



Achieving industry-leading PUE

Flexential cutting-edge solutions
for next-gen data centers



Leading the way in energy efficiency

In today's era, energy efficiency is not just a goal but a necessity. Flexential is at the forefront with our next-generation data centers. Our industry-leading Power Usage Effectiveness (PUE) is a demonstration of our commitment to sustainability and operational excellence. Explore how our state-of-the-art designs and strategic investments are setting new standards in the data center industry, ensuring that our facilities meet and exceed modern businesses' expectations.

Understanding PUE: A benchmark of efficiency

Power Usage Effectiveness (PUE) is a metric that informs individuals how efficiently a data center utilizes its energy. Simply defined:

$$\text{PUE} = \frac{\text{Total facility energy}}{\text{IT equipment energy}}$$

In the ideal state, a facility's PUE is 1, meaning that the total facility power is directly transferred into the **IT equipment power**. This is physically impossible, as any energy transfer will entail some energy lost and dissipated as heat from point A to point B.

Total facility power may be defined as the "overhead" power used to support the IT equipment power. "Overhead" power entails cooling, security, lighting, office space use, etc.



Flexential is committed to sustainability. We're highly focused on **scope 1, 2, and 3 emissions** while building the best facilities to capture and understand how we can help our customers. We also have secured green bonds that require us to stay below minimum thresholds on our P.U.E. and continue to look at the environmental impact we have in every market. Not only for ourselves but for our customers to make sure we know and understand what they need to meet Science Based Targets (SBTi) in their industries.

Ryan Mallory
Chief Operations Officer, Flexential

Achieving excellence in energy efficiency

Data center operators are incentivized to achieve the lowest PUE possible by minimizing this “overhead” power. This may be achieved by effective data center designs, removing unnecessary sources of power draws, or implementing efficient infrastructure from the type of CRAHs deployed to something as simple as using LED lighting throughout the facility. The lower the PUE, the more cost-effective the \$/kW for both the operator and the customer.

This is especially true if you pay your kW usage charges monthly, as these charges are determined by the facility’s PUE and utility rates. A facility that is up and running but uses minimal IT equipment power will have an inefficient, unfavorable PUE for customers inside, as the “overhead” power requires a minimum power draw regardless of IT draw.

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At first glance, this may raise concerns for those are first to occupy the brand-new facility or even share infrastructure in the facility with others with fears that other customers will be inefficient or underutilize their power commitments.



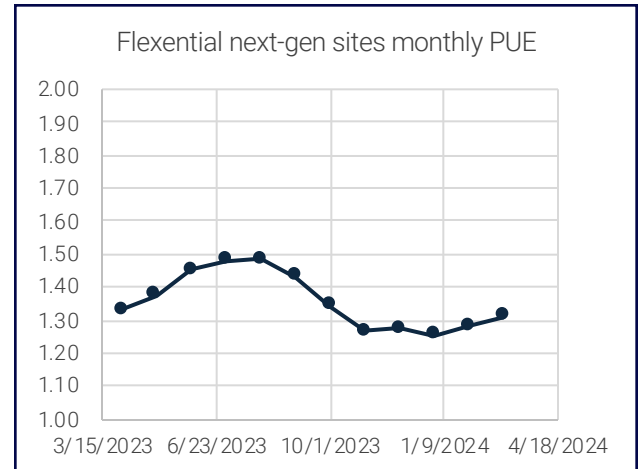
Flexential Portland - Hillsboro Data Centers

Flexential facility performance

While such fears and concerns may be true elsewhere in the data center industry, the facts and data show that Flexential next-gen data centers achieve industry-leading PUEs very quickly in the early stages of a data center coming online.

The Uptime Institute's recent [Global PUE Research](#) shows that since 2020, annual PUEs globally have remained stuck in the 1.55 – 1.59 range. Flexential facilities have achieved a 1.35 annual PUE in the trailing twelve months, and that number is anticipated to continue improving.

Flexential data centers achieve this industry-leading PUE precisely by addressing the necessary components to reduce the “overhead” of facility power, as noted earlier. This is particularly true for Flexential designs being deployed in Atlanta, Hillsboro, and Denver.



Flexential Atlanta - Douglasville Data Centers

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Flexential facilities leverage efficient design and infrastructure aimed at reducing overhead power and enhancing overall efficiency, including:



4.5 MW 4:3 distributed redundant infrastructure blocks

These blocks minimize over-deployment and overuse of infrastructure, ensuring that power is utilized effectively.



Large capacity CRAH galleries and plenum returns

These components optimize cooling efficiency by enhancing air circulation and temperature regulation.



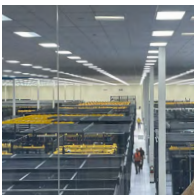
High-quality air-cooled chillers

These chillers provide reliable and efficient cooling, reducing the energy required to maintain optimal operating temperatures.



Raised floor for effective cooling

Raised floors facilitate the efficient direction of cool air, improving the cooling process and reducing energy consumption.



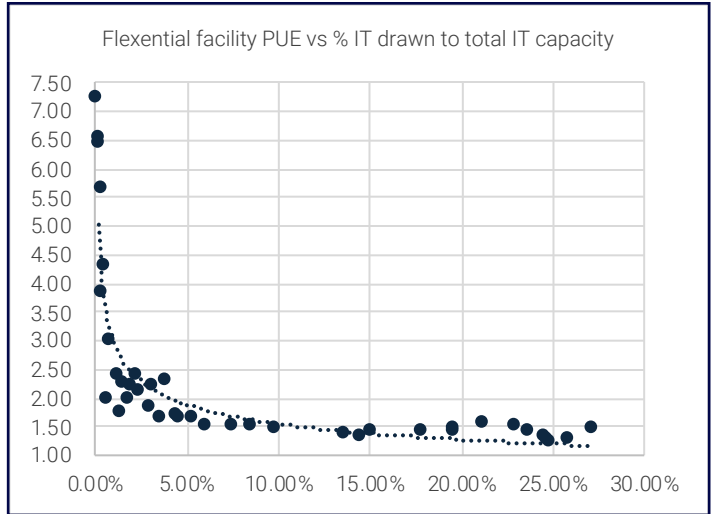
LED lighting and occupancy sensors

Implementing LED lighting and occupancy sensors helps reduce lighting power usage, contributing to overall energy savings.

The Flexential advantage

Flexential facilities reach industry-leading PUE very quickly in the early stages of their life or even the early stages of customer deployments. Once one or a collective group of customers starts consistently drawing 8% to 9% of the facility's total IT capacity, the facility reaches 1.5 PUE. From there, that PUE will continue to improve, reaching a range of 1.2 – 1.4, depending on seasonality.

Whether a Flexential facility is in its early stages of construction, customers are just beginning to deploy, or the facility has multiple tenants with its shared infrastructure, Flexential facilities will reach industry-leading PUEs, providing customers with a cost-effective colocation environment for all their IT needs.



1.58

Average annual PUE ratio
as reported by data center owners
and operators at their largest data center

1.35

Flexential data center PUE ratio
over the last twelve months

Benefits beyond the metrics

The benefits of Flexential efficient data centers extend beyond operational metrics. Customers experience significant cost savings due to lower power usage charges, which are directly influenced by the facility's PUE. Enhanced reliability and performance are additional advantages, as efficient infrastructure supports stable and robust operations. Moreover, the environmental impact is minimized, aligning with the growing emphasis on sustainability in the tech industry.

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Learn more about how Flexential integrates sustainability into all aspects of our business and embraces corporate responsibility.

Read our ESG Report

High-density by design. Flexential.

Flexential achievements in optimizing PUE highlight our commitment to advancing data center efficiency. By addressing the challenges of overhead power and leveraging innovative designs, Flexential has set a benchmark for sustainable and cost-effective data center operations. As the industry continues to evolve, Flexential next-gen facilities provide a model for achieving exceptional energy efficiency, benefiting both operators and customers while contributing to a more sustainable future.

Learn how to unlock your full potential with industry-leading data center design by Flexential.

