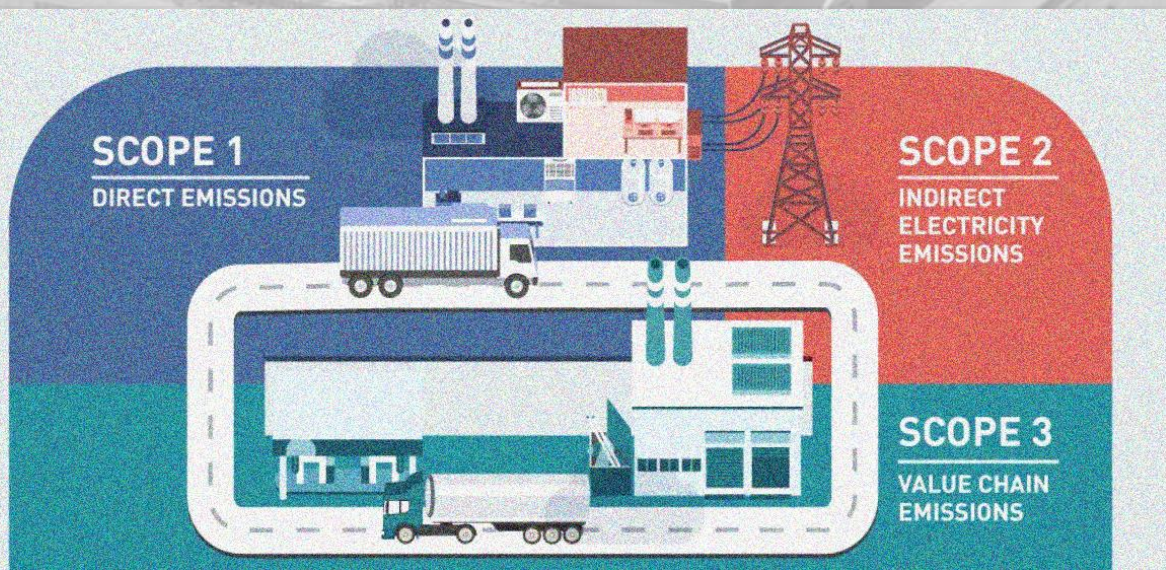


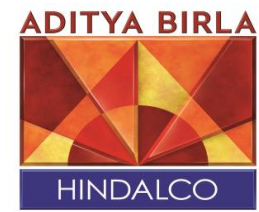
# *Mahan Aluminium*

## “Taking strides on the Decarbonization Path”



Presentation by:  
Yogendra Singh Bhati

## Mahan Team

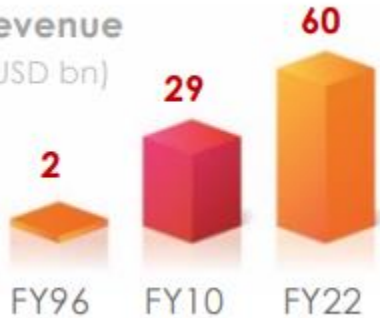


Sr. No.	Name	Designation	Email	Mobile No.
1	Karnindra Chaturvedi	Manager	karnindra.chaturvedi@adityabirla.com	9996431399
2	Yogendra Singh Bhati	Deputy Manager	yogendra.bhati@adityabirla.com	9111012350
3	Suresh Biravan	Deputy Manager	b.suresh@adityabirla.com	9575304152
4	Vivek Singh	Assistant Manager	vivek.k.singh@adityabirla.com	9824442185



# Globally, Aditya Birla Group is

Revenue  
(USD bn)



## Aditya Birla Group-Profile



#1 IN ALUMINIUM ROLLING

#1 RECYCLER OF ALUMINIUM



#2 IN CARBON BLACK  
(based on installed production capacity)

#2 IN VISCOSE STAPLE FIBRE



#3 IN CEMENT  
(EXCLUDING CHINA)

# Hindalco, Novelis Profile



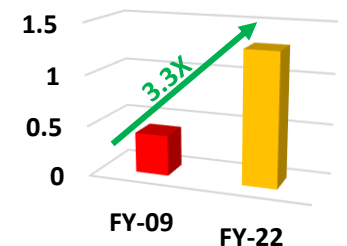
- Largest downstream player in India
- **World's largest Aluminium company by revenue**
- Largest recycler and FRP producer in the world, enabling Novelis to become a leader in Cans, Auto and Specialties segments.
- Hindalco has achieved the highest score out of "26 companies assessed in the Aluminium Industry".

## Birla Copper

- One of the world's largest single-location copper smelters in the world
- **No. 1 producer of copper in India**
- Leading producer of copper cathodes and continuous cast copper rods.



Aluminium  
Production (MTPA)



## PROFILE - HINDALCO

- Hindalco powers Indian Railways' low-carbon shift-
  - Hindalco's all Aluminium rake saves 14,500 tones of CO2 emissions over its lifetime. Dated: 16th -Oct-2022
- World's largest Aluminium rolling company and one of Asia's biggest producers of primary Aluminium.
- Footprint in 13 countries outside India.



2022 S&P Global  
Corporate Sustainability  
Assessment (CSA)

**ESG Score 83**



# HINDALCO - BRANDS

## Extrusion Key Brands

Maxloader  
Eternia



## FRP Key Brands

Everlast



## Foil Key Brands

Fresh wrap  
Super wrap



## Copper Key Brands

Birla Balwan



## Key Customer of Hindalco

### Aluminium

- |  |   |  |
|--|---|--|
| <p><b>International</b></p> <ul style="list-style-type: none"> <li>▪ Glencore</li> <li>▪ Boeing</li> <li>▪ Hyundai</li> <li>▪ Mitsubishi</li> <li>▪ Novelis</li> <li>▪ Aleris</li> </ul> | <p><b>Domestic</b></p> <ul style="list-style-type: none"> <li>▪ Apar Industries</li> <li>▪ KEI- Industries</li> <li>▪ Technova-Imaging</li> <li>▪ TTK Prestige</li> </ul> | <p><b>Domestic</b></p> <ul style="list-style-type: none"> <li>▪ TTK Prestige</li> <li>▪ Hawkins</li> <li>▪ ISRO</li> <li>▪ BHEL</li> </ul> |
|--|---|--|

### Copper

- |   |   |
|---|---|
| <p><b>Domestic</b></p> <ul style="list-style-type: none"> <li>▪ Finolex</li> <li>▪ Ram Ratna Group</li> <li>▪ Precision Wires India</li> <li>▪ Universal Cable</li> <li>▪ Motherson Sumi</li> <li>▪ Electric Wires</li> </ul> | <p><b>Domestic</b></p> <ul style="list-style-type: none"> <li>▪ Agrawal Metal Works P. Ltd.</li> <li>▪ V-guard</li> <li>▪ G.K.Winding</li> <li>▪ Toshiba Transmission &amp; Distribution</li> </ul> |
|---|---|

*An Introduction of*  
**MAHAN ALUMINIUM**

Highest  
operating  
amperage  
Smelter of 372  
KA

Purest  
Aluminium  
Grade in India  
99.92% Purity

Lowest  
Auxiliary  
Power in India  
Consumption  
<7%

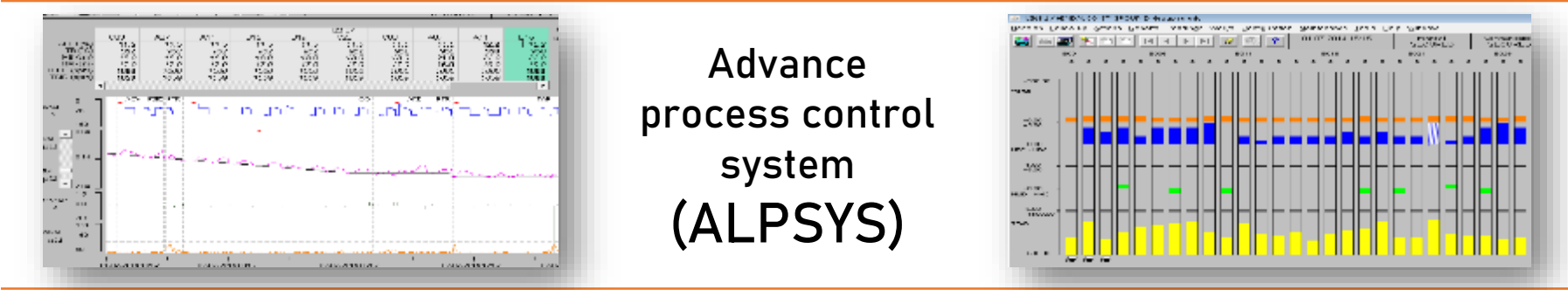
More than 50  
% production  
to Export (in  
24 Countries)



# Mahan Aluminium-Pot Line AP-36 Technology



# TECHNOLOGICAL FEATURES



Advance process control system (ALPSYS)

With most advanced and clean AP36 technology, MAHAN smelter produces high quality metal at competitive operating cost with low emission level for sustainable future.



Pot Process Controller



Anode Beam Raising Frame



Gas Treatment Centre with Bath recycling and cover mix system



Pot Tending Machines (PTM)

# MAHAN Profile

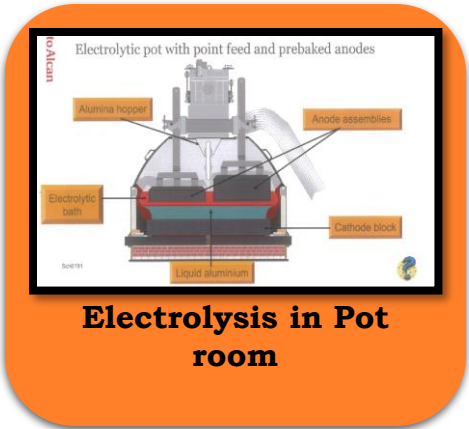
**Power Generation:- 900 MW**

**Production Volume**



**Hot Metal :- 372 KTPA**

- ❖ State of art technology, spread in across 3357 Acres of land
- ❖ First High Amperage ( AP 36 ) Aluminum Smelter Commissioned in India .
- ❖ 100% High Purity Aluminium Metal ( P0610 & Better)
- ❖ More Than 50 % of production in export.



**PRIMARY**



Ingots



Sow

**VALUE ADDED**



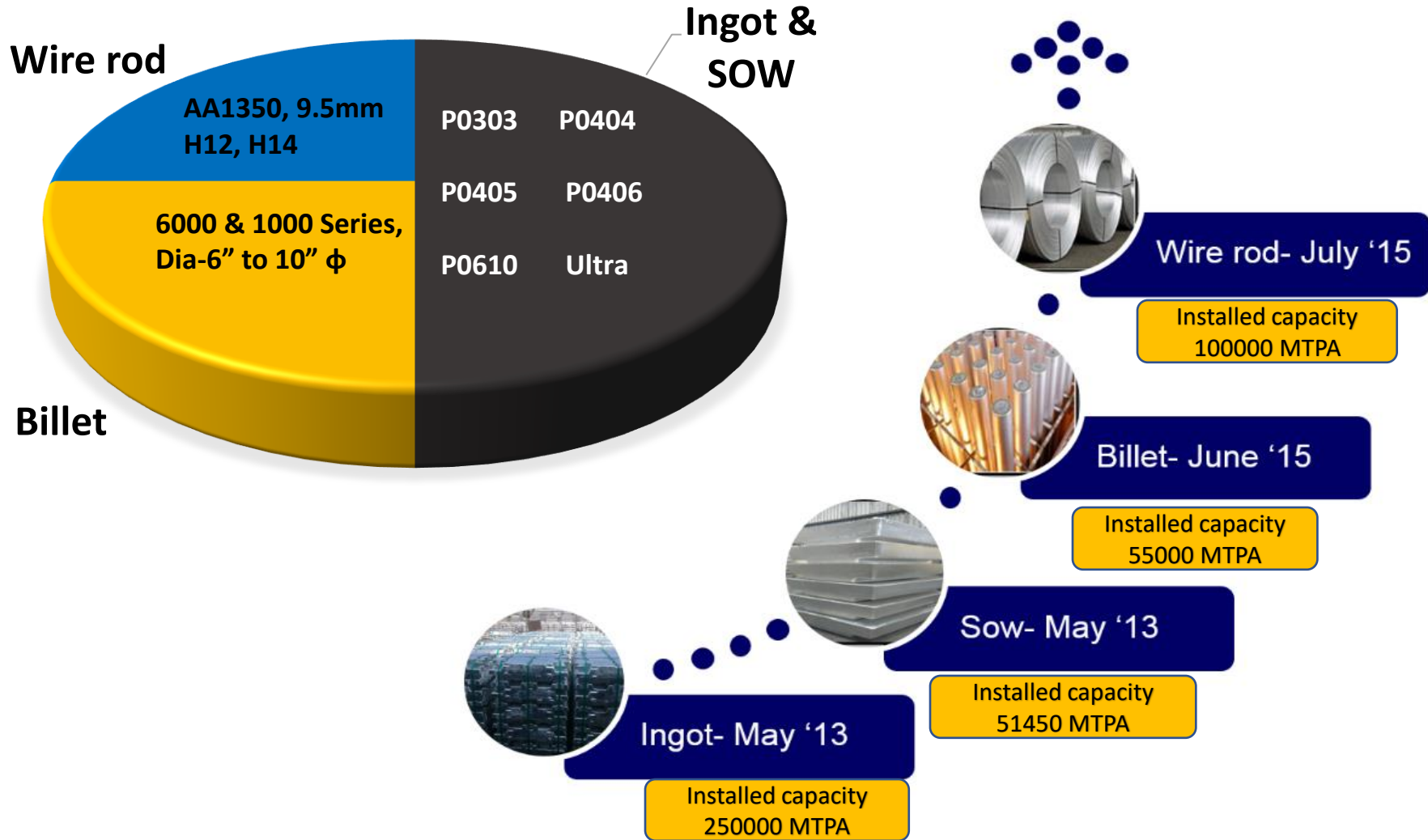
Billet



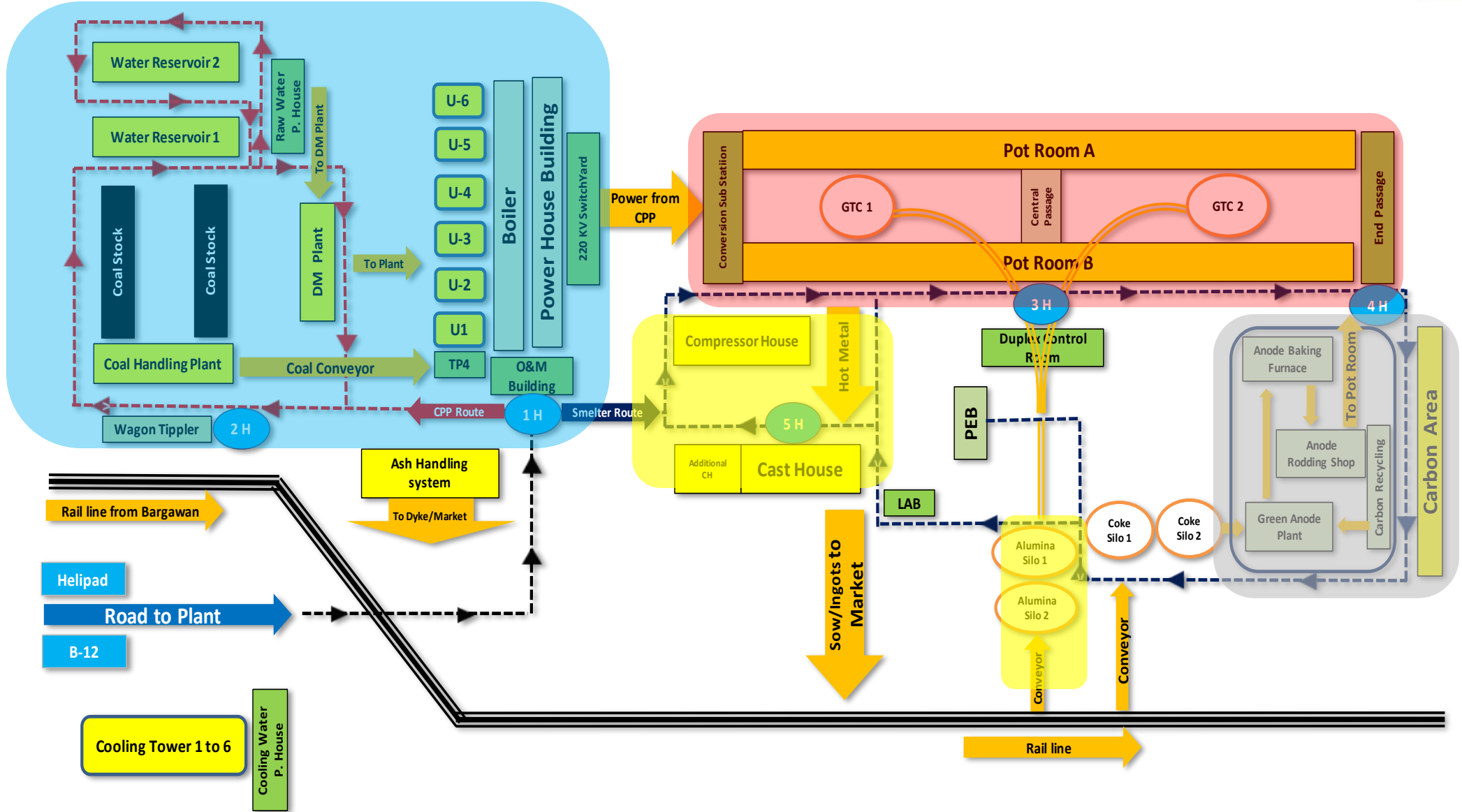
Wire rod



# MAHAN PRODUCTS



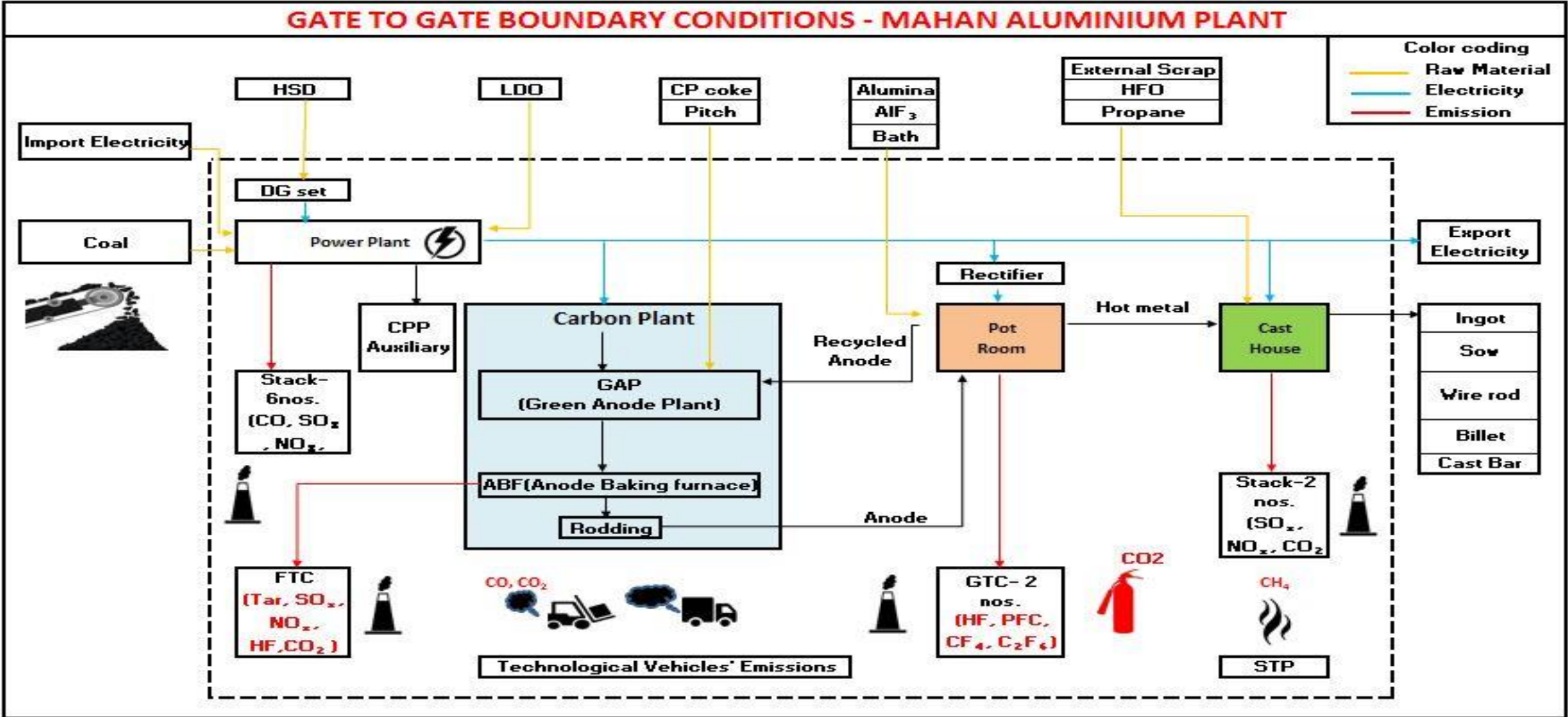
# PROCESS FLOW MAHAN



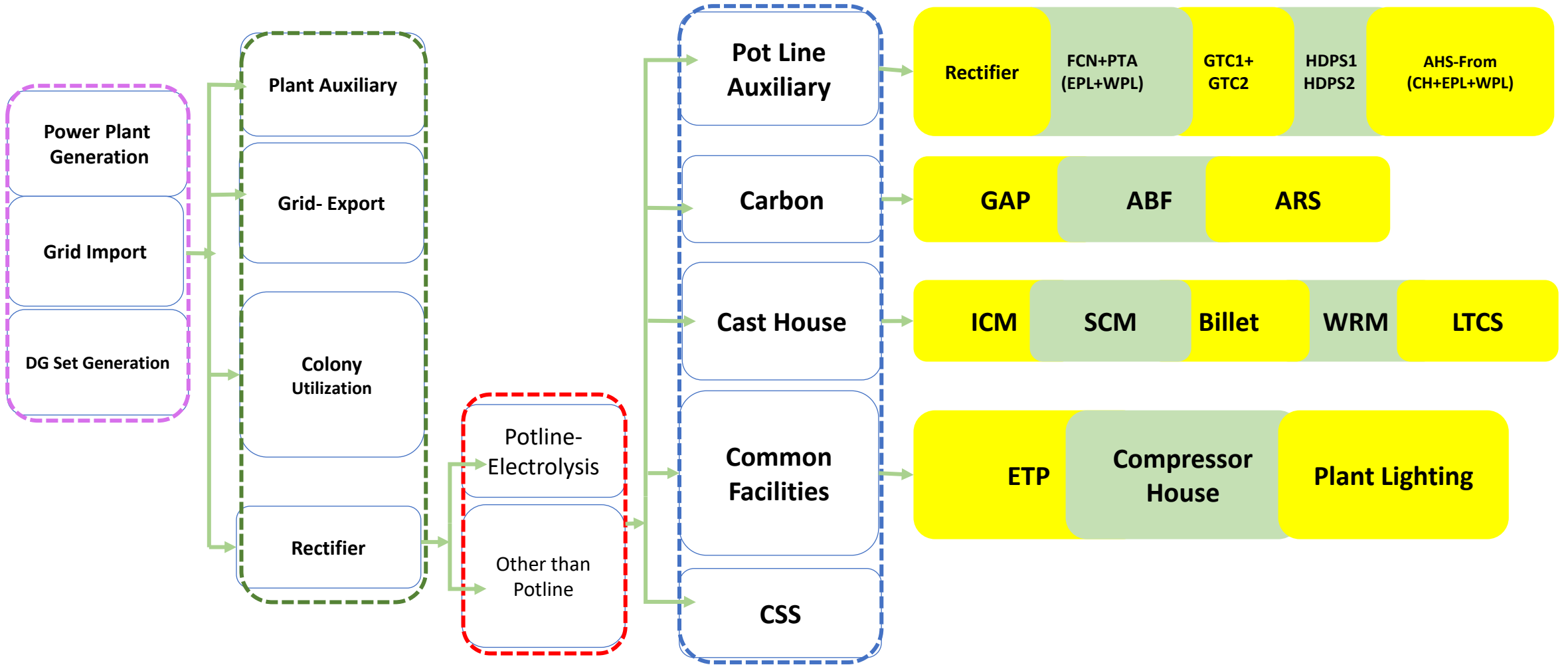
# Mahan's Performance



# GTG Boundary Condition Mahan

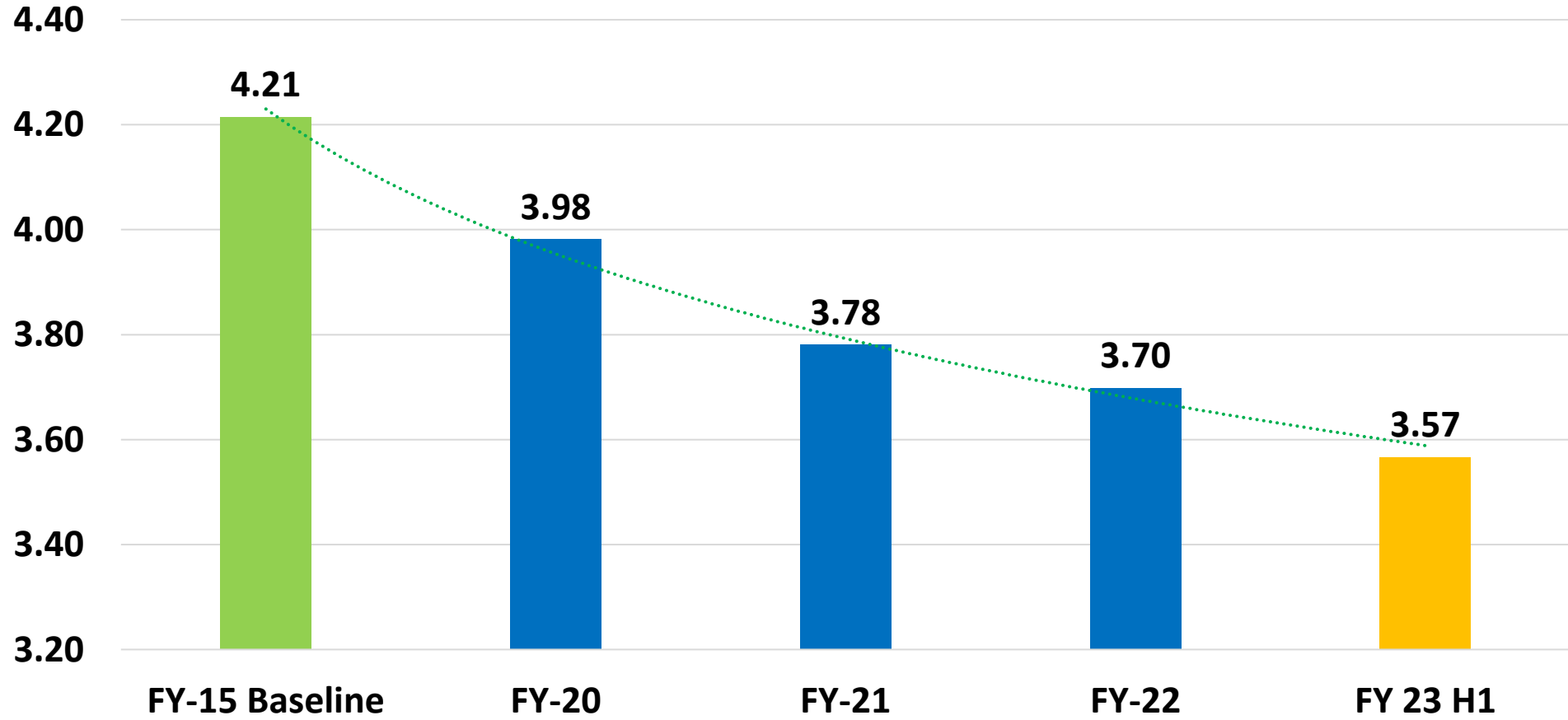


# Energy Mapping



# Energy Consumption

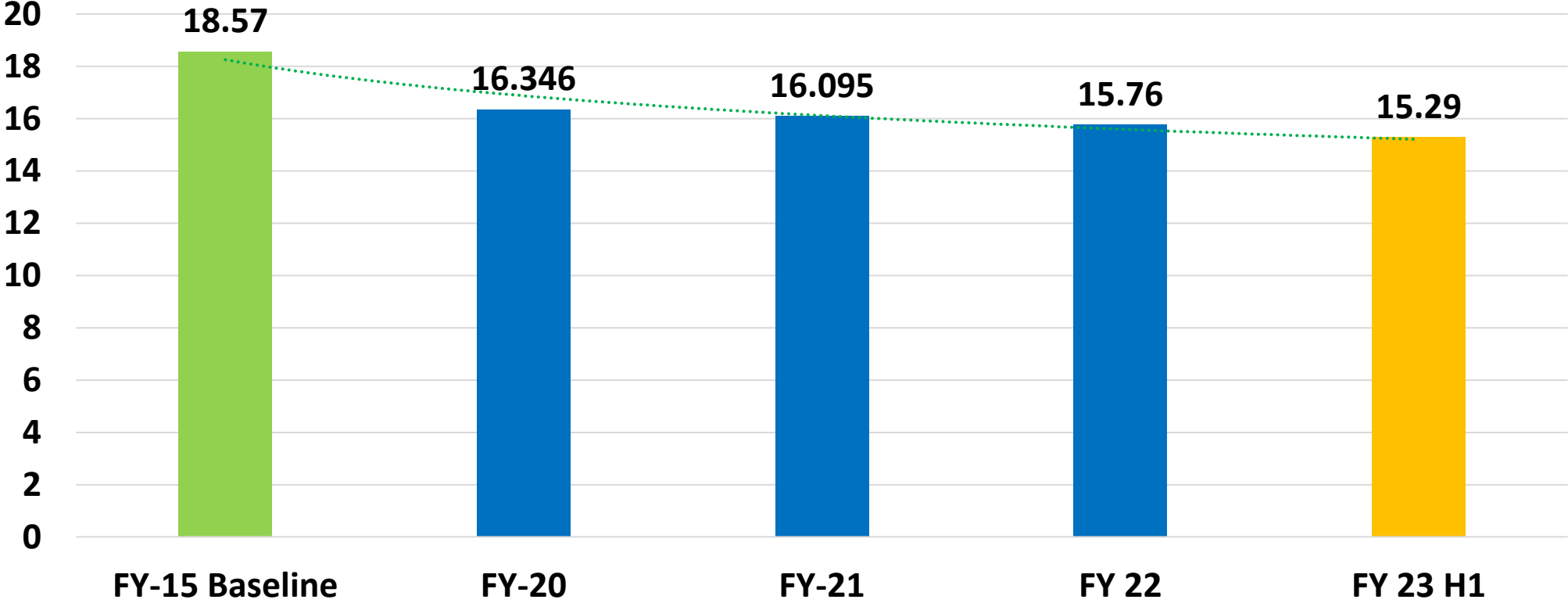
Toe/t





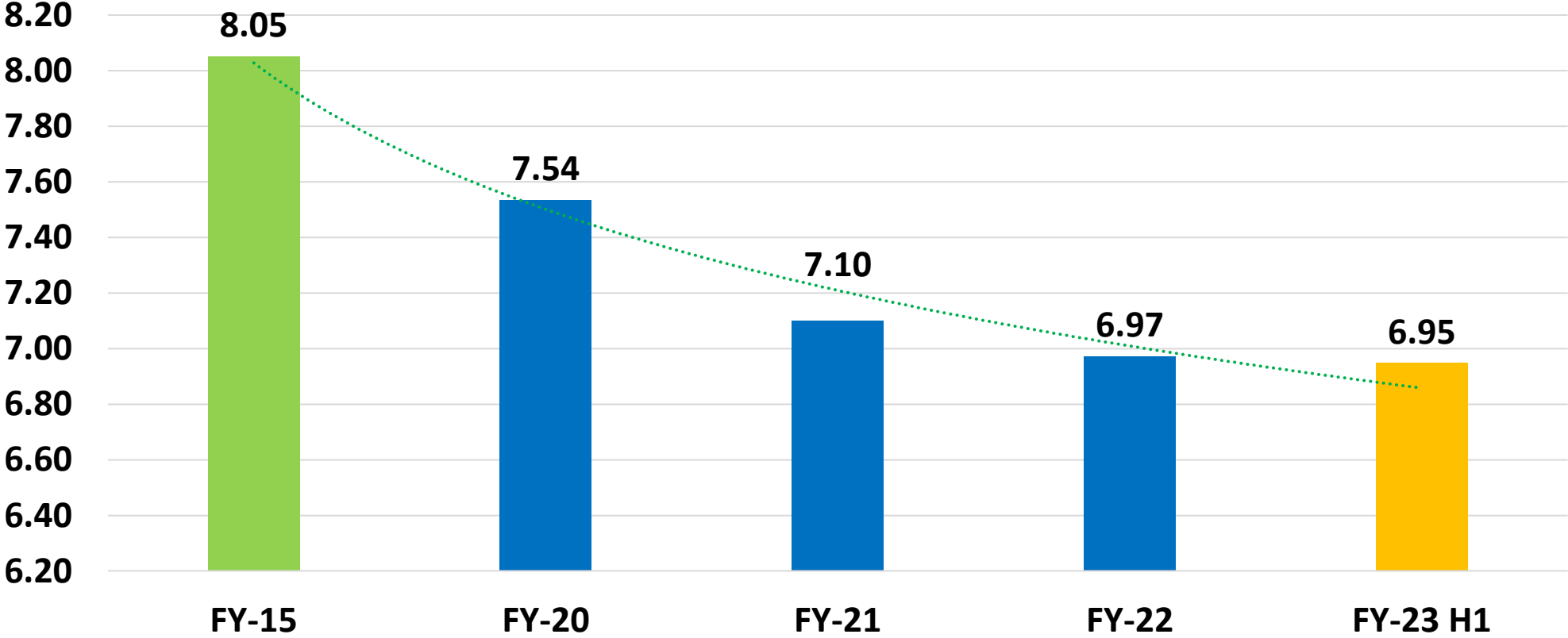
# Carbon Emission

(t CO2/t)



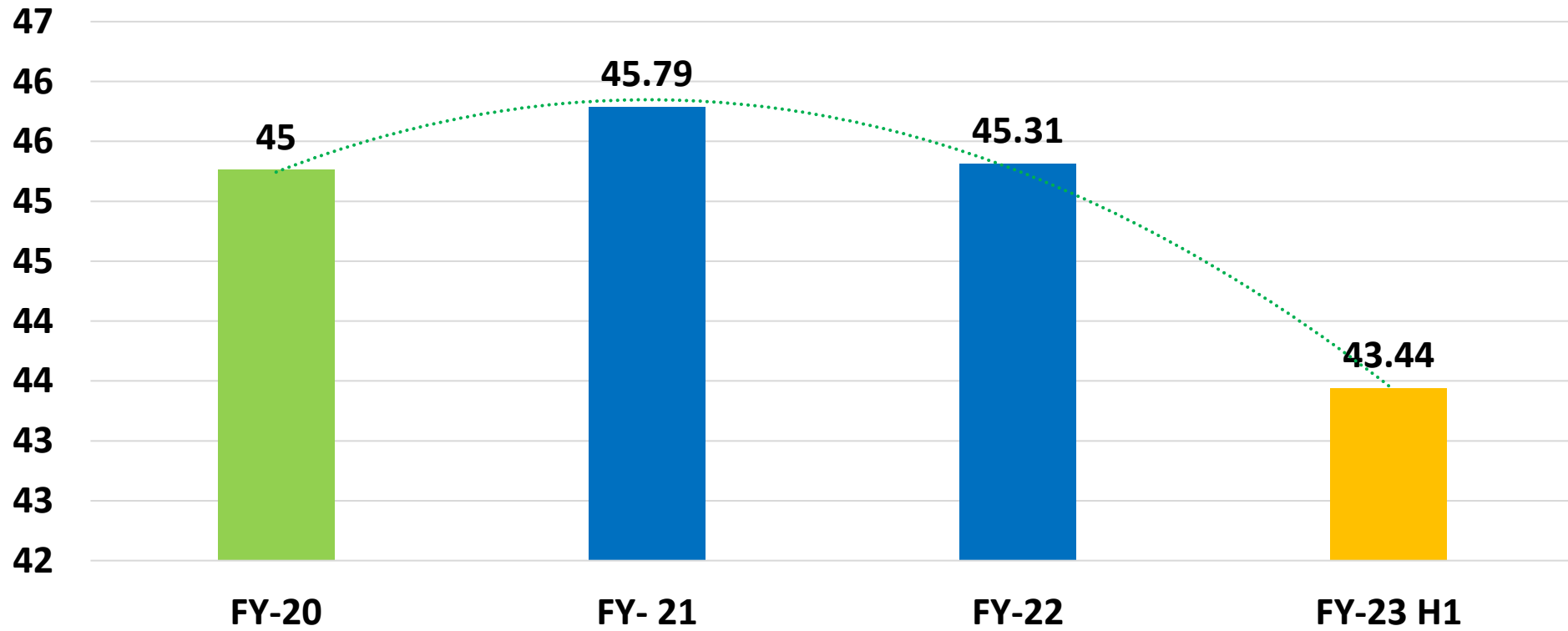
# Auxiliary Power Consumption in CPP

Aux. Power in CPP (in %)



# HFO Consumption in Carbon Plant

Carbon Plant: Specific Oil Consumption (Ltr/MT)

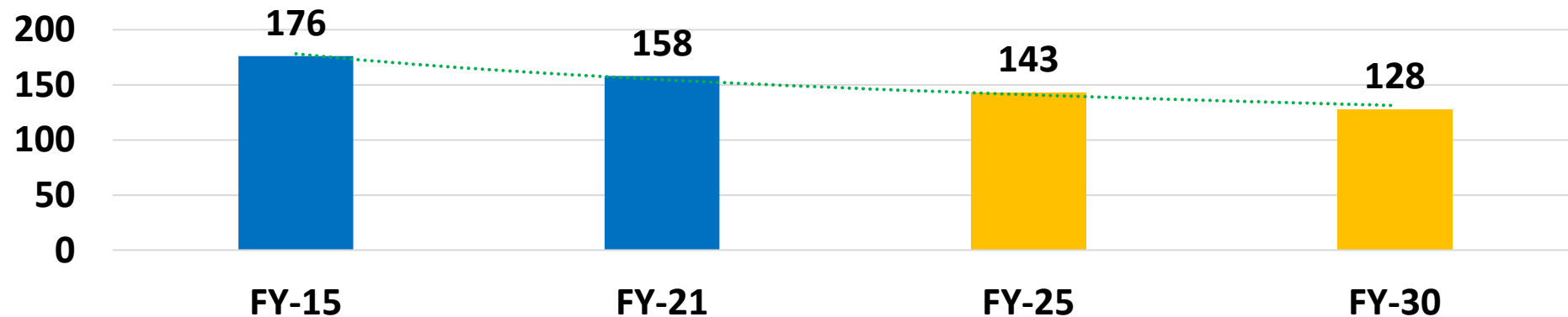


# LONG TERM VISION ON ENERGY EFFICIENCY

## Mahan's Aspiration

Target: 27% reduction by FY30  
Actual : 12.3% ( FY22). Gap : 14.7%

### Specific Energy Consumption (Mahan Aluminium GJ/T)



# Achievements

- Mahan CPP had awarded as “ EXCELLENT ENERGY EFFICIENT UNIT” in 2021 & 2022.
- In year 2020, MAHAN CPP awarded as “Energy Efficient Unit” by CII.
- Usage of Alternate Fuel (Rice Husk-158.82 MT, Briquettes – 81.62 MT)



# Achievements

- Best Efficient Management of Fly Ash  
Apr'2022 – by Mission Energy Foundation.



- Mahan awarded as Runner up (Large sector) in “Best Energy Efficient Designated Consumer” in 6<sup>th</sup> Edition of CII National energy Efficiency Circle Competition- Jul-2022.



# Decarbonization efforts



# Renewable Energy

- Solar Power Operationalization of 25 MW: Synchronised with grid on 10<sup>th</sup> Sep'22.
- Floating Solar Power Plant of 9MW under consideration.





## CO2 Emission reduction efforts at Cast House

- Use of Electric Powered Forklifts started. Resulting in saving of Diesel consumption.

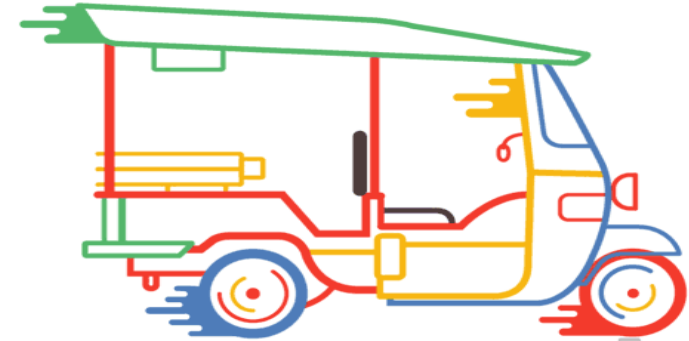


- Use of Electric Blower for Casting table pre-heating in billet Casting. Previously, it was being done with Propane gas.



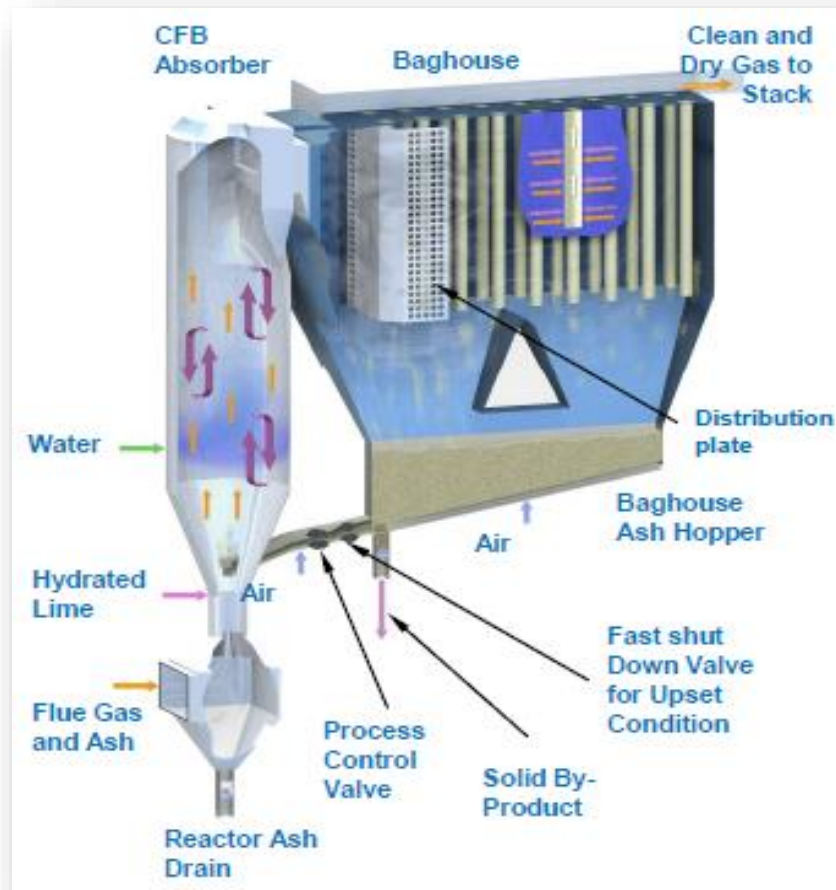
## CO2 Emission reduction efforts at CPP

- Use of Electric Powered vehicles as low weight carrier/passenger vehicle to reduce carbon emission.



## Emission reduction through FGD

- Flue Gas Desulfurization- Process of removing harmful Sulphur pollutants from the exhaust flue gas.

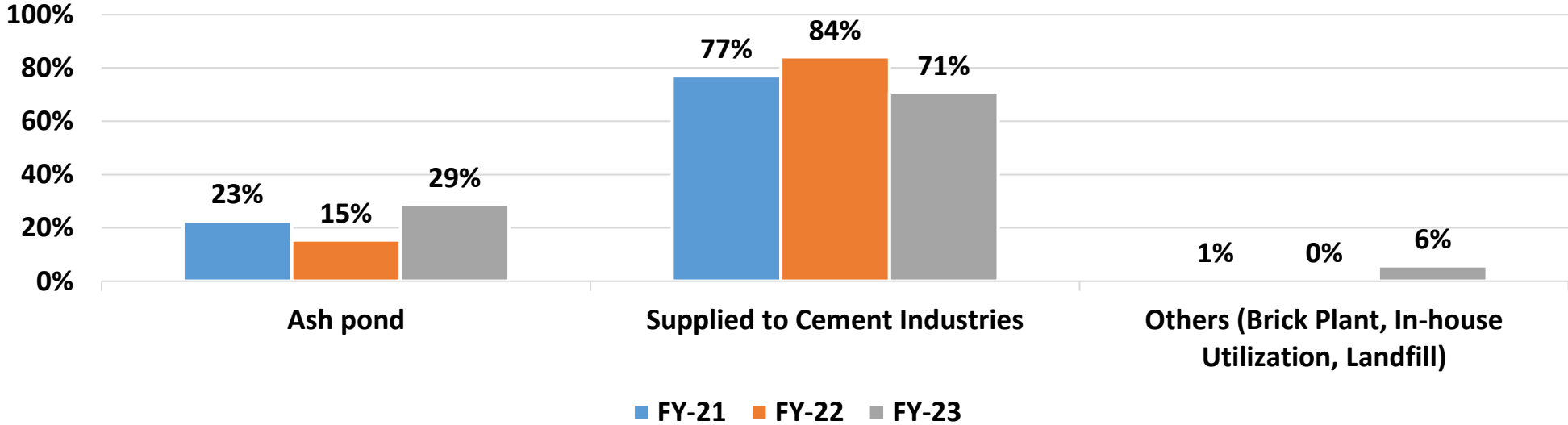


### Emission reduction Targets: After FGD Installation :

- SO<sub>2</sub> Emissions = 70% reduction
- SO<sub>3</sub> Emissions = 70% reduction
- PM Emissions = 40% reduction

# Fly ash

- Fly Ash utilization > 70 % in Cement plant.



## Energy Saving & Decarbonization efforts

- Copper Insert Collector Bar.
- CPP BFP de-staging.
- LED lights installation. (CPP-01 Unit, Cast House completed).
- Enhanced loading capability of Trucks by changing packing pattern for Billet logs.
- Removal of Hydra operation by direct loading of Wire Rod coils through EOT cranes.
- Internal material shifting through increased usages of EOT cranes instead of Diesel Forklifts.

## Scope-3 Data Monitoring

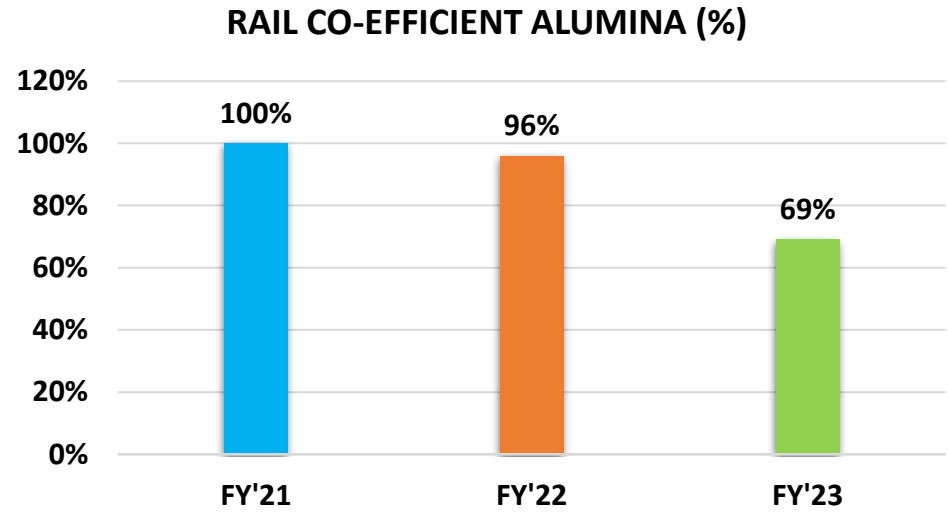
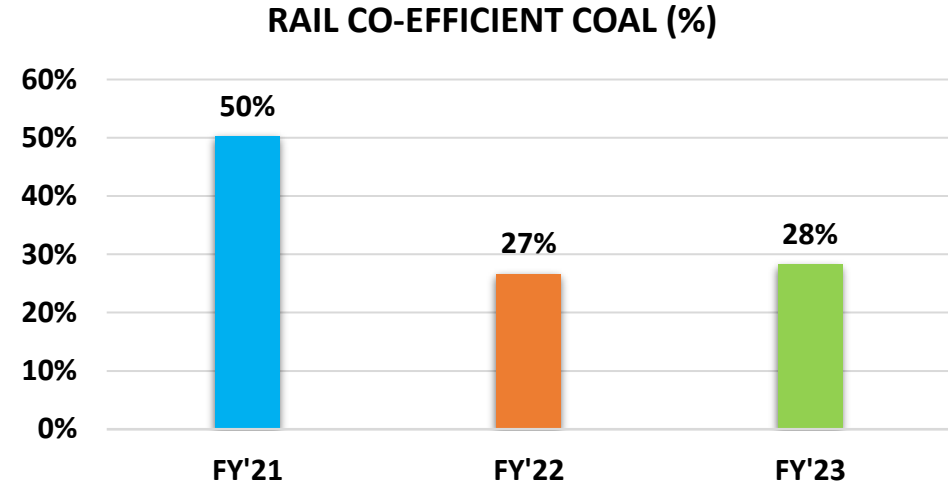
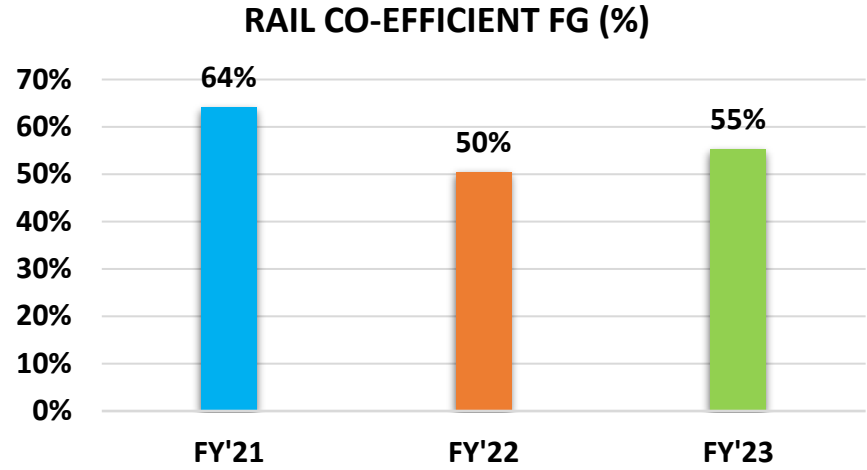
Value Chain Emission Monitoring started:

Categories:

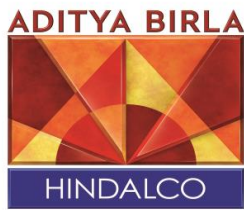
- Local Transport
- 2 & 4 Wheeler Transportation
- Bus Transportation
- FG Dispatch Transport
- MRO Inventory
- Coal Transportation
- Rail Transportation
- Fly Ash
- Other Raw Material Transportation



# Green Supply Chain

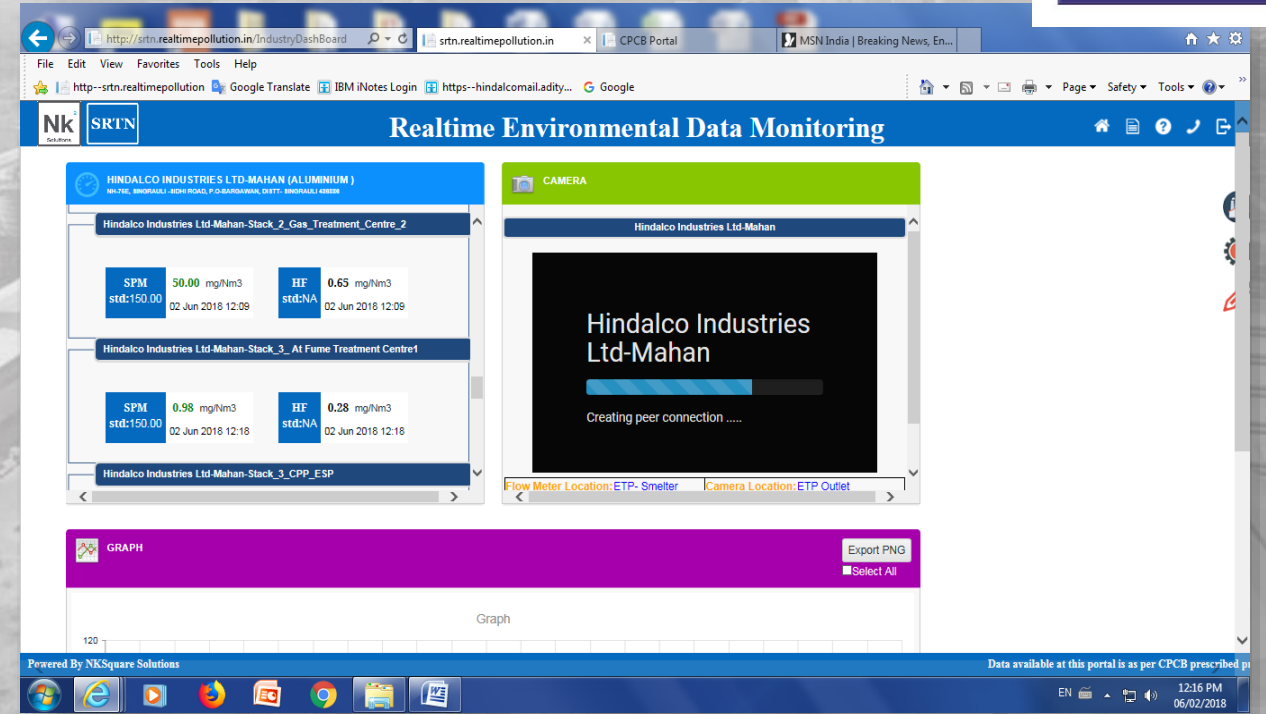


# Emission Monitoring



Stack	CPP 2	CPP 3	CPP 4
Height (mtr)	125	125	125
APCE	ESP	ESP	ESP
PM [mg/Nm <sup>3</sup> ]	26.70	37.30	32.06
Sox [mg/Nm <sup>3</sup> ]	344.6	323.9	366.3
Nox [mg/Nm <sup>3</sup> ]	115.8	128.1	132.1

CPP stack emission data displayed at Main gate



Real time emission data transfer to statutory bodies





ADITYA BIRLA



HINDALCO

OUR PEOPLE

# People Engagement sessions on De-carbonization



Thank You.