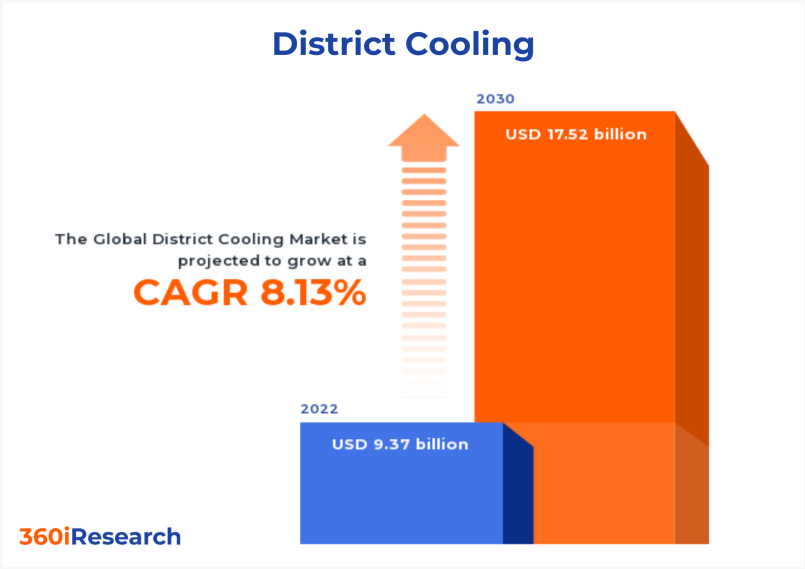
District Cooling Market worth $17.52 billion by 2030, growing at a CAGR of 8.13% - Exclusive Report by 360iResearch

The Global District Cooling Market to grow from USD 9.37 billion in 2022 to USD 17.52 billion by 2030, at a CAGR of 8.13%.



District Cooling Market - Exclusive Report by 360iResearch

PUNE, MAHARASHTRA, INDIA, November 10, 2023 / EINPresswire.com/ -- The "District Cooling Market by Cooling Technique (Absorption Cooling, Electric Chillers, Free Cooling), Component (Central Chiller Plant, Consumer System, Distribution Network), Deployment, Application - Global Forecast 2023-2030" report has been added to 360iResearch.com's offering.

The Global District Cooling Market to grow from USD 9.37 billion in 2022 to USD 17.52 billion by 2030, at a CAGR of 8.13%.

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District cooling is an efficient, cost-effective, and environmentally friendly method of providing air conditioning to multiple buildings in a district or urban area. It involves the central production and distribution of chilled water through insulated pipes to various residential, commercial, and industrial end-users. District cooling systems offer numerous benefits, such as energy savings, reduced greenhouse gas emissions, and decreased operational and maintenance costs. The global district cooling market has been experiencing growth in recent years owing to several influencing factors, such as increasing requirement for energy-efficient cooling solutions owing to rising concerns about greenhouse gas emissions and climate change and supportive government policies for green technologies adoption. Collaborative ventures between governments and private players have driven investment in infrastructure development for

district cooling systems. However, establishing a district cooling infrastructure requires significant capital outlay, deterring potential investors. Additionally, complex regulatory frameworks in some countries may hamper the smooth implementation of district cooling projects. Organizations are focusing on innovation and research across developing advanced heat exchangers, chillers, pumps, and other components that improve system efficiency and reduce operational costs to overcome these challenges and capitalize on the immense growth potential of the district cooling market. Manufacturers also leverage big data analytics capabilities to optimize system performance through predictive maintenance, load balancing, and demand forecasting.

Deployment: Increasing deployment of district cooling across retrofitting to optimize operational costs

In the deployment segment of district cooling, new projects refer to installing district cooling systems in newly developed areas or buildings. The preference for district cooling solutions in new projects has grown significantly due to increased awareness about energy efficiency and sustainable development. The primary advantage of implementing district cooling in new projects is that it allows for a more streamlined and cost-effective integration with various building systems during the construction phase. Retrofitting refers to upgrading or replacing existing conventional cooling systems with more efficient district cooling solutions to achieve energy savings, reduce operating costs, and improve environmental sustainability. Retrofitting deployments are creating significant opportunities for market players as numerous buildings worldwide continue to rely on outdated or inefficient HVAC systems, which contribute substantially to global greenhouse gas emissions. The need-based preference for retrofitting arises primarily from the desire to optimize operational costs associated with older and less efficient systems and achieve sustainability goals set by governments or organizations. Additionally, retrofitting improves overall user experience due to better temperature control and indoor air quality.

Application: Rapid residential adoption due to heightened awareness of climate change concerns

District cooling systems are crucial for commercial establishments such as shopping malls, office buildings, hotels, and healthcare facilities as they require efficient and reliable cooling solutions. These systems help reduce operational costs, enhance energy efficiency, and promote environmentally sustainable practices. In industrial applications, such as manufacturing plants or data centers, district cooling is essential in ensuring process stability by maintaining optimum temperatures for equipment functionality. It helps industries reduce their carbon footprint and achieve sustainability goals by lowering energy consumption levels compared to traditional air conditioning units. Residential buildings are increasingly adopting district cooling systems due to the benefits of reducing energy consumption, lowering greenhouse gas emissions, and providing a comfortable living environment. District cooling systems play a vital role across commercial, industrial, and residential sectors by enhancing energy efficiency levels while reducing operational costs and minimizing environmental impacts. The growing adoption of these systems demonstrates the increasing awareness of climate change concerns and governments'

push toward green initiatives.

Cooling Technique: Inclination toward adoption of absorption cooling due to presence of abundant source of waste heat

Absorption cooling is an environmentally friendly and cost-effective district cooling technique that utilizes waste heat to produce chilled water. This system uses a heat-driven process, typically powered by natural gas or solar energy, reducing electricity demand. The primary advantage of absorption cooling technology is its ability to utilize waste heat or renewable energy sources such as solar thermal, geothermal, or combined heat and power (CHP) plants. Electric chillers are one of the most common district cooling technologies due to their relatively high efficiency and the ease of integrating them within existing electrical infrastructure. These systems work on the principle of vapor-compression refrigeration cycles, where an electric-powered compressor forces refrigerant through a series of expansion valves and heat exchangers to achieve cooling. Free cooling is an energy-efficient district cooling technique that capitalizes on ambient temperatures for cooling purposes. This environmentally friendly method can be implemented either through air-based free cooling or water-based free cooling solutions. Air-based systems use outdoor air with lower temperatures to cool buildings directly or indirectly by passing it through an air-cooled chiller. Water-based systems use cooler water from natural sources such as lakes, rivers, or deep wells as a heat sink for the return chilled water loop instead of conventional mechanical cooling equipment. Its feasibility depends on geographic location and climate conditions, and free cooling significantly reduces energy consumption and operational costs.

Component: Continuous improvements in central chiller plants to enhance efficiency

The central chiller plant is the main component of the district cooling system and is responsible for producing chilled water distributed to nearby buildings for space cooling purposes. Energy efficiency is optimized, and operational noise is reduced by consolidating the cooling process in a centralized location. The consumer system refers to the end-user infrastructure for distributing chilled water from the distribution network into individual buildings. This includes heat exchangers, pumps, and building-level control systems that manage the flow of chilled water based on the exact requirements of the facility. The distribution network consists of interconnected pipelines transporting chilled water between the central chiller plant and consumer systems across various buildings within the district cooling network's footprint. The primary purpose of this network is to maintain efficient delivery routes while minimizing heat loss during transportation. Comparing the three components of a district cooling system, it is evident that recent advancements in each segment have contributed to increased energy efficiency and optimized performance across the entire system. Central chiller plants have become more intelligent and connected through machine learning technologies and IoT capabilities. Consumer systems benefit from greater customization options tailored specifically for district cooling applications, resulting in improved temperature control accuracy and energy savings. Distribution networks offer advanced insulation materials and leak detection systems that minimize heat loss during transportation while ensuring maximum reliability.

Regional Insights:
In the Americas region, North America represents a significant market with a well-established district cooling infrastructure in cities such as New York, Toronto, Boston, Chicago, and Seattle. The U.S. Environmental Protection Agency (EPA) has consistently promoted energy efficiency through policy incentives such as Energy Star Certification Programs. Moreover, investments in research & development have led to innovative technologies such as absorption chillers that use natural gas or waste heat from industrial processes to operate more efficiently. South American countries such as Brazil and Mexico are gradually exploring district cooling potential due to growing urban populations demanding better energy management solutions. In Europe, countries such as Sweden, Denmark, Germany, and France have established district cooling networks leveraging renewable energy sources, including solar power or biomass. Additionally, strategic partnerships between stakeholders facilitate project implementation and help connect research centers, companies, and universities to drive innovation in district energy technologies. The APAC region is currently at a developing stage in adopting district cooling systems, with countries such as China, India, Japan, Singapore, and Australia increasingly investing in smart city projects that pave the way for efficient energy management solutions, which is supporting the deployment of district cooling across markets.

FPNV Positioning Matrix:

The FPNV Positioning Matrix is essential for assessing the District Cooling Market. It provides a comprehensive evaluation of vendors by examining key metrics within Business Strategy and Product Satisfaction, allowing users to make informed decisions based on their specific needs. This advanced analysis then organizes these vendors into four distinct quadrants, which represent varying levels of success: Forefront (F), Pathfinder (P), Niche (N), or Vital(V).

Market Share Analysis:

The Market Share Analysis offers an insightful look at the current state of vendors in the District Cooling Market. By comparing vendor contributions to overall revenue, customer base, and other key metrics, we can give companies a greater understanding of their performance and what they are up against when competing for market share. The analysis also sheds light on just how competitive any given sector is about accumulation, fragmentation dominance, and amalgamation traits over the base year period studied.

Key Company Profiles:

The report delves into recent significant developments in the District Cooling Market, highlighting leading vendors and their innovative profiles. These include ABB Ltd., ADC Energy Systems, Alfa Laval AB, ARANER, Artelia, Cetetherm, Danfoss A/S, DC Pro, DC PRO Engineering L.L.C., DESMI A/S, E.ON SE, Emirates Central Cooling Systems Corporation, Emirates District Cooling (Emicool) LLC, ENGIE Group, Equans SAS, Fortum Oyj, General Electric Company, Grundfos Holding A/S, Honeywell International Inc., ICAX Limited, isoplus Piping Systems Ltd.,

Johnson Controls International PLC, Keppel Corporation Limited, Kingspan Group PLC, National Central Cooling Company PJSC, Ramboll Group A/S, Shinryo Corporation, Siemens AG, Singapore Power Limited, SNC-Lavalin Group Inc., Stadtwerke München GmbH, Stellar Energy, Trane Technologies PLC, Veolia Environnement SA, and Xylem Inc..

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Market Segmentation & Coverage:

This research report categorizes the District Cooling Market in order to forecast the revenues and analyze trends in each of following sub-markets:

Based on Cooling Technique, market is studied across Absorption Cooling, Electric Chillers, and Free Cooling. The Electric Chillers commanded largest market share of 43.76% in 2022, followed by Absorption Cooling.

Based on Component, market is studied across Central Chiller Plant, Consumer System, and Distribution Network. The Central Chiller Plant commanded largest market share of 38.22% in 2022, followed by Consumer System.

Based on Deployment, market is studied across New Projects and Retrofitting. The Retrofitting commanded largest market share of 61.54% in 2022, followed by New Projects.

Based on Application, market is studied across Commercial, Industrial, and Residential. The Industrial commanded largest market share of 41.54% in 2022, followed by Commercial.

Based on Region, market is studied across Americas, Asia-Pacific, and Europe, Middle East & Africa. The Americas is further studied across Argentina, Brazil, Canada, Mexico, and United States. The United States is further studied across California, Florida, Illinois, New York, Ohio, Pennsylvania, and Texas. The Asia-Pacific is further studied across Australia, China, India, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand, and Vietnam. The Europe, Middle East & Africa is further studied across Denmark, Egypt, Finland, France, Germany, Israel, Italy, Netherlands, Nigeria, Norway, Poland, Qatar, Russia, Saudi Arabia, South Africa, Spain, Sweden, Switzerland, Turkey, United Arab Emirates, and United Kingdom. The Europe, Middle East & Africa commanded largest market share of 43.14% in 2022, followed by Americas.

Key Topics Covered:

4. Market Overview
5. Market Insights
6. District Cooling Market, by Cooling Technique
7. District Cooling Market, by Component
8. District Cooling Market, by Deployment
9. District Cooling Market, by Application
10. Americas District Cooling Market
11. Asia-Pacific District Cooling Market
12. Europe, Middle East & Africa District Cooling Market
13. Competitive Landscape
14. Competitive Portfolio
15. Appendix

The report provides insights on the following pointers:
1. Market Penetration: Provides comprehensive information on the market offered by the key players
2. Market Development: Provides in-depth information about lucrative emerging markets and analyzes penetration across mature segments of the markets
3. Market Diversification: Provides detailed information about new product launches, untapped geographies, recent developments, and investments
4. Competitive Assessment & Intelligence: Provides an exhaustive assessment of market shares, strategies, products, certification, regulatory approvals, patent landscape, and manufacturing capabilities of the leading players
5. Product Development & Innovation: Provides intelligent insights on future technologies, R&D activities, and breakthrough product developments

The report answers questions such as:
1. What is the market size and forecast of the District Cooling Market?
2. Which are the products/segments/applications/areas to invest in over the forecast period in the District Cooling Market?
3. What is the competitive strategic window for opportunities in the District Cooling Market?
4. What are the technology trends and regulatory frameworks in the District Cooling Market?
5. What is the market share of the leading vendors in the District Cooling Market?
6. What modes and strategic moves are considered suitable for entering the District Cooling Market?

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