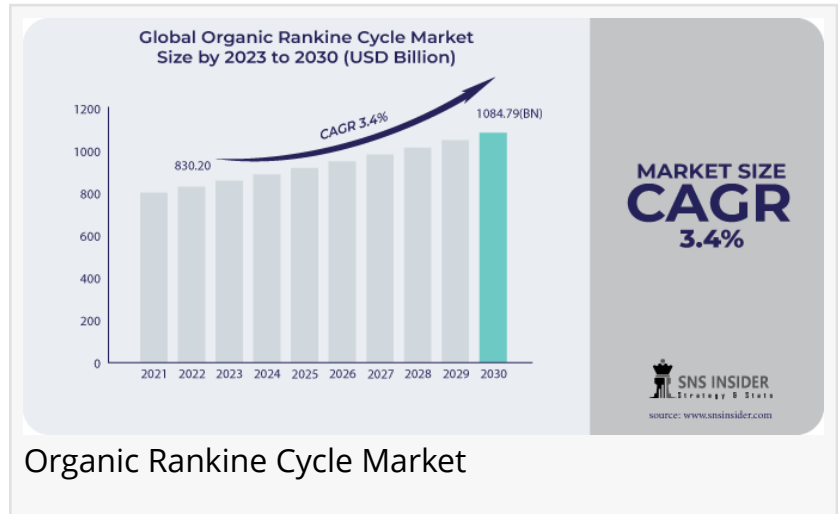# Organic Rankine Cycle Market to Surpass USD 1084.79 Billion by 2030 Fueled by Renewable Energy Drive

With a focus on technological advancements and increasing demand for energy-efficient solutions, the market is experiencing a paradigm shift.

TEXAS CITY, TEXAS, UNITED STATES, February 13, 2024 /EINPresswire.com/ -- The research conducted by SNS Insider has unveiled pivotal market growth factors driving the Organic Rankine Cycle (ORC) market forward. These factors include increasing demand for renewable energy solutions, heightened emphasis on sustainability, and the rising need for efficient utilization of low-grade industrial waste heat.

Organic Rankine Cycle Market

The SNS Insider report indicates that the Organic Rankine Cycle Market was valued at USD 830.20 billion in 2022, and it is projected to achieve a market size of USD 1084.79 billion by 2030, with a compound annual growth rate of 3.4% expected over the forecast period from 2023 to 2030.

> Organic Rankine Cycle Market size was valued at USD 830.20 billion in 2022 and is expected to grow to USD 1084.79 billion by 2030 and grow at a CAGR of 3.4 % over the forecast period of 2023-2030."
>
> *Sr. Researcher Sushant Kadam*

The Organic Rankine Cycle (ORC) market is a thriving ecosystem pulsating with innovation and sustainability. As industries worldwide seek greener alternatives, the ORC market emerges as a beacon of hope, harnessing the power of organic fluids to convert low-grade heat into valuable energy. From geothermal sources to industrial waste heat recovery, ORC systems offer versatile solutions, blending efficiency with environmental consciousness. This dynamic market is not just about power generation; it's a testament to the ingenuity of humanity, forging a path towards a cleaner, more sustainable future.

Request For Sample Report:

KEY PLAYERS:

• Turboden S.p.A.
• Exergy International Sr
• Zhejiang Kaishan Compressor Co., Ltd.
• Enogia SAS
• Triogen
• Calnetix Technologies, LLC
• ABB
• Atlas Copco AB
• TAS Energy Inc. (TAS)
• Elvosolar, a.s.

Market Report Scope:

The Organic Rankine Cycle (ORC) technology stands as a promising solution for harnessing low-grade industrial waste heat to generate energy efficiently. It introduces an advanced mixed integer nonlinear programming (MINLP) model, utilizing a comprehensive superstructure, to seamlessly integrate ORC systems within industrial facilities. This model meticulously addresses the intricate energy-capital trade-off dynamics, encompassing utility costs, ORC power generation potential, and capital investments requisite for ORC units and associated heat exchangers.

Through the application of this innovative model, industries can optimize ORC operating parameters while strategically selecting waste heat streams for maximum energy recovery. By concurrently enhancing operational efficiency, reducing costs, and achieving sustainability objectives through waste heat recuperation, the ORC technology meets the evolving demands of the industrial sector.

The growing adoption of ORC systems is propelled by the industry's pressing need to bolster operational efficiency, curtail expenses, and align with sustainability mandates. As industries increasingly prioritize waste heat recovery as a means to drive energy conservation and reduce environmental impact, the demand for ORC technology continues to surge. This trend underscores the pivotal role ORC systems play in facilitating sustainable energy practices within industrial operations, thereby fostering a paradigm shift towards resource-efficient and environmentally conscious manufacturing processes.

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Market Analysis:

As the world grapples with the urgent need to mitigate climate change and reduce greenhouse gas emissions, there's a heightened global focus on transitioning towards cleaner energy sources. This paradigm shift has propelled the demand for renewable energy technologies to unprecedented levels, marking a significant uptick in the adoption of solutions like the Organic Rankine Cycle (ORC) system.

ORC systems have emerged as a preferred choice due to their efficacy in converting low-temperature heat into electricity, thereby offering a sustainable alternative to traditional power generation methods. This technology holds immense promise in leveraging otherwise wasted industrial heat to generate clean and renewable energy.

Several factors are driving the exponential growth of the ORC market. Firstly, stringent emission standards imposed by regulatory bodies worldwide necessitate industries to seek environmentally friendly alternatives. ORC systems enable companies to comply with these regulations by harnessing waste heat and reducing their carbon footprint.

Moreover, the escalating demand for clean energy further fuels the adoption of ORC technology. Businesses and governments alike are increasingly prioritizing renewable energy sources to meet their energy needs while minimizing environmental impact. ORC systems present a viable solution in this regard, facilitating the efficient utilization of renewable resources.

Additionally, the emergence of economically viable ORC manufacturers plays a pivotal role in market expansion. Advances in technology and manufacturing processes have led to cost reductions, making O.

Segment Analysis:

Among various applications, geothermal projects dominate the ORC market due to their higher capacities compared to biomass and waste heat recovery projects. Geothermal applications hold significant market share owing to recent large-scale project deployments. This dominance is attributed to the increasing implementation of geothermal projects worldwide, which offers substantial growth opportunities for the ORC market.

Market Segments:
By Application

• Waste Heat Recovery
• Petroleum Refinery
• Chemical
• Glass
• Cement
• Metal Production and Casting (Iron & Steel)
• Biomass

• Geothermal
• Solar Thermal
• Oil & Gas (Gas Pipeline Pressure Stations)
• Waste to Energy

Key Regional Development:

In 2022, North America emerged as a pivotal geographical region for the ORC market. Geothermal applications captured the largest market share due to the deployment of large-scale geothermal projects. Europe witnessed substantial revenue share attributed to its well-established manufacturing and industrial sectors, along with the growing adoption of renewable energy sources. The region's market growth is fueled by the expanding utilization of ORC technology across various applications, coupled with increasing consumer awareness regarding energy-efficient systems.

Key Takeaways for Organic Rankine Cycle Market Study:

• The Organic Rankine Cycle Market exhibits robust growth prospects driven by the increasing adoption of renewable energy sources and stringent emission regulations.
• Geothermal applications dominate the market, supported by large-scale project deployments worldwide.
• Europe and North America emerge as key regions, witnessing significant market traction owing to established industrial sectors and rising awareness regarding energy-efficient solutions.

Recent Developments:

• Exergy International Srl, an Italian geothermal technology company specializing in ORC systems, has secured a contract to supply a 28 MW binary system to Energy Development Corporation for expanding a geothermal plant in the Philippines.
• Mitsubishi Heavy Industrieshas successfully demonstrated a 100kW class cryogenic ORC power generation system utilizing a nitrogen-based, oilless cryogenic turbine generator.

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