



VIETNAM STEEL ASSOCIATION

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- Current issues



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PART I

BASIC INFORMATION



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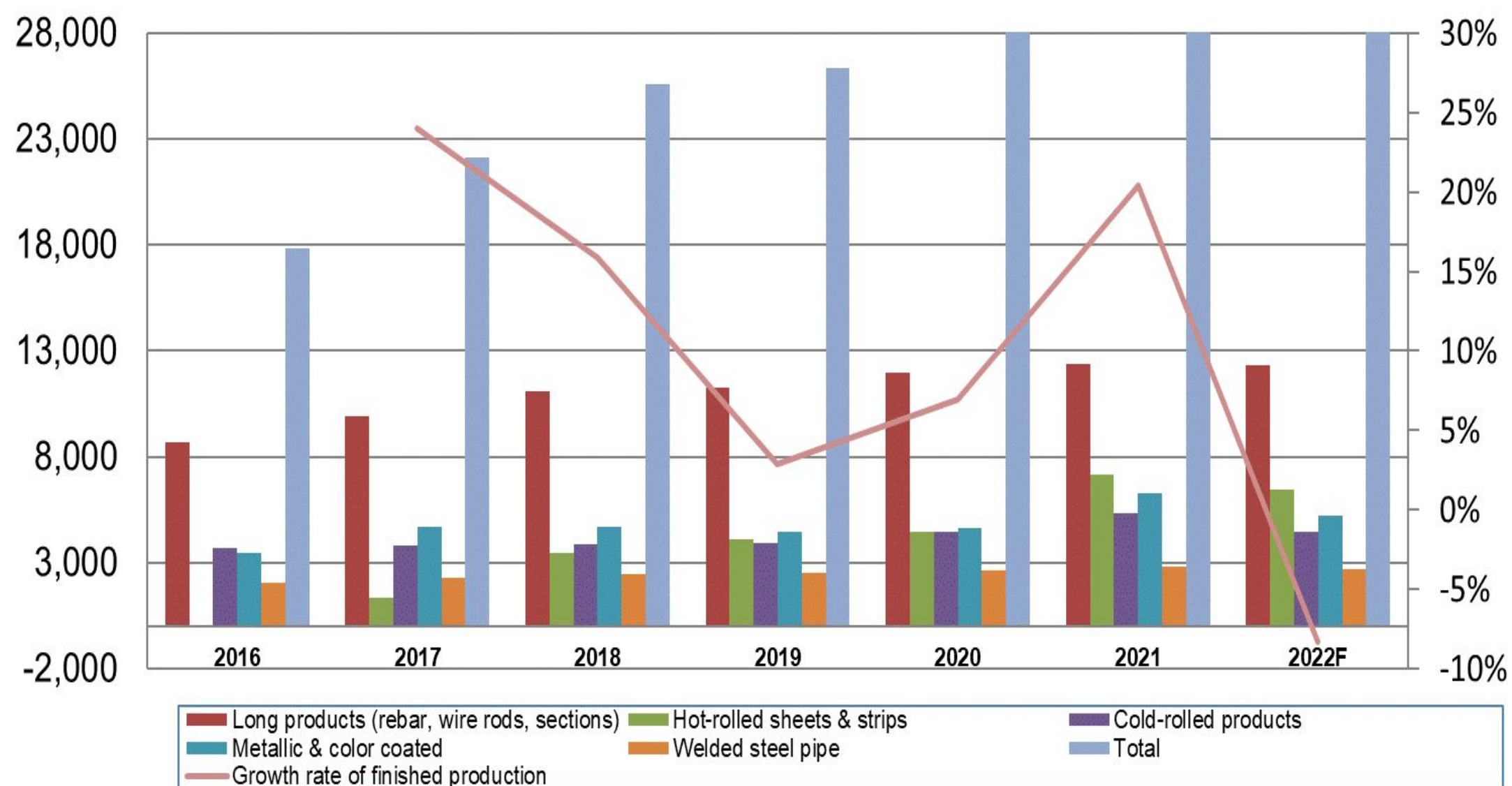
BASIC INFORMATION

Steel Production & Consumption 2022F

- Crude Steel Production reached nearly 22.5 million tons, down 3% y-o-y.
- Finished Steel Production reached nearly 32 million tons, down 8.3% y-o-y

- Apparent steel consumption reached more than 21.6 million tons, down 1.8% compared with 2021.
- Steel export in 2022F also achieved negative results, reaching nearly 10 million tones, decreased about 30-34% y-o-y.

Finished Steel Output by Products 2022F



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Source: VSA

The product range and quantities covered 2022F

- Long product: 12.3 mil. tons
- Hot rolled coils: 6.5 mil. tons
- Cold rolled coils: 4.4 mil. tons
- Metallic (galvanized & Alu-zinc coated) and color coated steel sheets: 5.2 mil. tons
- Welded steel pipes: 2.69 mil. tons.



The top projects for coming years:

- Hoa Phat Dung Quat No.2 steel integrated complex project with a design capacity of 5.6 million tons of hot rolled coils per year, is expected to be completed and put into operation by 2024 [Flat product].
- No. 2 Nghi Son Steel Rolling Factory, with a capacity of 3 million tons/year, divided into 2 investment phases. In which, the first phase of the project with a capacity of 1.5 million tons of steel billet/year, which was deployed for construction from January 2022, this phase will go into operation in March 2023; Phase 2 with a capacity of 1.5 million tons of steel billet/year and 1.5 million tons of rolled steel/year, is planned to construct from July 2022 to March 2025 [Long product].



BASIC INFORMATION

The top projects for coming years:

- Sunpro steel mill project: Invest in a steel smelting and rolling mill with a capacity of 500,000 tons/year (2023-2025) [Long product].
- Other projects are under feasibility study:
 - Integrated steelworks Vina Roma- Quang Tri (4.5MTPY),
 - Integrated steelworks Xuan Thien- Nam Dinh (8.4MTPY),
 - Integrated steelworks Long Sơn Phu My- Binh Dinh (5.4MTPY).



Three key areas of R&D focus

- High quality products
- Energy saving
- Environmental protection



Product & process development in ROLLING MILL

- Hoa Phat Dung Quat operated the thin slab caster & Hot strip mill (QSP) with capacity 3.5 MTPY from end of 2020, sell the product to the market in 2021, which adds to the Vietnam market a significant amount of HRC.
- Ton Dong A, one of biggest galvanized steel manufacturers in Vietnam, is developing the galvanized sheet product for home appliances, currently it supplies some products for the back plates of refrigerators, TV sets and Washing machines.
- Hoa Phat Group is investing in a Container Factory which will produce the 20' and 40' steel containers with capacity 500,000 TEUs/year (First phase: 200,000 TEUs/year).



Energy saving in IRONMAKING

BF Gas Power Generation Project using the excess BF gas in Hoa Phat Hai Duong Steel Joint Stock Company:

- Maximum generating capacity is 35MW, the average is 25MW.
- Average monthly electricity generation 18,000,000 kWh/month, annual 216,000,000 kWh/year; bringing in a value of ~15.5 million USD/year.

The self-produced electricity of the Complex from residual heat and BF gas sources provides about 80% of the demand, of which BF gas generation alone accounts for 25% of this total spontaneous electricity. The use of excess BF gas in the Complex for power generation has brought about high efficiency, saving energy, reducing greenhouse gas emissions, and improving production efficiency, product cost reduction



Research topics in IRONMAKING & STEELMAKING

- Improving manufacturing of ultralow carbon (ULC) steel grades by revamping of Ruhrstahl-Heraeus (RH) degasser in steelmaking (To Duy Phuong- Hanoi Association of Foundry & Metallurgy, Vietnam).
- Research on manufacturing technology of wear-resistant alloy cast iron, grade KmTBCr15Mo2 for Impact plate in Coal Crusher (Institute Of Ferrous Vietnam).
- Research on manufacturing technology of alloy casting steel grade 25X2□HMΦЛ (25Cr2MnNiP Brass) to make floor plate for coke quenching cars (Institute Of Ferrous Vietnam).



Integrated manufacturing process for iron and steel

- Vietnam has full of the integrated manufacturing process for iron and steel using the blast furnace and basic oxygen furnace (BF - BOF); Electric Arc Furnace (EAF); Induction furnace (IF). Including continuous casting machines produce billet, bloom and slab; rebar, wire rod rolling mills and hot strip mills.
- In downstream side of the iron and steel manufacturing chain, Vietnam has full process such as pickling tandem cold mill (PLTCM), reversing rolling mill (CRM), hot dip continuous galvanizing lines (CGL), continuous color coating lines (CCL), continuous annealing lines (CAL), electrolytic galvanizing line (EGL)...



Consumption

IRONMAKING	STEELMAKING
Coke rate: 350-420 Kg/THM	BOF- Oxygen consumption: 48-55 m ³ /Ton
Pulverized Coal Injection Rate: 100-160 Kg/THM	EAF- Electric consumption: <300 kWh/ton
Energy Consumption: 10-14.8 GJ/THM	



CURRENT ISSUES

- There is an oversupply of construction steel, but there is a significant shortage of high-quality steel products such as: mechanical engineering steel, alloy steel, etc. in the manufacturing industry. Therefore, despite being a major steel exporter in the ASEAN region with about 14 million tons of steel exported, worth more than \$12.7 billion, Vietnam still has to import more than 13 million tons of steel, worth \$12.2 billion (Figures for 2021).
- There are still many factories with small capacity, outdated equipment, high energy consumption, environmental risks, but products are not diversified.
- The input materials such as iron ores, scrap steel, coking fat coal are almost entirely dependent on imports and the world market.





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