



ETHYLENE CRACKER

CASE STUDY



A major ethylene producer benefited over \$1MM in the first year by installing Ember on 7 furnaces to alleviate combustion constraints and optimize operations.

KEY ISSUES

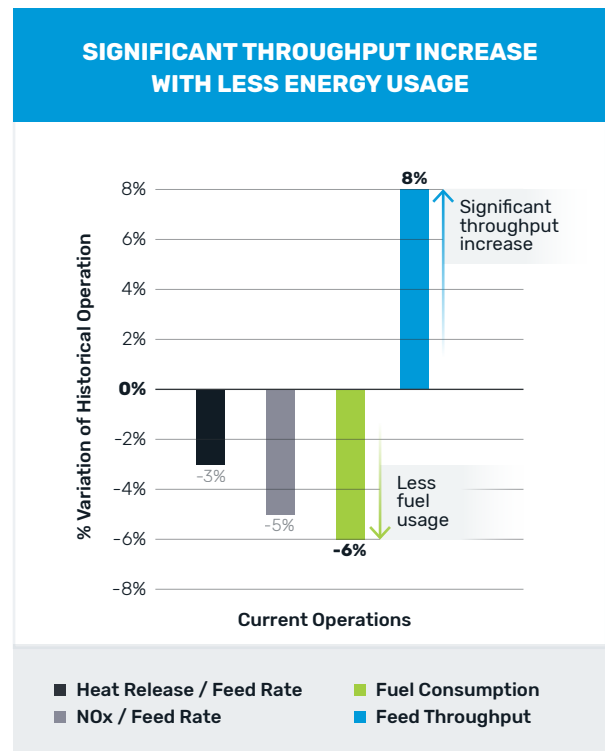
Plant throughput was furnace limited due to CO emissions excursions, stack temperature limitations, and tube metal temperature imbalances.

- ▶ Limited key performance indicators and visibility to determine current state of burner combustion
- ▶ Significant time and operator involvement was required to diagnose and troubleshoot combustion related operational issues

RESULTS

Physics based insights provided by Ember allowed the furnace to be optimized in a single shift and allowed operations to maintain optimum furnace operation using Ember's burner-by-burner recommendations.

- ✓ Reduced fuel consumption by 6%
- ✓ Increased feed throughput by 8%
- ✓ Reduction in NOx by 4%
- ✓ Reduced CO emission excursions by 50%



CUSTOMER SCALED EMBER ACROSS ALL ETHYLENE FURNACES WHICH TRANSFORMED PLANT OPERATIONS BY:

- ▶ Providing plant operational flexibility through data-driven decision-making to maximize value
- ▶ Institutionalized knowledge for combustion equipment
- ▶ Real-time recommendations to adapt to changing process conditions and requirements