

# Operating a Midstream terminal with lower energy & emissions

## Overview

A midstream and pipeline operator selected emissions.AI to help support corporate emissions reduction commitments. The decision follows the company's commitment to reduce greenhouse gas emissions from its operations by more than 60% by 2030 as it targets Net Zero by 2045. As part of its road map, the business is already making significant investments in emissions reduction projects at its onshore terminal and deploying AI technology is another tool that will enable it to achieve the next phase of the transition to Net Zero.

## Customer Needs

- Maximise energy efficiency and lower energy costs across terminal operations
- A digital solution to help their net zero, business and operational teams to:
  - Improve the management of CO<sub>2</sub> emissions
  - Enhance understanding and decision making
  - Automate the generation of "best day" dynamic baselines for every operating scenario
  - Remove inefficient and time-consuming manual processes



### How does it work ?

An energy and emissions digital twin was created of the key energy sources, consumers and flare systems at the site, using P&IDs, OEM manuals, lab data etc. before using 24 months of operational data to enable emissions.AI to incorporate the sites specific processes and equipment.

### What data does it use typically?

- OSI PI historian (2 years of history)
- P&IDs, PFDs
- Power/Fuel/Carbon reporting data
- OEM performance curves
- Electrical load lists
- Maintenance
- Weather

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## Solution

Key elements of the emissions.AI application aligned with the customer's objectives by providing the following:

- Continuous real time data and analysis on energy use down to individual consumer levels
- Identification of improvements which considered plant constraints and throughput
- Contextualised analysis to support the concept of a 'best day' operation of the facility
- Ability to understand a complex process spanning 3 production trains

emissions.AI's energy and emissions digital twin was configured to recognise the 3 production trains (and their production output), isolating the emissions data for multiple energy sources (including grid electricity, imported steam, plant power and mechanical drives).

## Impact

As well as having access to live emissions data in greater detail, the solution automatically prompts the company's operational teams to know when and where to optimise processes and plant for lower emissions. This is allowing the company to take better informed decisions and actions to operate the plant as close to "best day" performance. By doing this consistently, the company can drive lower energy use, lower carbon emissions and lower running costs.

Gains have been realised by focusing on areas identified and validated by the emissions.AI solution. A significant contribution has been gained by understanding and comparing operating scenarios and strategies across processes, trains, equipment and different energy sources. Further, operating modes are now easily and effortlessly identified and evaluated both in energy and emissions contexts.

The digital solution together with regular support from the ERM OPEX team is helping to drive, establish and embed a culture of energy performance and carbon awareness throughout the terminal.

The customer is benefiting from productivity savings through automation of manual processes. Additionally, the customer has better control over their operations from an energy and emissions perspective which has allowed it to further improve its business and relationship with key stakeholders.