Integrated Energy Solutions:
From spot power generation
to multi-purpose Hybrid Energy Hubs

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Company Profile

A Leading Hellenic Communications and Electronics Systems in Defense Industry

Product Areas

- Tactical Communications
- Homeland Security
- System Integration

Hybrid Power Systems

Major Industrial Partners

International Sales: 96% of annual revenue
Significant R&D investments: 6% of annual revenues

Exports
- Cyprus
- Finland
- France
- Germany
- Indonesia
- Lithuania
- Luxemburg (NSPA)
- Sweden
- U.K.
- U.S.A.
Hybrid Electric Power Systems

- Advanced hybrid power systems that address the shortcomings of conventional generators and batteries, offering superior performance and tactical operation advantages.

- The HEPS family consists of the following systems:
  - **Hybrid Generators (HEPS-HG series):** Complete Mobile Tactical power solution for FOBs, Camps and Shelters.
  - **Vehicle Hybrid Power Systems (GENAIRCON series):** Integrated Power Generation, Storage, Management & Environmental Control.
Mobile Tactical Hybrid Generators

- **Fully integrated solutions:**
  - Diesel, Renewable, & Grid energy sources
  - Generation, Conversion, Conditioning and Storage of Electric Energy
  - Advanced Energy Storage Modules
  - Scalability & Micro-Grid forming capability
  - Intelligent Power and Load Management
  - On-Board Dynamic Diagnostics & Prognostics

- **Targeting:**
  - Sustainable energy for military operations
  - Fuel efficiency - Reduced Life-Cycle Cost
  - Programmable/forced Silent Operation
  - Significant Reduction in Maintenance
  - Significant Reduction in Downtime
  - “Smart-Energy” applications
Hellenic Air Force (HAF)

Hybrid Generator HGS10K-10 with Solar Panel Assist, providing electric power to a remote Command Post
Estonian Defense Forces (EDF)

"Excellent Tactical performance"

- Optimum generator loading (%)
- True Silent Watch for 15 hrs under Forced Silent Mode
- Fast recharge of Energy Storage
- Forced Energy Storage charge
- Auto Silent Mode
"62 % Fuel Saving" with No Solar Panel Assist

Eliminating Logistical support
Oct / Nov 2018 – Deployment of Hybrid Generator HGT20K-30 with PV and Grid input, supporting a field 3D Printing facility with critical power quality requirement.

Grid Power Conditioning & Power Assist through the Energy Storage System
Manoeuver Power & Logistics
The GenHybrid AIRCON Concept

Fully integrated vehicle microgrid system with autonomous operation

Hybrid Power Generation Unit HAPU

Hybrid Air - Conditioning Unit HACU

Integrated Control & Energy Management

Continuous Power Modules - CPM

Pulse Power Modules - PPM

Energy Storage System

Exportable Power

Life Support

C4I

Sensors

Weaponry

Active Protection

Ancillaries
A Hybrid GENAIRCON Continuous Power Module (CPM) can provide an equivalent **effective** energy storage capacity of more than 10 NATO 6T batteries (12V / 110Ah).

- 5 kWh x 80% (typical DoD - Maximum up to 98%)
- 1.3 kWh/each x 30% (typical DoD)
WARRIOR FV510 – British Army

GENAIRCON integrated on WARRIOR IFV – Field Trials by the British Army Armoured Trials & Development Unit (ATDU)
WARRIOR FV510 – GENAIRCON Adaptation

- 7 hrs continuous silent operation
  “ALL Systems On”

- 21 hrs continuous silent operation
  “Normal Silent Watch Procedure”

- Energy Storage System (ESS)
- Control Panel Module (CPM)
- 8.6 kW Hybrid APU (HAPU)
- Intelligent Power Distribution Module (PDM)
Enhanced Concept – Energy Hubs
Enhanced Concept – Energy Hubs
WARRIOR FV510 GENAIRCON

Energy Hub Capability

24 VDC (APU on)

24 VDC (Silent)

Surge Power

230 VAC (Silent)

Inter-vehicle connectivity

Smart Power Management with Load Priorities
**Enhanced HEPS Concept**

**Tactical Energy Hubs**

- **Hybrid GENAIRCON Vehicle**
- **Hybrid Generator**
- **Hybridisation System**
- **Standard Vehicle**

**Power**

**Communication & Control**
Thank you for your attention