



LEADING  
PARTNER  
IN THE  
WORLD  
OF METALS

## **SMS group - CMT<sup>®</sup> Continuous Minimill Technology**

2022 SEAISI Steel Mega Event Expo - Carlo Cascino

**SMS**  **group**

# CMT® minimills

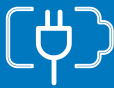
The greenest and most efficient production route for steel bar



Green technology



CO<sub>2</sub> friendly



Powered by  
renewable energy

## What is CMT®

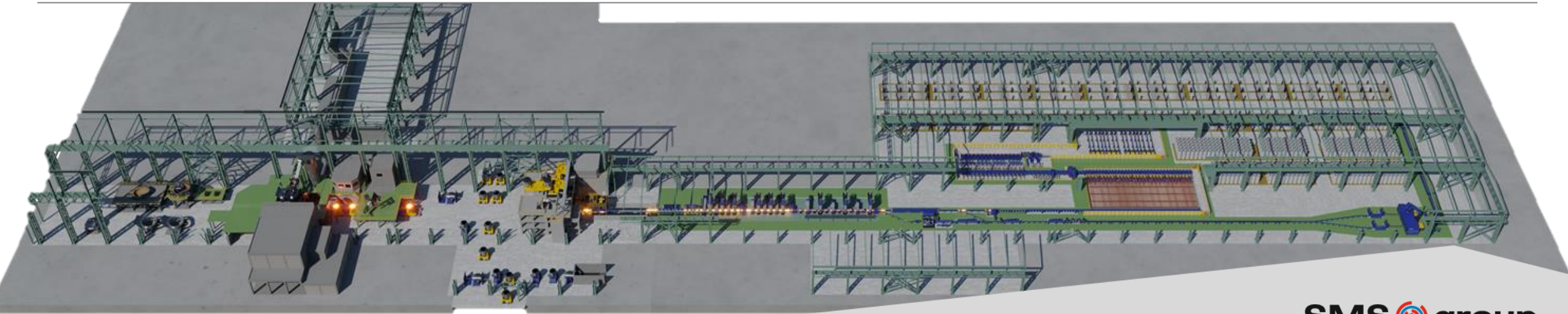
CMT® Continuous Mill Technology is the SMS group solution for bar minimills: from scrap to high end final products by the integration between steel making, caster and rolling mill into a highly reliable single process

- › **Lowest carbon footprint** per ton of steel produced
- › **Lowest water usage**
- › **Hydrogen-ready!**
- › **120 min** from scrap to product
- › 23 hours non stop operation per day
- › **LOW in CAPEX**
- › **LOW in OPEX**

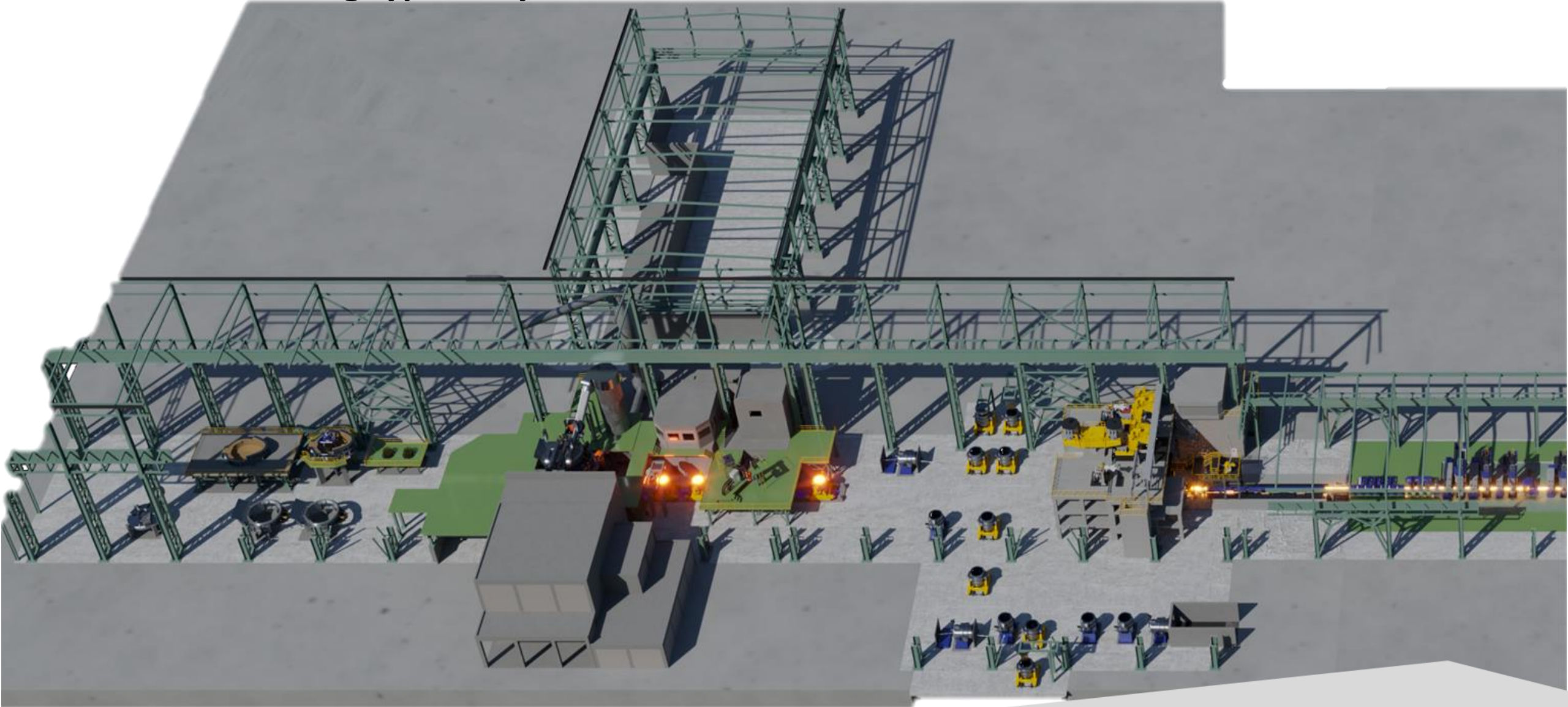


## CMT® - Size overview

	CMT®350	CMT®550	CMT®700
Heat size	35t	50t	70t
Productivity	51 t/h	82 t/h	108 t/h
	350,000 t/y	550,000 t/y	700,000 t/y
Cast section	CONREX 130	CONREX 165	CONREX 190
Nominal casting speed	6.5m/min	6.5m/min	6.5m/min
Process	Continuous mill technology from caster to the rolling mill, through induction equalization furnace		
Finished product range	Straight bar: 8-63 mm, 6-24m bundle, 2-4t; VCC Coil: up to 25 mm, 8t; Wire rod: 5.5-25 mm		

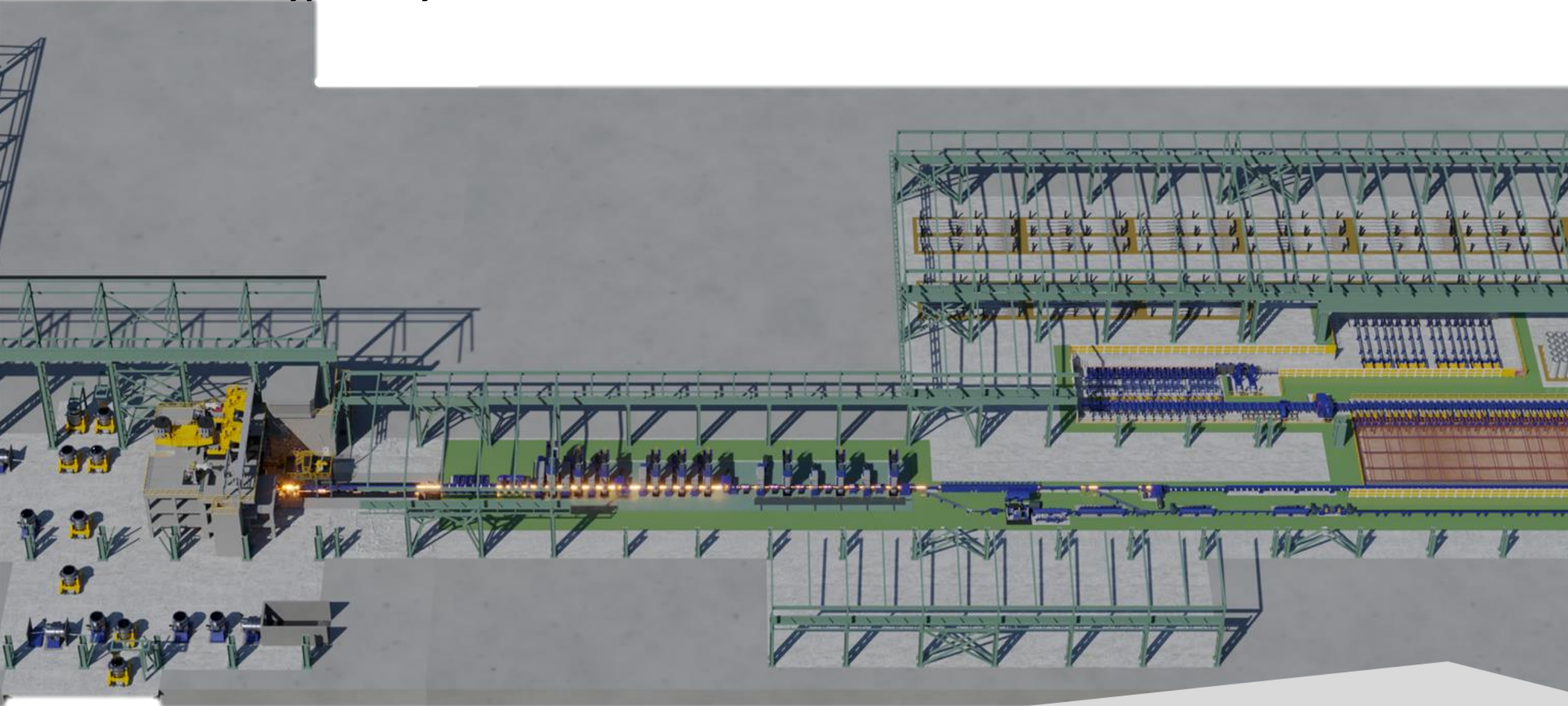


# CMT® - Steelmaking typical layout



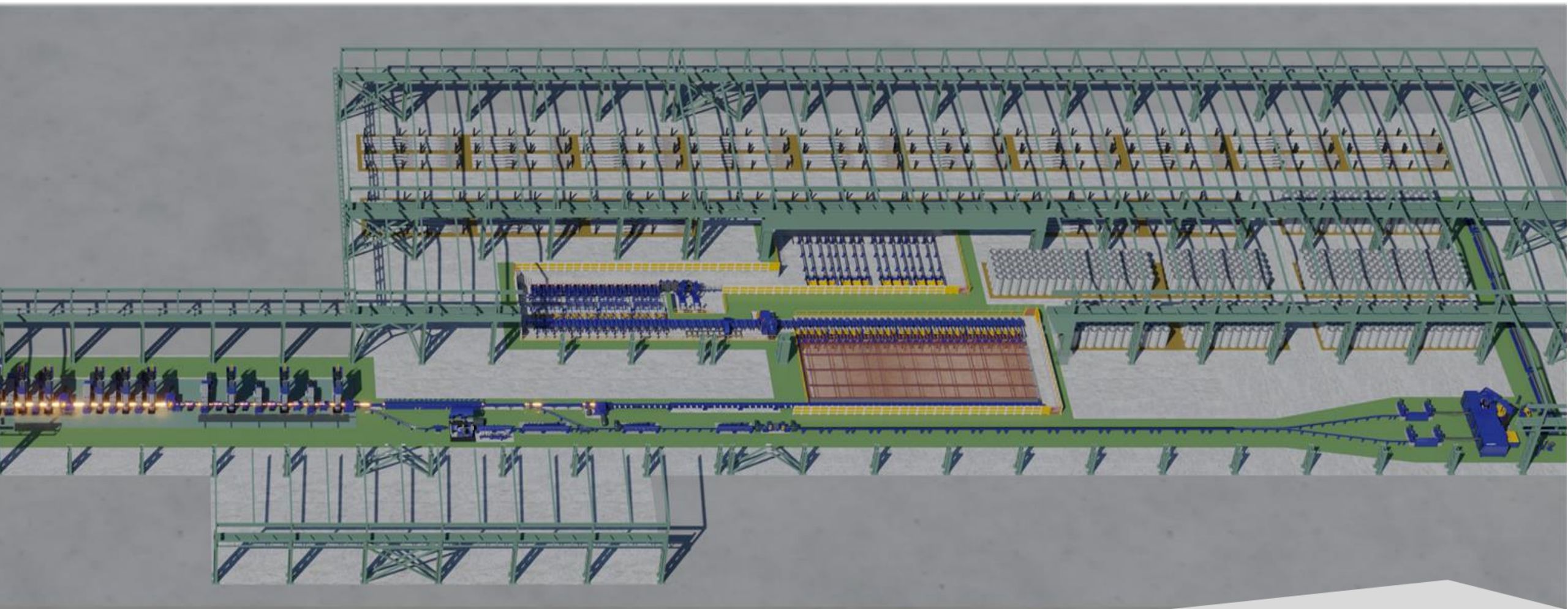


# CMT® - Caster typical layout





# CMT® - Rolling typical layout



# CMT® - Innovation Highlights

## Steel making

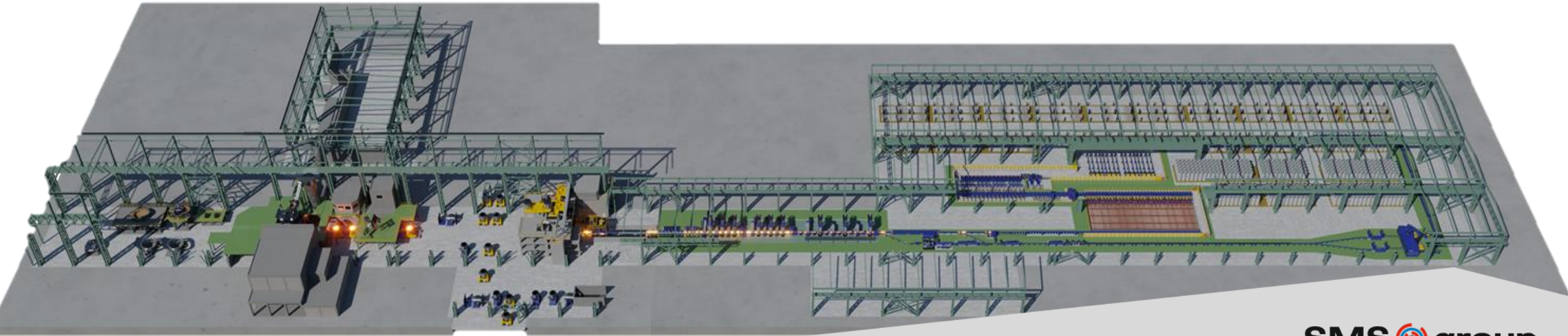
- ALLCHARGE
- AURA

## Caster

- CONREX
- CONDRIVE
- CONGAUGE

## Rolling

- HSD
- MEERdrive
- VCC





# CMT® - Innovation Highlights

## Steel making

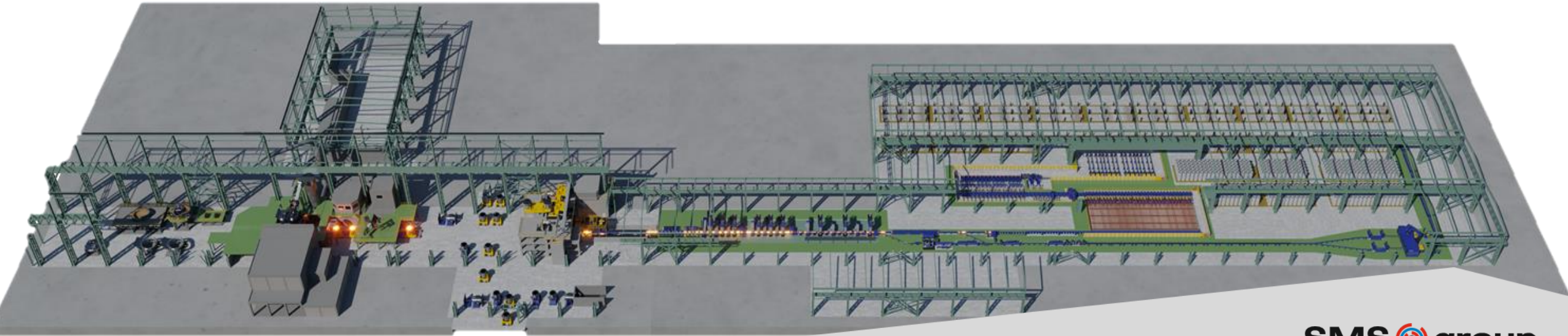
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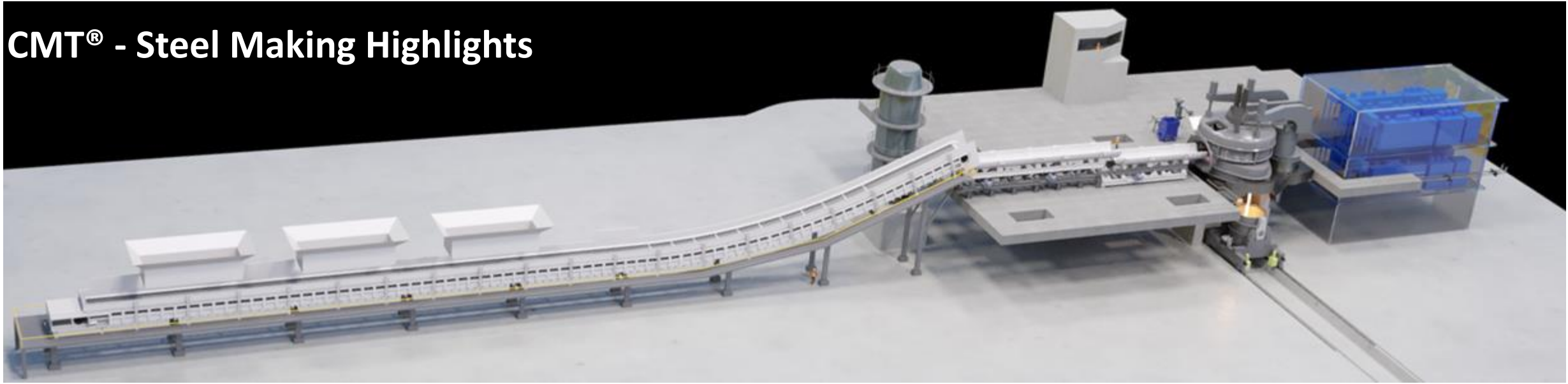
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- HSD
- MEERdrive
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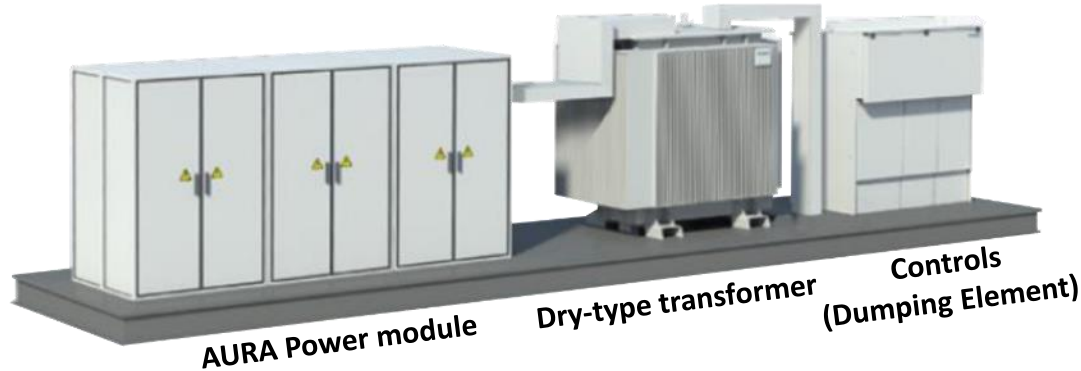
# CMT® - Steel Making Highlights



## ALLCHARGE

- › **Automatic scrap charging:** Reduced man power in the yard and furnace areas.
- › **Full sealing furnace during melting process:** Roof remain always positioned on the shell, no false air entrance.
- › **Minimized carbon injection**
- › **Zero burner concept:** No Natural gas consumption in the melting process.
- › **NOx reduction:** No preheating for decreasing the environmental impact.
- › **Best post CO combustion:** no cooling and air intakes, fumes suction via 2<sup>nd</sup> hole allows the optimum mixing.
- › **Safety:** Flat bath and no splashes thanks to horizontal scrap feeding operation.

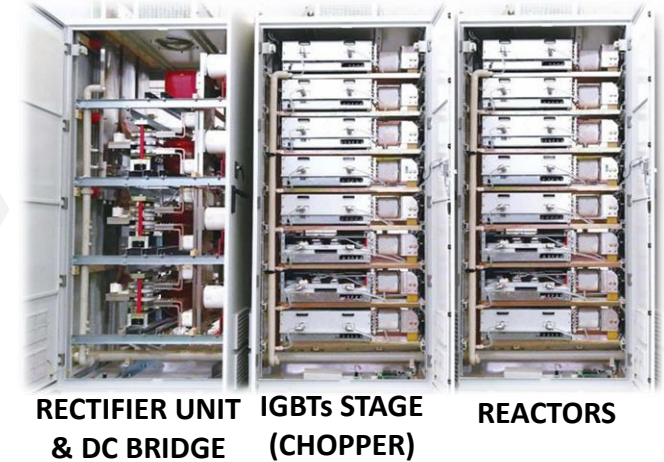
# CMT® - Steel Making Highlights



## AURA™ POWER MODULE



## COMPACT & EFFICIENT



## AURA powered DC EAF - A clean electrical load

- › Based on IGBT Chopper technology
- › Higher power factor than conventional AC or DC TCR design (> 0.95)
- › Installed power reduced by 20% compared to conventional AC or DC TCR
- › Extremely low harmonic distortion (EAF load is isolated from the feeding grid)
- › No SVC necessary to comply with IEEE519 for weak network
- › No furnace breaker, no tap changer, no large reactor required
- › The AURA module provides
  - a new approach to Company's spares stock
  - possible further power increase due to modular design



# CMT® - Innovation Highlights

## Steel making

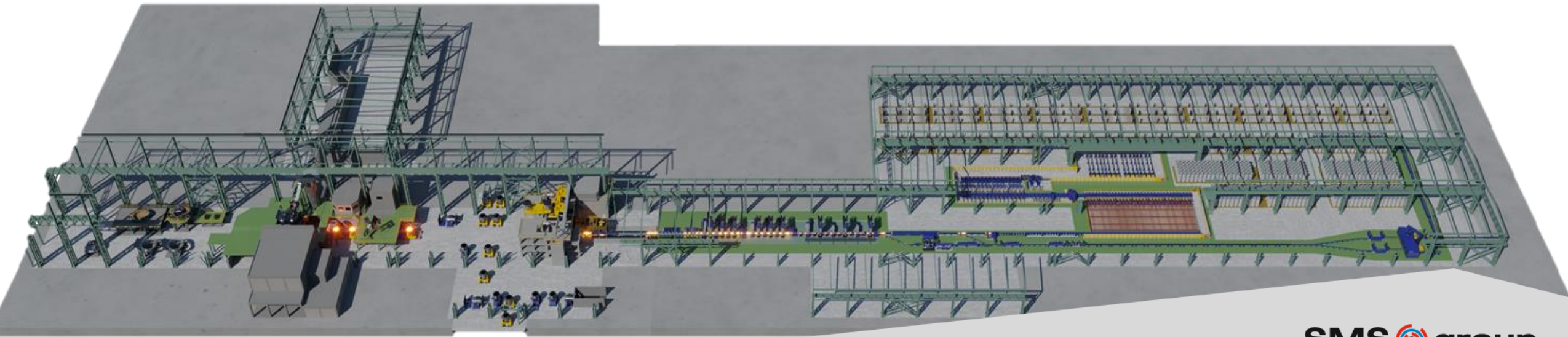
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## Caster

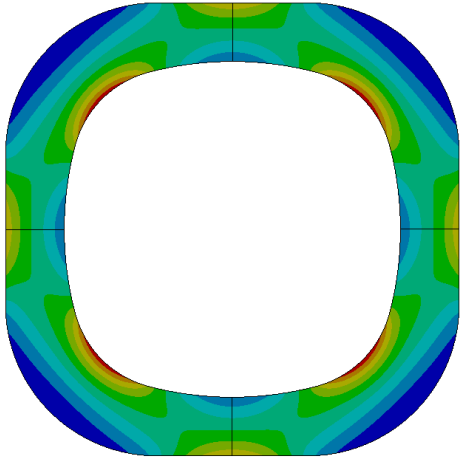
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## Rolling

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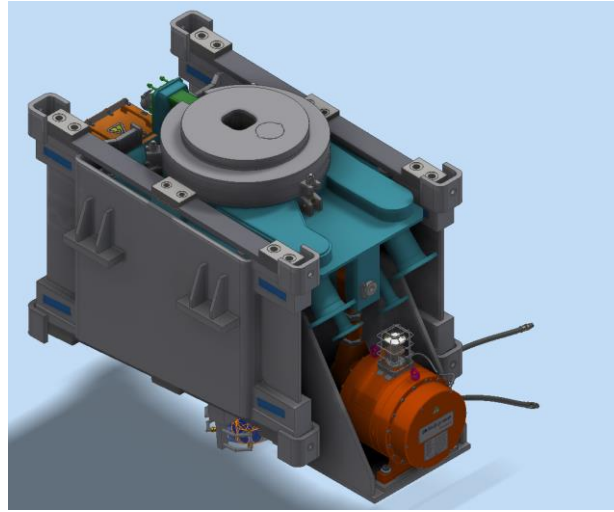
# CMT® - Caster Highlights



## CONREX section

The technology for high speed casting

- › Optimized containment length
- › Optimized temperature profile
- › Improved performance in induction heating process
- › Less roughing mill rolls wear



## CONDRIE mold oscillation

The new standard!

- › Electrical stroke and frequency adjustment
- › Very low maintenance costs
- › Lower energy consumption than hydraulic oscillation



## CONGAUGE<sup>LB6755</sup>

Combined measurement of steel and powder level in mold

- › One sensor only
- › Close loop powder feeding
- › Reproducible process conditions (quality tracking)



# CMT® - Innovation Highlights

## Steel making

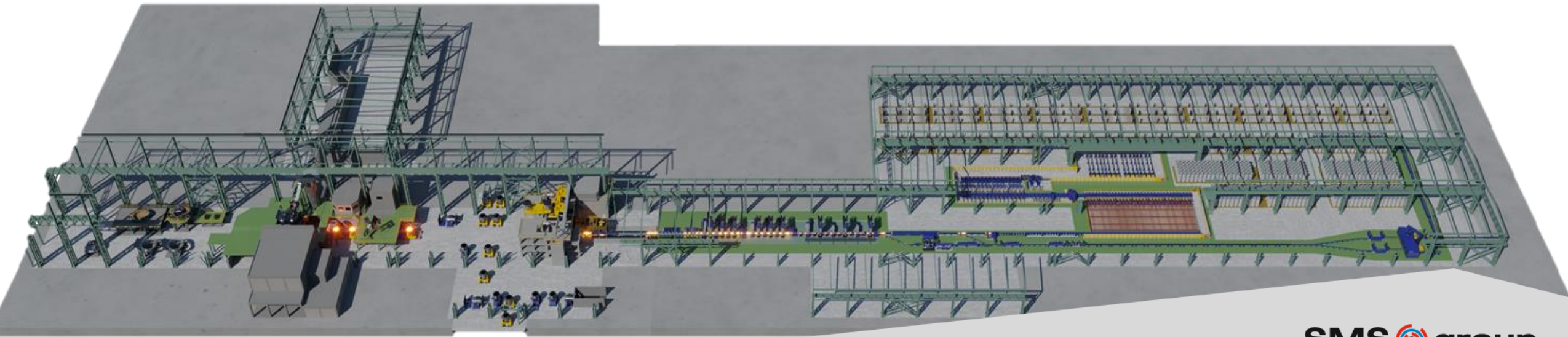
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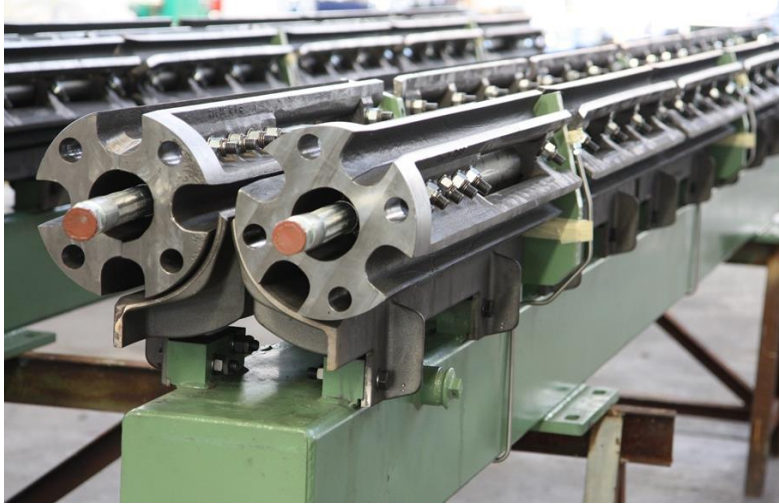
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# CMT® - Rolling Highlights



## HSD® High Speed Delivery

Single Strand Rolling for small diameters:

- › Best product tolerance
- › Extremely reduced changing times thanks to simple pass design
- › Reduced cobble rate
- › 1 bar per notch in cooling bed on most products



## MEERdrive® Finishing Block

- › Simplified roll ring management
- › Rolling modules quickly exchangeable
- › Lowest vibrations due to dynamic balancing of rotating parts
- › Motorized under load adjustment
- › Increased yield thanks to reliable rolling



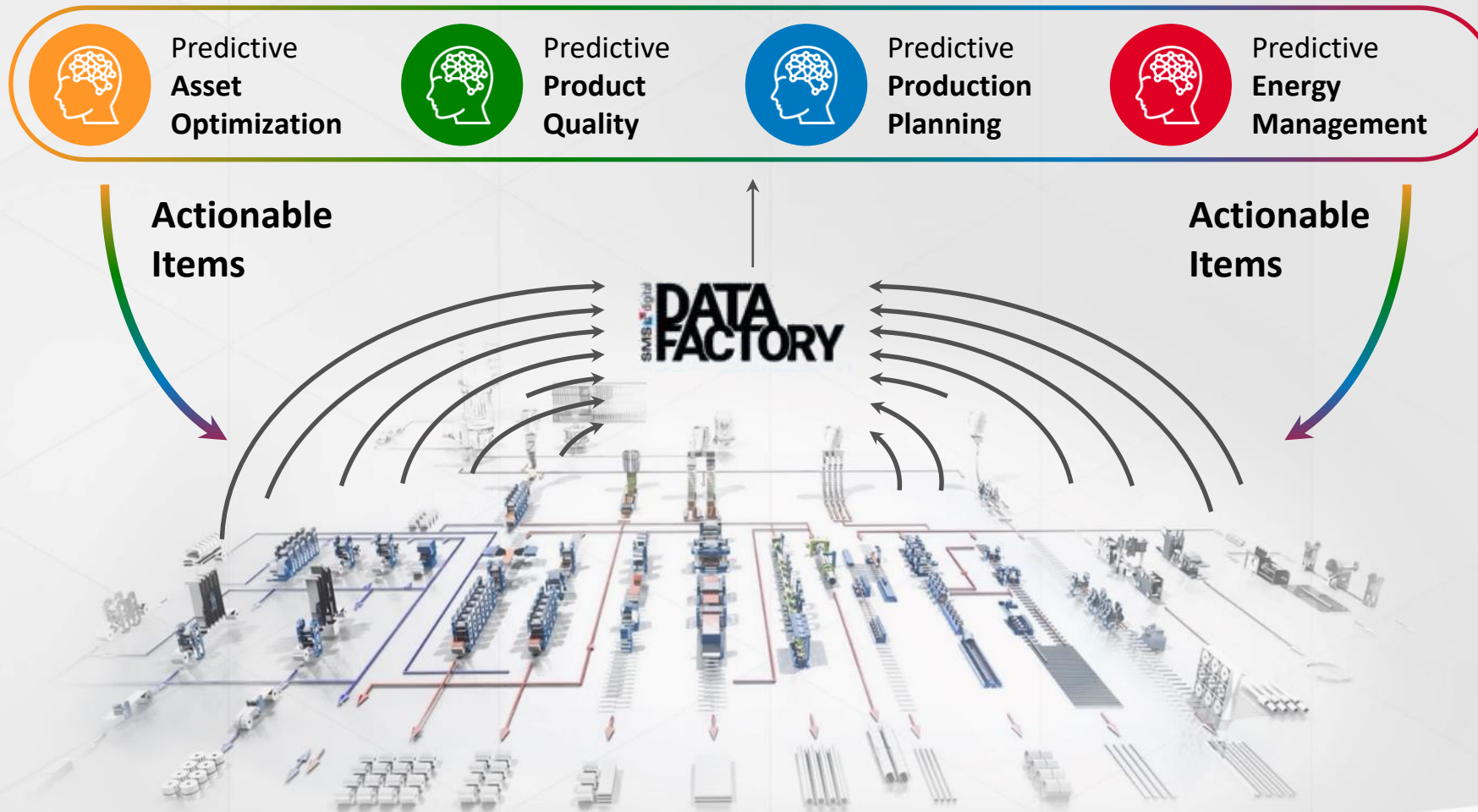
## Vertical Compact Coiler VCC®

- › Coil wound in final Vertical Position.
- › Easy coil handling, no rotation.
- › Simple machine maintenance, elevated over foundation
- › Fastest cycle on the market 65 sec.



# Autonomous plant operation

## Four dimensions to boost efficiency and sustainability



Optimized rebar production

## Metallurgical knowhow meets artificial intelligence

A synergy of advanced digital solutions and unmatched metallurgical experience

# CMT® minimills

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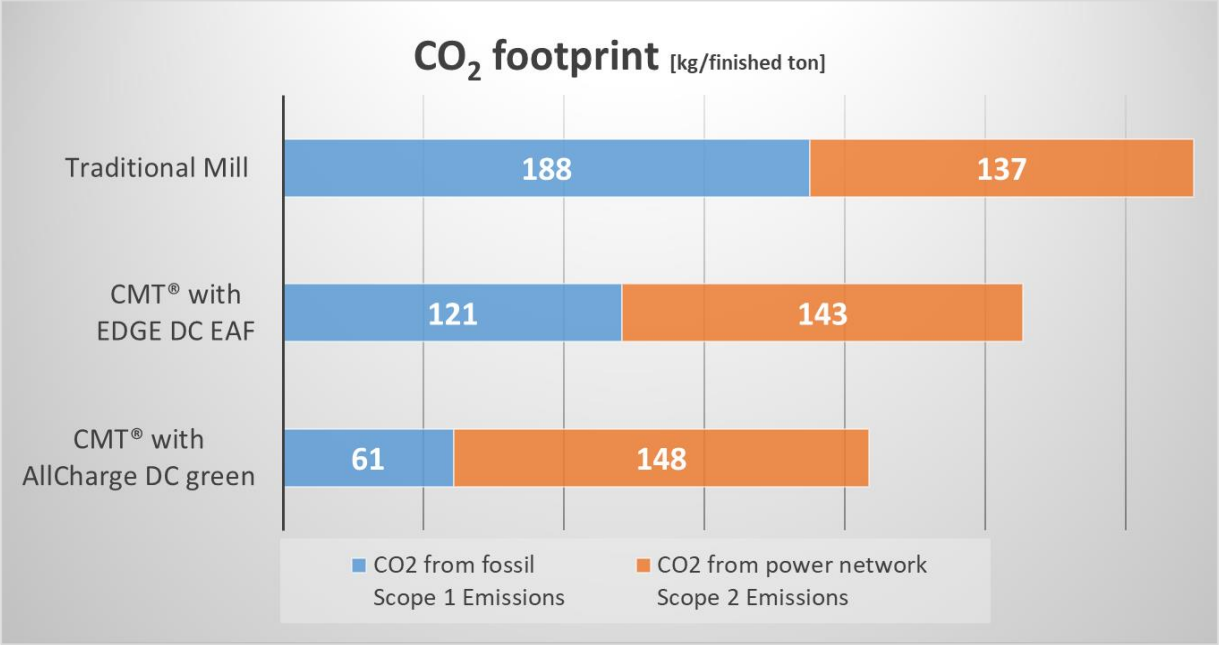
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- › **Optimal energy conservation:** no need of reheating process at the rolling mill entry
- › **Maximum yield:** highest rolling tolerance thanks to endless process
- › **Zero burner concept:** no combustion gas in the entire process: melting, casting and rolling.



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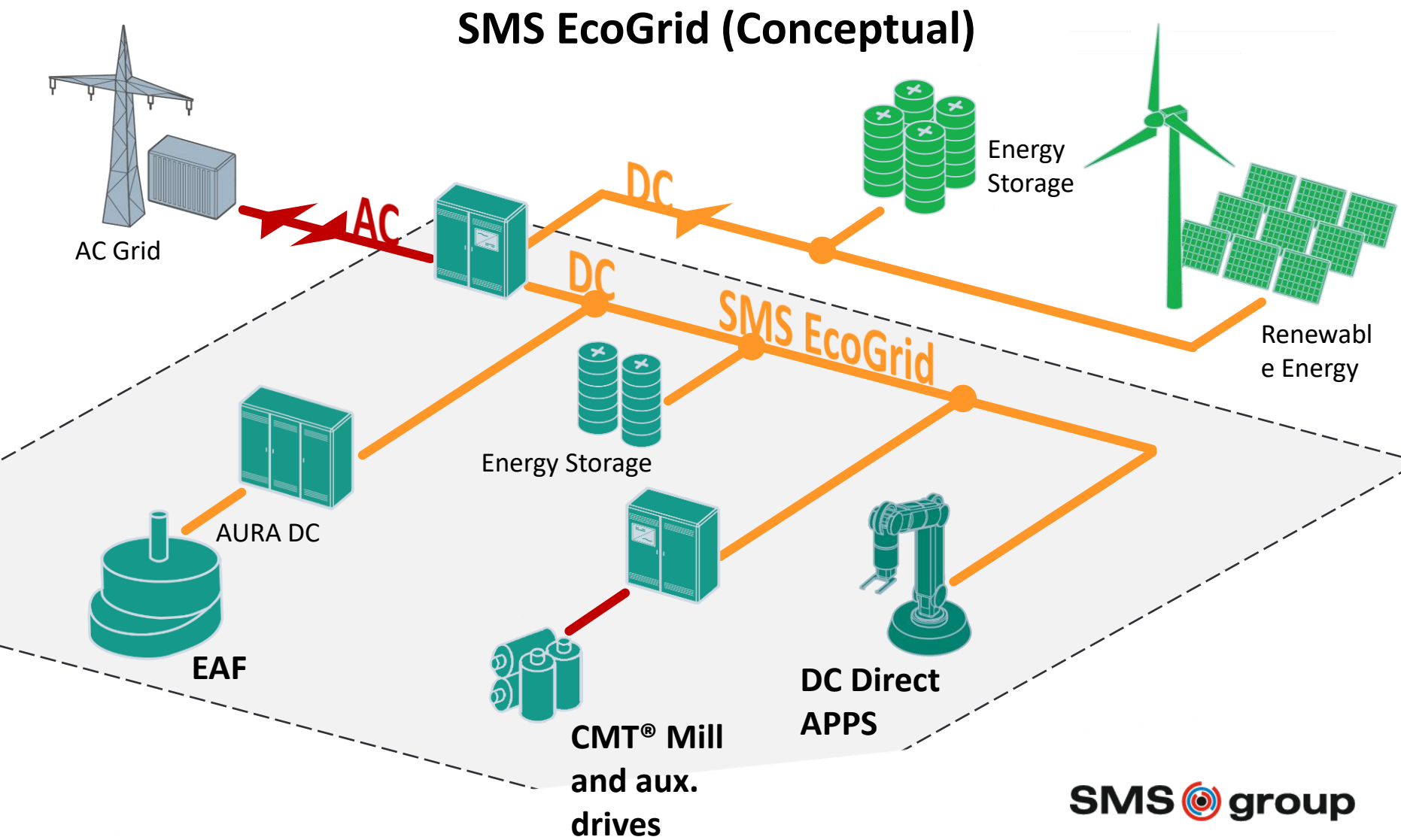


Scope 2 depends on the CO<sub>2</sub> footprint of the electrical energy on the selected provider.



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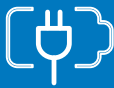
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Let us stay **#connected!**

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# Thank you!

*The information provided in this presentation contains a general description of the products concerned. The actual products may not always have these characteristics as described and, in particular, these may change as a result of further development of the product. The provision of this information is not intended to have and will not have legal effect.*

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