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Data Center Cooling Market in US- Industry Outlook and Forecast 2020-2025

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Abstracts

In-depth Analysis and Data-driven Insights on the Impact of COVID-19 Included in this U.S. Data Center Cooling Market Report

The U.S. data center cooling market is expected to grow at a CAGR of over 3% during the period 2019–2025.

The U.S. data center cooling market is experiencing a high adoption of energy-efficient cooling infrastructure due to the increased levels of power consumption and carbon emissions in data centers. The market is witnessing an increasing trend toward the procurement of renewable energy sources. The data center investment is expected to grow steadily in the United States during the forecast period as cities such as Chicago, Dallas, Atlanta, Ashburn, Los Angeles, and Phoenix. In the United States, hyperscale cloud facility developers are the primary revenue contributors to the market. The U.S. data center cooling market is dominated by CRAC and CRAH units and will continue to be the largest revenue contributor, followed by evaporative coolers and chillers. A free cooling system, such as evaporative coolers and dry coolers, is likely to rise during the forecast period.

Due to the outbreak of the COVID-19 Pandemic, the construction of several facilities in the U.S. has been halted due to moderate supply chain disruptions. The total number of data center construction projects identified were over 135. Among them, around 95 projects became operational in 2019. The COVID-19 Pandemic is likely to affect several U.S. projects during 2020.

The following factors are likely to contribute to the growth of the U.S. data center cooling market during the forecast period:

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Growing Rack Power Density

Increased Adoption of Automation and Monitoring Solutions

Increasing Popularity of Single-Phase Immersion Cooling

Increasing in Colocation Investment

The study considers the present scenario of the U.S. data center cooling market and its market dynamics for the period 2019?2025. It covers a detailed overview of several market growth enablers, restraints, and trends. The report offers both the demand and supply aspect of the market. It profiles and examines leading companies and other prominent ones operating in the market.

U.S. DATA CENTER COOLING MARKET SEGMENTATION

The U.S. data center Cooling report includes a detailed segmentation by infrastructure, technique, systems, tier standards, and geography. The commonly adopted redundancy level for cooling systems in U.S. data centers is N+1 or N+N configuration in Tier III facilities. However, a few facilities have also adopted N+2 redundancy for their systems. Most South Eastern states support free-cooling techniques, which reduce the electricity cost by up to 30%. The operators are also adopting solutions that support free techniques in South-Western U.S. states. Texas supports up to 3,500 hours of passive free cooler methods per annum, thereby reducing the use of mechanical techniques. Arizona and New Mexico support around 3,500 hours of free methods. The operators are looking for efficient solutions to reduce their CAPEX and OPEX, conserve data center space, and reduce the power consumption of the units. Most modern facilities are being built based on the ASHRAE data center cooling guidelines and the Uptime Institute’s tier standards for redundant design.

The air-based cooling technique will dominate the U.S. Data Center Cooling market share and is expected to reach over $1.3 billion by 2025. Free cooling solutions are gaining momentum over liquid-based solutions. However, the use of chilled water systems is still highly prevalent in the market, especially in facilities that use water-based techniques. U.S. data center operators are mainly using free solutions. This includes the adoption of evaporative coolers that facilitate partial cooling, with indoor CRAC units and air conditioners being used among facilities.

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CRAH units facilitate chilled-water cooling, making them suitable for medium to large facilities that use water for cooling purposes. The development of mega and hyperscale data centers is likely to adopt 2N CRAC or CRAH units, whereas other facilities are expected to go for N+N systems. The data center investment for cooling solutions in facilities in the South Eastern U.S. includes chillers that support free or total dependence on water-based techniques that include chillers, towers, and CRAH units.

Several facilities in U.S. South-Western commonly utilize air chillers and CRAC units. The data center market in Mid-western US mainly adopts CRAH units along with chillers and with waterside and air-side economization. A leading facility operator has adopted CRAHs with N+1, and N+1 chilled water pumping, along with humidification control and chillers with water-side economization.

A majority of under-developed projects across the United States fall under the Tier III category. The number is likely to grow during the forecast period, with many operators expected to move to the Tier IV category due to the growth in rack power density and critical applications. Most new facilities are designed to be of Tier III standards with a minimum of N+1 redundancy. They can be reconfigured with up to 2N+1 redundancy as the need arises, with the incorporation of flexible data center designs. There are over 50 facilities that were opened in 2019 that are of Tier III design. There are over 60 Tier III facilities that are under construction as of 2019 to June 2020.

Segmentation by Cooling Infrastructure

- Cooling Systems
- Other Infrastructure

Segmentation by Cooling Technique

- Air-based Cooling
- Liquid-based Cooling

Segmentation by Cooling Systems

- Cooling Capacity

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CRAC & CRAH Units

Chiller units

Cooling Towers & Dry Coolers

Economizers & Evaporative Coolers

Other Cooling Units

Segmentation by Tier Standards

Tier I & Tier II

Tier III

Tier IV

INSIGHTS BY GEOGRAPHY

The U.S. data center cooling market is likely to reach a market size of over $3.5 billion by 2025. The South Eastern U.S. consists of Virginia, Kentucky, Tennessee, Georgia, North Carolina, South Carolina, Alabama, Mississippi, Louisiana, Arkansas, and Florida. Most South Eastern states support free-cooling techniques. Vendors are also adopting air-side economizers to use colder outside air as a free cooler technique. Facilities in this region adopt the techniques that include chillers with some evaporate cooling. Also, Virginia supports up to 5,500 hours of passive free cooler methods every year, thereby reducing chiller use. Alabama and Florida, on the other hand, support around 3,500 hours and 3,000 hours of free cooler methods, respectively. Overall, data center investment for cooler solutions across the facilities in the South Eastern U.S. will include chillers that support free or total dependence on water-based techniques that include chillers, towers, and CRAH units.

Segmentation by Geography

North Eastern U.S.

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South Eastern US

Mid-western US

South Western U.S.

INSIGHTS BY VENDORS

The U.S. data center cooling market share is relatively fragmented is witnessing high competition due to the rising construction of data centers and operators that are looking for energy-efficient systems with low carbon emissions. Free cooling systems providers offering evaporative coolers and dry coolers along with chillers and CRAC/CRAH units will face competition in regions supporting free cooling for more than 4,000 hours. Vendors are also partnering with modular data center developers and direct liquid cooling providers to increase their revenue, and the trend is likely to continue during the forecast period. Facility operators are searching for vendors that provide real-time monitoring and management solutions integrated with cooling systems, which is generating competition and prompting innovative solutions. With the increasing deployment of edge data center facilities, modular, rack-based, and in-row system providers are likely to face intense competition.

The study considers the present scenario of the U.S. data center cooling market and its market dynamics for the period 2019?2025. It covers a detailed overview of several market growth enablers, restraints, and trends. The report offers both the demand and supply aspect of the market. It profiles and examines leading companies and other prominent ones operating in the market.

Key Vendor Profiles

Airedale Air Conditioning

Rittal

Schneider Electric

STULZ

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Vertiv

Other Prominent Vendors

AEG Power Solutions

3M

AIRSYS

Asetek

Aquila Group

Basx Solutions

Carrier

ClimateWorx

Climaveneta (Mitsubishi Electric)

Condair Group

Coolcentric

CoolIT Systems

Daikin Applied (Daikin Industries)

Data Aire

Delta Group

Emicon

Green Revolution Cooling (GRC)

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Jonson Controls

KyotoCooling

Motivair Corp

Munters

Nortek Air Solutions

Pentair (Schroff)

Qcooling

Swegon

Trane (Ingersoll Rand)

United Technologies (Carrier)

Vigilent

Wakefield-Vette

DCX (Company Data and Information DCX Ltd)

Key Questions Answered

1. What is the market size and CAGR of the U.S. data center cooling market analysis?
2. What are some of the drivers, trends, and restraints affecting the U.S. data center cooling market growth?
3. What is the growth forecast and demands for Air-based and Liquid Cooling in the U.S?
4. How is COVID-19 Pandemic impacting the data center construction and cooling solutions?
5. Who are the leading vendors, and how is their growth impacted during the forecast period?

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