



Case Study: PowerHouse Reno Campus – Setting a Benchmark in Sustainable Data Center Design

The PowerHouse Reno Campus, developed by PowerHouse Data Centers, a leading real estate developer for next-generation hyperscale data centers and division of American Real Estate Partners (AREP), is a pioneering project that integrates sustainability, resilience, and community engagement into the design and operations of a state-of-the-art data center campus. Situated on a 49-acre tract in Reno, Nevada, this project is designed to deliver nearly 900,000 square feet of data center space across three two-story buildings. Beyond addressing the growing demand for data center infrastructure, the Reno Campus is a model for how the industry can embrace sustainable practices and deliver long-term benefits for the environment and the local community.

Background

Reno, with its arid climate and unique environmental challenges, presents a distinct opportunity for sustainable development. The region faces frequent water shortages, wildfire risks, and extreme heat, necessitating a forward-thinking approach to data center design. PowerHouse's commitment to sustainability is rooted in its Triple Bottom Line philosophy, which emphasizes economic, social, and environmental priorities. To this end, the PowerHouse Reno incorporates best-in-class strategies to address carbon emissions, water conservation, and energy efficiency while supporting the local community through workforce development and outreach initiatives.

Objective

The primary objective of the PowerHouse Reno Campus is to develop a sustainable, resilient data center that minimizes environmental impact while delivering the highest performance for hyperscale customers. This includes reducing operational and embodied carbon emissions, conserving water, increasing energy efficiency, and creating meaningful social and economic contributions to the local community.

Approach and Methodology

Sustainability Strategies

PowerHouse worked with partners such as Bala Consulting Engineers and HKS Architecture to integrate sustainability into every project phase. Key strategies included:

- **Xeriscaping:** The landscaping plan used boulders and rocks excavated on-site to minimize water usage. By working with local officials, Powerhouse will implement this innovative approach conserving resources by obtaining a variance to Storey County's greenscaping requirements.
- **Energy Efficiency:** Whole-building life-cycle assessments (WBLCA's) were conducted to inform material selection and reduce embodied carbon. The campus design achieves

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a 50% reduction in lighting energy and a 30% reduction in cooling needs, driven by advanced modeling and system optimizations.

- **Carbon Reduction:** Low-global-warming-potential concrete and environmental product declarations were incorporated into subcontractor agreements to ensure sustainable materials were prioritized. The team is benchmarking energy consumption against the ASHRAE 90.1-2019 standard.

Resilience Planning

The Reno Campus was designed with climate risks in mind. Computational fluid dynamics and wind rose studies informed the building orientation to mitigate high winds and extreme heat. Bala's Climate Risk and Resiliency Assessment addressed wildfire risks and soil stability, ensuring long-term resilience.

Certifications

The Reno Campus is the first data center project to pursue both Green Globes and Journey to Net Zero certifications simultaneously. These certifications guide design and operational practices, ensuring the project meets stringent sustainability and resilience benchmarks. Reno has received preliminary assessment from GBI that it will achieve three green globes (the target was two).

Implementation

Grading for the site began in the Fall of 2024, with building delivery planned for October 2026. Nevada Energy will provide 65 MW of bridging power by Q3 2026, while an on-site 300 MW substation will be energized as part of the Greenlink project. The expedited permitting process ensures the project remains on track to meet these milestones.

Social Impact and Community Engagement

The PowerHouse Reno Campus is as much about strengthening the community as it is pioneering sustainable data center development. Through its Community Cares program, PowerHouse demonstrates a deep commitment to creating tangible social benefits for Reno and its surrounding areas, focusing on initiatives that address immediate needs while building long-term opportunities.

One of the program's standout initiatives is a partnership with Eddy House, a nonprofit dedicated to supporting at-risk and homeless youth in northern Nevada, and Atlantis Casino. Together, the organizations are tackling food insecurity by redirecting surplus buffet food from Atlantis to Eddy House. This collaboration not only ensures that vulnerable youth have access to nutritious meals but also saves Eddy House \$80,000 annually—funds that are reinvested into expanding critical services and programs for the community's most at-risk populations. This initiative exemplifies how local businesses and nonprofits can work together to solve pressing challenges and amplify their collective impact.



Beyond addressing food insecurity, PowerHouse is focused on workforce development and educational outreach. Collaborating with Truckee Meadows Community College and Western Nevada College, the company organizes a job fair in spring 2025 to connect local students with career opportunities in the fast-growing data center industry. PowerHouse also explores mentorship programs with these institutions to provide practical career guidance and skills development. These efforts aim to create a pipeline of skilled, local talent prepared to meet the region's expanding technological needs.

PowerHouse also fosters intergenerational learning through a unique initiative at the Storey County Senior Center, where high school students are paired with seniors for technology training. This program helps bridge the digital divide while fostering meaningful connections across generations. By empowering younger and older participants, the initiative supports digital literacy and strengthens social bonds within the community.

Through these efforts, the PowerHouse Reno Campus is establishing itself as a cornerstone of social responsibility in northern Nevada. By addressing food insecurity, promoting education, and creating job opportunities, the project ensures its impact extends beyond its walls, leaving a lasting legacy of community engagement and support.

Lessons Learned

The PowerHouse Reno Campus illustrates the importance of integrating sustainability strategies from the earliest design stages. Tools like the Bala Sustainability Index and the Green Building Initiative (GBI) certifications were critical in shaping the project's approach to environmental performance, resilience, and community impact. By conducting detailed assessments and leveraging advanced modeling tools, the project team identified and addressed environmental challenges while achieving measurable efficiency, resource use, and resilience improvements.

The Bala Sustainability Index provided a comprehensive framework for evaluating and tracking the project's carbon footprint, energy usage, water conservation efforts, and waste reduction strategies throughout the design and construction process. This dynamic tool allowed the team to set clear sustainability benchmarks and maintain accountability during each development phase. For example, the index informed decisions about low-global-warming-potential concrete, lighting efficiency, and cooling system optimizations, contributing to a 50% reduction in lighting energy use and a 30% reduction in cooling requirements. These improvements align with PowerHouse's broader goals of operational and embodied carbon reduction while positioning the campus as a model for sustainable design.

In addition, PowerHouse's pursuit of dual GBI certifications—Green Globes for New Construction and Journey to Net Zero—provided both a roadmap and validation for the project's sustainability efforts. These certifications emphasize a science-based approach to decarbonization and environmental stewardship. The integration of these tools enhanced the campus's environmental performance and reinforced the project's alignment with local needs.



Multiple community partnerships demonstrate how sustainability can extend beyond the physical infrastructure to create lasting social benefits. By combining advanced assessment tools with a focus on community engagement, PowerHouse Reno sets a powerful example of how sustainable development can balance environmental responsibility with positive societal impact.

Conclusion

The PowerHouse Reno Campus sets a new standard for sustainable data center design, demonstrating that large-scale infrastructure can balance environmental responsibility with economic growth and community engagement. Through innovative strategies, thoughtful planning, and meaningful partnerships, PowerHouse is shaping the future of the data center industry while delivering tangible benefits to Reno and its residents. As the project progresses, it promises to serve as a blueprint for sustainable development in similar environments.