

# Analyzing Osmotic Power

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## Abstracts

With the threat of the global climate change looming large over our heads, more and more research has been ongoing into renewable energy. One such upcoming renewable energy is that of osmotic power. There are many unknown facts about this particular source of renewable energy. The mixing of freshwater and saltwater releases a large amount of energy. Harnessing this energy is the entire concept behind osmotic power.

While the technology is relatively new in the energy industry, Statkraft AS is emerging as a leader in this field, having already established its prototype plant in Norway. Using the pressure retarded osmosis (PRO) process, Statkraft has successfully begun the process of taking the technology of osmotic power towards commercialization.

However, the high cost of this technology and the entire setup of the power plant are impediments to the wide-scale use of osmotic power at the moment.

Aruvian's Research brings a research report that analyzes the technology of osmotic power in its report *Analyzing Osmotic Power*.

Beginning the analysis with an understanding of the potential of ocean sources of renewable energy, *Analyzing Osmotic Power* looks at the potential of osmotic power through an understanding of the salinity gradient power, along with its mechanics and concepts.

The processes involved in osmotic power, namely reverse electrodialysis, pressure retarded osmosis, and vapor compression, are all analyzed in the report, along with an analysis of the potential power produced from the process of osmotic power. The various power plant designs, pros and cons of osmotic power, as well as the power plants using osmosis are all analyzed in-depth in this research report.

The negative impact osmotic power has on the environment is analyzed in section D of the report, followed by a comprehensive analysis of the stages of salt permeability, concentration polarization, reverse osmosis, hybrid OP-RO process, and an energy analysis of the osmotic power process.

A cost analysis of osmotic power is carried out in section I in Financial Aspects of Osmotic Power.

Moving on, section J to L looks upon the overall potential of osmotic power in terms of business potential, commercialization value, as well as the technological potential of the entire process.

Case studies of Statkraft's osmotic power technology and its prototype plant in Norway serve to complete the overall understanding of this technology, along with giving the reader a comprehensive idea about how Statkraft has commercialized this technology.

The role of osmotic power at Ijmuiden, Netherlands is also analyzed in another case study.

Analysis of three major players in the industry, namely Statkraft AS, Flowserve Corporation and Energy Recovery Inc., completes this report on Osmotic Power. SWOT analysis of Statkraft AS and Flowserve Corporation give the reader an idea of where these companies stand in today's difficult industry scenarios.

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