

Efficiency/Sustainability Matrix

Metric	Traditional Data Center	A ServerDome Data Center	ServerDome Sustainability Advantage
Power Utilization Efficiency (PUE) Annualized	1.67	1.15	Uses 30% less power, significantly reduces carbon footprint: can use alternate energy sources
Water Utilization Efficiency (WUE) average	1.8	0.1	Reduced demand on increasing limited municipal water supplies; can accommodate waterless immersion cooling
Building materials	Traditional building materials use very little recycled products	Made of 60% recycled aluminum, constructed of non-combustible materials	Better use of resources means lower environmental impact and significant reduction of fire hazard
Mechanical Systems	Requires air plenums, air conditioners, heaters, ductwork, exhaust fans, humidifiers, and dehumidifiers.	Only mechanical system is supply air fan walls	Fewer systems to build; reduced power consumption; reduced carbon footprint
Electrical Systems	Inefficient Transformers, power robbing electrical harmonics, inefficient fluorescent lighting	High efficiency harmonic mitigation transformers; 415/240 volt power = up to 5% reduction in energy consumption	Improved use of power reduces PUE and minimizing required gear which reduces carbon footprint
Lifespan	Lack of flexibility to reconfigure facilities and implement emerging technologies reduces useful lifespan	Designed specifically for scalability, flexibility, and agility to provide future-proofing	A longer lifespan equates to higher efficiency and utilization of resources and a reduction of carbon footprint
Building Afterlife	Makes use of non-recyclable materials (sheetrock etc.)	Made of mostly recyclable materials	Can be largely recycled, lowering pressure on landfills, and reducing demand for rare earth elements
Building Repurposing	Difficult and expensive to remodel or repurpose buildings due to embedded infrastructure	By specifically designing to adopt emerging technologies, the structure can be easily repurposed for unrelated uses	Eliminates disposal/recycling of materials and prolongs life of initial building materials through re-provisioning
Site Footprint	A typical 4 MW data center will require 1.5 - 3 acres of property	High efficiency integrated design means a ServerDome needs less than an acre of land	Less land requirement equates to a lower carbon footprint
Green Space	Typically green space is an after thought and requires more land	Green space is built into the design and is part of the site plan	Assists cooling of structure; increases amount of Carbon processed into O2
UPS	Uses environmentally unfriendly lead-acid batteries; 3-5 year replacement & disposal cycle	Uses state-of-the-art kinetic flywheel technology, low maintenance, and 20-year lifespan	Reduced footprint; lowers environmental impact on local landfills; no need for rare earth elements
Environmental Discharge	No feasible uses of discharges or effluents	Heat recycled for data center when needed; heat-exchanged easily to heat nearby buildings or greenhouses	Makes better use of waste stream, and lowering energy needs of nearby buildings