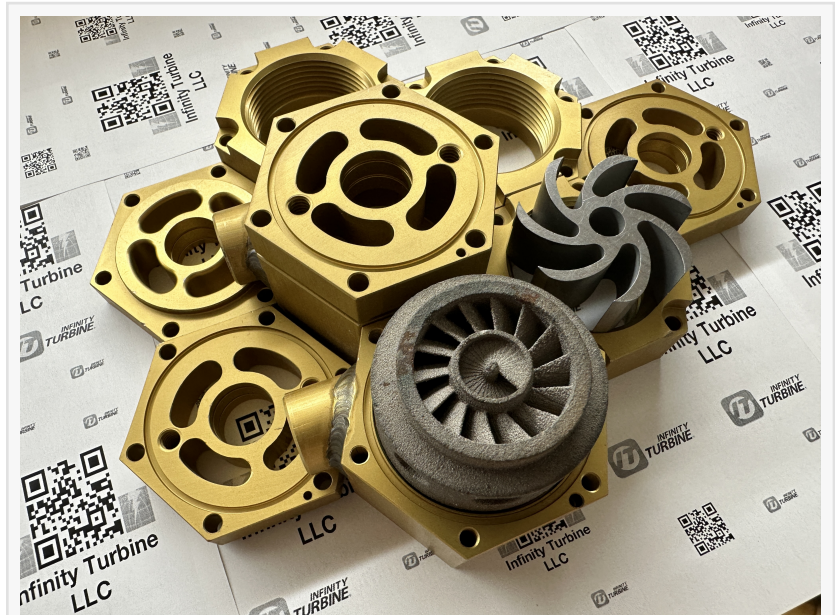# Dutch AI Data Center Reduces Cooling Costs and Embraces Green Technology with Waste Heat Power Generation System

Data Centers in Netherlands Embrace Green Technology with the Infinity Turbine Cluster Mesh Power Generation System Utilizing Waste Heat to Make Power

MAASTRICHT, LIMBURG, NETHERLANDS, September 20, 2024 /EINPresswire.com/ -- As artificial intelligence (AI) continues to revolutionize industries, AI data centers are facing mounting challenges in managing the energy and cooling demands required to keep their high-performance hardware running efficiently. Dutch AI data centers may now take significant steps towards sustainability by reducing cooling costs

Infinity Turbine Cluster Mesh Power Generation for Data Centers in Netherlands

and harnessing waste heat to generate electricity using the Infinity Turbine Cluster Mesh Power Generation system, positioning itself as green data centers.

With 30,000 NVIDIA A100 GPUs powering typical AI data centers, they are faced with high energy costs for cooling, consuming vast amounts of electricity and water. After a thorough analysis of cooling options—air cooling, water cooling, and chiller-based systems—the data centers may now transition towards an integrated solution that includes capturing waste heat for energy production.

Cooling Costs Breakdown for a High-Performance AI Data Center

For a facility running 30,000 GPUs, each consuming 400 watts, the total IT load is 12,000 kW (12 MW) per hour. The following cooling methods were evaluated based on energy consumption and associated costs:

• Air Cooling: Requires 50% of the IT load for cooling, consuming 6,000 kW per hour. This translates to 52,560,000 kWh/year, with an annual cost of €8,409,600 at a rate of €0.16 per kWh.

• Water Cooling: Requires 20% of the IT load, consuming 2,400 kW per hour. The annual energy consumption is 21,024,000 kWh, with a cost of €3,363,840 at €0.16 per kWh. However, water cooling relies on evaporative cooling towers, which consume an estimated 37,843 cubic meters of water annually, adding €56,765 to the operating costs at €1.50 per cubic meter.

• Chiller-Based Cooling: Requires 40% of the IT load, consuming 4,800 kW per hour. The energy consumption is 42,048,000 kWh/year, and the annual cost is €6,727,680 at €0.16 per kWh.

Harnessing Waste Heat for Power Generation with Infinity Turbine

In a groundbreaking move toward sustainability, a data center may integrate the Infinity Turbine Cluster Mesh Power Generation system, which utilizes waste heat from the GPUs and converts it into usable electricity through supercritical CO2 turbines. This innovative system captures 40,944,000 BTU/hour of waste heat produced by the GPUs and converts it into electricity at an efficiency rate of 6%.

With 40,000 BTU required to generate 1 kWh of electricity, the data center may generate approximately 1,023.6 kW per hour, resulting in an annual power generation of 8,966,736 kWh.

Significant Financial and Environmental Savings

The integration of the Infinity Turbine system can transform a data center's approach to cooling and energy usage. The financial savings from this waste heat recovery system are considerable, based on current electricity rates:

1. At €0.16 per kWh, the data center saves €1,434,678 annually.
2. At €0.40 per kWh, the savings increase to €3,586,694 per year.
3. At €0.50 per kWh, the total annual savings amount to €4,483,368.

These savings are in addition to reduced cooling costs and significantly lower water consumption. By generating electricity from waste heat, a data center can minimize its reliance on traditional energy sources, turning a costly byproduct into a valuable resource.

A Green Data Center Model

Through the integration of advanced cooling technologies and the Infinity Turbine Cluster Mesh Power Generation system, a data center can position itself as a green data center. By reducing both energy consumption and water usage, a facility not only lowers operational costs but also reduces its environmental impact. Waste heat, which would otherwise be discarded, can now be

transformed into clean, renewable electricity.

This strategic implementation of waste heat recovery aligns with the Dutch government's goals of promoting sustainability and reducing carbon emissions, making data centers leaders in green AI infrastructure. By adopting such cutting-edge technologies, the Netherlands will be setting a new benchmark for the industry.

About Infinity Turbine

Infinity Turbine specializes in cutting-edge power generation technology that transforms waste heat into valuable electricity. With a focus on efficiency and sustainability, Infinity Turbine helps industries harness the full potential of their energy resources while reducing their carbon footprint.

Contact: Greg Giese | CEO | Infinity Turbine LLC | greg@infinityturbine.com

Infinity Turbine Website: https://www.infinityturbine.com
Salgenx Grid-Scale Saltwater Battery Storage: https://salgenx.com
CO2 Heat Pump Turbine: https://cavgenx.com

Gregory Giese
Infinity Turbine LLC
+1 6082386001
greg@infinityturbine.com

This press release can be viewed online at: https://www.einpresswire.com/article/744954168