

# *How The University of Chicago found ways to gain efficiency with a DEEP certification*

A case study with University of Chicago

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## “We Need to Figure Out How to Improve”

Raymond Parpart, Director of Data Center Strategy & Operations at the University of Chicago, first sought out DEEP’s services after the university notified him that his data centers had shot up in terms of their overall power usage—from #12 to the campus’ fourth-largest consumer of energy. “Everyone said, ‘Oh my goodness, what is going on?’” Parpart explained. “We need to figure out how to improve this.”

Given his established relationship with DEEP as one of its initial contributors, Parpart knew its certification and auditing process was a great option to pursue. He sought out DEEP’s holistic framework and certification process to answer, in his words, a single question: “Are we as good as we think we are?” That is, were there perhaps opportunities for the University of Chicago’s data centers to not only improve their overall efficiency, but to more aggressively and successfully pursue their sustainability initiatives?

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Fortunately, DEEP’s ability to assist data center operators and managers by identifying potential opportunities to reduce a given data centers’ costs, carbon emissions, and operational downtime, was a great match for the University of Chicago’s

specific needs and goals. After DEEP conducted an extensive audit of UChicago’s data centers, it awarded the university a DEEP Gold Certification (with a score of 224 out of 225 total points awarded).

This case study will discuss the results of DEEP’s visit to the University of Chicago, analysis and commentary on DEEP’s findings, and will also include insights from Raymond Parpart and Kevin Kent, Director of DEEP Assessments.



## Data Centers in a Century-Old Campus

The University of Chicago has six separate data centers spread across three separate buildings, all of which belong as part of the university's 132-year-old campus. Despite ostensible concerns about the older infrastructure surrounding these data centers, however, it became clear that the data center staff wanted their sustainability practices to be as up-to-date as possible.

Prior to DEEP's assessment, Parpart and the data center staff filled out a questionnaire that asked for relevant information regarding floor plans, layouts, UPS capacities, current loads, etc. This pre-assessment process is intended to ensure the data center will qualify for some degree of certification and to also prepare the data center staff for the on-site visit. "It didn't take nearly as long as we thought," he explained. "Most data centers already have most of this information readily at hand."

After the questionnaire was sent, Kevin Kent visited the university's data centers from September 6-8, 2022, on behalf of DEEP. The visit began with a hour-long meet-and-greet followed by a tour of the electrical rooms and mechanical systems in half of UChicago's data centers. The process itself concluded after a detailed assessment of all six data centers to evaluate their utilization of 70+ best practices for sustainable operations, as well as a discussion regarding "power purchase agreements for renewable energy, use of AI and machine learning, a zero-waste recycling program, reuse of heat waste ... and measuring carbon emissions across all three scopes," according to Kent.

Parpart said that this process was “painless” because DEEP comes in, does the assessment, and requires very little additional time or paperwork from the staff.

## UChicago Gets the Gold

Due to DEEP’s holistic framework, which seeks to identify possible opportunities to enhance sustainability across multiple systems in a data center, the University of Chicago’s data centers were assessed across four separate categories: Airflow Management, Mechanical Systems, Electrical Systems, and Processes.

After the assessment, DEEP awarded the University of Chicago with a Gold Certification and an overall score of 99%. In particular, both Parpart and Kent noted several of these key practices that set UChicago’s sustainability initiatives apart from the average data center:

- Use of non-traditional mechanical systems, such as the adoption of rear door heat exchangers for 100% of the equipment and space cooling, which yields reductions in cooling energy and scope 2 emissions as well as “exceptional uniform and thermal balance”
- The treatment of their raised floor space as a slab space, thereby reducing inefficiencies and capitalizing on a creative opportunity to eliminate recirculation and net bypass air
- An early shift in voltage from 120/208 to 240/415, which Parpart states “generates an enormous amount of efficiency” and allows data center operators to use smaller wire gauges and produce less heat off transformers
- Overall, according to Parpart, Kevin Kent said that he’d “never seen a data center put together as creatively and efficiently [as UChicago’s]”

While, of course, this was great news for Parpart and UChicago’s data centers, and a validation of everything they’ve done to pursue their own green initiatives, DEEP was still able to find a few opportunities for UChicago to improve its metrics for both efficiency and sustainability. These opportunities include:

- Pursue RECs to offset a carbon footprint from traditionally generated power
- Raise set points in two data centers to raise rack inlet temperatures and reach consistency with the other data centers’ set points
- Find methods to develop a 5MW chiller-less data center and find means to utilize, according to Parpart, “opportunity heat” (as opposed to wasting it)

For Parpart, however, one of the most valuable gifts from this DEEP certification process was not only the validation that “we’re actually doing as good as we thought—and maybe a little better,” but also the realization that “we’re still not perfect, and we now know that we can do more to develop a truly efficient data center.”



“WE’RE ACTUALLY DOING AS GOOD AS WE THOUGHT—AND MAYBE A LITTLE BETTER ... WE’RE STILL NOT PERFECT, BUT WE NOW KNOW WE CAN DO MORE TO DEVELOP A TRULY EFFICIENT DATA CENTER.”

## DEEP Helps Data Centers Become Good Stewards



“We need to be good stewards of our campus because we depend on their facilities,” Parpart explained. “So how do we become good partners with UChicago? How do we fit into their organizational structure?”

With a DEEP Gold Certification, Parpart is now able to show UChicago’s leadership and administration that its data centers are doing the absolute best to remain a sustainable facet of their campus. Given UChicago’s emphasis on sustainability—it’s a member of the American College & University Presidents’ Climate Commitment (ACUPCC), and has pledged to achieve climate neutrality by 2030—a Gold certification could provide Parpart and his staff data-driven evidence that they’re closely aligned with the university’s green initiatives.

After DEEP’s assessment, Parpart was also able to go his senior leadership team with these findings and instill within them a sense of pride that their data centers *are* efficient, and subsequently show administrators that, while these data centers continue to use a substantial amount of energy, they use that energy “very well.”

Ultimately, DEEP’s analysis and certification have been, according to Parpart, “very helpful” from an IT side, facilities side, and a customer side, because he’s now able to demonstrate why all of the money that’s used in these data centers is done so in a highly effective manner.

## For More Information....

The DEEP team thanks Raymond Parpart and his team at University of Chicago for their active participation and thorough discussions throughout the certification process. Given their creative and effective solutions for fortifying sustainability without sacrificing efficiency, UChicago’s data centers should be seen as an example of how data centers can give back to their local environments and communities while still delivering results.

If you’d like to learn more about other DEEP-certified data centers and how a DEEP certification can significantly enrich your own data center’s sustainability initiatives, feel free to contact us at [our website](#).