

# **Advanced Process Control Market by Revenue Source (Software And Services), Application (Oil & Gas, Petrochemicals, Water & Wastewater, Chemicals, Power, Paper & Pulp, Pharmaceuticals, Food) And By Geography- Analysis & Forecast (2014 – 2020)**

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## **Abstracts**

Advanced process control is primarily employed in process industries. Process industries are in continuous pressure to improve the production process without compromising on the quality of the product produced. This has led to the development and implementation of advanced process control systems in process industries. APC represents a set of methods and technologies that are designed to realize additional performance and or economic improvement in the process industries. The implementation of APC across different process industries has been boosted by the development of infrastructure, hardware, and IT services. Today, APC vendors can provide customized APC software to their clients to tackle specific process control issues. Oil and gas application generates highest revenue in the advanced process control market. Power, and water and wastewater are the two fastest growing application areas for advanced process control. With increasing environmental concerns, wastewater treatment requirements have tightened. Advanced process control helps to keep up with the increased process complexity resulting from the new requirements. Increasing use of advanced process control in power plants is driven by the need to reduce emissions, to increase operational flexibility and reliability, and to reduce operational costs.

The advanced process control (APC) market report analyzes the market by revenue source, application, and geography. APC software and services are the two sources of revenue for APC technology vendors. The application segment includes oil and gas, petrochemicals, water & wastewater, chemicals, power, paper & pulps,

pharmaceuticals, food & beverages, and others. The report also provides the geographic view for major regions i.e. the North America, Europe, Asia Pacific (APAC), and Rest of the World (RoW). In this report— the drivers, restraints, and opportunities has been covered and are described briefly along with, their impact on the advanced process control market.

The advanced process control market has the largest market in the APAC. North America and ROW are also estimated to grow at a high rate in the forecasted period. The key players in the market include ABB Ltd. (Switzerland), Aspen Technology, Inc. (U.S.), Emerson Electric Co. (U.S.), General Electric Co. (U.S.), Honeywell International, Inc. (U.S.), Rockwell Automation, Inc. (U.S.), Rudolph Technologies, Inc. (U.S.), and Schneider Electric SE (France), among others.

#### Key Takeaways:

The total market size in terms of value for the advanced process control market is expected to grow at an estimated CAGR of 11.79% between 2014 and 2020

The advanced process control market has been analyzed, with a special focus on the high growth application segment

This report includes the market statistics pertaining to revenue source, application, and geography along with, their respective revenue

Porter's Five Forces framework has been utilized along with, the value chain analysis to provide an in-depth insight regarding the advanced process control market

Major market drivers, restraints, and opportunities for the advanced process control market have been detailed in this report

Illustrative segmentation, analysis, and forecast of the major geographic and application markets to give an overall view of the advanced process control market

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## About

The term “Advance Process Control (APC)” encompasses a broad range of sophisticated technologies and tools that are used to optimize plant performances across a range of applications. The complexity of industrial processes has evolved with the increasing demand for better output. This has led to a significant increase in the number of process parameters to be monitored. APC enables the monitoring and control of such process parameters in the process industry. Some of the benefits of the APC include: an improvement in the production capacity, minimized energy consumption, improved monitoring of process parameters, faster modification of the process as per changing requirements, predictive maintenance, and improved process safety.

The major drivers contributing to the growth of the APC market include: a rising demand for energy efficient production process that leads to cost effective production; increased safety and security concern, especially in industries such as chemicals, petrochemical, pharmaceuticals, and food & beverages, which are guided by strict regulatory standards; ability to predict failure at the component level that helps in predictive maintenance, availability of sophisticated APC tools that makes it easy for new professionals to use APC, and control of parameters that could not be controlled manually.

The APC market covered in this report consists of the APC software and related services. The main applications of APC include: oil and gas, petrochemicals, water & wastewater, chemicals, power, paper & pulps, pharmaceuticals, food & beverages, and others (mining and cement). The key players in the market are ABB Ltd. (Switzerland), Aspen Technology, Inc. (U.S.), Emerson Electric Co. (U.S.), General Electric Co. (U.S.), Honeywell International, Inc. (U.S.), Rockwell Automation, Inc. (U.S.), Rudolph Technologies, Inc. (U.S.), and Schneider Electric SE (France), among others.

The demand for improving the process stability was an important driving factor that led to the development of APC. In the 1980s, distributed control systems were used for process control. The companies tried to internally develop their own process control technology. However, the technology was limited by the limited computing power and lack of IT infrastructure during the period. The things changed in the 1990s with the development of IT infrastructure and availability of computers with superior capabilities. This led to the growth of the APC technology and saw its implementation in large plants across process industries. The last decade has seen improvement in the APC software

and an important focus has been placed on APC services that determine the long term success and failure of an APC implementation.

The APC systems require periodic maintenance to maintain their performance at the highest possible level. The regular updating of the system is also important for the continuous improvement of the system. APC consulting services have become critical for dealing with unique and complex process control issues. Companies like Emerson Electric Co. (U.S.) and Honeywell International, Inc. (U.S.) use long term service contracts to generate significant revenue from their process control operations.

Currently, the North America region is very active in the oil and gas industry. The development of technology to extract shale oil and gas has boosted the production activities, especially in the U.S. In fact, the U.S., once a huge importer of petroleum products, has become a net exporter of the same. The complexity of the drilling technology and the high cost of the equipment involved, make the implementation of APC vital in such operations.

The oil and gas industry encompasses a range of processes, equipment, and plant configurations. Hence, a diverse set of APC solutions are available to cater to the requirements of such a variety of production processes. The use of the APC technology helps companies to cut their production constraints and increase their production capacity. This is true even for offshore oil and gas operations. For example, use of the Multivariable Predictive Control (MPC) enabled BP PLC (U.K.) to increase its oil and gas production in its marlin tension leg platform, by XX%, in the Gulf of Mexico. The company obtained similar results in its other production facilities when it implemented the APC technology. Today, implementation of advanced process control at oil and gas production sites has become an industry norm. With the continuous increase in the consumption of oil and gas, the trend of increasing production of the same is set to continue. The oil and gas boom in the U.S. provides a huge potential for the growth of the APC technology. Aspen Technology, Inc. (U.S.), Emerson Electric Co. (U.S.), and Honeywell International, Inc. (U.S.) are some of the leading companies offering APC solutions in the oil and gas market.

The APC is very useful in power plants to reduce emissions, to increase operational flexibility and reliability, and to reduce operational costs. This helps power companies to adhere to the environmental norms as well as to improve the cost effectiveness of their operations. Increasing industrialization in developing nations, such as China and India, is expected to be the major demand driver of power in the near future.

Requirement of electricity for residential, agricultural, and services sector is also expected to boost the demand of power generation.

With the environment regulations related to wastewater treatment getting stricter, the complexity involved in achieving better results has increased. A lot of investment has been done by governments across the world to improve the reliability and efficiency of the water treatment systems. Development of computing technology, along with the development of sophisticated APC tools, has boosted the application of APC in the water and wastewater treatment market.

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