Innovative solutions for energy flexibility
GemaLogic Flexibility

1. Control of flexible loads and distributed energy resources which can adapt their electricity production or consumption.

2. Demand Side Management functionalities as modular solution for Energy Efficiency and Demand Response functionalities (dispatchable or non-dispatchable).

3. Tools to participate in the ancillary services market, balancing markets or wholesale energy markets:
   - Ancillary services (providing a secondary or tertiary reserve);
   - Flexible energy loads in industry (glass and steel industry);
   - Flexible energy loads in households and buildings for providing dispatchable and non-dispatchable loads (Direct Load Control Management, Critical Peak Pricing with and without control, non-spinning reserves);
Architecture
GemaLogic VPP

Virtual Power Plant

- **Diffuse sources**
  - Electricity production
- **Flexible sources**
  - Demand response function

Ancillary services (tertiary reserve).

**Required unit power**

**Duration (Electricity)**

Included resources:

- 30 resources (DEA, SPTE, Flexible sources)
- 15 MW
GemaLogic Flexibility

Steel & glass industry

- **Integration with EMS**
  systems for energy efficiency
- **Integration with MES**
  production data, status of technical processes and plans
- **Integration with SCADA**
  systems for management and control
- **Processes digitalization**
  analytics tools for energy management
- **Forecast models**
  optimized forecast models (+ 24h)
- **Optimization models**
  tailored to the specific industry
- **User management**
Demand Response Control System
Managing the consumption of household and small business customers

- **Base**
  - Integration with DMS, MDM (CIM 61968-100), alerts (SMS, e-sporočila), operators (EL. MB. in ELES), management (LoRaWAN in HEMS)

- **Functionalities**
  - Measurement Data Management and preparation of:
    - Demand forecast
    - Consumption forecast
    - Automated direct load control (Ancillary services for energy balancing)
  - Included more than 800 energy consumers:
    - Group A – alerts SMS (800)
    - Group B – HEMS (50)
    - Group C – DLC (50)
USE CASE - PROVIDING A FLEXIBLE ENERGY LOAD IN THE STEEL AND GLASS INDUSTRIES.

- Local aggregations of dispatchable energy loads,

- Integrations with their information systems for providing a production data and plans,

- Production line status, etc.,

- Integration with energy management systems, control optimisations and optimisations for wholesale energy markets;
FLEXIBLE ENERGY LOAD IN THE STEEL AND GLASS INDUSTRIES.
SLOVENIA-JAPANESE PROJECT NEDO - 3-year smart grid project

- DRCS Solution (Demand Response Control Center) for providing the demand response functionalities in households.

- DRCS was developed for providing dispatchable and non-dispatchable loads for critical peak tariff and ancillary services (tertiary reserve).
DRCS Solution (Demand Response Control Center)
References

GemaLogic VPP
70 activations over the last 3 years,
15 MW power included,
30 diffuse sources,
15 business partners,

GemaLogic Flexibility
More than 20 MW of flexible consumption
Knowledge of technological processes and operations

DRCS
Users' motivation:
43% financial savings
97% new projects
Flexibility of users:
30% of the heating season
17% outside the heating season
15% (70 W) household customers
30% (50 W) business customers
33% (17 W) group B
45% (35 W) group C
Thank you

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