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Evaporative Condensing Unit Market Forecasts to 2030 – Global Analysis By Type (Air-Cooled Evaporative Condensing Units, Water-Cooled Evaporative Condensing Units and Hybrid Evaporative Condensing Units), Refrigerant Type, Capacity, Application, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Evaporative Condensing Unit Market is accounted for $1.38 billion in 2024 and is expected to reach $2.59 billion by 2030 growing at a CAGR of 7.5% during the forecast period. An evaporative condensing unit is a refrigeration or air-conditioning system component that combines air and water to condense refrigerant vapor into liquid. It enhances heat rejection efficiency by using a heat exchanger, where hot refrigerant gas is cooled by water sprayed over coils while fans draw air through the unit. This simultaneous evaporation process reduces operating temperatures and energy consumption compared to air-cooled condensers.

Market Dynamics:

Driver:

Growing preference for energy-efficient cooling solutions

ECUs consume less energy than traditional air-cooled systems by leveraging evaporative cooling, which reduces compressor workload and power consumption. This efficiency translates into lower operating costs, making ECUs attractive for industries like cold storage, food processing, and HVAC. Additionally, stringent energy efficiency regulations and corporate sustainability goals are pushing businesses toward greener

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alternatives. As industries seek cost-effective, eco-friendly cooling solutions, the demand for ECUs continues to rise, further fueled by technological advancements in smart controls and refrigerant innovations.

Restraint:

Maintenance requirements

ECUs require regular maintenance, including coil cleaning, water treatment, scale prevention, and microbial control to prevent corrosion and bacterial growth. Pump, fan, and nozzle inspections are necessary to ensure efficient operation. These high maintenance needs increase operational costs, labor requirements, and downtime risks, deterring adoption, especially in cost-sensitive industries. Additionally, water treatment complexities and compliance with health regulations further burden users, hampering market growth.

Opportunity:

Rising commercial HVAC applications

The increasing demand for energy-efficient cooling solutions in commercial HVAC applications such as shopping malls, hotels, hospitals, and office buildings drives the adoption of ECUs. ECUs offer higher cooling efficiency, lower energy consumption, and reduced carbon footprints, making them ideal for large-scale HVAC systems. Their ability to operate effectively in high-load environments while maintaining cost-effectiveness appeals to businesses seeking sustainable and long-term cooling solutions. Additionally, stringent energy efficiency regulations and growing awareness of eco-friendly cooling technologies further propels market growth.

Threat:

Competition from alternative technologies

ECUs face competition from air-cooled and water-cooled condensers, which offer advantages like lower maintenance, reduced water consumption, and simpler operation. Air-cooled condensers are preferred in dry regions due to their independence from water sources, while water-cooled systems with cooling towers provide stable performance in large-scale applications. These alternatives require less frequent cleaning and regulatory compliance, making them attractive to industries seeking lower

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operational costs and reliability, thereby hindering the market expansion.

Covid-19 Impact:

The covid-19 pandemic disrupted the evaporative condensing unit market due to supply chain disruptions, labor shortages, and project delays. Industrial and commercial refrigeration demand fluctuated as food processing and cold storage expanded, while hospitality and retail sectors declined. Increased focus on energy efficiency and sustainable cooling post-pandemic is driving recovery. The market is rebounding with resumed construction, growing pharmaceutical cold chains, and regulatory support for eco-friendly refrigerants, accelerating ECU adoption in critical industries.

The air conditioning systems segment is expected to be the largest during the forecast period

The air conditioning systems segment is expected to account for the largest market share during the forecast period. ECUs in air conditioning systems enhance energy efficiency by using both air and water to condense refrigerant vapor. They operate by spraying water over condenser coils while fans draw air through, allowing evaporation to remove heat effectively. This reduces compressor workload, lowering energy consumption and operational costs. ECUs are widely used in commercial HVAC systems, data centers, and industrial cooling, offering space-saving designs and sustainability benefits.

The food & beverages segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the food & beverages segment is predicted to witness the highest growth rate. ECUs play a crucial role in the food & beverage industry, ensuring efficient refrigeration for cold storage, food processing, and beverage production. They provide superior cooling performance with lower energy consumption, essential for preserving perishable goods. Their compact design, sustainability benefits, and compliance with environmental regulations make them ideal for large-scale refrigeration.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share due to rapid industrialization, urbanization, and increasing demand for energy-efficient cooling solutions. Rising cold storage, food processing, and pharmaceutical

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sectors, especially in China, India, and Japan, are key drivers. Government initiatives promoting low-GWP refrigerants and sustainability further boost adoption. Expanding data centers and commercial refrigeration in retail and hospitality also contribute to growth.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR driven by increasing demand for energy-efficient refrigeration in food processing, cold storage, supermarkets, and data centers. The U.S. leads the market due to stringent environmental regulations promoting low-GWP refrigerants and energy-saving solutions. Growth in the pharmaceutical sector, driven by vaccine storage needs, further boosts demand. Rising adoption in HVAC applications and expanding industrial infrastructure contribute to market expansion.

Key players in the market

Some of the key players in Evaporative Condensing Unit market include Johnson Controls International PLC, Daikin Industries Limited, TEVA Group, Danfoss, Emerson Electric Corporation, Bitzer SE, Mammoth Inc., SPX Corporation, GEA Group, Baltimore Aircoil Company, Inc., Evapco Inc., Carrier Commercial Corporation, Decsa Srl, Temp Tech Corporation, Heatcraft Worldwide Refrigeration and Condair Group AG.

Key Developments:

In December 2023, Baltimore Aircoil Company (BAC) announced enhancements to its Vertex® Evaporative Condenser, introducing advanced controls for models equipped with the EC Fan System. These improvements include a user-friendly interface with remote connectivity, integral pump control, and simplified field installation features, all aimed at maximizing reliability and uptime.

In October 2023, Evapco launched the VersaSplit, a packaged low-charge ammonia (R717) mega-split refrigeration system. This innovative unit can support up to six remote direct expansion (DX) evaporators operating at different temperatures, offering up to 165TR (580kW) refrigeration capacity. The design enhances industrial application versatility by allowing evaporators to be installed in different rooms, each providing different temperatures.

Types Covered:

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Air-Cooled Evaporative Condensing Units

Water-Cooled Evaporative Condensing Units

Hybrid Evaporative Condensing Units

Refrigerant Types Covered:

Ammonia (NH3)

Carbon Dioxide (CO2)

Hydrofluorocarbons (HFCs)

Hydrochlorofluorocarbons (HCFCs)

Natural Refrigerants

Other Refrigerant Types

Capacities Covered:

Small Capacity Units

Medium Capacity Units

Large Capacity Units

Applications Covered:

Refrigeration Systems

Air Conditioning Systems

Heat Pump Systems

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- Other Applications

End Users Covered:

- Food & Beverages
- Retail & Supermarkets
- Pharmaceuticals & Healthcare
- Chemical & Petrochemical
- Data Centers
- Commercial & Residential Buildings
- Other End Users

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy
  - France

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- Spain
- Rest of Europe

Asia Pacific

- Japan
- China
- India
- Australia
- New Zealand
- South Korea
- Rest of Asia Pacific

South America

- Argentina
- Brazil
- Chile
- Rest of South America

Middle East & Africa

- Saudi Arabia
- UAE
- Qatar

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South Africa

Rest of Middle East & Africa

What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2022, 2023, 2024, 2026, and 2030
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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