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Asia Pacific Transformer Monitoring System - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2022 - 2027)

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Abstracts

The Asia Pacific Transformer Monitoring System Market size is estimated at USD 1.23 billion in 2024, and is expected to reach USD 1.91 billion by 2029, growing at a CAGR of 9.20% during the forecast period (2024-2029).

A transformer monitoring system (TMS) consistently monitors transformers' well-being. TMS often encompasses sensors, monitoring devices, data processing software, and communication systems. The system effectively detects possible faults, identifies issues, and promptly notifies operators by collecting and analyzing data on critical factors like temperature, oil level, vibration, and gases.

A transformer monitoring system offers numerous benefits. It plays a crucial role in improving the reliability of transformers and reducing the likelihood of failures by offering early warnings of potential issues. It allows operators to proactively address problems before they escalate, contributing to the extended lifespan of the transformer. Furthermore, it assists in minimizing downtime and repair expenses by enabling operators to identify and resolve issues swiftly. Lastly, the system provides valuable information that can be utilized to optimize transformer performance and inform future investment decisions.

The increasing popularity and advancements in electricity in recent years have resulted in a higher need for transformer monitoring systems. The industry analysis of transformer monitoring systems has shown significant growth opportunities due to industrial manufacturing facilities, technological advancements, and the widespread use of electrical devices. Market trends are crucial to meet the growing energy demand, as transformers play a vital role in

regulating electricity flow, especially in high-voltage areas. As the demand for transformers rises, so does the need for transfer monitoring systems.

The rapid urbanization and industrialization in the region and significant technological advancements have made Asia-Pacific the fastest-growing region for transformer monitoring. China, the largest and fastest growing market in Asia-Pacific, is attributed to its extensive renewable energy projects and substantial manufacturing capacity. As transformers age, they become more susceptible to failures. Utilizing transformer monitoring systems can help identify and prevent these issues, ultimately avoiding costly outages. Additionally, the increasing dependence on renewable energy sources in Asia-Pacific is accelerating the demand for transformer monitoring systems, as these sources can be unpredictable and lead to price fluctuations.

The growth of the market for transformer monitoring systems is being affected by various factors that have the potential to impede its progress. A notable hindrance is the substantial initial investment needed for system installation, coupled with the ongoing expenses for maintenance. Additionally, integrating the new monitoring systems with existing infrastructure can present challenges for certain organizations. The elevated cost of hardware, software, and installation further adds to the overall expense of a transformer monitoring system, which might deter organizations and utilities, especially those with limited budgets.

Furthermore, integrating new monitoring systems into the current grid infrastructure may pose challenges in terms of interoperability. This is due to the utilization of diverse communication protocols and data formats by various transformer monitoring systems, leading to intricacies in data management. Ongoing initiatives are being undertaken to effectively standardize and enhance communication technologies to tackle these challenges.

Asia Pacific Transformer Monitoring System Market Trends

Industrial Sector to Witness Major Growth

The industrial sector witnessed remarkable growth in the Asia Pacific region, led by countries such as China, Japan, South Korea, India, and Taiwan. In the last few decades, China has established itself as the global manufacturing hub, and a major

share of global companies have established their production hub in the country. For instance, according to China's National Bureau of Statistics, in 2023, the industrial sector generated around 31.7% of China's GDP.

Countries such as Japan and South Korea also have an established industrial sector. In the last few years, the region has been witnessing an upsurge in industrial sector growth across countries such as India and Southeast Asian countries such as Thailand, Malaysia, Indonesia, and the Philippines, among others.

As electricity is widely used in the industrial sector as a source of energy, such trends are anticipated to create a favorable ecosystem for the growth of the market in the region. For instance, according to the International Energy Agency, more than 50% of electricity consumed in the region is attributed to the industrial sector.

With the industries scaling in size and the adoption of powerful machinery and industrial equipment continuing to grow, transformers are becoming an essential infrastructural requirement. For instance, transformers help industries of different types, including aerospace, data centers, manufacturing, telecommunication, etc., get the desired voltage inherent in jumbo equipment and giant machinery. Converter transformers are considered a perfect fit for various industrial applications, including pumping stations, blast furnaces, and rolling stock in mining applications.

Using transformer monitoring systems (TMS) in an industrial environment has several other benefits. For instance, TMS helps minimize disruptions to industrial processes by ensuring a continuous electricity supply. Applying a predictive maintenance strategy based on TMS data makes it possible to significantly reduce downtime, which is highly important in every industry.

China to Hold Major Market Share

China is anticipated to remain a major market for transformer monitoring systems as the demand is anticipated to remain high across major end-user industries. According to the International Energy Agency, China is the leading energy producer and consumer among countries in Asia Pacific.

Furthermore, factors such as an increasing rate of urbanization and growing electricity consumption by the industrial sector are also driving the demand for electricity in the

country and driving investments in electricity infrastructure, which in turn is creating opportunities in the market studied.

According to CEC, the country witnessed an even growth in the power generation capacity of different sectors in 2023. While thermal power generation capacity in the country increased to 1,390.32 gigawatts from 1,32.39 gigawatts in 2022, the installed capacity of hydro, solar, and wind power also grew significantly. Solar power generation witnessed the highest growth among other renewable sources as the installed capacity increased to 609.49 gigawatts in 2023 from 392.61 gigawatts in 2022.

According to the National Energy Administration of China, renewable energy accounted for over 50% of the country's total installed power generation capacity in 2023.

Due to the expansion of the power generation sector, investments in new electricity transmission lines are also growing. In June 2023, the State Grid Corporation of China announced the beginning of construction of an ultra-high voltage direct current (DC) transmission line. Stretching 1,634 km, the transmission line runs from the Chinese Ningxia Hui Autonomous Region to the central province of Hunan. As HVDC transformers are among the key components for long-distance DC transmission lines, such trends are expected to positively impact the growth of the market.

Asia Pacific Transformer Monitoring System Industry Overview

The Asia Pacific transformer monitoring system market is semi-consolidated. Companies such as ABB Limited, Camlin Group, Eaton Corporation, Siemens AG, and General Electric Company rely on technological advancements and consumer interest in adopting the technology in their practices. Moreover, competitors can gain an edge through innovative offerings and products that have low costs and are highly available. Therefore, players must opt for a powerful competitive strategy to make a mark in the market.

> In February 2024, KONCAR expanded its presence in New Zealand as it delivered a transformer monitoring solution for a project carried out at Clyde Dam, one of the largest hydropower plants in New Zealand.
>
> In November 2023, Hitachi Energy inaugurated its transformer factory in Bac Ninh, Vietnam. This new factory specializes in liquid-filled power and distribution

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transformers and is set to nearly double the previous factory's annual capacity while maintaining adherence to the highest global standards. This advancement will additionally propel the company forward in the field of transformer monitoring.

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