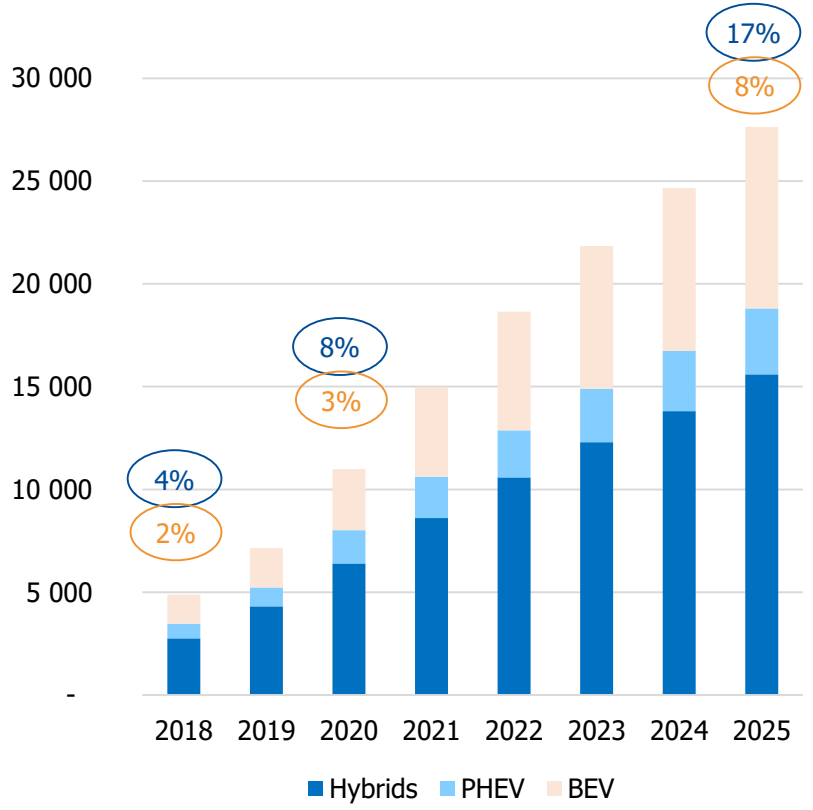

*Source: Company estimates*
*Note: 1. As of November 1, 2018, 2. including Ni sulphates*

# Fleet Electrification Targets Imply Active Hybridization

## Major Automakers' Plans: Hybrids and Internal Combustion Engines to Dominate



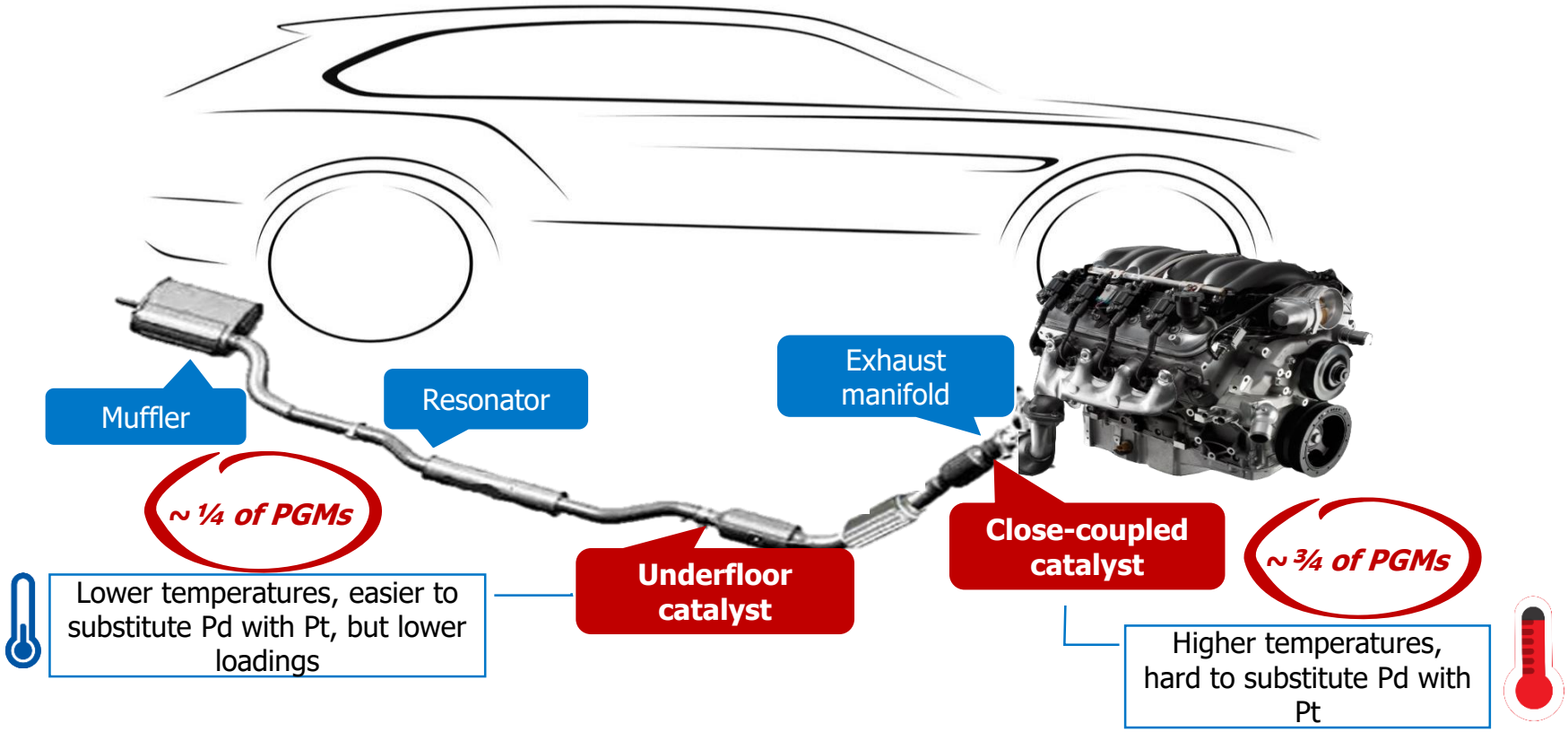

## Industry Expectations: Hybrids to Dominate in the Electric Vehicles Mix in the Long-term




*Source: Company data, announcements by OEMs, LMCA*

# Technical Challenges in Substituting Palladium

## Catalyst Installation in a Vehicle




- Timeline for substitution 18-24 months
- Technical challenges in testing new catalysts in RDE world
- Small cost incentive to substitution (~ USD 100 per car)
- Consumer confidence in sourcing metal

*Source: Company data*

# IR Contact Details

Vladimir Zhukov

Vice-President
Head of Investor Relations Department
MMC Norilsk Nickel
Tel: +7 495 797 8297
E-mail: ZhukovVLS@nornik.ru

Mikhail Borovikov

Investor Relations
Deputy Head of Investor Relations
MMC Norilsk Nickel
Tel: +7 495 787 7662
E-mail: BorovikovMA@nornik.ru