THERME BUCHAREST

Purpose of Storage Solution:

Increase Self-Consumption & trading of ancillary energy services

Therme Bucuresti, located in the northern area of Bucharest, in Balotesti and belongs to A-HEAT GROUP, a concern based in Vienna, which brings together several leading companies worldwide in the field of industrial energy solutions. The complex is divided into three distinct zones: The Palm (Relaxation Zone) - ideal for relaxing in the largest garden with palm trees, Jacuzzis and aromatherapy pools, Elysium (Pampering Zone) - with a variety of themed saunas and a panoramic selenium pool and Galaxy - specially designed for families, slide area and wave pool.

With a total outdoor area of more than 250,000 m², Therme Nord Bucharest is one of the largest thermal water-based wellness, relaxation and entertainment centres in Europe. The indoor building area of 30,000 m² can accommodate more than 4,000 visitors simultaneously. The pools are exclusively supplied with thermal water drilled from a depth of 3,100 m, the deepest drilling made in Romania after 1989. The temperature of the water extracted from the borehole is about 80°C. The water in the pools has a temperature of about 33°C and the air temperature between 29 and 30°C, 365 days a year.

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CLIENT REQUIREMENTS & CHALLENGE:

The THERME complex has an annual consumption of

- Gas Energy: 8,161MWh,
- Electrical Energy 10,000MWh and
- Geothermal Consumption 14,804MWh.

In order to make electricity costs more efficient, having a constant consumption both day and night, a 2.5MW photovoltaic plant was installed in conjunction with, two 250kVA electricity storage systems that will time-shift the extra PV energy produced in the middle of the day. In addition the storage system will be partaking in the virtual power plant management from VoltLink and trade ancillary services - 15min hot reserve in the Romanian energy market.

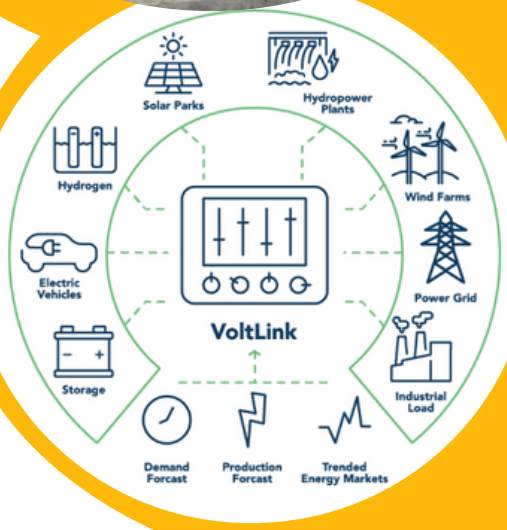
In partnership with VoltLink Energy **EPC of the project**

Project Fact Sheet:

The **Kehua Tech BCS250K-A** is a high-efficiency solar inverter, boasting a 250 kW rated capacity. It guarantees top-notch performance and resilience in diverse environmental settings, making it perfect for battery backup solutions.

The **Solar MD Battery Energy Storage System (BESS)** is a high voltage system with advanced BMU and BMS technology, designed for use in containerized solutions, suitable for commercial and utility-scale operations. The LFP Prismatic Cells are incredibly durable, safe and powerful. Solar MD uses the renowned CATL cells thereby offering a performance guarantee of 12 years on the battery modules.

The **Plant Controller from Solar MD is connected to the VoltLink trading platform.** It utilizes real-time data analytics, advanced forecasting algorithms, and machine learning to optimize energy usage, reduce waste, and balance the grid.



Project Details:

- **2x 20ft Container**
- **2x Kehua Tech BCS250K-A 10Y**
  - Includes bidirectional converter for battery charging or discharging.
- **2x 2 Solar MD SS7019**
  - 2 x battery systems with 371,8kWh = 742.6 kWh Total capacity
- **Solar MD Plant Controller and EMS**
- **Photovoltaic system (2500kVA)**
- **VoltLink Trading platform integration**

Engineering Aspects:

Designed by Solar MD, executed and build by VoltLink

- Container Procurement and Fabrication
- Hoist Rail Design
- Separation Wall Design
- CABW Outer Frame Design
- Front Wall + Door Assembly & Design
- Louvre & Ducting Design
- Cable Trays & Ladder Design
- Electrical Detailed Design
- Ensuring compliance with safety standards IEC 62933-5-2:2020
- DB Construction & Design
- AC Breaker Design
- DC Disconnector Box Design
- Busbars Design
- Fire Suppression System
- Cooling and temperature management
- Project specific software adjustments
- Integration into mypower24
- Programming and testing

Integration with VoltLink - Virtual Power Plant

The Virtual Power Plant manages a network where all players - producers, consumers and as well as storage solutions - work together.

Requirements:

- Storage system to supply full output power within 1 min
- 15min full output power
- Direct connection and control of the EMS
- Durable and well build storage
- High efficient build to reduce losses
- Low round trip efficiency
- Availablility 24/7
- Registration and testing with the transmission system operator (TSO)

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South Africa - Bulgaria - China - UAE