



datamite

Data
Monetization,
Interoperability,
Trading &
Exchange

Offering Data to Service Providers with Data Spaces (HEDNO, CERTH)

Infocom World 2023
14.12.2023 Athens



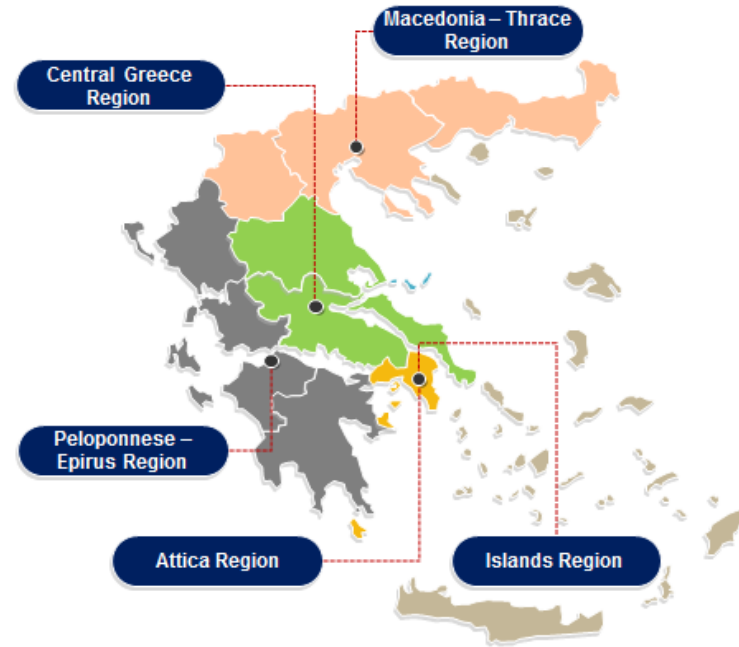
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Greek Electricity Sector – Key Players

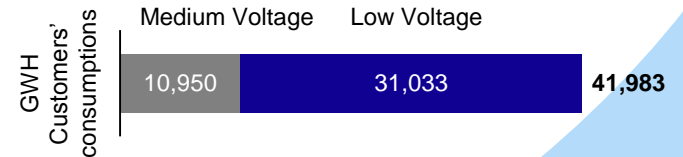
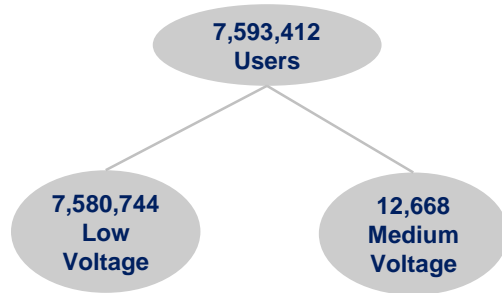
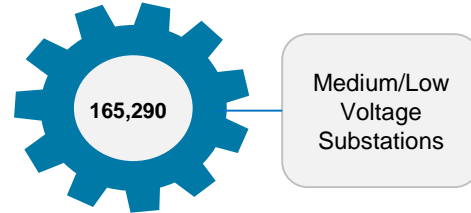
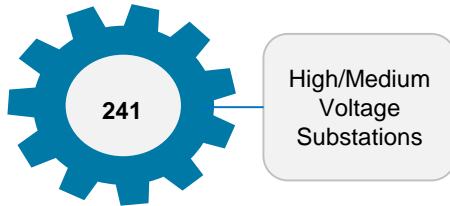
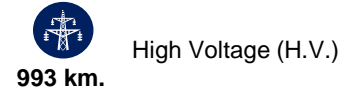
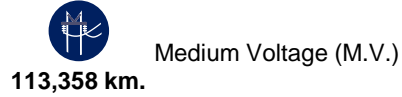
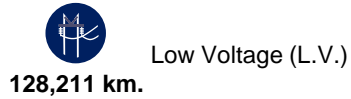
- Regulatory Authority for Waste, Energy and Water (RAEWW)
Ρυθμιστική Αρχή Αποβλήτων, Ενέργειας και Υδάτων (ΡΑΑΕΥ)
- Energy Producers
- Energy Suppliers
- Energy Traders
- Transmission System Operator (TSO)
 - IPTO (ΑΔΜΗΕ)
- Distribution System Operator (DSO)
 - HEXNO (ΔΕΔΔΗΕ)

Hellenic Electricity Distribution Network Operator (HEDNO)

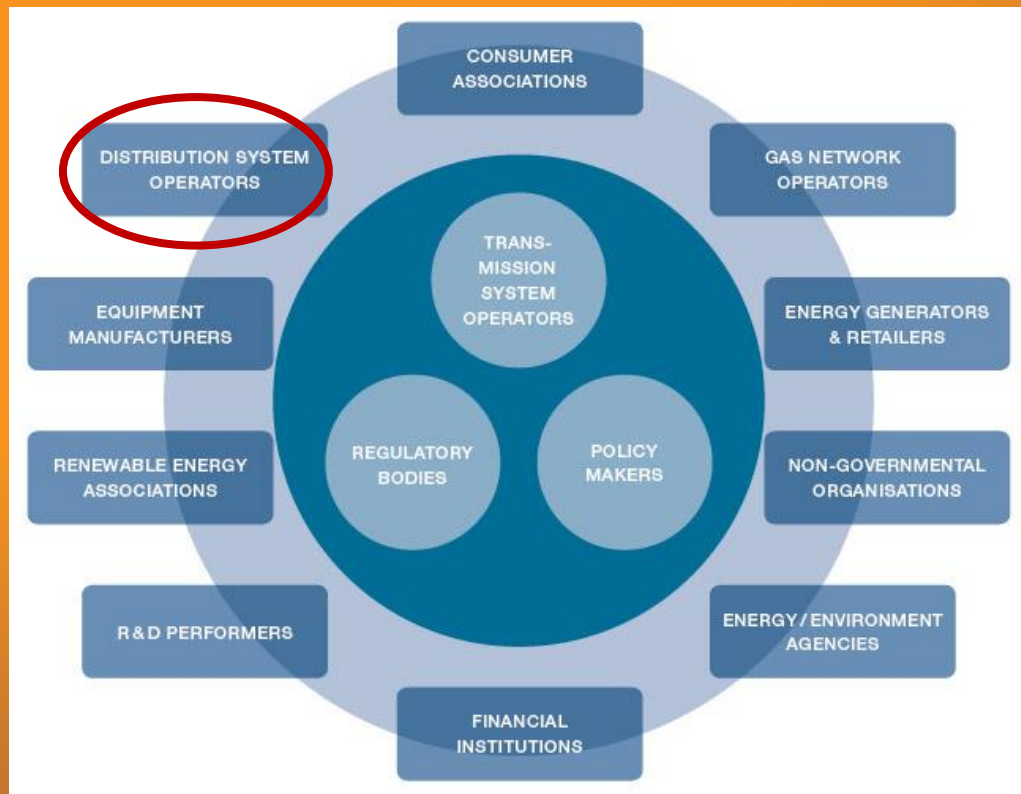
- HEDNO S.A. was established and launched its operation 2012.
- The Company plays a key institutional role in the Hellenic electricity market as the Hellenic DSO that operates as organizationally, functionally independent regulated Company.
- Effective **Distribution Network operation, maintenance and development** in Greece and the operation of the electricity systems of the non-interconnected islands.
- In terms of number of consumers, HEDNO is the fifth largest Distribution Company in EU.
- HEDNO is a modern European company with one of the lowest operating costs at European level and a very satisfactory quality of service.



HEDNO - Key Operational Figures



Energy Stakeholders – Data Exchange between Pilot Partners



Energy Service Provider

<https://docs.entsoe.eu/baltic-conf/bites/www.e-highway2050.eu/stakeholder/>

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Basic Idea of the Pilot

Exchange of data between

- HEDNO (DSO) and
- CERTH (acting as an Energy Service Provider)
 - Centre for Research and Technology Hellas
 - Information Technologies Institute – ITI

through Data Spaces

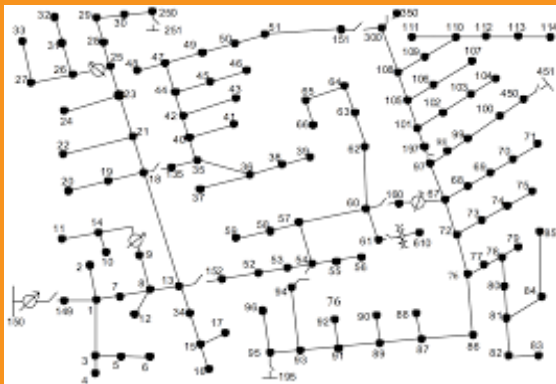
Data Flow

1. HEDNO provides data.
2. CERTH consumes these data and provides a service back to HEDNO.

DATAMITE Project

- Pilot drives development of DATAMITE tools according to Pilot's needs and other business requirements.
- DATAMITE Tools and Products (e.g. educational material) are used and validated by partners.

Data Sources



- Network diagram of MV lines in Power Factory

SCADA System

- P, Q, I, V of MV lines

- Advanced Metering Infrastructure (AMI)
- Consumption and Generation Curves from MV Telemetering Centre

Production Systems

Telemetry Center

extract

CSV files

SCADA System

extract

CSV files

Network Diagram

extract

PowerFactory file

DATAMITE modules

e.g. Anonymization

Internal Company Network

DATAMITE Virtual Machine

Data Storage (Shareable Data)

DATAMITE modules

DQM

DGM

DSM

DSEM

Support Tools

...

Metadata Catalog

DATA CELLAR

Metadata

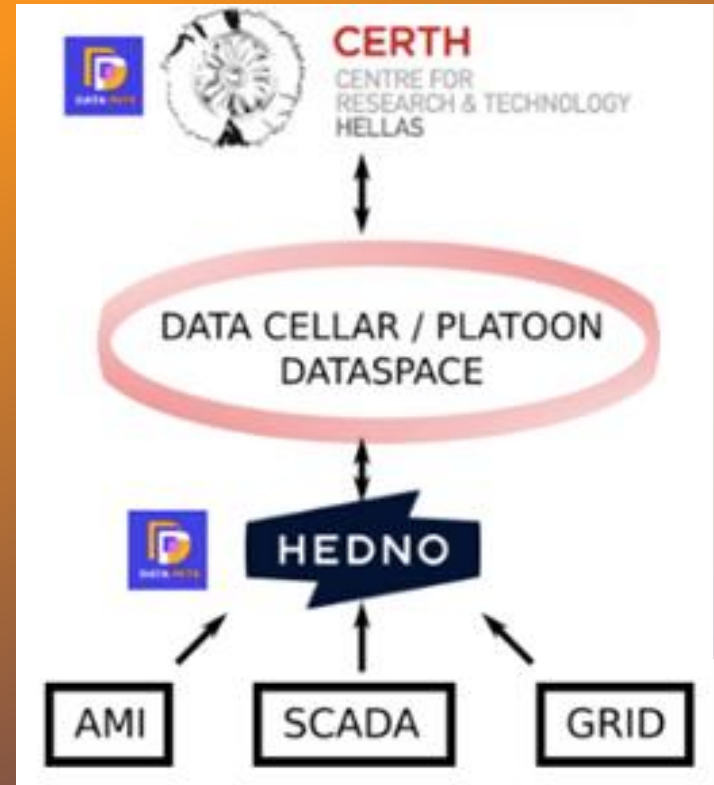
Data Client 1

Data Client 2



Pilot Description (I)

- a) HEDNO provides data from:
 - a) smart meters (AMI)
 - b) SCADA
 - c) topology data
- b) Datamite modules are used to facilitate data sharing
 - i. Governance module
 - ii. Quality module
 - iii. Security module
 - iv. Sharing module
- c) Data is made available in a Data Space
- d) CERTH as a service provider requests and accesses the shared data
- e) CERTH runs simulations and proposes improvements, solutions, forecasts...



Energy Service provided by the Data Consumer (CERTH)

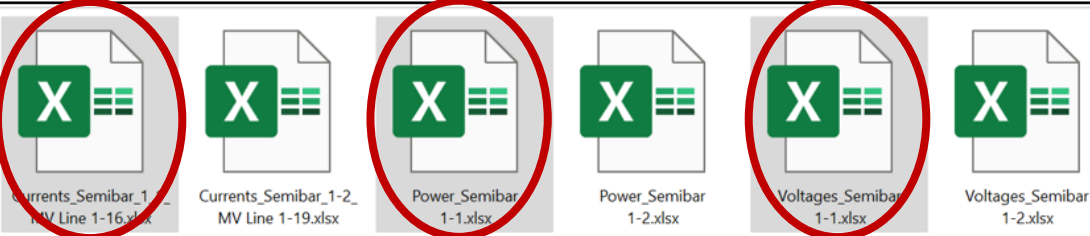
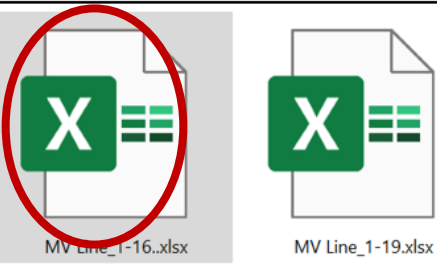
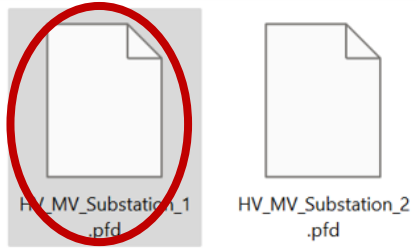
CERTH develops 3 tools that improve the existing network's planning and development procedures in terms of economic and environmental benefits:

- a) Optimal sizing/siting tool to select and size assets such as
 - I. Renewable Energy Sources (RES)
 - II. EV Chargers
 - III. Battery Storage SystemsWith the aim to decrease the network's total energy losses and network's congestion in the duration of a day.
- b) AI-based load and DER (Distributed Energy Resources) generation forecasts
- c) Identification of power system state variables through AI-based state estimation algorithms

Complex
Tasks!



Packaging Related Data for Data Consumer Convenience

<p>SCADA Data (MV Network State Variables)</p>	 <p>Currents_Semibar_1-16.xlsx Currents_Semibar_1-19.xlsx Power_Semibar_1-1.xlsx Power_Semibar_1-2.xlsx Voltages_Semibar_1-1.xlsx Voltages_Semibar_1-2.xlsx</p>
<p>Telemetry Data (MV Clients Energy Production/Consumption)</p>	 <p>MV_Line_1-16.xlsx MV_Line_1-19.xlsx</p>
<p>Network Diagram (MV distribution grid under a <u>HV/MV</u>)</p>	 <p>HV_MV_Substation_1.pfd HV_MV_Substation_2.pfd</p>

Benefits

- Findability of data through different Data Catalogues
 - E.g. DATA CELLAR
- Metadata that make data usable by potential Data Consumers, prior unknown to the Data Provider
- Data Quality Tools
 - Metadata that measure the quality of the shared datasets
- Easy and secure sharing of data according to agreed terms through
 - E.g. Eclipse Dataspace Connector (EDC), IDS Clearing House
- Monetization possibilities
- Personnel upskilling

Generally

- the aim is to share reliable data with more ease, speed, safety, applying the company's data security policy and data governance policy.



Pilot Risks

- Compliance of project components with company's security policies
- Connection to DATA CELLAR (immaturity of related projects)
- Ingestion of data from productive systems
 - Automation of process
 - Data consistency
 - Other data quality issues





Any Questions? Thank you!

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Keep in touch!



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