Green Data Centers

While ensuring the functionality and aesthetics, Chindata Group aims to reduce energy and water usage, along with elimination of carbon emission through a series of innovative, environmentally-friendly patent designs and technologies. Chindata Group commits to its sustainable development philosophy throughout the whole life-cycle of data centers so as to build a portfolio of green and energy-efficient data centers.

173,087t

Carbon dioxide emission reduction of the Group's data centers in 2019

178,809MWh

Energy savings of the Group's data centers in 2019

7.42MWh/kW

Unit electricity consumption of the Group's data centers in 2019

Green data center certifications

In 2019, several data centers have won endorsements from the governing authorities for green operation, including the Data Center Green Classification (Operational) 5A certificate, the highest level of green data center certificate jointly awarded by the Open Data Center Committee and TGG (China), as well as being selected in the first batch of Green Data Center Models in Beijing.

Optimized PUE

With the accelerated development of data center industry, reducing PUE is imperative as energy demand surges. Chindata Group optimizes PUE to the fullest potential through a series of measures, including increasing the supply air temperature and humidification, shutting down unoccupied servers, optimizing the AHU (air handling unit) control strategy, and raising utilization rate. Additionally, Chindata Group leverages indirect evaporative natural cooling technology to make full use of natural cooling in order to reduce electricity used by mechanic cooling and significantly reduce PUE.

Furthermore, Chindata Group aims to build a next-generation hyperscale data center ecosystem. Hyperscale data centers enjoys advantages in terms of improving per unit efficiency of cooling devices to achieve better PUE, compared with their small and medium counterparts. However, "hyperscale" could mean "higher energy usage" and thus Chindata Group defined the standard of "next-generation hyperscale green data center" according to the policies and industry requirements to ensure its sustainable practice.

PUE (Power Usage Effectiveness)

PUE is a global indicator that measures the power usage efficiency of data centers, which is calculated as a ratio of total energy usage by a data center facility to the energy usage of IT equipment.

Targets for next-generation hyperscale green data centers

1.3	0.3	95%	80%
PUE lower than	WUE lower than	Utilization rate over	Renewable energy ratio over

To match our clients' business demand, we select strategic locations that are close to both the corporate headquarters and end users so as to keep high utilization rate. Meanwhile, we use innovative design and technologies to optimize power usage efficiency, achieving an average PUE of the Group's data centers in 2019 of 1.21, and a low PUE value of the Group's data centers in 2019 of 1.08.

1.21

Average PUE of the Group's data centers in 2019[1]

1.08

Low PUE value of the Group's data centers in 2019

[1] For next-generation hyperscale data centers, the average PUE in service was 1.17 in 2019.

Comprehensive Energy Management

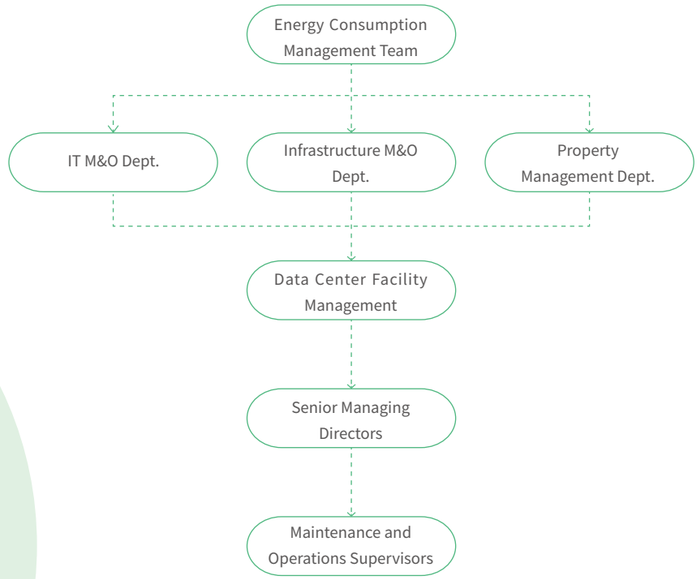
Chindata Group has implemented a holistic energy conservation management system from regulation to evaluation in order to enhance energy management and reduce power usage. According to the standard of energy management and company requirements, Chindata Group set up a series of energy management policies, such as the PUE-based assessment, specific operations manual and evaluation standards regarding energy reduction, and the rating system on the basis of logs and data to ensure energy management will be effectively executed.

Meanwhile, Chindata Group has established a thorough internal management system to support the energy usage reduction procedure. The management team consists of senior managing directors who guide and provide resources to support energy reduction; an energy management group that looks after specific procedures and helps with serious issues; supervisors from maintenance and operations departments who are responsible for supervision and control.

To evaluate the practical impact of energy management, Chindata Group will incorporate PUE results into the key performance indicators (KPI). Teams as well as employees with outstanding performance will receive extra bonus and rewards.

Chindata Group's major energy efficiency management systems

- Chindata Group Energy Consumption Management Regulations
- Chindata Group Energy Efficiency Management Incentives
- Data Center Energy Conservation Parameter Configuration Guide
- Data Center Energy-saving Maintenance and Operations Procedures



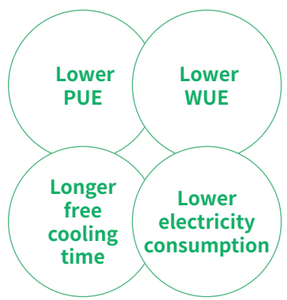
Advanced Energy Management Technology

The energy usage of a data center mainly attributes to IT equipment, cooling systems, power distribution network, and lighting control systems. Besides advanced modular energy-saving technologies, Chindata Group has actively explored environmentally- friendly building design models. This approach not only reduces energy usage of equipment, but also quickly promotes modular energy-saving technologies to other data centers for flexible replication and establishes best practice of energy reduction in the industry.

Green buildings

Chindata Group has three proprietary building design models, including single-floor, three-floor, and multi-floor data centers, to meet different client demands and site scenarios. Each design not only conforms to the national standard GB-50174, but also integrates green technology into aesthetics. For instance, our proprietary airflow design with thermal mezzanine guides heat sources effectively to reduce energy consumption while leaving our data hall visually pleasing. In addition, we minimize the effect of heat from outdoor environments on the indoors through utilizing thermal insulation materials on the outer wall, roof, windows and doors.

In terms of building materials, we mainly adopt durable, low-maintenance and recyclable materials from local suppliers to reduce carbon emissions during shipping and decrease operating costs to be more environmentally-friendly. Furthermore, the campus offers EV charging stations to encourage green commuting amongst employees.



Advantages for energy management technology

IT equipment

IT equipment is the major energy consumer in any data center. Chindata Group applies various technologies to reduce IT equipment power usage overall, including:

- Deliver the same computing power with lower GHG emissions
- Improve power conversion efficiency and power factor (PF)
- Proper deployment of IT equipment

Additionally, Chindata Group has adopted an environment monitoring system through energy visualization design to constantly monitor dynamic energy efficiency on a real-time basis. In this way, Chindata Group could better assist clients in achieving multi-level delicacy management.

Cooling systems

Cooling system is fundamental to the safe operation of data centers. Chindata Group primarily adopts natural cooling mechanism to achieve low energy consumption. As the name implies, natural cooling utilizes the cooling capacity of the natural environment. The indirect evaporative cooling system within the data centers will help to adjust strategies accordingly based on various weather conditions and leverage the natural cooling in the most appropriate way. This practice not only reduces PUE and WUE (Water Usage Effectiveness), but prolongs natural cooling time as well.

Moreover, while complying with industry standards, Chindata Group has managed to raise the temperature in cold aisle containments compared to traditional data centers, which reduces cooling costs and prolongs natural cooling time.