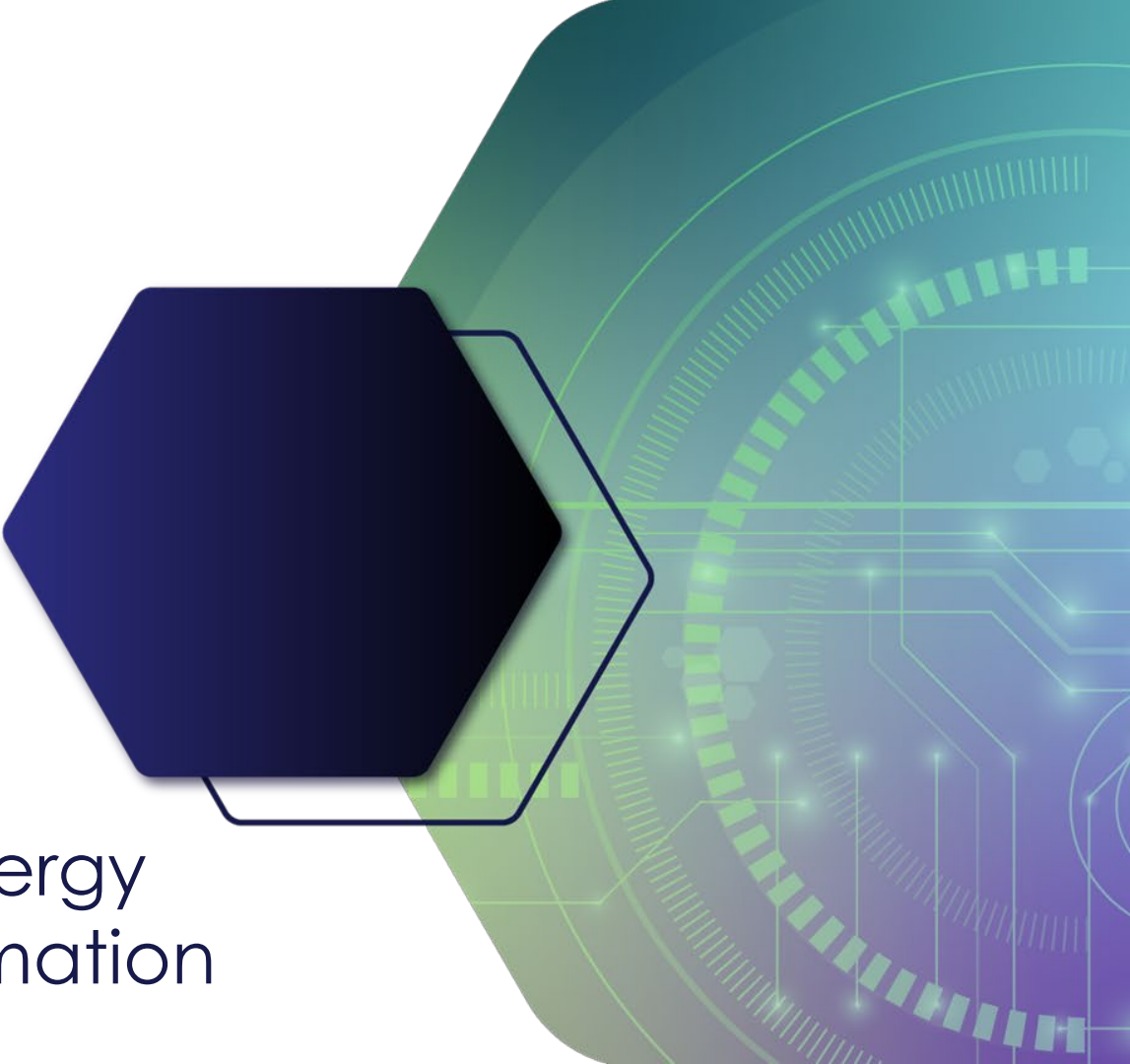




EnergiSense

Manufacturing Energy
Analytics Transformation



 **smart**
advanced manufacturing

ORGANISATION PROFILE

SISKON Industrial Automation and Software

Founded in 1997

- **HQ:** Izmir/Türkiye | **Offices:** Braşov/Romania, Tallinn/Estonia

Team

- 90+ engineers & specialists

Core Expertise

- IIoT & Data Collection, Systems Integration
- Product Traceability
- LIMS (Laboratory Information Management Systems)
- Bespoke Industrial Software Solutions
- Industrial Automation

International Project Experience

- 4 global industrial software solutions deployed in 53 factories across 44 countries

Key Products

- Smart Manufacturing Suite
Connectivity (IIoT), Monitora, Traceability, Digital Smart Forms
- CNC Suite
Connectivity, Tool Wear Prediction
- OPC UA - TMC Solution

R&D Expertise

- 6 National R&D Projects
- 1 Eurogia2030 Project (labelled in May, 2024)
 - "Manufacture CarbonIQ" - Coordinator

Ecosystem Engagement

- Located in Technical Development Center
- Membership in Ecosystem Platforms
- Ecosystem support through Venture Capital Funds

PROPOSAL INTRODUCTION (I)

Vision

To enable the **next generation of energy and CO₂ transparency in manufacturing**: moving from fragmented, manual, facility-level metrics towards automated, AI-powered systems that deliver **per-machine, per-line, and per-product** insights — empowering manufacturers to optimize processes, cut energy costs, and comply with emerging sustainability regulations.

Motivation

- **Limited visibility:** Most factories only track energy at facility or department level.
- **Outdated tools:** Manual spreadsheets or static regression models cannot adapt to new product mixes, shifting production schedules, or maintenance cycles.
- **Hidden inefficiencies:** Root causes such as idle loads, tool wear, or poor scheduling remain invisible.
- **Compliance pressure:** Manufacturers struggle to meet ISO 50001/14067, EU Digital Product Passport, and Catena-X data sharing requirements.
- **Energy market volatility:** Unpredictable price fluctuations make energy planning and cost control increasingly difficult, demanding adaptive and data-driven optimization strategies.

“Across sectors, companies face rising energy costs and stricter sustainability demands but lack the tools to respond effectively.”

PROPOSAL INTRODUCTION (II)

Content

- **Data Foundation & Connectivity**

- Automated integration of meters, MES/planning, contextual, and environmental data — enriched with energy-market info.
- Retrofit IIoT sensors for fast onboarding of diverse equipment.

- **Virtual Energy Twin**

- AI disaggregates facility consumption into virtual sub-meters per line, product family, or process step.
- Delivers normalized KPIs (kWh/unit, CO₂/unit).

- **AI-Driven Machine Energy Profiling**

- Combines selective metering with machine/process parameters to estimate per line, per part energy use, providing granular insight without full sub-metering.

- **Optimization Intelligence**

- AI and AutoML continuously learn and tune machine/process parameters, scheduling, and idle-load — enabling real-time and planning-stage optimization.
- Integrates energy-market signals and carbon-intensity forecasts to recommend adaptive optimization strategies.

- **Compliance & Integration Layer**

- Generates ISO 50001/14067 indicators and DPP exports for OEM and supply-chain transparency and compliance.
- Integration-ready with EU Energy & Manufacturing Data Spaces (e.g. GAIA-X, ENERSHARE, Catena-X) ensuring semantic interoperability, governance, and secure, auditable data exchange for traceable sustainability metrics.

“Together, these layers create a scalable, end-to-end system for energy and CO₂ transparency—from data collection to compliance.”

PROPOSAL INTRODUCTION (II)

Content

Data Foundation & Connectivity

- Facility & machine meters
- Planning, contextual, environmental data
- Energy market data

Virtual Energy Twin

- AI disaggregation per line, per product family, per part
- KPIs: kWh & CO₂ per unit

AI-Driven Machine Energy Profiling

- Selective metering + machine parameters
- Energy per line, per part, per process
- Granular insight without full sub-metering

Optimization Intelligence

- AutoML continuous learning and tuning
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Compliance & Integration Layer

- ISO 50001 / 14067 indicators
- PCF estimates and DPP exports for OEM compliance
- Integration with EU Data Spaces
- Secure, auditable data exchange

“Together, these layers create a scalable, end-to-end system for energy and CO₂ transparency—from data collection to compliance.”

PROPOSAL INTRODUCTION (III)

Expected outcome

- **Energy Savings** – measurable cost reduction through AI-based process optimization
- **Full Energy & CO₂ Transparency** – per-machine, per-line, and per-product footprints on demand
- **Easy Compliance** – automatic ISO 50001 KPIs, ISO 14067 product footprints, and DPP and Catena-X exports
- **Operational Efficiency** – insights on idle loads, and scheduling efficiency
- **Competitiveness** – stronger sustainability credentials for OEM supply chains

Schedule

Start: January 2027

Duration: 24-30 months

Impacts

- **Market Expansion** – makes advanced, AI-driven energy and CO₂ transparency tools accessible to SMEs and large manufacturers, and transferable across multiple sectors
- **Compliance Advantage** – enables suppliers to meet upcoming OEM and EU sustainability mandates
- **Cross-Sector Adoption** – proven in automotive Tier-1 pilots, applicable to other manufacturing domains
- **European Competitiveness** – advancing innovation and sustainability across Europe's manufacturing ecosystem

PARTNERS

Current Consortium

- **Siskon Industrial Automation and Software, Türkiye**
Lead partner, expert in industrial automation, IIoT connectivity, and manufacturing software.
- **Time Reactor Artificial Intelligence Solutions, Türkiye**
AI startup focused on time-series analysis, anomaly detection, and forecasting.
- **Phinia, Türkiye**
Tier-1 automotive supplier and industrial pilot site.

Partner Search

- **Automotive Tier-1 Suppliers (Pilots)** – To validate the solution in different production contexts and demonstrate cross-plant scalability.
- **Sensor/Hardware Partner** – Supplier of clamp-on meters or IIoT devices for non-intrusive data acquisition.
- **Sustainability/Compliance Expert** – SME with ISO 50001/14067 and CO₂ accounting experience.
- **Research Partner** – University or RTO specializing in AI-driven energy optimization and digital twins.
- **CNC Manufacturer** – Provides machine-level domain expertise to refine energy-profiling models and validates integration within CNC control systems.
- **Data Ecosystem Partner** – Actor involved in Digital Product Passport (DPP) or Catena-X for supply-chain integration.

“The consortium aims to include at least two additional EU partners to ensure international coverage and demonstration diversity.”

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