

Oil gas pipelines: opportunities and challenges

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Oil has become the most in-demand product in the world. It has become the center of round-table discussions, and never that a single day passed without it being on the news. Decrease in its supply could mean the downfall of nations, especially the industrialized ones. This was evident in three world oil crises in 1973, 1979, and a brief one in 1990, which reversed the flow of money, making the oil-producing countries in the Middle East the vital force that could change the direction of the future of the world. Their cut-offs in production led to the creation of policies and rules on consumption, saving, and independence from oil.

A nation, controlling the production, selling, and over-all management of oil, is assured of a significant posting in any field of the world's lifestyle, but most importantly in politics and economics (Tanter, 2007). To become something like this, a nation should invest in ways on how to transport oil from its sources to its consumers, like the creation of networks of pipelines.

Research and development projects have been carried out and continuously be done to meet the challenges in connection with oil and gas pipelines. One of these is the continuing drive to discover more oil and gas reserves locked under the earth or offshore. There are still many places in the planet that need to be explored. Even the most extreme environments should be included, like what they did to the North Sea.

Designing and manufacturing pipes will still emerge as one of the important factors in the realm of oil and gas pipelines. Through the years, designs have been continuously improved to accommodate several factors like environment, and the nature of oil and gas. Researchers now consider the direct relationship of the size of the diameter of the pipe with the flow

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capacity of the product. Moreover, they also examine the expansion and contraction of pipes during the transportation of oil and gas due to significant temperature change, which could result to cracks, collapse tensions, and other similar effects. Materials will continuously be tested to determine the best for pipes. Though steel is already being used, improvements are still being done to test durability. Stresses and fractures, especially offshore projects, should be accounted for to minimize the percentage offailure. Cathodic protection against corrosion should be upheld to the highest level to assure the survivability of the pipes throughout the project.

Terrorismattacks on pipelines will remain one of the most feared human phenomena. This is due to the fact that whenever pipelines are bombed or attacked, industries are affected. With this, countries should strengthen their monitoring schemes to ensure the safety and zero attack on their pipelines.

Keeping with the laws of nature and environment also poses great challenge to companies engaged in oil and gas pipelines. Discovery of new sites for extraction will always encounter similar scenario with the trans-Alaska crude pipeline project, which was delayed for nine years, because the construction of pipelines was attached to environmental issues (Kennedy, 1993). Environmentalists will still be around the corner to watch the movements of oil companies.

A greater challenge is on the side of politics and regulation. Better policies and laws covering the construction of pipelines, and transportation of oil and gas should be enacted to cover threats and possible failure-causing movements, especially in explorations crossing two different countries.

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Faster approval of laws should be done to maximize the economic potentials of the discovered oil and gas reserves.

The greatest challenge could be the offering of affordable price of pipelined products to consumers. Companies must take note that the advancements they make with pipe designs and manufacturing, and the entire pipeline construction and transportation project, should go at par with the purchasing power of consumers, who are directly affected by any oil price hike.

Since the drilling of the first commercial oil well in 1859 in Pennsylvania, the evolution of pipelines has gone a long way, though remaining as the most economical way (Kennedy, 1993). Oil and gas pipelines are efficient, using only 4% of the energy content of the transported product. This is far better in comparison with other modes of transportation like water, rail, and trucks (Dykesteen & Frantzen, 1991).

Higher levels of technology give way for the development of better pipes and more sophisticated pipeline networks. These could yield higher efficiency rate and better service for the people, who basically need the product in their everyday living.

The construction of country's own pipelines could spell independence from importing oil and gas from foreign countries. This could also alleviate problems on oil crisis, and cut-off on importation rate. This could consequently clip the country to economic prosperity because of the removal of the burdens of oil importation.

Pipelines transport oil, and natural gas from extracting wells located in the different parts of the globe, including the most hostile areas like Alaska and

Siberia. These products are then refined, and prepared for consumption by all citizens in all corners of the world. These products when properly used could continuously fuel the economic progress of any country involved with it.

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