

Application: 4293

ECL's Sustainable Hydrogen-Powered Data Centers

Page: General Information
Provide information about the company to be considered for the award. If you will be nominating an individual, specify the nominee's employer.
Name of Organization/Company ECL
Additional Contacts I do not wish to list additional contacts
Page: Entry Information
Entry Title ECL's Sustainable Hydrogen-Powered Data Centers
Category 004. Technology Breakthrough of the Year - Green and Clean Technology
Technology Breakthrough of the Year Submission Format Written Answers
a. Briefly describe the organization that achieved the nominated technology breakthrough: its history and past performance (up to 200 words). Required <p>Founded in 2020 and launched in January 2023, ECL is led by Yuval Bachar, who previously held top engineering, infrastructure and architecture roles at Microsoft Azure, LinkedIn, Facebook, Cisco, Juniper Networks, and Digital Equipment Corporation (DEC). ECL has secured \$7 million in seed funding led by Molex Ventures and Hyperwise Ventures, which has supported the construction of its first fully sustainable data center in Mountain View, CA. The company recently announced the completion of this pilot data center, as well as an additional \$10M in funding from Hyperwise Ventures, which will be used by ECL to accelerate research and development and expand the company's global footprint.</p> <p>Sustainable bare metal cloud provider Cato Digital, led by longtime data center industry innovator and iMasons founder Dean Nelson, is ECL's first customer, having deployed at the inaugural ECL facility in Mountain View.</p>
b. Outline the nominated technology breakthrough. Be sure to describe it in terms that someone with limited knowledge of the technology can understand and appreciate (up to 250 words). Required <p>ECL's off-grid, sustainable, and cost-effective hydrogen-powered AI data center offers innovative solutions to the environmental and economic challenges of traditional data infrastructure.</p> <p>The core technology relies on hydrogen-based power generation, advanced battery energy storage, and highly reliable power architecture without dependence on the utility grid. This maximizes efficiency, reduces waste, and eliminates harmful emissions.</p> <p>ECL's cooling systems are designed to accommodate much higher density-per-rack than its industry standard. They utilize water produced as a by-product of hydrogen-based power generation, eliminating the need for external water sources. Combining this with proprietary rear door heat exchange technology and a quadruple cooling stage results in lower Power Usage Effectiveness (PUE) ratios than any other colocation data center provider.</p> <p>With PUE of 1.0 representing optimal efficiency, traditional colocation providers average approximately 1.57 across all their data centers, with best-of-class achieving approximately 1.25 with an average of 8 kilowatts of power per rack. ECL achieves a PUE of 1.1 or better, with up to 50 kilowatts per rack. By achieving meaningfully lower PUE ratios and higher rack densities, ECL's customers benefit from a significantly lower cost of real estate, 6x higher space utilization, and lower power consumption.</p> <p>These environmentally sustainable and scalable building practices ensure ECL data centers can adapt to various locations and infrastructure constraints. This flexibility is critical in addressing the challenges created by power and water constraints in communities where traditional data centers are impractical or unsustainable, such as dense urban areas.</p>
c. Explain why the technology breakthrough you have highlighted is unique or significant (up to 250 words). Required <p>ECL data centers provide several advantages for companies seeking a reliable, sustainable, scalable and cost-effective data center solution. While other data center providers have deployed hydrogen fuel cells as backup power supplies, and with some conducting trials of systems forecast for production delivery in three-to-five years, ECL is the first provider to deliver a fully sustainable hydrogen-powered data center.</p> <p>Traditional data centers use electricity sources such as coal and natural gas, while ECL uses hydrogen, which promotes sustainability, as it is a clean energy source that produces no harmful byproducts or emissions. Its ability to produce large quantities of energy through fuel cells also provides data centers with a reliable and economical source, while hydrogen pipelines reduce the need for transportation and storage of bulky fuels. In addition, its production process can be adapted to many different kinds of renewable resources, making it compatible with green power initiatives.</p>

d. Reference any attachments of supporting materials throughout this nomination and how they provide evidence of the claims you have made in this nomination (up to 250 words). Optional

Fierce Network:

<https://www.fierce-network.com/cloud/startup-ecl-turns-hydrogen-futureproof-its-data-centers>

This article discusses insights regarding the operational success of ECL's fully sustainable data center in Silicon Valley.

Network World: <https://www.networkworld.com/article/971875/startup-ecl-promises-off-the-grid-green-data-centers.html>

This article discusses the use of hydrogen fuel cells as ECL's primary power source, its modular design using ECLBlocks for power and cooling, and its advanced cooling system that utilizes water produced as a by-product of hydrogen-based power generation.

siliconANGLE:

<https://siliconangle.com/2023/01/24/data-center-service-startup-ecl-exits-stealth-7m-seed-funding/>

This article discusses ECL's flexible model offerings for customer engagement and its goal to revolutionize the industry's standards for flexibility and sustainability.

Webpage Link

<https://www.datacenterdynamics.com/en/news/ecl-announces-3d-printed-hydrogen-powered-off-grid-data-centers/> (<https://www.datacenterdynamics.com/en/news/ecl-announces-3d-printed-hydrogen-powered-off-grid-data-centers/>)

Would you like to add an additional webpage link?

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Webpage Link 2

<https://www.sdxcentral.com/articles/news/ecl-debuts-zero-emissions-off-grid-data-centers/2023/01/> (<https://www.sdxcentral.com/articles/news/ecl-debuts-zero-emissions-off-grid-data-centers/2023/01/>)

Would you like to add an additional webpage link?

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Webpage Link 3

<https://www.smart-energy.com/industry-sectors/energy-grid-management/new-hydrogen-powered-data-centres-as-a-service-offering/> (<https://www.smart-energy.com/industry-sectors/energy-grid-management/new-hydrogen-powered-data-centres-as-a-service-offering/>)

Would you like to add an additional webpage link?

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Web Page Link 4

<https://renewablesnow.com/news/us-startup-ecl-bags-funding-for-1st-hydrogen-powered-data-centre-812487/> (<https://renewablesnow.com/news/us-startup-ecl-bags-funding-for-1st-hydrogen-powered-data-centre-812487/>)

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Web Page Link 5

<https://www.businesswire.com/news/home/20230124005492/en/ECL-Introduces-World%E2%80%99s-First-Fully-Green-Hydrogen-Powered-Off-Grid-Data-Center-as-a-Service-with-99.9999-Percent-Uptime-at-Significantly-Lower-Cost-Than-Traditional-Colocation-Data-Centers> (<https://www.businesswire.com/news/home/20230124005492/en/ECL-Introduces-World%E2%80%99s-First-Fully-Green-Hydrogen-Powered-Off-Grid-Data-Center-as-a-Service-with-99.9999-Percent-Uptime-at-Significantly-Lower-Cost-Than-Traditional-Colocation-Data-Centers>)

Would you like to add an additional webpage link?

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Web Page Link 6

<https://www.eenewseurope.com/en/hydrogen-power-and-cooling-creates-off-grid-data-centre/> (<https://www.eenewseurope.com/en/hydrogen-power-and-cooling-creates-off-grid-data-centre/>)

Would you like to add an additional webpage link?

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Web Page Link 7

<https://www.newelectronics.co.uk/content/news/first-fully-green-hydrogen-powered-off-grid-data-centre-as-a-service> (<https://www.newelectronics.co.uk/content/news/first-fully-green-hydrogen-powered-off-grid-data-centre-as-a-service>)

Would you like to add an additional webpage link?

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Web Page Link 8

<https://www.smart-energy.com/industry-sectors/energy-grid-management/new-hydrogen-powered-data-centres-as-a-service-offering/> (<https://www.smart-energy.com/industry-sectors/energy-grid-management/new-hydrogen-powered-data-centres-as-a-service-offering/>)

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Web Page Link 9

<https://www.datacenterknowledge.com/cloud/ecl-launches-hydrogen-powered-data-center-modules> (<https://www.datacenterknowledge.com/cloud/ecl-launches-hydrogen-powered-data-center-modules>)

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Supporting Document

Download File (<https://stevies-tech.secure-platform.com/file/66966/eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJtZWVpYUlkIjo2Njk2NiwiYWxzbn3dOb3RTaWduZWRVcmwiOiJGYWxzZSI6ImInbn9y;ToNebo?Hydrogen-Carbon-White-Paper-Jan-2024.pdf>)

Would you like to add an additional supporting document?

No

By your submission of this entry to The Stevie Awards, you verify that you have read and agreed to abide by the regulations, terms and conditions of the competition (<https://www.asia.stevieawards.com/rules-and-terms-conditions-competition>).

Terms and Conditions

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