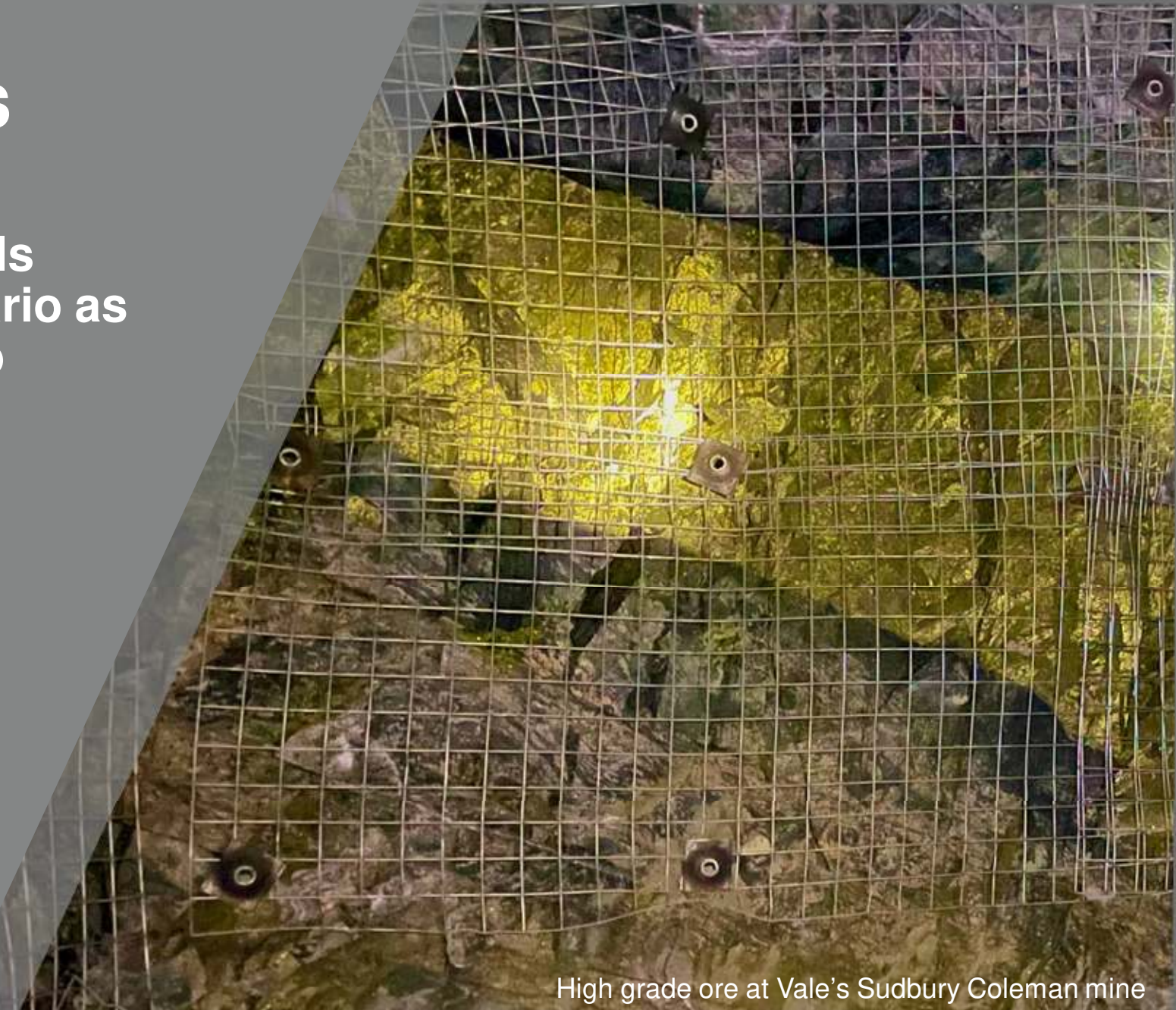


Vale Base Metals

**Bridging the Critical Minerals
Supply Gap - Northern Ontario as
a Global Battery Metals Hub**

May 2022



High grade ore at Vale's Sudbury Coleman mine

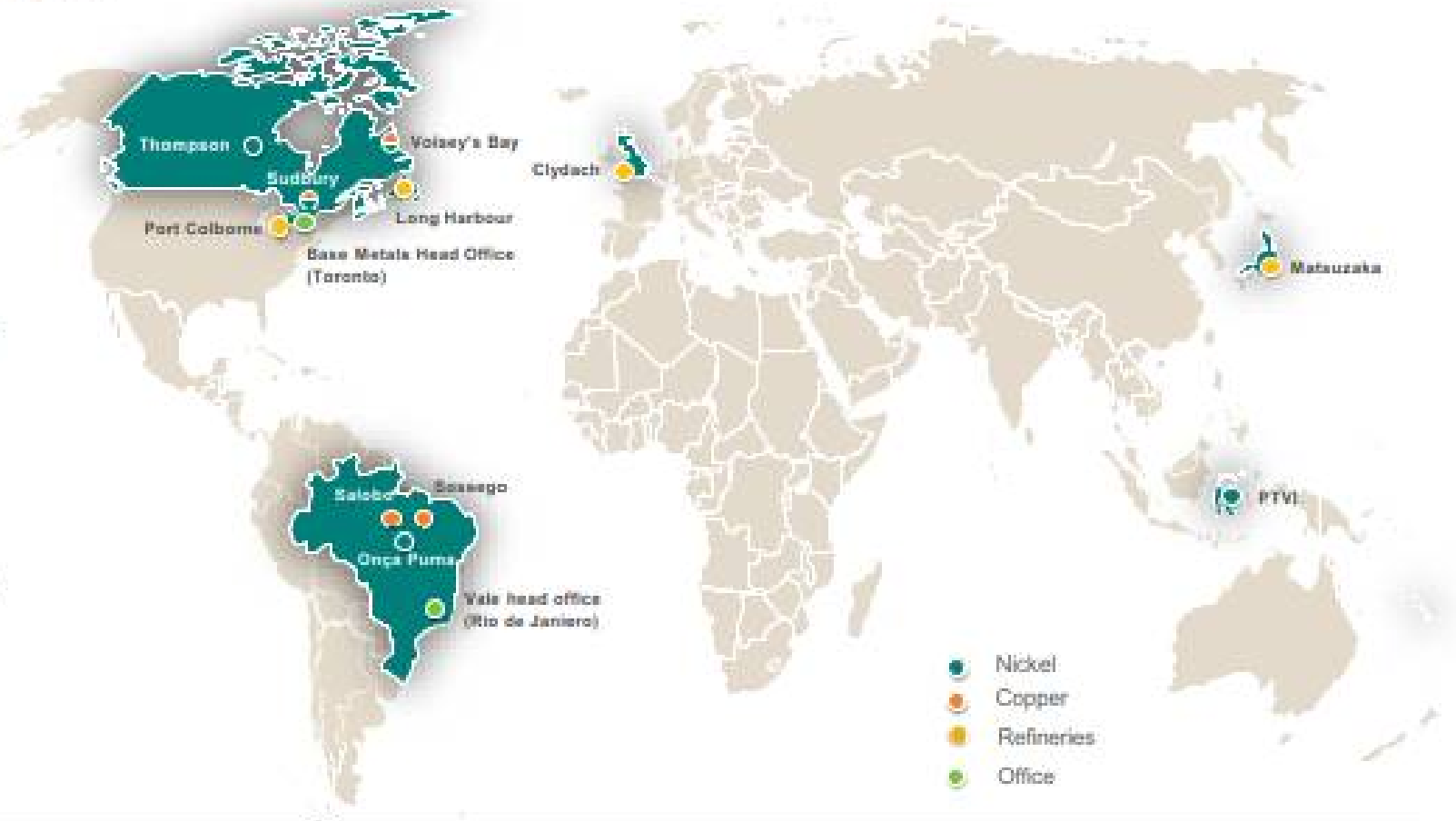
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We are a global base metals leader and the largest integrated nickel producer in North America

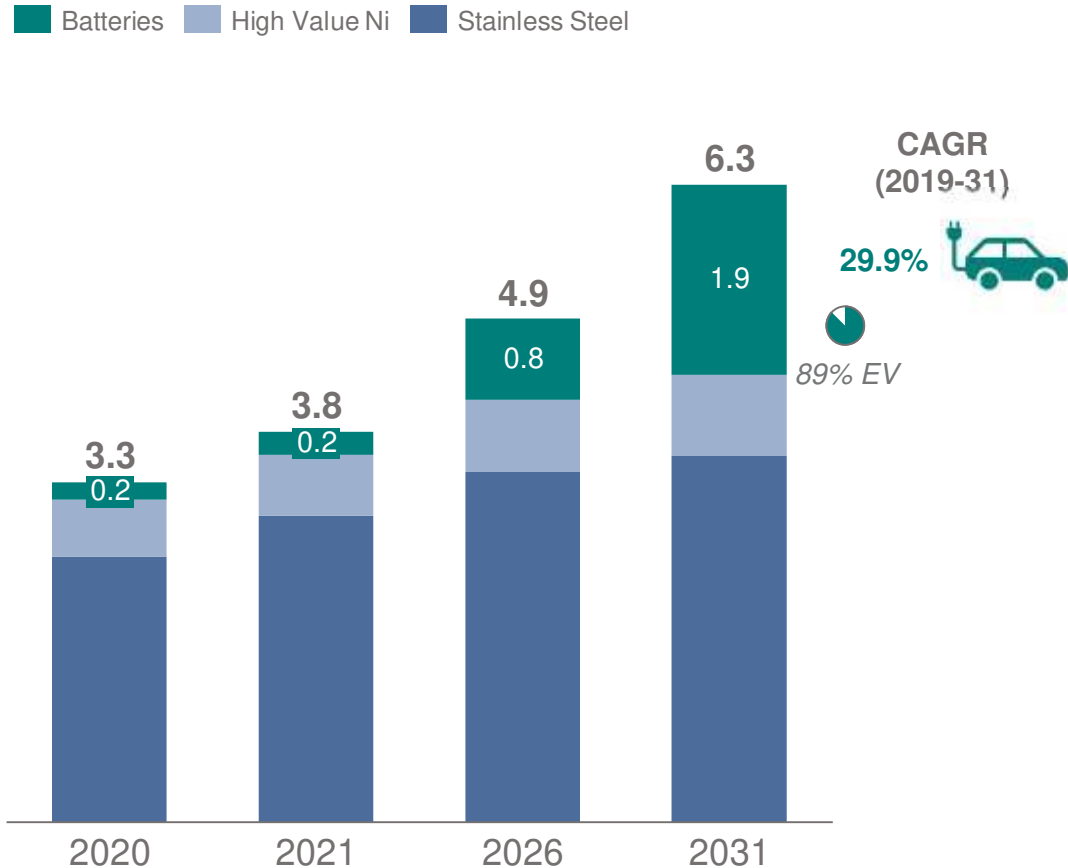
- Largest integrated nickel operation in North America, operating in a safe jurisdiction with a stable regulatory environment
- Headquartered in Toronto, Canada
- 8 core nickel and copper operations and 4 refineries
- 16,000 employees across the world
- World leading base metal producer



Energy transition signifies a robust outlook for Base Metals with rapid demand growth over the next decade

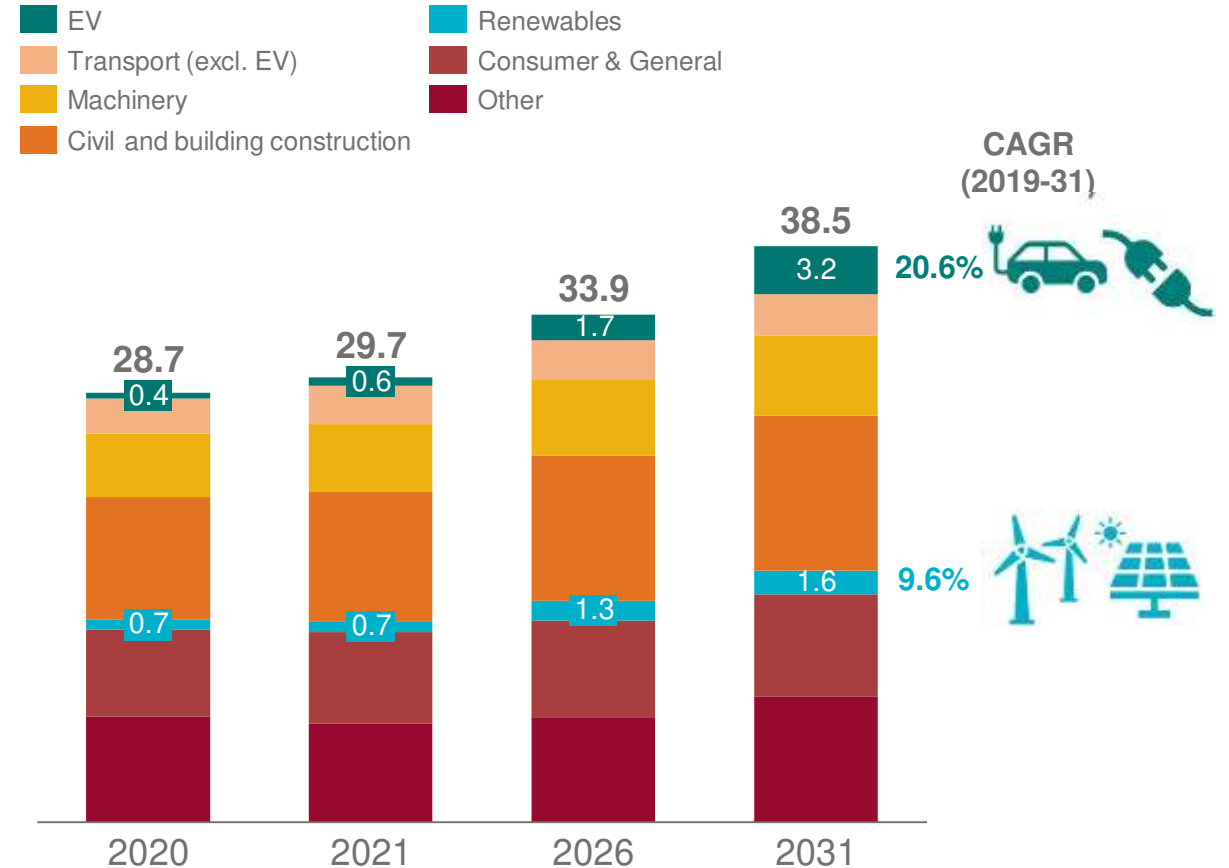
Nickel Demand (million tonnes)

*includes scrap demand



Copper Demand (million tonnes)

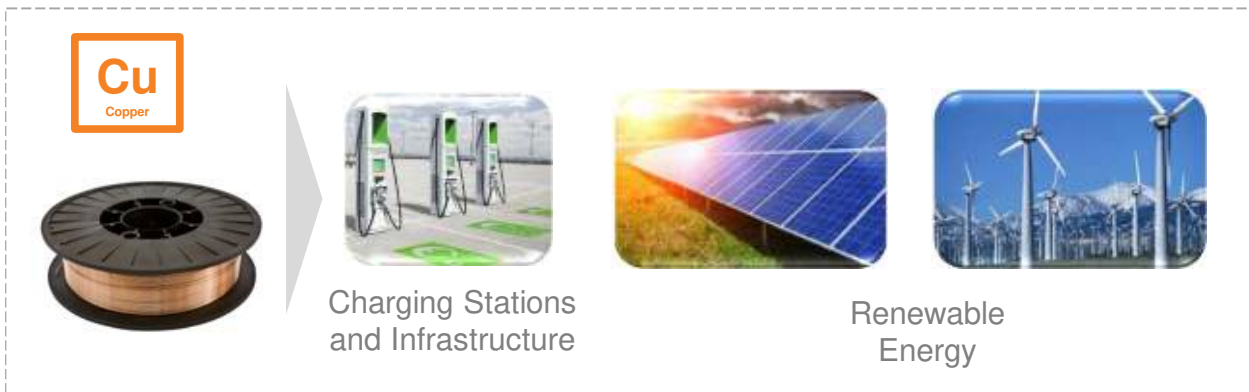
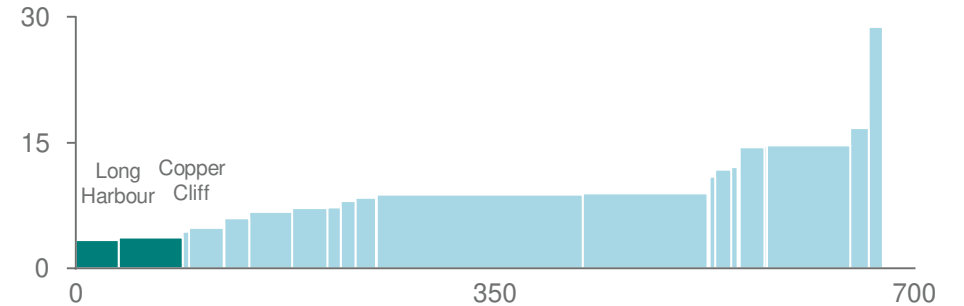
*includes scrap demand



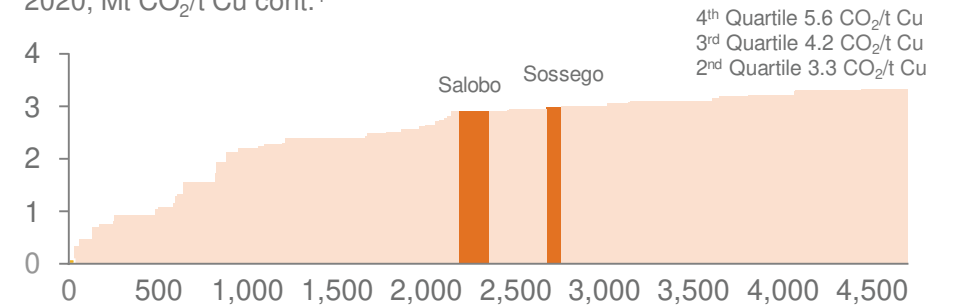
Nickel, Cobalt and Copper products are integral and essential for the energy transition



Vale's Low Carbon Operations (Scope 1 and 2)
Sulphide producers 2020 finished nickel, CO₂ Mt/t Ni cont.



Vale's Low carbon operations (Scope 1 and 2) 1st Quartile
2020, Mt CO₂/t Cu cont.⁴



¹ Source: Skarn, Vale analysis

Vale in active in multiple parts of Ontario, developing the resources and adding value to the economy

Sudbury, Ontario, home to our Ontario Operations, is where the company's history in Canada began. There has been exploration and mining in and around this mineral-rich community for more than 100 years.

With five mines, a mill, a smelter, a refinery and nearly 4,000 employees it is also one of the largest integrated mining complexes in the world.

Our products include nickel, copper, cobalt, platinum group metals, gold and silver. Vale also makes sulphuric acid at the Sudbury Smelter.



Constructed in 1965, the Base Metals Technical Excellence Centre in Sheridan Park, Mississauga in the province of Ontario helps to maximize Vale's competitive advantage and profitability, supporting its growth strategies through the safe and responsible use of technology.

Sudbury (Copper Cliff Complex)

Mississauga

Base Metals Technical Excellence Center

Port Colborne Refinery

The Port Colborne Nickel Refinery was commissioned almost 100 years ago on the shores of Lake Erie on the Niagara Peninsula.

About 170 people work at the refinery, a vast 360-acre complex that:

- ✓ produces electrocobalt
- ✓ makes and distributes finished nickel products, and
- ✓ processes precious metals.

Our Canadian products deliver strong ESG credentials – enabling Canada to be the ESG supplier of choice for critical minerals



Climate change

Vale's Green Energy Vehicle (GEV) Program trialing of underground battery-powered equipment in North Atlantic operations – currently 47 battery-vehicles on site in Canada



Energy

In Sudbury, Vale generates over 10% of our own power requirements through our own renewable, hydro-electric facilities with the remainder coming from the Ontario grid which has one of the lowest carbon intensity rates in the world



Socioeconomic Contribution

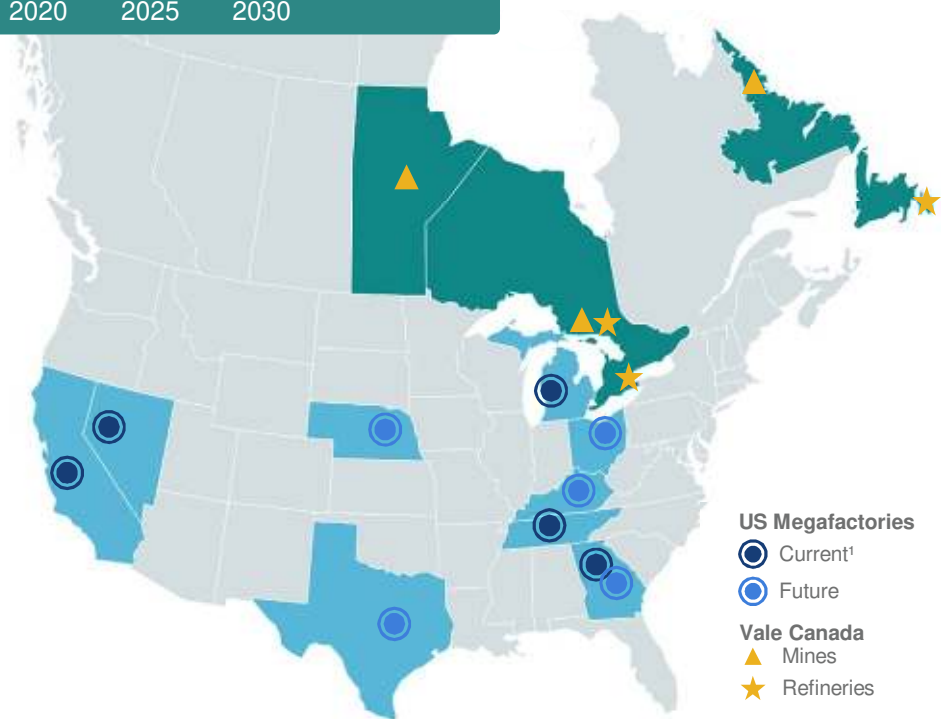
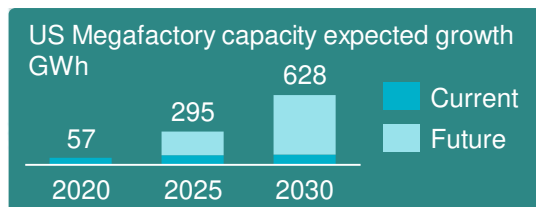
Proud to provide stable, well-paying jobs in the communities where we operate, employing a team of dedicated, high-performing people including directly employing over 4,000 people across Ontario and supporting the creation of over 13,500 jobs per year in Ontario



ESG gaps

A 3rd party verification of our carbon footprint at Copper Cliff Nickel Refinery in Sudbury, for both nickel pellets and nickel powder products, supports our commitment with transparency and ambition to be a leader in low carbon.

Key foundation for establishing North American EV supply chain



Increase supply of EV market metals in North America, targeting to achieve 30-40% of Ni market in the mid-term

Fully utilize existing production assets, producing best in class products with opportunities to further optimize.

Develop partnerships through the value chain, communities and rightsholders.

Develop black mass recycling: advancing quickly both sourcing and returning sustainable metals

Evaluate options to build a nickel sulphate plant in North America, as a first mover to leverage larger growth potential

¹ Major Megafactories in 2020.
Source: Benchmark Mineral Intelligence (October 2021). ² Considering current US capacity profile which is nickel-based.



VALE