

Faster and More Intuitive

Industrial Plant Operation & Management



Real-time Monitoring



Process Optimization



Ai-driven Intelligence



Seamless Integration



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Greetings

KREPS is an industrial operation data and AI-HMI service platform company that collects, stores, analyzes, and visualizes real-time operation data for the power generation and plant industries.

We develop integrated solutions that combine WebHMI, high-speed time-series data processing, visualization technologies, and AI-based expansion capabilities, enabling users to utilize complex field data more easily, quickly, and effectively.

The power generation industry is now moving beyond equipment-centered operations toward data-driven optimization and AI-based decision-making. In response to this transformation, **KREPS** is committed to developing technologies that can be validated in the field, products that deliver practical operational value, and business models that grow together with our customers.

We will continue to do our utmost to create a safer and more efficient energy operation environment and to strengthen the competitiveness of domestic power process software.

Thank you.

Making Power Plant Operations Faster and More Intuitive





• Application Fields •

❖ Power Plants

Thermal, combined-heat-cycle power plant operations

❖ Renewable & Distributed Energy

Multi-tenant Solar, wind, ESS, microgrid, and distributed energy monitoring

❖ Hydrogen & Process Heat Facilities

Hydrogen production, and energy efficiency analysis for BOP integration

❖ Bioenergy & Carbon Monitoring

Biogas, biomethane, waste-to-energy, and carbon emission monitoring

❖ Industrial Plant & Digital Twin

Manufacturing plants, legacy systems, smart factories

From Field Data to Smarter Operations

Intuitive. Integrated. Intelligent.

KREPS delivers real-time visibility and AI-powered insights that transform complex plant data into smarter decisions and better operational performance.



Real-time Monitoring

Live data collection and visualization



Process Optimization

Advanced analytics for performance improvement



AI-driven Intelligence

Smarter insights for faster decisions



Trusted Reliability
Proven platform technology built for power and plant operations



Operational Excellence
Improving efficiency and reliability through data-driven optimization



Scalable Integration
Seamless integration with DCS, historian, and various enterprise systems



Future Ready
AI and digital technologies that evolve with your operations

What We Do

We develop solutions and provide hardware infrastructure that enable users to instantly understand and utilize vast, complex, and highly interconnected process data from the field.



01

Industrial plant monitoring

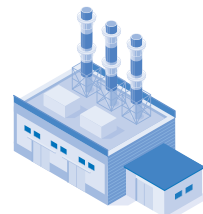
Real-time monitoring, analysis, and visualization applications for operational data from thermal and renewable power plants



02

Thermal Performance & Process Optimization

A diagnostic and optimization analytics environment for heat/process performance across BOP-integrated processes, including high-temperature process heat and hydrogen production



03

AX Digital Assets

Transformation of tag, equipment, and process data into digital assets that enable AI agent-based HMI search, app integration analytics, and optimized operational decision-making

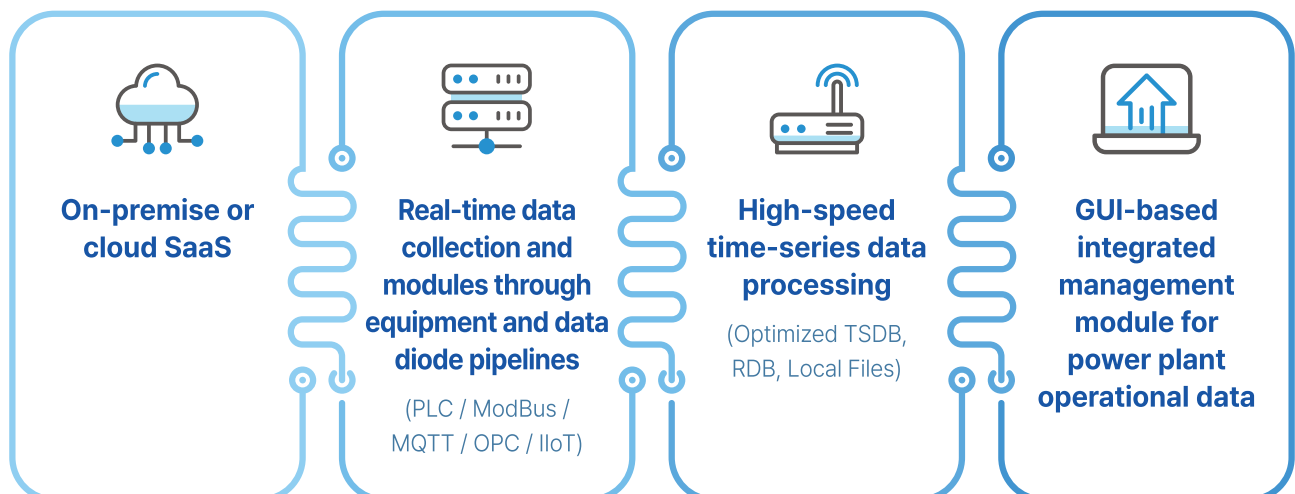
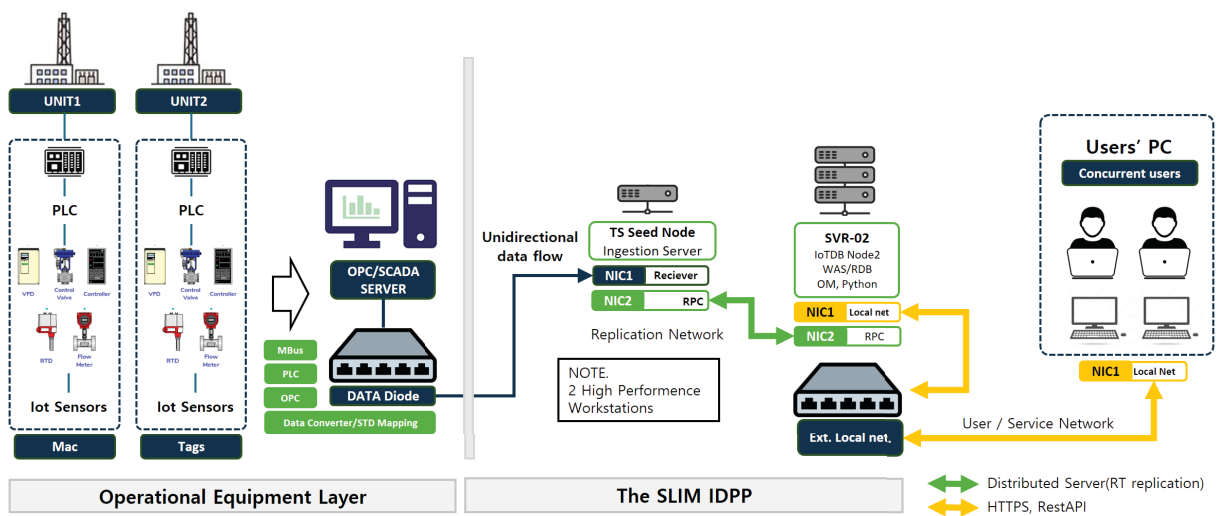


Products

01 Power Plant Operational Data Platform

We provide a high-speed big data processing architecture that integrates and manages real-time operational data and historical data, enabling field users to quickly search and analyze the information they need. We also continuously improve cost-saving effects for historical data storage through compression-rate optimization.

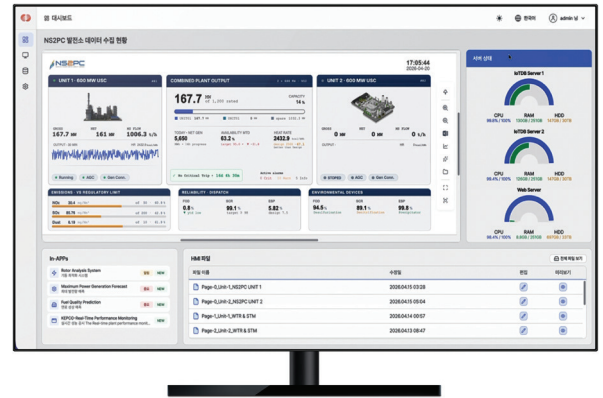
Proposed SLIM IDPP Architecture



02 WebHMI / Visualization

For process diagrams, charts, trends, and dashboards, allowing users to intuitively understand complex process data.

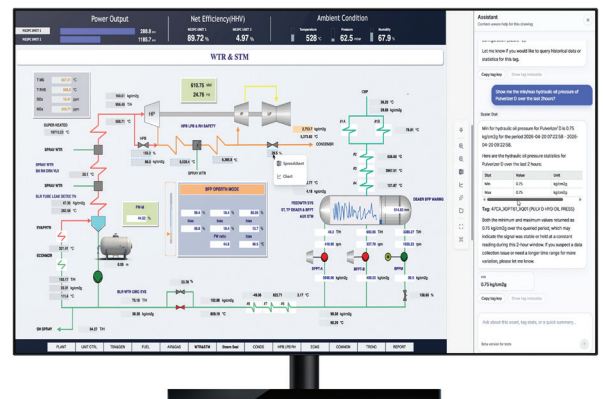
- Web-based HMI drawing tools
- Real-time chart, trend, and spreadsheet visualization
- Process diagram-based operation status monitoring
- FMU co-simulation
- Support for on-site operation and analysis tasks
- User & access control



03 AI-HMI / AI Operation Assistant

We structure operational data, tags, equipment, and process information into digital assets that AI can understand, and expand them into natural language-based search, analysis, and operation support.

- Natural language-based operational data search
- Digital assetization of tag, equipment, and process metadata
- AI-based operational decision-making support
- Support for abnormal condition analysis and root cause identification
- Foundation for integration with optimized operation control



04 Thermal Performance Analysis

The thermodynamic performance of integrated processes, including high-temperature process heat, hydrogen production, and BOP systems, and support operational efficiency improvement and process optimization.

- GUI-based FMU-Python analysis and monitoring dashboard creation
- Thermal performance analysis
- Operational condition diagnosis
- Process efficiency analysis
- Support for digital twin third-party apps(Open Web-App Ecosystem)



Why Us

Integrated Expertise. Smarter Energy Operations.

KREPS combines industrial operation data platform technology with thermal and energy analytics to support data-driven optimization in power generation and plant operations.



Proven Power & Plant Data Platform

Field-proven through KEPCO IDPP and currently operated at Korea South-East Power, supporting real-time data collection, storage, analysis, visualization, and analytics.



High-Speed WebHMI & Time-Series Visualization

Provides intuitive process diagrams, trends, and chart-based visualization with rapid access to large-scale real-time operation data across 390,000+ tags.



AI-Enabled Operations Support

Built-in AI agent, Python IDE, FMU upload, virtual tags, and dashboard tools enable flexible analysis, visualization, and customized operational workflows.

Trusted Partners & Clients



Performance Highlights



Data Processing

390,000
tags / sec

Processing architecture for 390,000 tags per second



Historical Data Output

2 years / 18 tags
(fast zoom-in/out)

Output of 2 years of historical data for 18 tags, with fast zoom-in/out interaction



Chart Output Speed

230 ms
(High-speed response)

High-speed response at approximately 230 ms



Data Compression / Storage

81.22%
(CSV 442 MB → TSDB 83 MB)

Compression rate of 81.22%: CSV 442 MB → TSDB 83 MB



Storage Capacity

10 TB

10 TB storage capacity for 10,000 tags over 3 years of TSDB storage and operation



Concurrent Access

300+
Users
(Load Test Verified)

Verified through a 300-user load test



Storage Accuracy

99.9 %

Data integrity accuracy of approximately 99.9%



Data Compression

81.22 %

Data compression rate of approximately 81.22%

Company Information



Company Name

Korea Renewable Energy & Power Solution



Website

www.kreps.kr



CEO

Hye-sun Lee / leehs@kreps.kr



Date of Establishment

February 10, 2022



Main Business

Plant operational data historian solutions and platform development, operational performance analysis services, and consulting



Number of Employees

12 employees in total
CTO Jaeki Lee for ICT,
CTO Jungmo for thermodynamics and energy efficiency,
Jung Mo for thermo-dynamics & energy efficiency Modeling



Address

- Headquarters: 23, Energy Valley Enterprise Development Center, 370 Green-ro, Naju-si, Jeollanam-do, Republic of Korea
- R&D Office: 3F, 78 Ojeong-ro 76beon-gil, Daedeok-gu, Daejeon, Republic of Korea

History

- 2025**
- Dec.** Supplied a service robot control system to Mobicell Co., Ltd.
 - Nov.** Selected as a K EPCO promising technology commercialization company case at BIXPO
 - Jul.** Established the second corporate R&D center in Gyeongsan
 - May** Integrated and launched pilot operation of the IDPP Web HMI platform for Korea Southern Power Co., Ltd.
 - Apr.** R&D project by Pohang Technopark Foundation to develop an operational performance analysis platform for a VHTR process heat-coupled hydrogen production hybrid process
- 2024**
- Dec.** Designated as a family company of the Korea Atomic Energy Research Institute
 - Sep.** Signed an industry-academia cooperation agreement with Woosong University
 - Sep.** Participated project by KEPCO Research Institute for the development and demonstration of a lightweight power generation operation data platform, Slim-IDPP
 - Jul.** Selected as a KEPCO startup
- 2023**
- Sep.** Established a corporate R&D center in Daejeon
 - Jun.** Signed an Energy Valley investment agreement with KEPCO, Gwangju Metropolitan City, Jeollanam-do Provincial Government, and Naju City
 - May** Secured SAFE investment through a conditional equity acquisition agreement with Korea Technology Finance Corporation
 - Apr.** Obtained certification as a women-owned enterprise
 - Apr.** Selected as a TECH Valley innovative company by Korea Technology Finance Corporation
 - Mar.** Supplied an interoperability module between manufacturing digital twins and legacy systems to the Electronics and Telecommunications Research Institute
 - Mar.** Conducted a preliminary study for Korea Atomic Energy Research Institute on real data-based intelligent analysis technology for an ultra-high-temperature electric furnace system
- 2022**
- Dec.** Relocated headquarters to the Energy Valley Enterprise Development Institute in Naju
 - Sep.** Selected as an E-Care promising company by the Electronics and Telecommunications Research Institute
 - Aug.** Developed a mutual conversion module for legacy manufacturing digital twin models for the Electronics and Telecommunications Research Institute
 - Jul.** Obtained direct confirmation certification for software engineering business
 - Feb.** Selected as a family company of the Electronics and Telecommunications Research Institute
 - Feb.** Incorporated as a researcher-founded startup company of the Electronics and Telecommunications Research Institute

Major Achievements

Accumulated R&D and Commercialization Experience in the Public, Research, and Power Generation Sectors

Although Korea Renewable Energy & Power Solution is a startup, the company has continuously built R&D and commercialization track records in the energy industry's digital twin technology field by validating its technologies for large-scale power plant operational data platforms, WebHMI, and high-temperature process heat performance analysis environments.

- ❖ Founded based on expertise in smart manufacturing digital twins, legacy system integration, and big data processing technologies
- ❖ Jointly developed a lightweight power plant operational data platform and visualization algorithms with Korea Electric Power Corporation
- ❖ Collaborated with the Korea Atomic Energy Research Institute and Pohang Techno Park on high-temperature process heat, hydrogen production, and performance analysis technology development
- ❖ Expanding from a power plant operational data platform into WebHMI, AI agents, distributed power generation integration platforms, and hydrogen production operation control
- ❖ Holds R&D and platform development references with a cumulative project contract value of approximately KRW 3.35 billion based on major projects

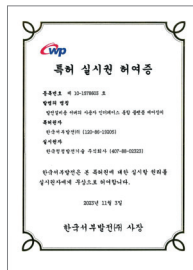
Project / Application	Partner / Client	Period
• Development of an Interoperability Module for Legacy Manufacturing Digital Twin Models	Electronics and Telecommunications Research Institute (ETRI)	22.08~22.11
• Development of an On-Premise Manufacturing Digital Twin Data Processing Engine and Service Platform	DMB Co., Ltd	23.01~24.02
• Development of an Interconnection Module Between Manufacturing Digital Twins and Legacy Systems	ETRI	23.03~23.06
• Preliminary Study on Intelligent Analytics Technology Based on Simulation Data for Ultra-High-Temperature Electric Heating Furnace Systems	Korea Atomic Energy Research Institute (KAERI)	23.03~23.06
• Development of a Lightweight Power Plant Operational Data Platform and Visualization Algorithms	KEPCO	24.09~26.03
• Development of a Service Robot Control System	MOBYGEN Co., Ltd	25.03~25.12
• Development of a Performance Analysis and Operation Control Platform for an Integrated Hydrogen Production Process Using High-Temperature Gas Furnace Process Heat	Pohang Technopark Foundation	25.04~25.12
• Advancement of AI Agents and WebHMI Specialized for Power Plant Operational Data at Korea South-East Power (Planned)	Korea South-East Power Co., Ltd.	26.04~27.09
• Development of a FEMS-MES-MSR and Distributed Power Generation Integration Platform for Korea Western Power (Planned)	Korea Western Power Co., Ltd.	26.07~27.10
• Development of an AI Operation Control and Carbon Emissions Monitoring Platform for KEPCO-Green Pebble Co., Ltd.'s Dry Bio-Methane Plant (Planned)	KEPCO Research Institute	26.08~28.12

Registered Patents

Registration No.	Title of Invention
10-21297140	System and Method for Detecting Disconnections in Distribution Lines
10-2089150	Apparatus and Method for Generating 3D Models of Power Facilities
10-1454756	Heat Storage System with a Two-Phase Thermodynamic Cycle and Method of Operating the Same
10-1263941	Power Generation System for Waste Heat Recovery
10-0952557	Screen Information Control for a Power Generation Simulator System
10-0911735	Wireless Measurement System and Method for Tuning Data of Power Generation Gas Turbines
10-0686798	Method for Statistical Validation of Measurement Values

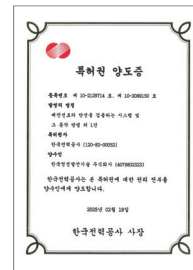
Intellectual Property

Patent License Agreement



Reg. No. 10-1578603

Assignment of Patent Application



Reg. No. 10-2129714, 10-2089150

Certificate of Patent & Research control



Reg. No. 10-0686798



Reg. No. 10-0911735



Reg. No. 10-0952557



Reg. No. 10-1263941



Reg. No. 10-1454756



Reg. No. 10-2089150



Reg. No. 10-2129714



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