Cold-Rolled Grain-Oriented (CRGO) Electrical Steel

Prelims – General economics

Why in news?

Recently, the Directorate General of Trade Remedies (DGTR), has initiated an anti-dumping probe against imports of CRGO.

- **CRGO steel –** It is a special type of high-tech iron and steel blend made specifically to build the inside (the "core") of electrical transformers.

Functions

- **One-Way Path -** The metal crystals are lined up in a single direction.
- **Easy Flow -** This alignment lets electricity and magnetism flow smoothly with very little resistance.

Features

- **Saves Energy -** It stops power from leaking or turning into wasted heat.
- **Lowers Bills -** It keeps our power grid highly efficient, saving money and energy.
- **Prevents Overheating -** It keeps giant transformers cool and safe while they step voltage up or down. Produces less heat and higher efficiency resulting into low core loss
- **High Magnetic Permeability –** Enables easy flux conduction.
- **Thickness Range –** 0.23–0.35 mm (modern grades as thin as 0.18 mm).
- **Reliance on Imports –** India consumes 400,000–450,000 tonnes of CRGO steel annually, but domestic output is only 40,000–50,000 tonnes.
- Imports from *China, Japan, South Korea, and Russia* meet about *90% of demand.*

> *"Anti-dumping duties are tariffs designed to shield domestic industries from foreign products priced below fair market value."*

Risks of Anti-Dumping Duty

Imposing duties may increase transformer prices.

- **Slower Expansion –** Higher costs could delay investments in transmission infrastructure, renewable integration, and electricity distribution.
- **Limited Impact on Imports –** Since domestic production meets less than one-tenth

of demand, duties are unlikely to significantly reduce import dependence.

Implications for India

- In the power sector, increasing transformer costs may adversely *affect grid expansion timelines.*
- The integration of *solar and wind projects may experience delays* as a result of higher equipment costs.
- Manufacturers may encounter challenges due to *increased input costs*, which could negatively impact their competitiveness.

Reference

Business Standard | Anti-Dumping Duty on Electrical Steel