

# North American Cooling Towers: OEM and Rental Markets

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October 2022



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North American Cooling Towers Market

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North American Cooling Towers Market

# Research Scope

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This study aims to provide a detailed analysis of the North American Cooling Towers Market along with qualitative trends for the year 2021.

The market numbers included in this report represent revenues generated by companies operating in the original equipment manufacturer (OEM) and rental cooling towers market in North America. The base year for the study is 2021 and the forecast period is from 2021 until 2028.

This study captures the following information on the North American Cooling Towers Market:

- Market Size, Growth Rate, Revenue Forecasts (2021-2028)
- Growth Drivers & Restraints
- Market Share Analysis by End users, by Cooling Towers Type, by Cooling Towers Form, by Country, by Cooling Towers Capacity, by Cooling Towers Construction, by Service, and Others
- Rental Market Forecasts (2021-2028) and Market Estimations
- Market Trends
- Quotes by Key Industry Participants

# Methodology

## Interviews with key market participants

The methodology adopted while creating this research involved conducting interviews with various key market participants, enabling Verify Markets to identify various trends in the North American Cooling Towers market. Furthermore, discussions with industry participants enabled us to provide a comprehensive country-level view of the overall market. Next, the information was validated through our internal databases, market experts, and secondary sources. The collected information was structured and collated into this report.



## Macro-economic factors and industry parameters

Various country level parameters including GDP, population and urbanization growth, construction spending, oil & gas prices, and sales revenues, among others, were taken into consideration in our forecasting model. An in-depth analysis of such factors enabled Verify Markets to size and forecast the North American Cooling Towers market.



# Market Definition

## Cooling Towers

A cooling tower is a heat rejection device which extracts heat in the atmosphere through the cooling of a water stream to a lower temperature. Evaporative heat rejection devices, such as cooling towers, are commonly used to provide significantly lower water temperatures than achievable with "air cooled" or "dry" heat rejection devices, such as the radiator in a car, allowing for more cost effective and energy efficient operation of systems in need of cooling.

## Chillers

A chiller is an air-cooled or water-cooled heat transfer device that uses mechanical refrigeration to remove heat from a process load and transfers the heat to the environment. Systems are used to cool fluids, or dehumidify air, in both commercial and industrial facilities. Chilled water has a variety of applications from space cooling to process cooling.

## Air Conditioners

Air conditioners refer to cooling equipment where the heat is removed in two ways through the air conditioning process; an actual drop in temperature. The air passes over a closed-loop coil filled with a refrigerant and the air is cooled and dehumidified. The cold air is delivered to the space being cooled and the water produced by dehumidification is pumped or drained away.

## Spot Coolers

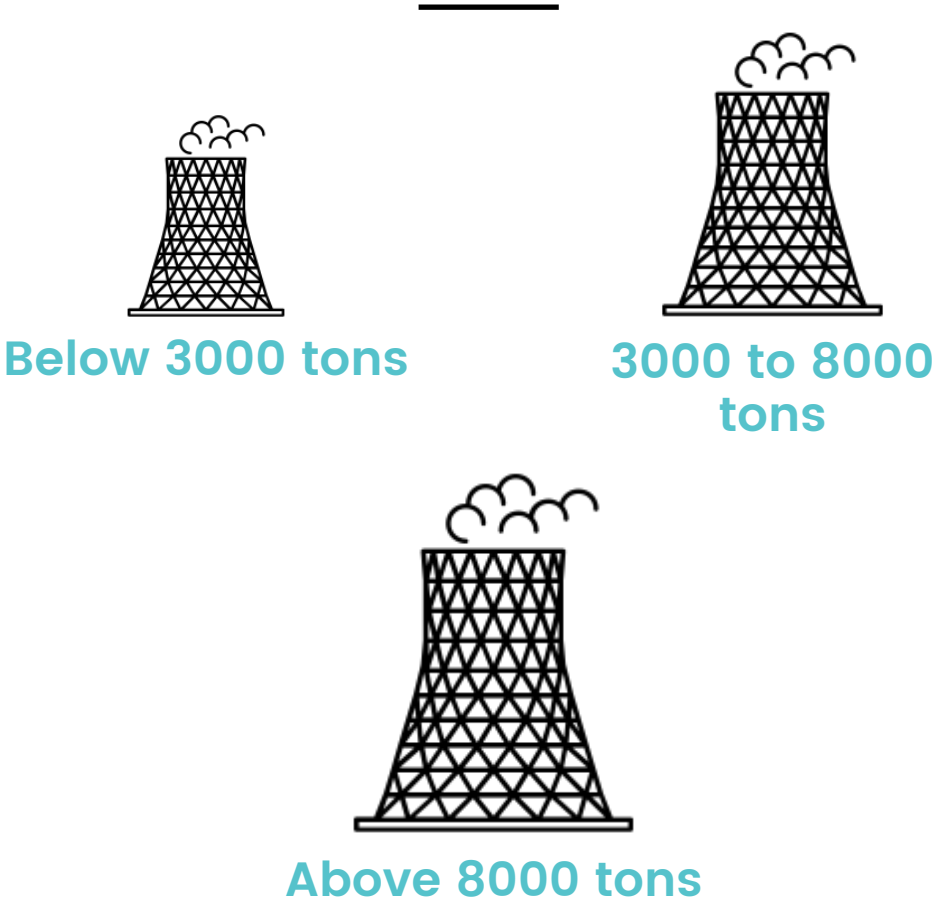
A self-contained spot cooler cools a spot or an area. The evaporator supplied air is usually directed to an area through a directional louver or a nozzle.



**For the purposes of this study, the analysis was focused on the cooling tower projects. Chillers, air conditioners, and spot coolers were considered out of scope for this study and have been excluded from the analysis.**

North American Cooling Towers Market

# Segmentation By Capacity



North American Cooling Towers Market

# Countries Included:





North American Cooling Towers Market

# Segmentation By End User

In 2021, the commercial segment was the main end user group for cooling towers in North America. It is expected to continue dominating the market, driven by continued construction across the continent.



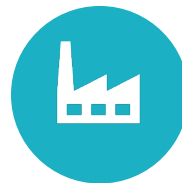
## Commercial

Includes buildings, offices, schools, malls, healthcare centers, business centers, and other private and public institutions. The commercial segment is the largest end user group for heating, ventilation, and air conditioning (HVAC) systems.



## Oil Refineries

Cooling towers are used in the oil & gas industry to support production and refining processes. A typical large refinery processing 40,000 metric tons of petroleum crude oil per day (300,000 barrels per day) circulates about 80,000 cubic meters of water per hour through its cooling tower system.



## Petrochemical

For chemical processing plants, wet cooling towers coupled with shell-and-tube or plate-and-frame heat exchangers provide an economical method for rejecting heat. These towers are designed to wet bulb temperature and can cool water to a lower temperature than some other technologies.



## Power & Utility

The primary use of large industrial cooling towers is to remove the heat absorbed in the circulating cooling water systems used in power plants.



## Metals Manufacturing

Cooling towers are used extensively in steel & metals manufacturing plants because the temperatures involved are so high that constant cooling is required. Cooling towers help to keep the process temperature at a stable level and also help with other operations.

North American Cooling Towers Market

# Segmentation By End User



## Pulp & Paper Mill

Cooling towers are extensively used in pulp & paper mills because the temperatures involved are so high that constant cooling is required. A primary cooling tower is vital to keeping the electrical equipment rooms cooled. These enclosures hold heat-sensitive instrumentation used to monitor and control essential plant operations.



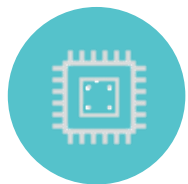
## Pharmaceutical

Virtually all pharmaceutical manufacturers use process-cooling equipment as part of their production processes. Cooling water is needed for critical applications such as R&D, batch processing, cream and ointment cooling, liquid sterilization, tablet formation, packaging and much more.



## Data Centers

Each data center requires a reliable cooling system to prevent the computers from overheating. Evaporative cooling towers are an integral part of data center cooling systems.



## Semi-conductors

The use of cold water is vital to the manufacturing of semiconductors. The amount of water required for specific chip or electronic component depends on size and on the amount of layers.



## Others

The other industries that use cooling towers include petroleum refineries, chemical manufacturing plants, primary metals processing plants, glass manufacturing plants, residential applications, events, and others.

Cooling towers above 8000 tons are primarily used by heavy industries such as oil refineries, petrochemicals, metals manufacturing, and the power & utility sectors.

Pharmaceutical and pulp & paper mill companies also require large cooling towers to increase the working efficiency of their systems.

North American Cooling Towers Market

# Market Revenues By Type

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## Evaporative Cooling Towers (Wet Cooling Towers)

Wet cooling towers are those buildings where the water that was heated by industrial or power generation processes is cooled again. The heat is given off to the environment. Wet cooling towers are an integral part of the thermodynamic circle. The water to be cooled is sprayed and distributed over the splash fills. As a result, the water temperature drops when the evaporation heat is withdrawn, and the air gets humidified.

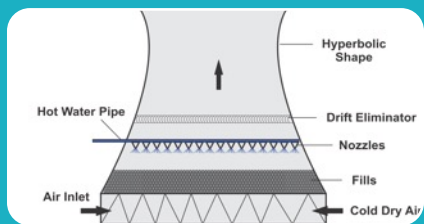
## Dry Cooling Towers

Dry cooling towers conduct heat transfer through air-cooled heat exchangers that separate the working fluid from the cooling air. Because there is no direct contact between the working fluid and the ambient air, there is no water loss in this system. Dry cooling towers have two basic types: direct and indirect systems. Since a dry cooling tower is functioning with air cooling technology, there is no water evaporation and, therefore, no need for extra makeup water.

## Hybrid Cooling Towers

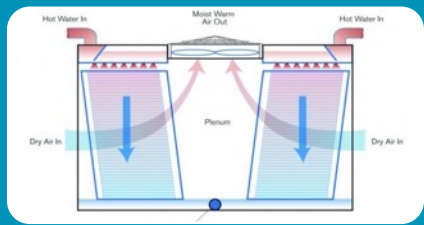
Hybrid cooling towers are a mixture of dry cooling and wet cooling, as some water is sprayed on the exterior of the condenser tubes which will evaporate and lower the achievable condensate temperature. Water consumption will still be significantly lower compared to a wet cooling system.

# Forms Of Cooling Towers



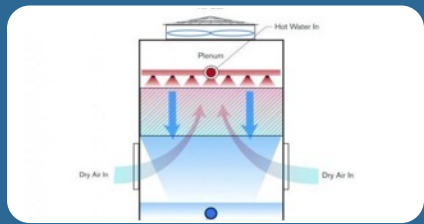
## Natural draft cooling tower

The natural draft cooling tower is an open, direct-contact system. It works using a heat exchanger, allowing hot water from the system to be cooled through direct contact with fresh air. To increase the heat transfer surface area (and optimize the cooling process), hot water is sprayed from nozzles within the tower.



## Cross flow cooling tower

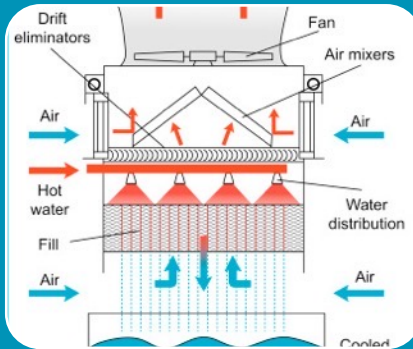
The crossflow cooling tower belongs to the family of mechanical drift cooling towers in which the upward flow of the air cools down the hot water raining down from the hot water basin at the top onto the cold-water basin at the bottom.



## Counter flow cooling tower

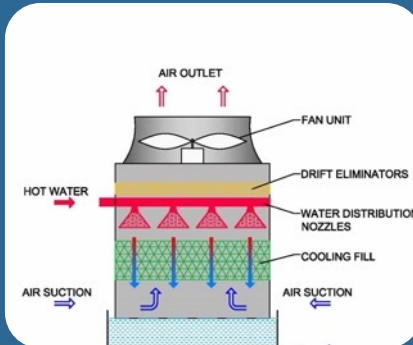
The counterflow cooling tower is a type of cooling tower design that offers the maximum thermal performance for its area of occupation. The fill media is horizontally installed beneath the hot water distribution basin and the cooling process is carried out as the air passes through the fill absorbing the heat from the water flowing down the fill. The direction of the process water stream is opposite the airflow.

# Forms Of Cooling Towers



## Induced draft cooling tower

An induced draft tower is a type of mechanical draft tower which has one or more fans, located at the top of the tower, that draw air upwards against the downward flow of water passing around the wooden decking or packing. Since the airflow is counter to the water flow, the coolest water at the bottom is in contact with the driest air while the warmest water at the top is in contact with the moist air, resulting in increased heat transfer efficiency.



## Forced draft cooling tower

In a forced draft tower, the fan is placed outside the tower and at the bottom so that the atmospheric air is circulated from the bottom to the top. The fan is mounted so that the air is 'pushed' through the tower.



# About Verify Markets



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# About us

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## Expert Advice and Strategy Consulting

Verify Markets is a Research Firm specializing in Industrial, Environmental, Energy and Water markets. Our Research & Consulting practice provides global industry analysis, custom engagements, end-user analysis, strategy consulting, strategic market intelligence, and forecasts that are designed to facilitate strategic decision-making. Our team of consultants, industry experts and analysts continually monitor and evaluate information to create insights for your business needs. We are comprised of a group of analysts that have been tracking their respective markets for a number of years.

Our goal is to help you reach yours.

Verify Markets

# Methodology

The methodology when formulating market trend projection is outlined below.  
 Historical trends were determined through secondary research and Verify Markets in-house database.

## Secondary Research

Secondary research was conducted. A list of key industry participants was put together.



## Primary Research

Telephonic interviews were conducted. Most of the leading participants across North America were contacted.

## Bottom-up

Bottom-up methodology was used to calculate the market size.



## Drivers & Restraints

Market drivers and restraints were built into the forecasting model to estimate the revenue growth and market size figures.

Most of the primary interview data was captured through telephonic interviews. Pictures, company contacts, preliminary data was captured through secondary research. Images are derived from company websites and other web sources.



## Disclaimer

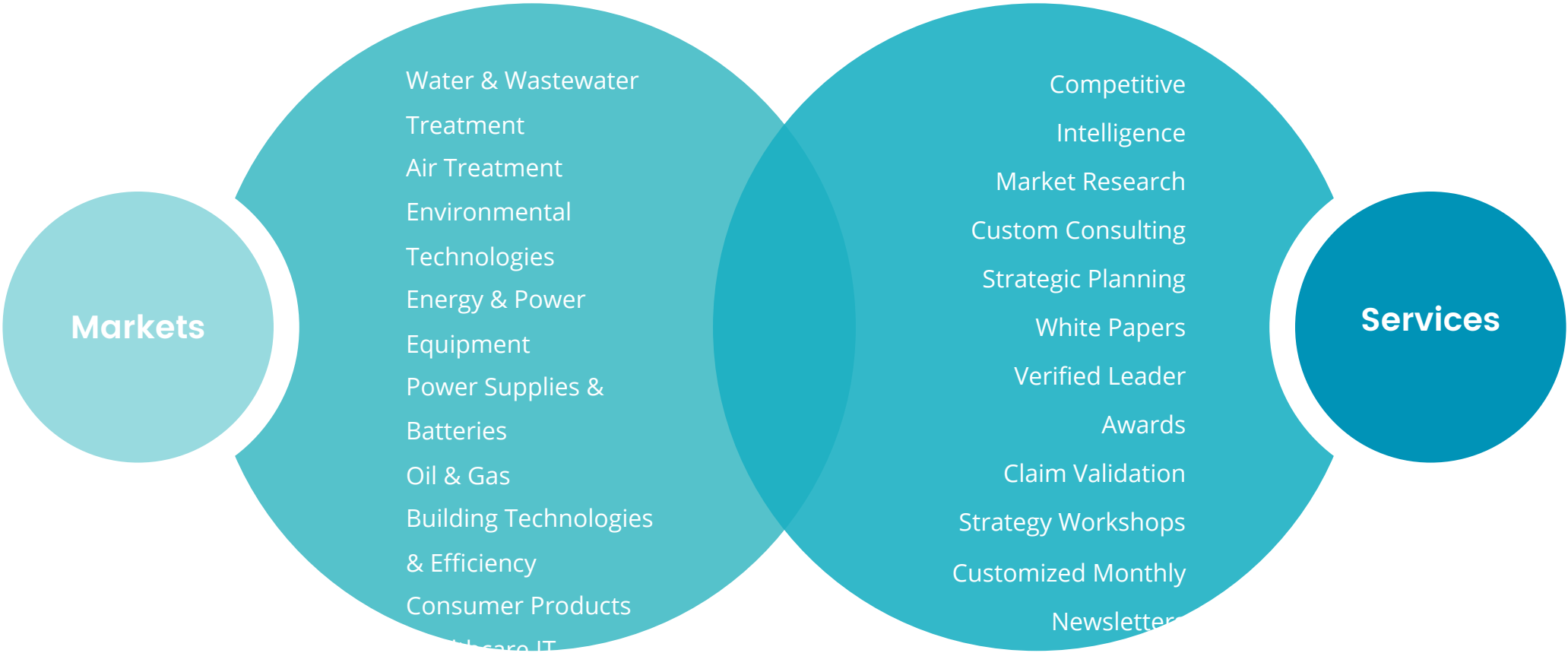
Despite Verify Markets' best efforts, certain challenges were encountered, and certain assumptions had to be made. The extremely competitive nature of the North American Cooling Towers Market often results in an increased reluctance on the part of several competitors to discuss their market position, future plans, or market trends. Verify Markets used its skills and experience to extract the relevant data in order to complete the analysis.

Verify Markets is not responsible for any incorrect information supplied to us by companies during our primary research process.

Verify Markets report is for customers' internal use and not for general publication. This research cannot be given, disclosed, or sold to non-customers or third parties. Since most of the data is based on company personnel views, it is subject to fluctuation.

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# Capabilities





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# Global Presence





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# Have A Question?

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Contact us and set up a time to speak with our analysts.



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# Contact us: We're social

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