



HEAVY INDUSTRIES · PRODUCTION & ASSETS

Real-Time Melt Temperature Prediction for a GCC Steel Producer

A major GCC steel producer used Quantum One to support every heat decision in the electric arc furnace, cutting electrode consumption by 1.5%.

IMPACT

1.5%

Reduction in electrode consumption

up to 1%

Reduction in electricity consumption per ton of steel

Per heat

Decision support during every heat, not after the shift

CLIENT PROFILE

CLIENT

A major GCC steel producer

REGION

GCC

SCENARIO

Production & assets

INDUSTRY

Heavy Industries

COMPANY TYPE

Steel producer

CHALLENGES

- Electric arc furnace operations face significant variability driven by raw material quality, furnace behavior and operator-dependent decisions.
- Operators must decide when to take temperature measurements and when to tap, often on experience rather than predictive insight.
- The result is high variability in heat duration, a risk of overheating or underheating, inefficient energy and electrode use, and lost capacity downstream.

APPROACH

We developed an AI assistant for Electric Arc Furnace operations to help steel plant operators make better real-time decisions during each heat.

The system predicts melt temperature, recommends the optimal first measurement moment, and supports tapping readiness decisions.

BENEFITS

- Real-time melt temperature prediction
- First-measurement optimizer based on actual furnace behavior
- Process awareness dashboard with live furnace parameters
- Tapping readiness support
- Visualization of energy, charged DRI, specific energy, and process dynamics

MVP FUNCTIONALITY

- Risk monitoring displays overheating risk before the first temperature measurement and indicates when the furnace is ready for measurement.
- Notifies the operator when it is time to take the first temperature measurement.
- Shows the current melt temperature after measurement, helping operators reach the target temperature with greater accuracy and control.

TIME TO PRODUCTION

Stage	Quantum One	Typical process	
Problem definition	1 week	2–3 weeks	
Proof of concept	2–3 weeks	4–6 weeks	
MVP	4–6 weeks	8–12 weeks	
Scale-up	1–2 months	3–4 months	
Maintenance	Ongoing	—	

TAKE THE NEXT STEP

Speak with our experts to discuss tailored AI solutions for your industry

quantumone.ae