

Horizon Europe PROFILE FORM

Organization Name / Department	H1 Systems Mérnöki Szolgáltatások Kft.	Organization Short Name	H1 Systems Kft.
Organization Type	<input type="checkbox"/> University <input type="checkbox"/> Public Research Centre <input type="checkbox"/> Large Scale Enterprise <input checked="" type="checkbox"/> Small and Medium Scale Enterprise		<input checked="" type="checkbox"/> Public Body <input type="checkbox"/> International NGO <input type="checkbox"/> National NGO
Research Fields	<p>Green data centres</p> <p>Energy efficiency</p> <ul style="list-style-type: none"> - Data centres' waste heat utilisation via integration with heat users (buildings, industrial processes, district heating) - Heat/cold storage technology integration with data centres - Design and optimisation of data centre technology mix (IT, cooling, electricity, security etc.) for specific use cases - Novel building design and integration of liquid cooling solutions <p>Integration with renewable energies</p> <ul style="list-style-type: none"> - Solar PV integration - Solar thermal integration - Electricity storage integration <p>Operation</p> <ul style="list-style-type: none"> - Harmonisation of demand and supply via the integration of DC infrastructure management with building management system (DCIM-BMS) <p>Cost efficiency</p> <ul style="list-style-type: none"> - Creation of type plans and concept plans for serial production - Modular design 	<p>Data centres are using electricity for operating the IT equipment (e.g. servers), the cooling and other service systems. The IT equipment needs cold, while it is producing heat.</p> <p>The electric capacity of IT systems is more or less completely converted into heat. The capacity depends on the use case and can vary between a very wide range 10-50.000 kW or above.</p> <p>It is expected that 10.000 new data centres will be built until 2030 in the EU.</p> <p>Data centres are typically installed in urban environment within buildings or alonstanding. They can be integrated easily with buildings, industrial processes, district heating etc.</p> <p>Green data centres need electricity from renewable sources, and can participate in demand-response, or peak-shaving solutions.</p>	
Short Description of the Organization / Department	<p>H1 Systems is an engineering company operating in the data centre, security systems and energy management business for more than 28 years. We are delivering system design, energy audit, general contractor for construction and data centre operation services. We are the leading data centre designer in Hungary generating a turnover of 20 MEUR and implementing 300 projects in a year. Clients are leading organisations in the telecom, financial, construction, retail, automotive, machinery, tourism, logistics and cultural sectors.</p> <p>H1 Systems is experienced working with the solutions of the leading and most innovative brands, integrating them into tailor-made designs. H1 Systems researches the ideal technology/solution mix for specific use cases and creates type and concept plans. It is</p>		

	<p>seeking and integrating novel, innovative solutions in its designs for cost and energy efficiency.</p> <p>H1 Systems has the necessary staff, know-how and certifications for safety and low-current systems, data center and server infrastructure, precision cooling and ventilation, power supply and measurement, energy management and building film. Our professionals are architects, mechanical engineers, electric engineers, energetics engineers, safety engineers, IT electronics engineers, being certified DC professional (CDCP) and accredited TIER designers. H1 Systems is an accredited NATO supplier, and certified according to ISO 9001, ISO 27001, and ISO 14001.</p> <p>Some of our references</p> <ul style="list-style-type: none"> - Design of a TIER 3 VNG data centre in Vietnam and construction support - Design and build of an 8 MW data centre for CERN, in Budapest at Wigner Research Centre for Physics for special SLA conditions - Design and build the prototype facility of the world most energy and cost efficient data centre. 500 kW in Boden, Sweden - Upgrade of 10 data centres with overall 1 MW capacity during continuous operation (Intel) - Upgrade of the central data center of the national cloud - National Tax Office: surveillance system, entrance systems, alarm and fire detection systems
<p>Previous Related Projects / Research Experience</p>	<p>2021-2022 PIACI KFI-2020, 1.7 MEUR Development of a tool to support the building and operation of energy raw material and cost-effective sustainable data centres (Digital twin for DC energetics)</p> <p>2020-2021 Innowwide, 87 KEUR Execution of viability assessment program for the Distributed EDGE DC innovation for Indonesia</p> <p>2018 VKE, 5.7 MEUR Modular communication infrastructure and technology built into a container and applicable in case of emergency</p> <p>2017-2020 Horizon 2020, 3 MEUR Construction of one of the most efficient data centres of the world within the frames of the research program 'BodenTypeDC'</p> <p>2013 PIACI KFI-2020, 1.7 MEUR DCtech high energy-efficient data centre technological mix development in Hungary</p>
<p>Short Description of the Project idea (if foreseeable)</p>	<p>H1 Systems can deliver the following competences for any project:</p> <ul style="list-style-type: none"> - System design: integration of innovative solutions into one system - Modelling and simulation of energy flows - Prototype building - Data centre operation - Data centres for experimenting in real operational environment
<p>Related Call/Topic</p>	<ul style="list-style-type: none"> • HORIZON-CL5-2023-D3-01-11 Demonstration of DC powered data centres, buildings, industries and port

	<ul style="list-style-type: none"> • HORIZON-CL5-2023-D4-01-04 Thermal management and energy optimisation of high energy demand IT systems equipment in tertiary building • HORIZON-CL5-2023-D3-01-09 Waste heat reutilisation from data centres • HORIZON-CL5-2023-D4-01-06 Integration of renewable heat or industrial waste heat in heat-to-cold conversion systems to generate cold for industrial processes • HORIZON-CL5-2023-D2-01-05 Hybrid electric energy storage solutions for grid support and charging infrastructure (Batt4EU Partnership) • HORIZON-CL5-2023-D3-01-14 Demonstration of innovative, large-scale, seasonal heat and/or cooling storage technologies for decarbonisation and security of supply
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