

NA Evaporative Cooling - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

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Report description:

The NA Evaporative Cooling Market size is estimated at USD 1.76 billion in 2024, and is expected to reach USD 2.29 billion by 2029, growing at a CAGR of 5.38% during the forecast period (2024-2029).

Key Highlights

- North American region has been witnessing a surge in the overall number of initiatives for sustainable energy management. Hence, traditional air conditioning is not a feasible option. This crucial factor is boosting the popularity of evaporative cooling, which is becoming the most effective option for cooling large open spaces or areas.
- Various government standards have been implemented within the region, especially in the United States, for efficient energy utilization across commercial and industrial sectors with evaporative cooling techniques. Therefore, Natural Resources Canada is considering a rise in the minimum energy performance standards (MEPS) for evaporative-cooled products to align with the MEPS in the United States for those classes of products. As evaporative cooling utilizes a natural process, namely reducing air temperature by evaporating water on it, they are the preferred alternative over traditional cooling technologies.
- Evaporative coolers offer several key benefits to end users, including cost-effectiveness, energy savings, low maintenance, and operational requirements, besides being multifunctional (can be used in an open environment for cooling, air purification, and ventilation). Thus, owing to favorable regulations for sustainable energy across the region, advancements in technologies and their benefits compared to traditional cooling techniques are significantly driving the market studied.
- The other significant driver for the United States is the rise in the adoption of evaporative coolers in data centers. The demand for data centers is increasing at a rapid pace in the country, with the adoption of digital content, Big Data, and e-commerce. Keeping these facilities constantly functional is mandatory, especially for multinational companies operating in this space. In addition to reliability, the industry is seeking various energy-efficient solutions that have the potential to lower operational costs and reduce carbon emissions from data center operations.

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-However, the dependency of evaporative cooling technologies on the external climate could be a major point of concern that can overall limit the growth of the market.

-The sudden COVID-19 pandemic outbreak caused the adoption of strict lockdown laws across several nations, which has mainly led to the temporary closure of many manufacturing facilities and fluctuations in demand for evaporative cooling systems. During the post-COVID-19 scenario, the market is expected to witness ample opportunities for growth throughout the forecast period significantly, especially due to the rise in the demand for the data center within the region.

North America Evaporative Cooling Market Trends

Commercial Sector is Expected to Register a Significant Growth

- Commercial establishments are greatly required to maintain optimal climatic conditions, especially to protect the health and well-being of clients and employees. Commercial entities, such as hospitals, movie theaters, airports, hotels, and malls, among others, generally employ both air conditioners and evaporative coolers depending upon the ventilation and cooling requirements of an enclosure.

- Moreover, evaporative air coolers are majorly used in commercial establishments' facilities as alternatives to air conditioners. Apart from this, the market is anticipated to be driven by the growing adoption of small to medium enterprises instead of air conditioners, as the cost of air conditioning setup can be significantly high.

- Due to the recent surge in demand for data center operations, it has become imperative for HVAC companies to provide cost and energy-efficient solutions for data centers. Data center solution providers are mostly on the lookout for reliable solutions that are able to cut down overall emissions, thereby driving the market's growth considerably.

- A normal data center usually requires about 0.5 to 50MW of cooling capacity, and due to recent changes in ASHRAE guidelines, the permissible operating temperature has been increased to 27C. This has been a significant driver for the overall demand for evaporative air coolers in data centers. Additionally, these products do not make utilization of any refrigerants or CFCs, which could further minimize the overall carbon footprint for the end-user applications.

- As per US Census Bureau, the value of commercial construction that has been put in place reached a landmark of around USD 115 billion this year. Warehouses and private offices were the most common type of commercial construction started in the United States. In contrast, the total count was around USD 94.55 billion last year, indicating significant growth in the commercial construction sector. This rise in the commercial construction sector within the region is likely to drive the market's growth exponentially.

Direct Cooling is Expected to Hold Major Share

- Direct evaporative air cooling is the oldest, simplest, and most widely used type of evaporative cooling. The fan in the system pulls hot air through a dampened sponge-like pad and distributes the resulting cool air to the interior space either directly or through ducts. Warm, dry air is converted to cool, moist air as the heat in the air evaporates the water.

- Direct evaporative cooling systems are mainly suitable for applications with large heat-load removal needs and those open to using outside air to accomplish this. The major areas of their applications include residential sectors, commercial kitchens, and warehouses where comfort requirements are more relaxed. Hence, the system requirement depends on the end users and the specified operational performance requirements.

- Moreover, Direct evaporative cooling (DEC) is typically the most energy-efficient method to cool a data center, as the outside air is directly cooled through evaporation and is then used to moderate the internal climate. Hence, the rise in the overall count of regional data centers is expected to amplify the market's growth exponentially.

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- As per Cloudscene, as of January 2022, the total count of data centers in the United States was 2,701 data centers whereas Germany ranked second with an overall count of 487 data centers. The United Kingdom ranked third among countries in terms of the total number of data centers, with 456, while China recorded 443. This possession of a significant number of data centers in the United States is expected to amplify the market's growth throughout the forecast period.
- For instance, In July 2022, ST Engineering declared the launch of its new Airbitat DC Cooling System, thereby marking its entry into the data center cooling market. The Airbitat DC Cooling System, an innovation by its Urban Environment Solutions (UES) business, delivers powerful pre-cooling for tropical data centers, achieving annual net energy savings of more than 20% over conventional chiller systems alone.

North America Evaporative Cooling Industry Overview

The North American evaporative cooling market is semi-consolidated. The market is competitive and consists of various major global players. Based on market share, few of the major players currently dominate the market. These significant players with prominent shares in the market are focusing on expanding their customer base across foreign countries. These companies leverage strategic collaborative initiatives to maximize their market share and increase profitability.

- November 2023: Metso announced the launch of its enhanced evaporative cooling tower. This innovative solution efficiently cools hot furnace off-gases through evaporation. The tower, typically used in conjunction with a hot electrostatic precipitator or bag filter, effectively lowers the gas temperature from approximately 600-700C to about 200-350C. It is important to note that the tower operates dryly, meaning all added water evaporates. The rapid evaporation of small droplets in the tower significantly reduces the required retention time and length, ensuring complete evaporation.
- March 2023: Air2O, a Phoenix-based manufacturer of evaporated cooling systems, has received a generous investment of USD 14.1 million from EREN Groupe. This investment will be utilized to enhance our supply chain logistics, operations, and workforce. We are proud to announce that our innovative solutions have proven to achieve a PUE of lower than 1.1 in Data Centers. Furthermore, we have successfully developed and patented intelligent control systems that adapt to changing external and internal climate conditions across various applications.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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