

Metal industry

# Flexible adaptation of induction furnaces

## Company profile

**Industry**

Foundry, vertically integrated into automotive supply chain

**Service portfolio**

Melting and casting of gray iron housings, flywheels, discs, and drums

**Production details**

Connection voltage: 20 kV

Annual consumption: 10.5 GWh

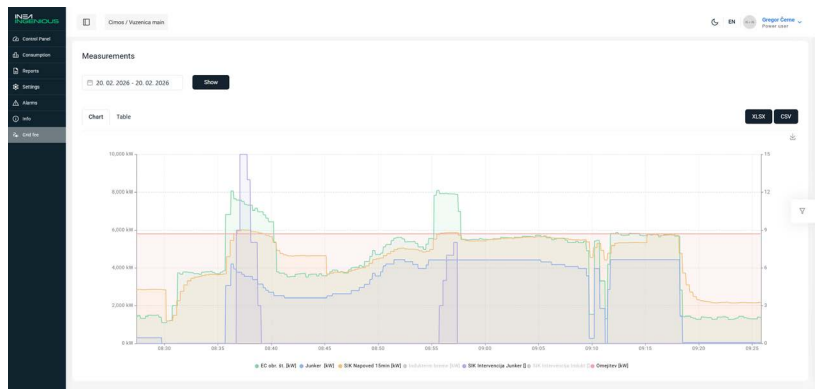
Operating regime: 16/5

### ●○○○ Challenge

The two induction crucible furnaces in the foundry contribute the majority of the 8.5 MW grid power draw. Since they were operated manually based on paper-based work orders, their startup peaks and initial melting phase often overlapped and even normal simultaneous power draw regularly exceeded the contracted power. This already incurred costs from active power exceedance and reactive power imbalance; those became even more expensive and hard to manage with the introduction of a multi-rate tariff system.

### ○○●○○ Solution

The furnaces were controlled remotely via PLC with centralised monitoring of other loads. Set points were defined and flexibility profiles created, using the furnaces' high thermal inertia, which made them less sensitive to temporary power reductions: one analogue, the other in stages. When one furnace starts, the other can react by reducing its power within the set limit, then extend its process duration if necessary. Averaging power over the 15-minute billing period still allows short overlaps if the process requires.



### ○○○●● Results

**31 %**

**reduction in contracted power**

in the most expensive time-of-use period by shifting consumption

**< 3**

**power adjustments per working day**

to achieve optimal reduction in exceedance costs

**6 MW**

**total power of controllable load**

available for adaptation, over 2/3 of site total