



Navigating the Future of Supply Chains in South Africa

Engineering & Manufacturing

March 25th, 2025



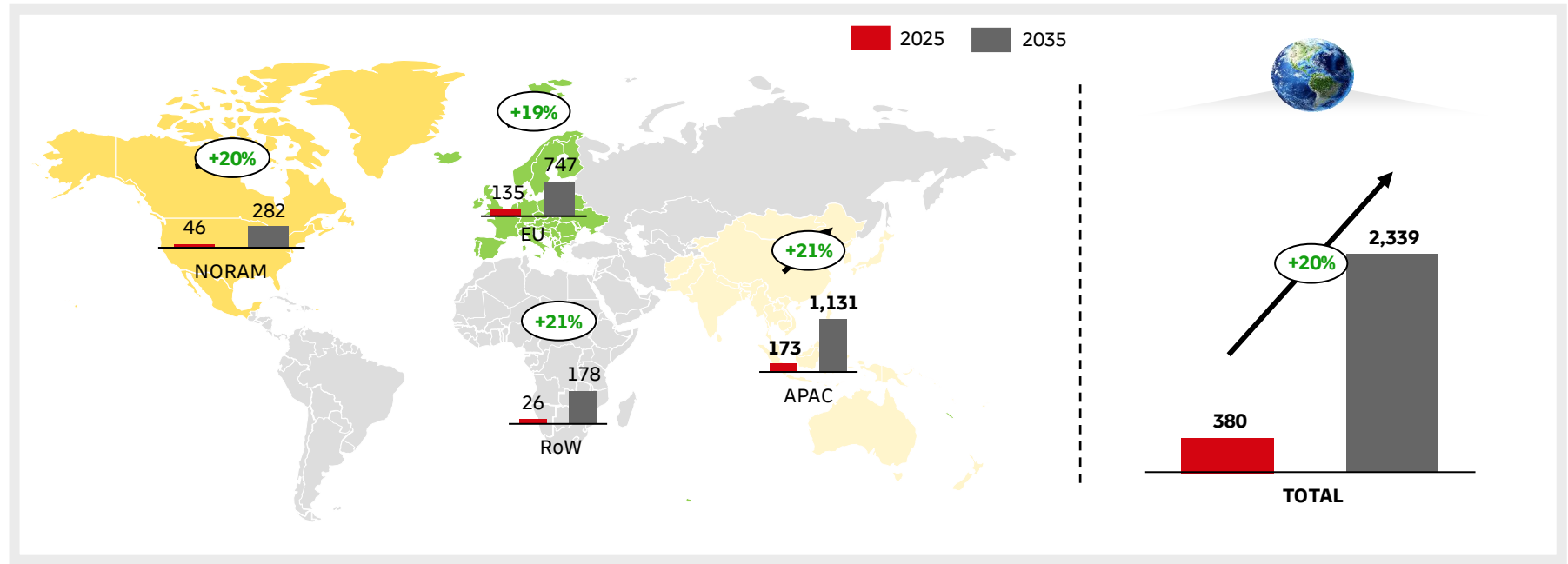
**WE ENGINEER
SUCCESS**

DELIVERING EXCELLENCE
TO THE ENGINEERING
& MANUFACTURING SECTOR

Deep-Dive: Mining & Construction Equipment

Growth of electric and hybrid equipment

Electric/Hybrid Equipment in operation by region (in '000 of units for 2025 vs. 2035)



Battery Electric Vehicles: Underground & Surface Mining

Underground Mining EVs

Drill Rigs

- Sandvik: DD422IE & DL422IE & DS412IE



- Epiroc: Boomer E & Boomer E2 Battery & Boomer E3/4 & Boomer M



- Komatsu: ZB218



Loader

- Cat: R1700XE



- Sandvik: Toro™ LH518IB



- Epiroc: Scooptram ST14 G & ST18G



- Komatsu: WX04B LHD



Mining Truck

- Sandvik: TH665B & TH550B (also as trolley version available)



- Epiroc: Minetruck MT42SG (also as trolley version available)



Surface Mining EVs

Drill Rigs

- Sandvik: BEV Concept rig



- Epiroc: SmartROC T35 E



Loader & Excavator

- Cat: 301.9 & 320



- Cat: 906 & 950 GC



- Komatsu: PC210LCE & Loader



Haul Truck

- Cat: 793 Electric (Prototype)



- Liebherr: T624 (2025/26)



- Komatsu: 830 E



- **EV alternatives exist today** for in both underground & surface mining
- **Battery sizes can be significant:** E.g. **Liebherr T624** has a **3.200 kWh battery** (equivalent to **46 Ford Mach E**)
- **EV growth rate of 20% CAGR** until 2035 is significantly higher than for **diesel powered machinery** that has a **CAGR of only 3%**
- **Battery logistic will become an essential part of the mining supply chain**

Overarching trends impacting the E&M industry in 2025



E&M trends

1 Growing trade restrictions



- Growing protectionism
- Trade wars and increasing usage of tariffs

2 SC Resilience



- Covid has revealed **weaknesses of global just-in-time supply chains**
- E&M customers are **increasing their investments in SC resilience**

3 Sustainability



- **Increase sustainability focus** across E&M portfolio
- **Sustainability scope is expanding to logistics** (majority of E&M customers with scope 3 targets)
- **Dedicated sustainability budgets** available

Impact on supply chain



Reshoring and increased demand for in country logistic solutions



Increased focus on customs



Near-shoring/diversification of suppliers (alternative for China), higher **inventory levels for critical parts**



Investments in SC resilience & risk monitoring tools (such as Everstream Analytics)



Increased **demand for sustainable fuels** (for AFR & OFR)




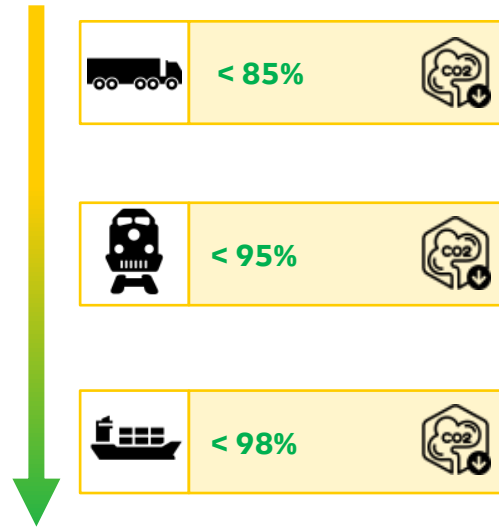
Increase focus on Mode Optimization to not only reduce cost but also to reduce emissions

Mode Optimization:


Opportunity to reduce CO₂ emissions & cost

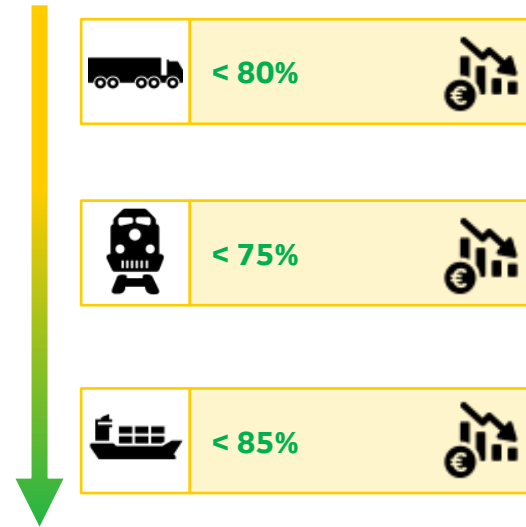
CO₂ Reduction Potential

By switching from  to ...



Cost Reduction Potential

By switching from  to ...



Vs.

BUT: Trade-off



Lead time increase

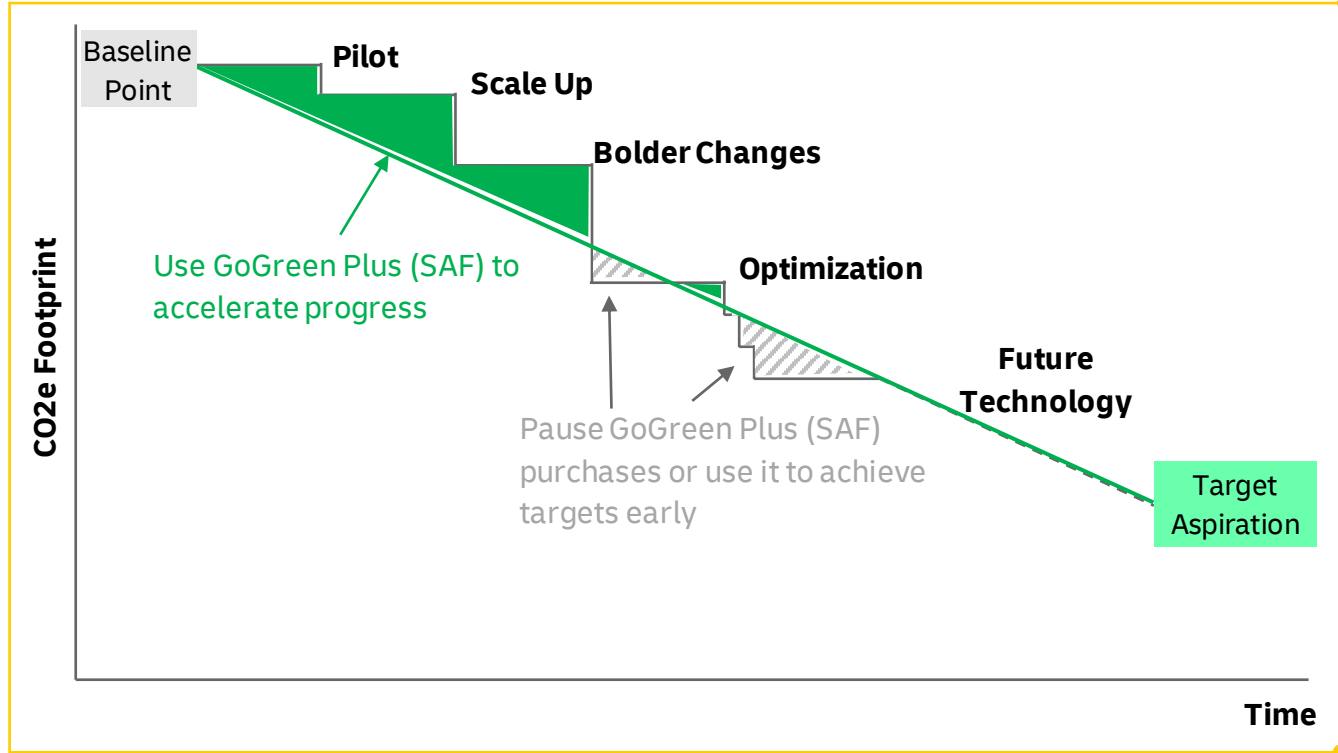


Increased risk

Source: Based on example from Shanghai, CN to AMS, NL of a 500 kg shipment based on standard rates January 2023.
CO₂ calculation via <https://dhl-carboncalculator.com/#/scenarios>

Sustainable Logistics Strategy:

Measures to reduce emissions over time



Key Points:

- Improvements to sustainability happen in series of discrete steps
- Stakeholder expectations are often for continuous improvement and steady progress towards targets
- Sustainable fuels are controllable, fast, flexible, verified and cost effective
- Good strategy is to combine sustainable fuels and optimization projects to help achieve goals.
- Learn from using SAF at early stages even with limited investments and see how your company can communicate on it.
- The demand for SAF is big. The late comers will most likely have limited access ⁷

THANK YOU