Founded in 1847, Cleveland-Cliffs is among the largest vertically integrated producers of value-added iron ore and steel products in the North America. In March 2020, the Company completed the acquisition of AK Steel. With the acquisition of AK Steel, Cleveland-Cliffs now holds an industry-leading market position in automotive steel, where its portfolio of high-end products delivers a broad range of differentiated solutions for this highly sought after customer base. Cleveland-Cliffs will also be the sole producer of hot briquetted iron (HBI) in the Great Lakes region when its first plant starts up in mid-2020.

Collectively, Cleveland-Cliffs and AK Steel have an extensive history of being innovators dating back more than a century. From upstream research and development, to downstream applications, the Company has dedicated technical and engineering resources that begin with improving customers’ production and manufacturing performance to applications for their end product use.

Built on a strong legacy of safety and environmental stewardship, Cleveland-Cliffs mines responsibly and produces environmentally friendly iron ore pellets that enable production of clean steelmaking. The Company produces steel, the most recycled material on the planet. From a focus on key environmental processes such as steel recycling and water reuse, to corporate and social responsibility, sustainability is core to the company’s values and operations.
MINING AND PELLETIZING

Cleveland-Cliffs is the largest and oldest independent iron ore mining company in the U.S. Widely recognized for innovation in iron ore mining and processing technologies, Cleveland-Cliffs is a major supplier of iron ore pellets from its mines and pellet plants in Michigan and Minnesota. Cliffs produces various grades of pellets, including standard, fluxed and DR-grade, for North American steel customers.

Blast Furnace Pellets
Cleveland-Cliffs produces various grades of iron ore pellets for use in blast furnaces as part of the steelmaking process. While most iron ore producers mine, market and sell a commoditized product that is effectively fungible across most blast furnaces, Cliffs’ production of custom-made pellets is the true differentiating factor when compared to its peers in the iron ore space.

DR-Grade Pellets
A product line of DR-grade pellets was developed for feedstock for the Toledo Hot-Briquetted Iron (HBI) facility and Direct-Reduced Iron (DRI) production. Cleveland-Cliffs’ DR-grade pellets are 67.3% Fe and 2% silica, which are purer than standard iron ore pellets, and are tailor-made for HBI and DRI production.

Metallics
Cleveland-Cliffs is completing the construction of its first HBI production plant in Toledo, Ohio, which will begin production in June 2020. The most modern, efficient and environmentally compliant direct reduction plant in the world, Cleveland-Cliffs will be the first producer of high-grade, ore-based metals in the U.S. Great Lakes region. The HBI will be a compacted form of DRI in the shape of briquettes designed for ease of shipping, handling, and feeding into electric arc furnaces. Electric-arc furnace (EAF) steelmakers will be able to domestically source feedstock and move up the value chain by producing sophisticated steel products. HBI can also be used in blast furnaces, helping boost their productivity.

Iron Ore Pellets
Hot Briquetted Iron (HBI)

2
AK Steel, a wholly-owned subsidiary of Cleveland-Cliffs, is a leading producer of flat-rolled carbon steel, stainless steel and automotive steel parts. Created to meet its customers’ most demanding requirements, AK Steel products are found across many industries. This includes automotive applications in body panels and structures, specialty exhaust system steels, and materials for hybrid and electric vehicle drive trains. AK Steel also provides innovative products for the appliance, industrial and construction markets, including a variety of specialty stainless steel products and world class electrical steels used in motors and transformers for power distribution and generation.

Key Innovative Products Include:

- **NEXMET® Advanced High Strength Steel (AHSS)**, a family of steels offering significant lightweighting opportunities with high strength, excellent ductility (elongation), and improved formability solutions for structural and exterior auto applications.

- **ULTRALUME® PHS**, a Press Hardenable AHSS designed to improve safety and lightweighting of structural components in vehicles.

- **CHROMESHIELD® 22**, a nickel-free stainless steel with enhanced benefits including corrosion resistance for customers in the food service and other markets.

- **THERMAK® 17**, designed for demanding hot-end automotive exhaust applications with improved high temperature strength and thermal fatigue performance to enable vehicle lightweighting.

- **DI-MAX® HF 10X**, a non-oriented electrical steel, designed for use in motors powering the next generation of hybrid and electric vehicles.

Development

AK Steel’s talented team of researchers are working to develop innovative new products such as:

- **Next Generation AHSS** to help automotive customers design lighter, more fuel-efficient vehicles that maintain superior strength and safety performance.

- **New Stainless Steels** that offer superior corrosion resistance for a wide variety of applications.

- **High Efficiency Electrical Steels** that will enable the nation’s electricity grid to become more energy-efficient, and improve performance in motors for hybrid and electric vehicles.
IRON ORE MINING AND STEEL MANUFACTURING OPERATIONS

1. Cleveland-Cliffs Headquarters

**OFFICES**
2. AK Steel Main Office
3. AK Steel Research & Innovation Center

**IRON ORE MINES/PELLET PLANTS**
4. Hibbing Taconite (minority partnership)
5. United Taconite
6. Northshore Mining
7. Tilden Mine
8. Empire Mine (idled)

**METALLICS FACILITY**
9. HBI Plant

**AK STEEL INTEGRATED BLAST FURNACE OPERATIONS**
10. Dearborn Works
11. Middletown Works
12. Ashland Works (idled)

**DOWNSTREAM STEEL PRODUCT FACILITIES**
13. Precision Partners Windsor & Ontario
14. Precision Partners Kentucky
15. Precision Partners Alabama
16. AK Tube Walbridge
17. AK Tube Columbus

**AK STEEL EAF OPERATIONS**
18. Mansfield Works

**AK STEEL FINISHING FACILITIES**
20. Rockport Works
21. Coshocton Works
22. Zanesville Works