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Oil Shale Market – Global Industry Size, Share, Trends, Opportunity, and Forecast,Segmented By Product (Shale Gasoline, Shale Diesel, Kerosene and Others), By Technology (In-Situ Technology and Ex-Situ Technology), By Process (Oil Shale Exploration, Ore Preparation, Oil Shale Retortion and Shale Oil Refining & Specialty Services), By Application (Fuel, Electricity and Cement & Chemicals), By Region, Competition 2018-2028

https://marketpublishers.com/r/O823B0667C05EN.html
Date: November 2023
Pages: 178
Price: US$ 4,900.00 (Single User License)
ID: O823B0667C05EN

Abstracts

The Global Oil & Gas Subsea Umbilicals, Risers and Flowlines (SURF) Market was valued at USD 2.97 billion in 2022 and is expected to grow at a CAGR of 8.41% during the forecast period. The subsea umbilicals, risers, and flowlines market is expected to experience significant growth due to the increasing demand for energy-efficient systems capable of transporting crude oil and gas to processing plants. These systems play a crucial role in connecting subsea production to surface facilities, thereby enhancing production rates and becoming the preferred choice. Furthermore, the industry outlook will be further stimulated by the growing investments in subsea projects, the rising installation of floating rigs, and the escalating energy demand.

Key Market Drivers

Expanding Offshore Exploration and Production Activities

The ongoing expansion of offshore exploration and production (E&P) activities is a key driver behind the growth of the Global Oil & Gas Subsea Umbilicals, Risers, and

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Flowlines (SURF) market. Offshore reserves, especially in deepwater and ultra-deepwater environments, have gained significant importance as onshore resources are depleted.

Consequently, oil and gas companies are venturing into more challenging subsea locations and deeper waters to access untapped hydrocarbon reserves. This surge in offshore E&P activities necessitates the development and deployment of advanced subsea infrastructure, including SURF systems. Umbilicals, risers, and flowlines play a critical role in subsea infrastructure, serving as the lifelines connecting subsea wells to surface facilities. They facilitate the transportation of hydrocarbons from the seabed to processing and storage facilities, making them indispensable in offshore operations.

As oil and gas operators explore deeper waters and exploit more remote reservoirs, the demand for robust SURF systems has skyrocketed. These systems need to be designed to withstand high-pressure, high-temperature (HP/HT) conditions, corrosive environments, and extreme subsea challenges. Consequently, SURF providers are witnessing a surge in demand for their products and services, driving market growth.

Technological Advancements and Innovation

The ongoing technological advancements and innovation serve as the second major driver in the SURF market. The oil and gas industry persistently pursues avenues to enhance operational efficiency, safety, and cost-effectiveness, especially in the subsea domain. To achieve these objectives, substantial investments have been allocated to research and development, aiming to create state-of-the-art SURF solutions.

Innovative materials, manufacturing processes, and subsea equipment have played a pivotal role in the development of more robust and reliable SURF components. Notably, the utilization of composite materials has significantly improved the durability of umbilicals, enabling them to withstand corrosion, high pressures, and extreme temperatures prevalent in deepwater environments. Moreover, advancements in flowline insulation and riser design have enhanced heat resistance and flow assurance.

Furthermore, the progress made in flowline coatings and insulation materials has resulted in improved thermal and pressure resistance, ensuring efficient hydrocarbon transport from subsea wells to the surface. These innovations not only extend the lifespan of SURF systems but also reduce maintenance and replacement costs, thereby driving their widespread adoption.

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Increasing Deepwater and Ultra-Deepwater Projects

The Global SURF market is driven by three key factors. Firstly, the rising number of deepwater and ultra-deepwater projects plays a significant role. These projects focus on drilling at depths exceeding 500 meters and 1,500 meters, respectively, and are crucial for oil and gas exploration and production. The popularity of deepwater and ultra-deepwater projects stems from several contributing factors.

Firstly, as shallow water reserves dwindle, oil and gas companies are compelled to explore deeper waters to tap into untapped hydrocarbon reserves. Additionally, advancements in subsea technologies have made operating in these challenging environments more feasible, thereby enhancing the economic viability of deepwater and ultra-deepwater projects. This trend directly impacts the SURF market, as the development of subsea infrastructure tailored for such conditions becomes imperative. Deepwater and ultra-deepwater SURF systems must be designed to withstand extreme pressures, temperatures, and corrosive subsea environments.

Consequently, there is a growing demand for specialized SURF solutions optimized for deepwater and ultra-deepwater projects, which drives market growth. In conclusion, the growth of the Global Oil & Gas Subsea Umbilicals, Risers, and Flowlines (SURF) market is propelled by the expansion of offshore E&P activities, technological advancements, and the increasing number of deepwater and ultra-deepwater projects. These factors collectively contribute to the market's continuous expansion and evolution, enabling it to meet the evolving needs of the oil and gas industry.

Key Market Challenges

Harsh Subsea Environments and Deepwater Challenges

One of the most significant challenges in the Global Oil & Gas Subsea Umbilicals, Risers, and Flowlines (SURF) market lies in the harsh and demanding subsea environments where these systems operate, particularly in deepwater and ultra-deepwater regions. Deepwater drilling, characterized by water depths exceeding 500 meters, and ultra-deepwater drilling, extending beyond 1,500 meters, present unique challenges to SURF systems due to extreme pressures, temperatures, and corrosive conditions.

In deepwater and ultra-deepwater projects, subsea equipment, such as umbilicals, risers, and flowlines, must withstand immense hydrostatic pressures that increase with

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water depth. These pressures can reach several thousand pounds per square inch (psi), subjecting SURF components to significant mechanical stress. Additionally, extreme subsea temperatures can range from near-freezing conditions to over 300 degrees Fahrenheit (150 degrees Celsius), requiring insulation and thermal protection for flowlines and risers. Corrosion is another critical concern as subsea equipment is exposed to corrosive seawater and aggressive chemicals.

The combination of high pressures, temperatures, and corrosive agents can result in equipment degradation and pose considerable operational and safety risks. Addressing these challenges necessitates the use of specialized materials, coatings, and design considerations. Manufacturers must develop robust and corrosion-resistant SURF systems capable of enduring the harsh subsea conditions encountered in deepwater and ultra-deepwater projects. Meeting these technical demands is vital to ensuring the safety, reliability, and longevity of subsea infrastructure.

Cost Pressures and Project Economics

Another challenge in the SURF market pertains to cost pressures and project economics. Offshore oil and gas projects, particularly those situated in deepwater and ultra-deepwater locations, involve significant capital investment and inherent operational expenses. These costs are driven by various factors, such as the procurement of specialized subsea equipment, drilling and installation costs, as well as ongoing maintenance requirements.

Oil and gas companies, aiming to maximize project profitability, place considerable emphasis on cost control and efficiency. This cost-conscious approach extends to the SURF components, which constitute a substantial portion of the overall project expenditures. Consequently, manufacturers and service providers in the SURF market face tremendous pressure to deliver cost-effective solutions without compromising quality, safety, or performance. Finding the right balance between cost considerations and the demand for cutting-edge technology and reliability presents a significant challenge.

Manufacturers must continuously innovate to reduce manufacturing costs, enhance production efficiency, and optimize materials, all while maintaining the stringent standards required for subsea equipment. Moreover, project operators must meticulously assess the economic feasibility of deepwater and ultra-deepwater developments, making informed decisions regarding the selection of SURF systems and equipment that align with project budgets and objectives.

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Regulatory and Environmental Compliance

Offshore drilling operations, including the deployment of SURF systems, are subject to rigorous regulatory requirements aimed at upholding environmental and safety standards. Regulatory bodies in different regions have established rules governing areas such as emissions control, waste disposal, well integrity, and equipment performance. Ensuring compliance with these regulatory standards is of utmost importance, as non-compliance can result in substantial fines, project delays, reputational damage, and environmental harm.

Manufacturers and service providers in the SURF market face the complex task of navigating a diverse landscape of regulatory frameworks that can vary significantly from one jurisdiction to another. Moreover, environmental concerns and societal expectations place additional emphasis on adopting eco-friendly and sustainable practices within the industry. This includes the development of environmentally responsible SURF solutions that minimize the ecological impact of offshore operations. Manufacturers must allocate resources to research and development to create greener materials, coatings, and production processes that align with evolving environmental standards. Successfully addressing these regulatory and environmental challenges requires a comprehensive understanding of the regulatory landscape, close collaboration with regulatory authorities, and a commitment to sustainability and responsible business practices.

Manufacturers and project operators must adapt to ever-evolving regulations while proactively addressing environmental concerns to ensure the long-term viability of offshore oil and gas projects and the SURF systems that support them.

Key Market Trends

Digitalization and Remote Monitoring

One of the key trends observed in the Global Oil & Gas Subsea Umbilicals, Risers, and Flowlines (SURF) market is the extensive adoption of digitalization and remote monitoring technologies. Digitalization has revolutionized the oil and gas industry by facilitating real-time data acquisition, analytics, and remote control of subsea assets. This trend holds particular significance in the context of SURF systems, which serve as vital components of subsea infrastructure.

Digitalization offers notable advantages to the SURF market. Advanced sensors and

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monitoring systems can provide real-time data on the condition and performance of umbilicals, risers, and flowlines. This data can be transmitted to onshore or offshore control centers, empowering operators to make informed decisions, optimize production, and proactively identify potential issues. Through remote monitoring, asset integrity management can be enhanced, downtime can be reduced, and safety can be improved by enabling predictive maintenance and swift response to anomalies.

Sustainability and Environmental Responsibility

A significant trend observed in the SURF market is the growing emphasis on sustainability and environmental responsibility. The oil and gas industry is facing heightened scrutiny regarding its environmental impact, resulting in a rising demand for eco-friendly solutions across the entire value chain. This trend is also evident in subsea infrastructure, including SURF systems.

Manufacturers and service providers in the SURF market are actively responding to this trend by developing environmentally responsible solutions. This includes the utilization of eco-friendly materials, coatings, and manufacturing processes that effectively reduce the ecological footprint of SURF components.

Additionally, concerted efforts are being made to minimize the potential for oil spills and leaks from subsea equipment, further demonstrating the industry's commitment to sustainability objectives. Meeting these environmental demands not only enhances the reputation of SURF providers but also opens doors to projects with stringent environmental requirements.

Segmental Insights

Product Insights

The Flowlines segment holds a significant market share in the Global Oil & Gas Subsea Umbilicals, Risers and Flowlines (SURF) Market. Flowlines play a pivotal role in the Global Oil & Gas Subsea Umbilicals, Risers, and Flowlines (SURF) Market, facilitating the transportation of hydrocarbons from subsea wells to surface facilities. These pipelines, known as flowlines, are designed to transport oil, gas, or other hydrocarbons from subsea wellheads to production facilities. They encompass various types, including production flowlines, export flowlines, and infield flowlines. The growth of this segment is fuelled by ongoing advancements in flowline materials and design.

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The utilization of advanced materials such as corrosion-resistant alloys and composite materials enhances the durability and performance of flowlines. Moreover, improvements in insulation and thermal protection contribute to enhanced flow assurance. The design of flowlines, whether rigid or flexible, is contingent upon factors such as water depth, seabed conditions, and the nature of the hydrocarbons being transported.

The increasing interest in deepwater and ultra-deepwater exploration projects is a significant driving force for the flowlines segment. These demanding environments necessitate advanced flowline systems capable of withstanding extreme pressures, temperatures, and corrosive conditions. The development of advanced materials and coatings that augment corrosion resistance and thermal protection presents promising opportunities. Manufacturers that can provide innovative solutions in this domain are well-positioned.

Type Insights

Shallow Water segment is expected to dominate the market during the forecast period. The shallow water segment within the Global Oil & Gas Subsea Umbilicals, Risers, and Flowlines (SURF) Market encompasses drilling and production activities conducted at water depths of less than 500 meters. Shallow water projects are characterized by relatively lower technical complexity compared to deepwater and ultra-deepwater projects. They often involve the use of fixed platforms, minimal subsea hardware, and straightforward installation processes.

Shallow water projects are generally more cost-effective and accessible compared to deepwater and ultra-deepwater developments. The proximity to shore reduces transportation costs, logistical complexities, and installation challenges. This makes shallow water projects attractive to oil and gas operators looking to optimize their project economics. Manufacturers and service providers in the shallow water segment can capitalize on the demand for cost-efficient SURF solutions tailored to these conditions.

Streamlined product designs, efficient installation processes, and shorter project timelines are key selling points in this segment. Shallow water fields are often developed using fixed platforms. These platforms serve as the foundation for drilling rigs, processing facilities, and wellheads. The trend is to design modular and cost-effective platforms that can be easily installed and maintained. Shallow water fields offer a cost-effective option for oil and gas companies, enabling them to tap into reserves without the high costs associated with deepwater or ultra-deepwater projects.

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Regional Insights

The Asia Pacific region is expected to dominate the market during the forecast period. It is a significant contributor to the offshore oil and gas industry, with multiple countries in the region actively involved in exploration and production activities. The Asia-Pacific region is home to some of the world's largest offshore oil and gas reserves. Countries such as China, Australia, Malaysia, Indonesia, and Vietnam have extensive offshore exploration and production operations. These reserves often require intricate subsea infrastructure, including SURF systems.

The Asia-Pacific region is currently experiencing sustained growth in offshore oil and gas activities. Exploration and production companies are venturing into deeper waters to access new reserves, thereby necessitating advanced SURF solutions for efficient hydrocarbon transportation to the surface. The region's rapid economic expansion has led to an increased energy demand, particularly for oil and gas. Offshore reserves serve as a significant energy source to meet this demand, further bolstering the SURF market.

Numerous countries in the Asia-Pacific region are focusing on deepwater exploration projects to tap into untapped reserves. These projects require advanced SURF systems capable of withstanding high pressures and harsh deep-sea conditions. The Asia-Pacific region boasts abundant offshore oil and gas resources, serving as a major driving force for the SURF market as companies seek to harness these reserves to meet energy demands.

Key Market Players

ABB Ltd.

Aker Solutions ASA

Baker Hughes Co.

Bureau Veritas SA

NOV Inc.

Oceaneering International Inc.

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Parker Hannifin Corp.

Saipem SPA

Schlumberger Ltd.

ArcelorMittal SA

Report Scope:

In this report, the Global Oil & Gas Subsea Umbilicals, Risers and Flowlines (SURF) Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Global Oil & Gas Subsea Umbilicals, Risers and Flowlines (SURF) Market, By Product:

Flowlines

Umbilicals

Risers

Global Oil & Gas Subsea Umbilicals, Risers and Flowlines (SURF) Market, By Type:

Shallow Water

Deep Water

Ultra Deep Water

Global Oil & Gas Subsea Umbilicals, Risers and Flowlines (SURF) Market, By Region:

North America

United States

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Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain

Asia-Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

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Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Oil & Gas Subsea Umbilicals, Risers and Flowlines (SURF) Market.

Available Customizations:

Global Oil & Gas Subsea Umbilicals, Risers and Flowlines (SURF) 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 five).

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