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Net Zero Intelligent Operations (NIO)

Introduction

Enterprises worldwide are working to achieve their net-zero emissions goals by 2030 and beyond. Eighty-five percent of manufacturers consider vital insights from across enterprises as critical to realizing net zero. However, almost 42% cite a lack of data analysis within their business as a barrier to implementing change.

This is where Net Zero Intelligent Operations (NIO) by IoT WoRKS comes into play. The solution enables clients to monitor, assess and reduce enterprise energy consumption and carbon emissions with its unique inter-comparability and normalization approach across multiple equipment, processes and facilities. It delivers a set of functionalities to optimize energy consumption in a manufacturing environment at the enterprise level to help reduce associated carbon emissions.

Key Features

NIO helps enterprises reduce carbon emissions by optimizing the energy intensity of assets and processes. It provides unparalleled insights into an organization's energy consumption and carbon emissions metrics such as Energy Efficiency Ratio (EER), kilo watt per tonnage and inter comparability between plants or equipment. The solution can look at the total energy consumption across all the facilities and classify plants and assets basis efficiency. Additional features of NIO include:

Centralizing uncompressed energy consumption data from diverse sources	Mapping received data into a unified energy data model	Creating inter comparability of energy consumption at an enterprise level	Identifying energy optimization candidates	Closing the loop with control information back to the shop floor

Benefits

Data collection	Multiple protocol support	Metadata on facilities and equipment	Energy consumption, weather, event/alert, production data	Normalization: Production-based energy data normalization	Weather-based energy data normalization

NIO helps to normalize energy consumption across multiple units of similar equipment within the same facility, similar equipment across facilities, multiple parallel lines within the same facility and across numerous similar lines and facilities across related sites.

- Aggregation – indicates total energy consumption per equipment/machine and per line and provides an aggregated view of all equipment in the bar, per plant, across region/area and the enterprise.
- Dashboarding/Visualization - Indicates energy consumption by equipment, equipment types by line, plant and area/region across the enterprise.

NIO also provides

Equipment to equipment energy comparison	Plant-to-plant energy comparison	Plant carbon emissions in CO2 KG
Plant carbon emissions intensity in CO2 KG/kWh	Plant carbon emissions per asset in CO2 KG	Best performing, worst performing equipment, lines, plants