

Energy Internet Corporation (EIC) is an energy technology company, that helps assure and accelerate the achievement of Sustainability and Zero Carbon goals. It helps datacenters realize Zero Carbon and Zero Water-use operations, while reducing their power and cooling costs by over 50%.

The EIC solution is an inexpensive, long duration (10-100 days) energy storage for any scale of power. It employs an isothermal Compressed Air Energy Storage (iCAES) process, that transforms surplus electrical power to and from Compressed Air (CA). It specifically avoids the risks of new hardware or process development, that held back CAES initiatives in the last decade. This approach shifts development to a lower-risk software layer.

EIC team is drawn from an exclusive pool of experienced entrepreneurs and industry veterans from domains of software, electrical, mechanical, oil & gas, and data centers.

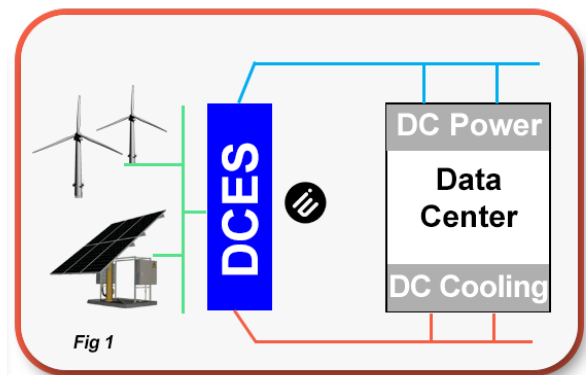
EIC has developed alpha software, and process design of its 64 MW and 1 MW modules. These are now in detailed design for construction, ready for commercial deployment in Q1/2022 and Q4/2021 respectively. EIC has MOUs with customers for a phased deployment, starting with pilot demonstration plants.

EIC's iCAES, uses low-cost, commercially available equipment such as, water pumps & turbines, pressure vessels, batteries & inverters, in its design architecture of hydro-pneumatic and electrical circuits. Uniquely, high-pressure water from the pumps, act as a piston in pressure

## Data Center Energy Systems (DCES)- Zero Carbon and Water Operations

vessels to compress air, which is then hyper-cooled to Liquid Air (LA) in cryogenic containers as Liquid Air Energy Storage (LAES). To generate power, LA boils to ambient temperatures to become CA, then acts as the piston in the pressure vessel, to pressurize water to run turbines.

EIC's software control plane uses IoT & AI to orchestrate internal operations of its numerous hydro-pneumatic & electrical circuits, in conjunction with the flows from renewable supply grid, meeting the data center power & cooling demand.



EIC's Ei Data Center Energy System (DCES) (see Fig 1) delivers a huge competitive advantage to any greenfield data center going live after Dec 2021. This includes:

- Zero Carbon, Zero Water, 100% renewable power
- Secure, islanded, highly scalable, modular and rapid deployment
- Lower CapEx by 20-40% & TCO by 50%

Ei DCES can use exclusively renewable sources of power to support high levels of power and cooling availability (6 9s) to a data center, at a fraction of the costs. The Ei DCES systems serve

multiple functions, usually provided by separate systems.

They:

- Provide long-duration energy storage, capable of withstanding extended loss of renewable source generation
- Eliminate the need for standby diesel generators, and can if needed, use utility feeds as backup power
- Serve UPS function of uninterrupted power
- Provide highly scalable cooling to support high power density racks (e.g. 100 kw/rack)
- Provide peaker plant functions, avoiding the need for power reserves for peak loads, and thus improve infrastructure utilization.

The CapEx benefit is captured in Fig 2 below. The simplified lower-cost, data center infrastructure

combined with lower costs of power and cooling with Ei DCES, reduces the Total Cost of Ownership, TCO, by over 50%.

The LAES system provides a primary cooling circuit through a heat-exchanger interface -see Fig 3. The heat exchanger extracts the heat from cooling circuits to the data center. This eliminates any water usage for cooling. When LAES supplies power to the data center, the data center heat is helps generate more power from liquid air. When delivering power direct from source, data center heat is extracted in the air liquefaction circuits.

Ei systems are highly modular units, designed to work with standard electrical, mechanical and control systems in a data center, helping accelerate deployments and maintenance cycles Highly available modules may be combined in traditionally resilient N+ and 2N designs to meet site availability targets. The Ei software optimizes the operation of its own plant whilst also interfacing with the controls and infrastructure management systems of the data center - see Fig 3 below.

Fig 2: Data Center Costs – reducing with lower CapEx and improved

