



Viridien US HPC Hub Project - Brenham, Texas

Key Terms & Definitions

March 2, 2026

Term	Definition
Acoustic Barriers	Physical noise-control measures (walls, berms, landscaping, equipment placement) designed to reduce sound reaching nearby properties and meet local noise limits.
BUG Ratings	A lighting classification (Backlight, Uplight, Glare) used in dark-sky and site-lighting standards to limit spill light onto adjacent properties, light into the night sky, and excessive brightness.
Closed-loop Air-Based cooling	A cooling system similar to what cars and trucks use, where a closed water loop extracts the heat from the engine (computers in our case) and carries it to a radiator (A/C units and fans – called Chillers in our case). The heat is then dissipated in the air as opposed to water evaporation. This technique does not consume or require water in operation any more than a car does.
Dark-sky Compliant	Outdoor lighting designed and aimed to minimize glare, reduce light trespass onto neighboring properties, and limit upward light that contributes to skyglow—typically by using full cut-off fixtures and appropriate lighting levels.
Data Center (Comparison)	A data center is a facility that hosts IT equipment (compute, storage, networking). Some are built for general cloud services at a very large scale; HPC facilities are often optimized for high-density compute and specialized workloads. The US HPC Hub is significantly smaller and used for specialized computing work.
Demand Response	A grid program (run by utilities/independent system operators (ISO)) where customers reduce load during high-demand or emergency periods, typically in exchange for payments or credits, helping maintain grid reliability.
Demand Response Capability	The facility's technical and operational ability to reduce or shift electrical load (e.g., curtail compute, adjust cooling setpoints, use on-site generation where permitted) when requested by the grid or market programs. This may help to prevent blackouts.
ERCOT	The Electric Reliability Council of Texas—the (ISO) that manages most of Texas's electric grid and wholesale market, balancing supply and demand and coordinating reliability actions.

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Full Buildout	The maximum planned capacity of the site after all phases are constructed—often expressed as total facility MW and/or total IT MW. US HPC Hub is designed for up to 21 MW.
HPC / High-Performance Computing	A branch of computer science that uses high-end computers to resolve complex mathematical physics problems. For example, weather forecast or underground images reconstruction from sound waves (geophysics), similar to medical echography at scale in the case of Viridien.
Hyperscalers	Tech giants (Google, Microsoft, Amazon, Meta) that operate massive, globally distributed data centers at a scale ordinary enterprise can't match. Viridien's installations are significantly smaller and used for HPC activities (see HPC).
Initial Buildout	The first construction and equipment phase of an HPC data center project—the portion that is built and commissioned first to begin operations. It typically includes the initial data hall/white space, power and cooling infrastructure sized for the first MW of capacity, and the site/utility work needed to support it, with provisions to expand later in future phases. Initial Buildout for US HPC Hub at total facility load is 5 MW.
Initial Water Fill	The water required to fill the closed loop when first starting operations. This water is purchased and delivered by trucks, and just like for a car cooling system, not expected to be topped up unless there is a leak (not a normal mode of operation).
ISO 27001	An international standard for establishing and continually improving an Information Security Management System (ISMS)—a structured approach to managing security risks, controls, and governance.
IT Load	The amount of electricity required to run the computers, storage and network (Information Technology equipment) expressed in Watts. A typical computer room will include other loads, such as the cooling equipment or lighting, which explains why the total electrical consumption of our Hub is more than the IT Load (see PUE)
LEED Certification	A third-party green building rating system (U.S. Green Building Council) that scores how a building is designed and operated across areas like energy, water, materials, indoor environment, and site impacts.
Megawatts (MW)	A Watt (unit representation W) is the unit used to measure the electrical power required by an equipment or a building. A Kilo Watt (kW) is 1,000 W, a Mega Watt (MW) is 1,000 kW. For scale, a hair dryer can use up to 1 kW, a typical house up to 10 kW. Industrial facilities usually are in the MW ranges (5 to 21 MW range for our Hub). Hyperscalers are in the 500 to over 1,000 MW range.

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Power Shedding	a.k.a. Load shedding is a technique where the entity managing the power distribution grid takes action to disconnect large electrical loads in a controlled way to help stabilize the grid and avoid blackouts.
Power Usage Effectiveness (PUE)	A standard data center efficiency metric corresponding to the total amount of power used by a facility divided by the power used by the IT load. Lower is better and 1.00 is the best possible outcome where all electricity is used by the IT systems. The PUE is almost always higher than 1 because some power is typically used for cooling (like an A/C in a house). PUE < 1.3 is the target for our hub a value that is generally considered very good for new installations.
Sound-attenuated Generator	An on-site generator equipped with noise-control measures (e.g., acoustic enclosure, mufflers, isolation) to reduce sound levels during testing and operation.
TCEQ Permitting	Environmental permits and registrations administered by the Texas Commission on Environmental Quality (TCEQ), which may cover items such as air emissions (e.g., generators), stormwater, wastewater, and other site-specific requirements.
Total Facility Load (Megawatts)	The total electrical power the site can draw at peak: IT load plus cooling, electrical distribution losses, lighting, and other building systems.
Water Usage Effectiveness (WUE)	A data center water metric: annual site water used for cooling/humidification ÷ IT energy (typically liters per kWh, or similar). A WUE of 0 indicates no on-site water use for cooling/humidification over the measurement period.
Zoned for Industrial Use	A local land-use designation indicating the site is allowed to host industrial/commercial facilities—often including data centers—subject to local rules and permitting.

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