

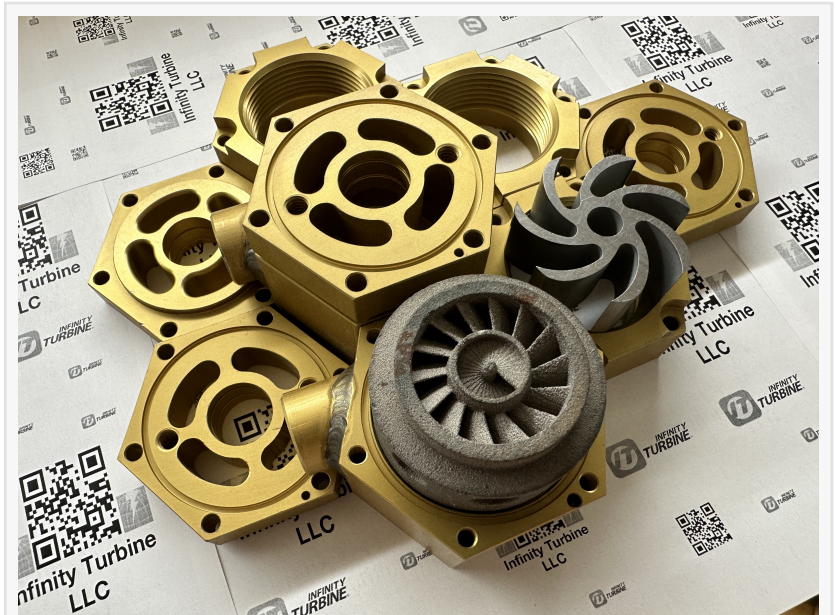
# Infinity Turbine Unveils Revolutionary Cluster Mesh Power Generation System for AI Data Centers

*Cluster Mesh Power Generation System Uses Waste Heat from GPUs to Generate Power and Cooling, Reducing Water and Power Consumption*

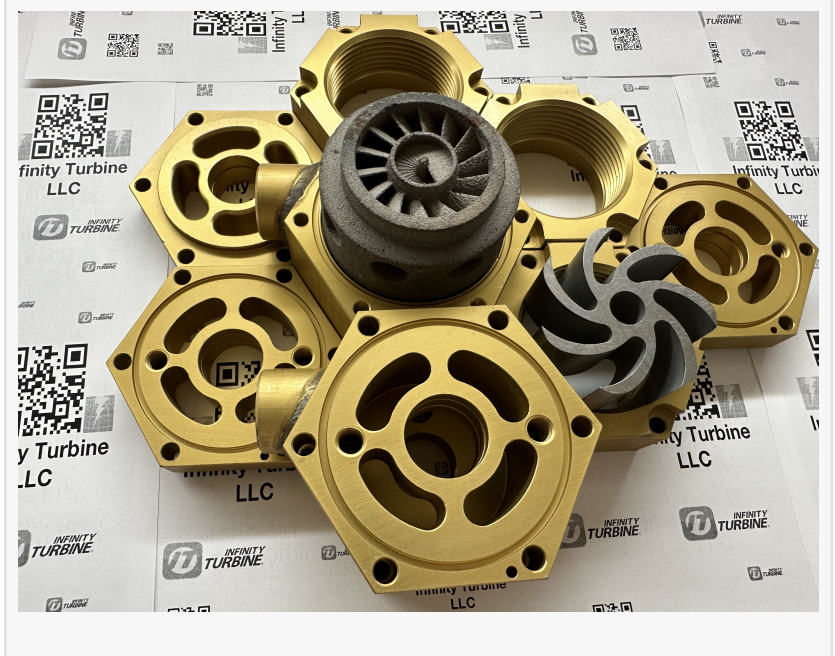
MADISON, WISCONSIN, USA, September 3, 2024 /EINPresswire.com/ -- [Infinity Turbine](#), a leading innovator in energy solutions, is proud to announce the development of its groundbreaking Cluster Mesh Power Generation System, specifically designed for AI data centers. This cutting-edge technology not only provides a sustainable solution for energy generation but also offers significant cooling benefits, ultimately reducing the environmental impact of data center operations by reducing the need for cooling water and power.

## Harnessing Waste Heat for Power Generation

Infinity Turbine's Cluster Mesh Power Generation System leverages waste heat generated by AI GPUs and data centers to produce clean electricity. With an overall system size capable of generating 3000 kWh of power per hour, this innovative solution converts previously wasted thermal energy into a valuable resource. The system utilizes small, modular Organic Rankine Cycle (ORC) turbines connected in a mesh configuration, similar to the Tesla



Infinity Turbine Cluster Mesh Power Generation



MegaPack multi-cell-to-system concept, ensuring scalability, redundancy, and high efficiency.

## Massive Cooling Capabilities

Each turbine generator in the system requires 100,000 BTU of heat to produce up to 5 kW of power. With 600 turbine generators operating simultaneously as a cluster, the system effectively utilizes 60,000,000 BTU of heat per hour. This substantial heat sink capability dramatically reduces the cooling load on data centers, allowing them to operate more efficiently and with less reliance on traditional cooling methods which may require water and power.

## Best Turndown Ratio

The turndown ratio in power generation, refers to the ability of a power plant or a generator to operate efficiently at a reduced load compared to its maximum capacity. For a large single turbine generator that has a low turndown ratio, it needs lots of flow to produce usable power.

A cluster mesh power generation model using waste heat from AI GPUs and data centers equates to a high turndown ratio and would allow the system to efficiently generate electricity even when the heat load or demand for power is low. That is because one or 600 turbines, can efficiently produce power.

## Water Conservation: A Key Environmental Benefit

One of the most significant advantages of the Cluster Mesh Power Generation System is its ability to save water—a critical resource often used in large quantities to cool data centers. AI data centers typically use evaporative cooling processes, which consume vast amounts of water. Infinity Turbine's system mitigates this need by utilizing waste heat for power generation and reducing the reliance on water-based cooling.

## Water Savings Calculation:

- **Cooling Load Offset:** The system reduces the need for traditional cooling by up to 60,000,000 BTU per hour per system. Systems are modular to any scale.
- **Typical Water Usage for Cooling:** Data centers typically use about 1.8 liters of water to dissipate 1000 BTU through evaporative cooling.

Water Saved Per Hour: 108,000 liters/hour

Water Saved Per Day: 2,592,000 liters/day

Water Saved Per Year: 946,080,000 liters/year

This equates to nearly 1 billion liters of water saved annually, contributing to significant environmental benefits and aligning with global sustainability goals. Let's assume a typical water cost is \$0.002 per liter (which equates to \$2 per cubic meter, a common rate for industrial water use). The annual water cost savings is \$1,892,160 per year.

### Impact Per ChatGPT Inquiry

For AI applications like ChatGPT, which typically require substantial GPU power, Infinity Turbine's system offers direct environmental benefits. Each inquiry processed using GPUs cooled by traditional methods would require evaporative cooling, consuming significant water resources. With the Cluster Mesh Power Generation System in place, the need for this water is significantly reduced, further enhancing the sustainability of AI-driven technologies.

### Savings Per Data Center

The annual savings for a small data center is around \$1 million, and up to \$4 million for a large data center. For Bitcoin mining, the savings are also substantial, since it may take up to 720 MW of power to generate one Bitcoin. The new [Xai](#) data center has a total power draw of 70 MW (using 100k H100 GPUs) and will be adding 17.5 MW (50k Nvidia H200 GPUs). The annual savings from using the Infinity Cluster Mesh Power Generation system for cooling the Xai data center, depending on the efficiency of power recovery, and a \$.05 kWh base electrical grid savings, would be anywhere from \$5-7 million.

### A Sustainable Future for AI Data Centers

Infinity Turbine's Cluster Mesh Power Generation System represents a major leap forward in the sustainable operation of AI data centers. By converting waste heat into valuable electricity, significantly reducing water usage, and providing a scalable and redundant power solution, Infinity Turbine is paving the way for greener, more efficient data centers of the future.

### Cost Savings and Energy Strategies

Infinity offers strategic plans for energy use and cooling models, as well as equipment solutions.

### About Infinity Turbine

Infinity Turbine is a pioneering company dedicated to developing innovative energy solutions that harness waste heat and other renewable energy sources. With a focus on Organic Rankine Cycle technology since 2008, Infinity Turbine offers a range of customizable turbines and energy systems designed to improve efficiency and sustainability across various industries.

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