

# Net Zero Intelligent Operations

Intercomparable energy and emissions insights driving sustainable business



**HCL Technologies is committed to reducing the impact our organization has on the planet. We aim to limit our greenhouse gas (GHG) emissions aligned to the 1.5 degree Celsius goal set for 2030 in the Paris Agreement - and reach net-zero by 2040.**

Limiting global warming to no more than 1.5 degree Celsius needs emissions to be reduced by 45% by 2030 and reach net zero by 2050. However, current national action plans aren't enough - slated to increase global greenhouse gas projections by almost 14% by 2030.

A study by the International Energy Agency (IEA) underlines exactly what is required to stay on the net-zero pathway by 2030:

- A 4x increase in solar and wind power generation capacity additions
- A 4% decrease in energy intensity per year until 2030

At HCL Technologies, we are committed to enabling our clients achieve their net-zero emissions goals by 2030 and beyond - critical to ensure the future of the planet.

Current energy management (EM) systems allow organizations to collect energy/efficiency data from manufacturing plant assets and processes and deliver a unified view of energy consumption across the plant - enabling energy optimization measures at a local/plant level.

Nearly **85% manufacturers consider key insights from across enterprises** as critical to realize net-zero, but almost **42% of them cite lack of data analysis knowledge** within their business as a barrier to implementing change.

Source: The Manufacturer

This is where **Net Zero Intelligent Operations (NIO) by IoT WoRKS™** comes in. The solution enables clients to monitor, assess, and reduce enterprise energy consumption and carbon emissions through its unique inter-comparability and normalization approach across multiple equipment, processes, and facilities. NIO taps into digital twin and AI to achieve this. It delivers a set of functionalities to optimize energy consumption in a manufacturing environment at the enterprise level. NIO can help organizations reduce associated carbon emissions which contribute to net-zero goals.



## About the solution:



NIO is our foremost sustainability-focused offering that aims to help our customers monitor, normalize, compare, reduce energy consumption and GHG emissions in real-time. The solution helps clients reduce carbon emissions by optimizing the energy intensity of assets and processes. It also enables calculating, reporting, and identifying emission optimization potential for workspaces and shop floors.

NIO gives unparalleled insights into an organization's energy consumption and carbon emission metrics such as Energy Efficiency Ratio (EER), kilo watt per tonnage, and inter-comparability between plants or equipment which is its unique proposition. The solution can look at the total energy consumption across all the facilities and can highlight the plants as well as assets basis efficiency. It also identifies key influencing factors and compares efficiency insights to industry benchmarks and recommends optimization measures that can be taken to improve them.

**Net Zero Intelligent Operations is a part of the Facility and Sustainability NeXT solutions powered by our Industry NeXT transformational framework.**



### Key Industries

- Manufacturing (Discrete, Process and Pharma)
- Energy
- Oil and Gas



### Key Personas

- CSO
- Head of Operations
- Plant Manager
- Energy Manager
- Administrator
- Head of Finance
- Head of Energy Purchasing



### Features:

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



## Specifications:

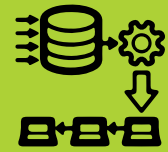
### Energy and sustainability inter-comparability and normalization

- Between plants or location
- Between equipment or assets



### Data Source Support:

- OPC DA UA Support
- Kafka utilized as an event broker
- MQTT Support



### Data Management:

- Master data on facilities and assets
- Real-time, non-aggregated collection, processing, and storage of data - Energy consumption, weather, event/alert, production data
- Energy Usage and Carbon Emissions Data Repository
- Data Collection Operations
- Data Normalization, Synchronization, Inter Comparison Engine
- Weather-based energy data normalization
- Normalization of energy consumption across multiple units of similar equipment within the same facility
- Normalization of energy consumption across similar equipment across facilities



### Administration

- Configuration Console
  - Weather Data Configuration
  - Plant and Asset registration
  - Data ingestion handling
  - Energy Data Gathering templization

# Key NIO dashboards for reference:

Energy savings potential across enterprise



Best and worst performing assets & potential for improvement



## Benefits:



### Shift from Local to Global:

Rapid shift in energy optimization measures – annualized energy savings of 7-10%

### Reduce Carbon Footprint:

Reduce CO2 output between 8-10% per year

### Optimize Operational Costs:

Achieve nearly 6-10% annualized cost savings

### Leverage Best-in-class practices:

Utilize real-time data for enterprise best practices



Identify significant energy users (SEUs)

Ensure regulatory compliance: Key standards like ISO 50.001

# Who we are

**IoT WoRKS™** is a dedicated IoT business unit of HCL Technologies. Our award winning, best-in-class, customer and industry specific, deployment ready solutions co-created with customers, enable them to maximize effectiveness and returns on their asset investments.

Rated as a global leader in IoT consulting & services by top analysts, our solutions, enable IoT-led business transformation through creation of more efficient business processes, new revenue streams and business models that deliver measurable business outcomes.

At HCL we believe that the transformative impact of IoT is realized by ensuring that 'things' can communicate with a data platform and deliver actionable, real-time insights - that can power cognitive operations and processes and build a connected business.



HCL Technologies (HCL) empowers global enterprises with technology for the next decade today. HCL's Mode 1-2-3 strategy, through its deep-domain industry expertise, customer-centricity and entrepreneurial culture of ideapreneurship™ enables businesses to transform into next-gen enterprises.

HCL offers its services and products through three lines of business - IT and Business Services (ITBS), Engineering and R&D Services (ERS), and Products & Platforms (P&P). ITBS enables global enterprises to transform their businesses through offerings in areas of Applications, Infrastructure, Digital Process Operations, and next generation digital transformation solutions. ERS offers engineering services and solutions in all aspects of product development and platform engineering while under P&P. HCL provides modernized software products to global clients for their technology and industry specific requirements. Through its cutting-edge co-innovation labs, global delivery capabilities, and broad global network, HCL delivers holistic services in various industry verticals, categorized under Financial Services, Manufacturing, Technology & Services, Telecom & Media, Retail & CPG, Life Sciences, and Healthcare and Public Services.



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As a leading global technology company, HCL takes pride in its diversity, social responsibility, sustainability, and education initiatives. As of 12 months ending on December 31, 2021, HCL has a consolidated revenue of US \$ 11.2 billion and its 198,000 ideapreneurs operate out of 52 countries. For more information, visit [www.hcltech.com](http://www.hcltech.com)