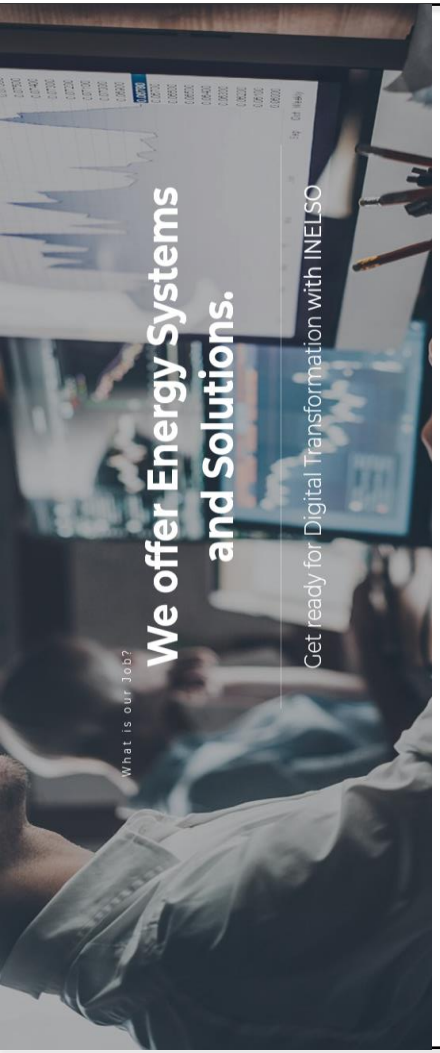
This project is co-financed by the European Union and the Republic of Turkey
Bu proje Avrupa Birliği ve Türkiye Cumhuriyeti tarafından finanse edilmektedir

Hacer Gediz Taskin

INELSO ENERGY SYSTEMS IND. IMP. EXP. INC. CO.

hacer.gediz@inelsoenergy.com

Description of the Organization



INELSO is SME company which provides

- planning,
- analysis,
- technical support
- consultancy services

IN ALL STAGES OF ENGINEERING FIELDS.

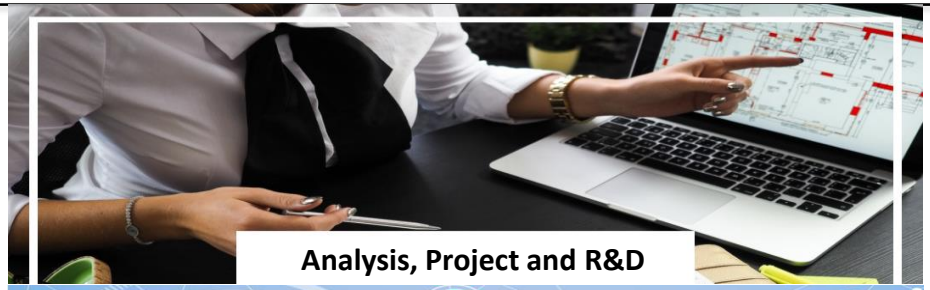
23 Engineers-Technicians

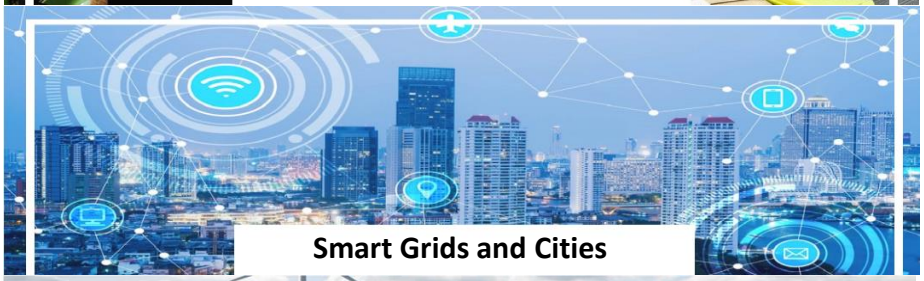
10+ Years Experiences

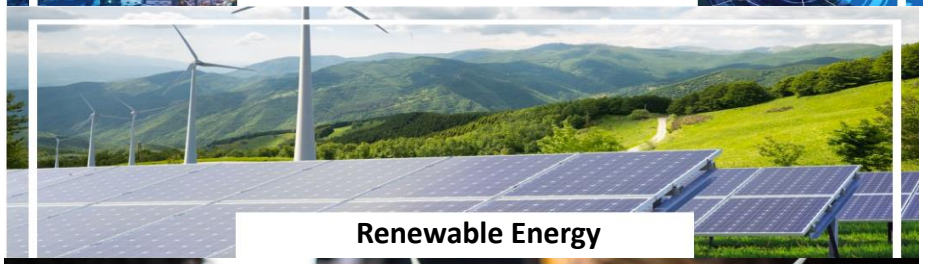
Description of the Organization

Innovative Electrical Solutions

SOLUTIONS







10+ R&D Projects
+900.000 Euro

- LV/MV Remote Monitoring System- 450 Center
- SCADA Infrastructure Adaptation-584 Center
- TSO SCADA-17 Center

- Residential Roof Solutions
- Industrial Roof Solutions
- Off-Grid
- Operating and Maintenance

1000+

Energy Monitoring
120+ Point

Research Interest

Innovative Electrical Solutions

Data Collection and Management

Renewable Energy

Software Tools & Platform Development

IoT

Monitoring and Management

XAI

Digital Twin

MLOps

Big Data and Analytics

Energy Efficiency

Robotic

Multidisciplinary System Integration

Hardware Tools & Development

R&D Projects

- **Virtual RTU -** The main objective of the project is to develop the Virtual RTU software platform and to perform the functions provided by the RTUs on the web servers independently of the hardware in the field.

- **Inspection Robot** - The main objective of the project is to develop smart robots for unmanned inspection and control in electrical distribution centers

- **Lighting Fault Detection Platform -** The main objective of the project is to develop develop internet-based smart devices in order to transmit the failures

- **OHS(Occupational Health and Safety) Mobile Application and Evaluation Platform -** develop a web-mobile integrated application in order to facilitate the follow-up of occupational health and safety studies to keep the information of the employees up-to-date and to carry out mobile audits.

- **Failure Prediction and Priority Maintenance Platform -** The Main Purpose of the Project is to Develop 2 Different Systems for Weekly Failure Estimation and Priority Maintenance Estimation Based on Machine Learning with OMS Based Fault Statistics and Geographical Information

R&D Projects

- **Energy Monitoring and Management Platform -** The general purpose of the project is to develop web-based central management platform for energy monitoring and controlling with IoT devices which has PLC (communication over power line) technology

- **MIDAS (Multi-input Intelligent Distribution Automation System) -** The general purpose of the project is to develop of a multi-input and intelligent distribution automation system that will enable the operation of conventional systems designed for one-way power flow in a way that is reliable, efficient and allows for greater integration of renewable energy generation sources.

- **Smart Grid Hardware Tool to Improve Supply Continuity in Distribution Grids -** The Main Purpose of the project is to develop smart devices that can integrate with other devices by supporting energy monitoring, remote on-off controls and different communication protocols at critical points in the electricity distribution sector

- **Generalized Protection Coordination and Relay Setting Program Integrated with GIS-** The general purpose of the project is to develop develop a platform for automatic parameter creation for protection relays used in the electricity distribution sector and sending the prepared setting files to relays remotely.

R&D Projects

- **Optimization Of Long-Term Investments Of Electric Distribution Systems Considering Planning Metrics -** The general purpose of the project is to optimize Long-Term Medium Voltage Level Investments Of Electric Distribution Systems

- **New Tech Rectifiers Compatible with SCADA Systems with High Efficiency Battery Charging System and Dual Control Unit -** The Main Purpose of the project is to develop industrial rectifiers compatible with electrical SCADA systems, which can be remotely monitored, designed with power electronics principles and compatible with voltage fluctuations.

Roles and Publishments

- **OMS (Outage Management System) Integration with SCADA, GIS, CRM,IVR, WFM -** The general purpose of the project is to manage electric distribution system interruptions, predicting fault points, reporting system reliability indexes (SAIDI, SAIFI, ENS etc.)

- **Power Plant Solar Inverter Control Algorithm Design for Volt/Var Demand Control of Distribution Network-** Published: 10 June 2021, Springer

Project Idea

HORIZON-CL5-2021-D3-02-07: Reliability and resilience of the grid: Measures for vulnerabilities, failures, risks and privacy

Targeted EU contribution: ~8 m€
Type of action: Innovation Actions
Technology readiness level: TRL5-6 at the end of the project
Deadline for Proposal Submission: 05 January 2022 17:00:00 Brussels time

RISKFREE4GRID– Project Idea

Objectives:

- Demonstration of measures to minimize TSO and DSO risks, vulnerabilities and of priority strategies and measures against nature and man-made hazards, terrorism, climate-related extreme events, weather, migration, etc. for:
    1. substation systems security and design;
    2. HV, MV, LV grid infrastructures including platforms for TSO and DSO interaction;
    3. Automatic control of decentralized flexibility solutions;
    4. Events resulting in cascading failures, their mitigation and prevention

Project Idea

HORIZON-CL5-2021-D3-02-07: Reliability and resilience of the grid: Measures for vulnerabilities, failures, risks and privacy

RISKFREE4GRID– Project Idea

- Objectives:
  - Application of advanced information technologies (e.g. probabilistic safety assessment, quantitative risk analysis) in system development, operation and asset management.
  - Application of digital technologies for ensuring operational data quality and demand patterns recognition improving data access and information acquisition for maintenance operators.
  - Development of shared knowledge basis within European area concerning threats, vulnerabilities, methods, not only for components but for entire systems and energy system technologies.

Project Idea

HORIZON-CL5-2021-D3-02-07: Reliability and resilience of the grid: Measures for vulnerabilities, failures, risks and privacy

RISKFREE4GRID– Project Idea

- Objectives:
  - Development and application of technology (e.g. blockchain) for the identification and authentication of energy IoT devices, authentication of origin in spare part management, trading certificate infrastructures, protection relay configuration and micro grid management.
  - Development, testing and demonstration of advanced intrusion detection and prevention systems for energy infrastructures including security-related data and deep learning methods.
  - Dedicated strategies for enhanced security and resilience at DSO and TSO level, including demonstration of TSO/DSO security data sharing.

Project Idea

HORIZON-CL5-2021-D3-02-07: Reliability and resilience of the grid: Measures for vulnerabilities, failures, risks and privacy

RISKFREE4GRID– Project Idea

- Objectives:
  - Development and application of methodologies for automation of grid maintenance (for example through robotics), advanced human-machine interfaces, and of data validation processes automation by applying emerging technologies.
- Expected results
  - Demonstration of increased energy system reliability and resilience, preventing or ensuring rapid recovery following disturbances such as faults, cyberattacks, terrorism or similar at all relevant levels (infrastructure, hardware, software, organisational, etc.).

Consortium - profile of known partners *(if any)*

No	Partner Name	Type	Country	Role in the Project
01	INELSO ENERGY SYSTEMS	SME	Turkey	Technology provider
02	UNIVERSITY OF EXETER	University	United Kingdom	Aviation Migration
03	SOFTWARE IMAGINATION & VISION SRL	SME	Romania	Cyber Attack
04	UBIMET GmbH	SME	Austria	Weather
05	University	University	Germany	Cyber Attack
06	DSO		Turkey	Demonstration Site
07	TSO		Turkey	Demonstration Site

Consortium - required partners

No	Expertise	Type	Country	Role in the project
01	DSO			Demonstration Site
02	TSO			Demonstration Site
03	Renewable Energy			Demonstration Site
04	Distributed Energy Resource Management			Technology Provider
05	Substation Systems Security and Design			Technology Provider
06	Vegetation Management			Technology Provider
07	Multidisciplinary System Integration			Technology Provider
08	Blockchain			Technology Provider

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