

Global Produced Water Treatment Market – Global Industry Size, Share, Trends, Opportunity, and Forecast 2018-2028F Segmented By Source (Crude Oil & Natural Gas), By Service (Primary Separation, Secondary Separation, Tertiary Separation & Others), By Application (Onshore & Offshore), By Region

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Abstracts

Global Produced Water Treatment Market is expected to grow at a robust pace in the forecast period 2024-2028 owing to increasing need for water resources and initiatives to fight diseases brought on by tainted water. Additionally, it is projected that the application of a number of cutting-edge technologies, such as oxidation, ceramic micro- and ultrafiltration, media filtration, adsorption, and others are expected to drive the Global Produced Water Treatment market during the forecast period.

Produced water is typically produced in large quantities during the life of the well. It consists of natural formation water and return water from wells injected into the formation as part of enhanced regeneration operations. Technologies and strategies applied to produced water include minimization, recycling/reuse, and disposal.

Water produced on land can be reinjected to provide additional oil and gas recovery, treated for civil use, or disposed of in reservoirs in accordance with regulations and permits. Water produced offshore is returned to reservoirs and either discharged into the sea after proper treatment or brought to land for proper treatment and subsequent disposal.

Biological, physical, and chemical processes are available to remove hydrocarbon components from product water. For offshore extraction plants, space constraints favor

compact physical and chemical processing techniques such as photo electrocatalytic processes, hydro cyclones, coagulation, and flocculation. Most of these techniques are only suitable for pretreating wastewater for on-site reuse. In contrast, membrane technology can successfully remove hydrocarbons from oil-contaminated wastewater, even at high salinity. Membrane processes offer several advantages over conventional processing, such as compact modules, low energy consumption, environmental friendliness, and high product quality regardless of feed quality fluctuations. The presence of dissolved and suspended oils in untreated production water can foul membrane equipment and increase operating costs. To this end, the vibrating membrane technology process VSEP (Vibratory Shear Enhances Process) is a technology that limits membrane fouling.

There is also growing interest in the beneficial uses of produced water, such as surface drainage for agriculture and industry. Produced water is the largest by-product stream associated with oil and gas exploration. This includes water from reservoirs, water injected into geological formations, and chemicals added during production and treatment processes.

The composition of the water produced varies greatly from well to well. It typically contains soluble and insoluble oils/organics, suspended solids, dissolved solids, and toxic heavy metals. It should be treated before reintroduction or injection into the soil. Due to increasingly stringent regulations, disposal costs are increasing and fresh water supplies are in short supply. This makes treating the water produced for reuse a more viable option.

Tackling Water Shortage Crisis

Rising freshwater consumption and ongoing oil-treated water outflow are likely to damage already-depleted supplies and create problems with shortages in the future. Therefore, governments of industrialized nations, such as Germany and the U.S., have imposed minimal or zero discharge restrictions of oil concentrations in disposal streams to regulate strict environmental regulations and practices. Additionally, there is a significant volume of produced water as a result of expanded oil and gas drilling worldwide. Water becomes increasingly environmentally harmful due to interactions between various chemicals used in drilling operations and water. It is essential to purify the produced water as a result.

For instance, ExxonMobil is starting a drilling programme and aggressive exploration in Guyana that is anticipated to result in the drilling of over a dozen wells this year. These

elements are anticipated to increase the demand for offshore and onshore drilling projects, which would increase the demand for water treatment systems used in oil and gas production. The availability of clean drinking water faces enormous challenges due to the expanding global population. Such a global need for the treatment of produced water is anticipated to expand due to population growth, ongoing industrialization, and growing oil and petrol operations. For instance, according to the National Framework for Water Resources, in order to fulfil future demands, England will need an additional 3,435 million liters of water daily by 2050. This is, in turn, anticipated to drive the market during the forecast period.

Wide Use of Produced Water

Produced water is important because the development of the country's unconventional oil and natural gas resources is directly linked to water use. Water is used to drill wells and fracture formations containing oil or gas. Reuse of generated water can have important economic, social, and environmental benefits, especially in water-scarce areas. It can be used for hydraulic fracturing, water flooding, and improved oil recovery, reducing the need for other water sources. In addition to other oilfield activities, the treated product water can be utilized to stimulate oil and gas reservoirs to boost output. It can also be used for firefighting, power generation, cleaning vehicles and equipment, and even watering non-edible plants.

Use in Oil & Gas Industry

Oil sand mining uses hot water to separate the bitumen from the sand and clay. In older conventional oilfields with improved oil production, water is pumped up wells, pushing oil out through cracks and pores in rocks, much like oil is pumped to the surface. Hydraulic fracturing uses high pressure to force water through narrow formations to open cracks in rocks and extract natural gas and crude oil through wells. Once the well is produced, the water can be used for dust control and equipment cleaning. Water is also used for construction purposes, such as freezing roads in winter.

Challenges

Operating in a suboptimal design may continue to be a significant barrier to the market's expansion for produced water treatment. Similar to this, the fall in natural gas ice costs and accurate measurement of produced water may restrain the market's expansion for Global Produced Water Treatment.

Latest Market Projects Fueling the Global Produced Water Treatment Market Growth During the Forecast Period

In 2021, SUEZ announced that they had won a DBOOM (Design, Build, Own, Operate and Maintain) contract to treat produced water from the Lima oil field, about 700km south of Muscat, Oman's capital. The plant capacity is 40,000 m³/day. The value of the signed contract is approximately USD145.6 million (?120 million). The contract period is for 20 years. The project was awarded by Petroleum Development Oman (PDO), Oman's leading oil and gas exploration and production company. The contract aims to implement alternative technologies for the treatment and disposal of product water, the oily wastewater resulting from oil extraction and reclamation.

In 2022, Swirltex Inc. was awarded a project to provide ARC Resources Ltd. with a unique buoyancy-enhanced membrane filtration technology to treat produced water. ("ARC") is Canada's leading energy producer in the Montney region. The project is valued at USD3 million, with upside potential as throughput increases. A unique membrane system separates solids and liquids by buoyancy. The characteristic flow pattern within the tubular membrane allows for the handling of suspended solids, oil and bacteria resulting in clean, consistent, and high-quality water. This makes this system the perfect solution for a wide variety of difficult wastewater streams.

In 2021, Denmark Oil Pipe A/S (part of ØRSTED), which operates a crude oil transportation system from the North Sea to the mainland, would build a permanent treatment plant for brine product water from oil production in the North Sea. This project uses MBBR technology. This plant replaces waste-water with other plants, leading to local purification of water. Overall, this greatly improves the DOP environment. To optimize investments and operations, the DOP awarded two contracts in parallel: Design and construction contract and Renewable operation and maintenance contract until 2050. The contract was awarded on April 19th and signed by the DOP and the SUEZ – MTH consortium on June 4th, 2021.

Market Segmentation

The Global Produced Water Treatment Market is segmented based on source, service application and region. Based on source, the market is bifurcated into crude oil &

natural gas. Based on service, the market is bifurcated into primary separation, secondary separation, tertiary separation & others. Based on application, the market is further bifurcated into onshore & offshore. Based on region, the market is bifurcated into North America, Europe, Asia-Pacific, South America, and Middle East & Africa.

Market players

The main market players in the Global Produced Water Treatment Market are Baker Hughes Ltd., Enviro Tech Systems, LLC, Siemens AG, Schlumberger Ltd, CETCO Oilfield Services, Ovivo Inc., General Electric Company, Veolia Environnement SA, Halliburton Energy Services, Inc, FMC Technologies Ltd.

Report Scope:

In this report, Global Produced Water Treatment Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Produced Water Treatment Market, By Source:

Crude Oil

Natural Gas

Produced Water Treatment Market, By Service:

Primary Separation

Secondary Separation

Tertiary Separation

Others

Produced Water Treatment Market, By Application:

Onshore

Offshore

Produced Water Treatment Market, By Region:

North America

United States

Canada

Mexico

Asia-Pacific

India

Japan

South Korea

Australia

China

Europe

Germany

United Kingdom

France

Italy

Spain

South America

Brazil

Argentina

Colombia

Middle East

Saudi Arabia

South Africa

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Produced Water Treatment Market.

Available Customizations:

Global Produced Water Treatment Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to ten).

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