District Heating Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 120 pages | Mordor Intelligence

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Report description:

The district heating market is expected to record a CAGR of 1.66% over the forecast period (2022-2027). District energy is a quick-growing industry globally, supported by the aggressive climate objectives set by the global economies. Based on initial assessments, these district heating and cooling companies have been recognized as operations that could produce more extraordinary growth and value potential with an alternative holding structure. By including electrically powered heat pumps in the district heating supply, higher renewable energy levels can be used for thermal purposes, generating integration and balance between energy systems. With a burgeoning global wind turbine capacity, big heat pumps will play a meaningful role in the sustained global green energy development and phasing out fossil fuels by 2050.

Key Highlights
District heating provides a method of delivering thermal energy to buildings (homes and commercial space) in the form of hot water through a distribution network of highly insulated pipelines. The potential for increased use of industrial district heating is limited because conversions of industrial processes to district heating involve varying heat loads amongst types of industries and processes.
However, the conversion to district heating serves an 11% reduction in the use of electricity and a 40% reduction in the use of fossil fuels, with a total energy end-use saving of 6% among industries.
Converting the industrial processes has led to a potential reduction of global carbon dioxide emissions by 112,000 tons per year. However, the residential and commercial markets are expected to hold a significant share.
Approximately 60 million EU citizens are served by district heating, and an additional 140 million people live in cities with at least one district heating system. According to reports by the EU and the IEA, DH meets around 11-12% of the EU's heat demand via 6,000 district heating and cooling networks.
With machine learning, the idea is to predict heat loads from customer data and operational data, along with weather forecasts,

national holidays, weekdays, etc., to optimize and plan heat production, thereby lowering heat loss and handling peak loads. The potential is extended to intelligent algorithms in fault detection to identify leakages, inefficient heating systems, or errors from failure related to single components.
In October 2019, the smart district heating service of Tampere Power Utility was developed by Enermax Oy to balance peak district heating outputs, optimize heating in buildings, and reduce heating costs. The deployment could cut down energy consumption by 5-10%.
In response to the COVID-19 pandemic, the International District Energy Association (IDEA) convened a Working Group to help its members and other affected individuals get the essential resources and information required to help navigate this unprecedented event. However, most district heating projects are on hold due to the scarcity of workforce and countrywide lockdowns. Moreover, European companies like Statkraft prioritize resources to safeguard the plants' safe and stable district heating operation.

District Heating Market Trends

Natural Gas-powered District Heating Systems to Hold the Largest Market Share

As power generation has shifted away from fossil fuels, considering the environmental determinants, natural gas has gradually taken a healthy percent of the market share in the district heating market worldwide. The numerous benefits of natural gas, like cheaper costs and fewer carbon emissions with exceptional efficiency, have encouraged the growth of this segment. Growing exploration activities for natural gas in each region are also boosting the development of these systems.
The non-conventional sources of energy like solar and wind increased in recent years. There has been a transformation toward solar energy in several countries. However, the district heat network helps many people and renewables. As it is still new in the field, it holds a weak market share compared to natural gas.
In terms of established and installed capacity, the district heat generated using natural gas is higher than the district heat produced utilizing renewables. However, the revenue produced by applying renewables is higher than natural gas due to the massive cost of renewables. This trend is set to remain with the share of renewables growing steadily.
Novi Sad Heating Plant in Serbia consumes around 1 million MWh of heat energy a year, with natural gas as a primary fuel costing about EUR 40 million. The overall production system efficiency is 96%, while the distribution system's efficiency is slightly over 90%.
In August 2021, Cummins installed a trigeneration system in Australia's Royal Children's Hospital. Natural gas generators provide electricity, heating, and cooling, whereas diesel generators provide critical standby power. The trigeneration system supplies baseload power, heating, and cooling via an absorption chiller.

Asia-Pacific Holds a Significant Share in the District Heating Market

The increasing disposable income, growing concerns for CO2 emission, and high consumption of heating and cooling systems are the major factors driving the market's growth in China. According to the Organization for Economic Cooperation and Development (OECD) models, India and China may witness a seven-fold increase in income per capita by 2060.
The governments in the Asia-Pacific region are also collaborating with local companies, further boosting the domestic market. For instance, the Beijing District Heating Group is one of the significant heating enterprises in China. The company deployed its heating solutions for the central Beijing government and army, embassies in China, large enterprises and institutions, and the public. It also owns numerous projects in other provinces.
The country is investing in various projects, further expanding the studied market. For instance, the Xiongan New Area pilot zone, a national key project in China, has a total area of 1,770 km2. The New Area aims to build a clean and eco-friendly heating system

to be scientific, utilize geothermal resources, and coordinate the natural gas, electricity, geothermal, biomass, and other energy modes.
Japan has long been a major importer and consumer of energy and a significant investor in energy technology development. Faced with geographical challenges, the local government revised its energy policy recently to focus on diversifying its energy mix and curbing carbon emissions. Building on these plans, Japan has outlined ambitious goals to cut greenhouse gas emissions by 26% between 2013 and 2030.
Japan must respond to social issues such as low carbonization, strengthening cities and blocks, and revitalizing local economies. The country's heat supply business was liberalized by revising the Heat Supply Business Law in 2016. According to a low-carbon simulation calculation of CO2 emissions, it is possible to reduce the efficiency of equipment in Japan by 2030 by 43% or more compared to 2013 in the large city model and 46% or more in the local city model.

District Heating Market Competitor Analysis

The district heating market is moderately competitive and consists of many global and regional players. These players are focusing on expanding their customer base worldwide. They also focus on R&D investment in introducing new solutions, strategic alliances, and other organic and inorganic growth strategies to earn a competitive edge over the forecast period.

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March 2021 - Vattenfall Wa□rme Berlin AG and Siemens Energy signed an agreement to demonstrate and trial a new large-scale, high-temperature heat pump in Berlin. In the Qwark, they will test this new technology for the first time at Berlin's Potsdamer Platz to generate green district heating using waste heat and electricity from renewables and feed it into Berlin's district heating network.

Additional Benefits:

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

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