

Specialty Pipelines for Renewable and Alternative Energy Substances

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Abstracts

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The world is rushing to harness alternative and renewable energy sources, and global specialty pipeline infrastructure is jumping to keep up. SBI *Energy* estimates that the total global market for specialty pipelines will show year over year increases of 30% or more through 2015. This will result in a total global market of over \$3 billion by 2015. Because their chemical composition and transmission requirements composition are different from conventional fossil fuels, renewable fuels can be corrosive or destructive to existing/conventional pipelines, fittings, seals, and other conventional pipeline-related infrastructure. Transport of renewable fuels such as biodiesel, ethanol, and biomethane along existing fossil fuel pipelines (diesel, jet fuel, gasoline, natural gas) is frequently impracticable due to concerns of contamination between renewable and petroleum fuel batches. Additionally, the distributed nature of production operations for many renewable fuels, and for biomethane in particular, promise to support the construction of substantial new pipeline infrastructure.

Similarly, enhanced oil recovery, carbon capture sequestration, and other emerging energy economies require pipeline transport of carbon dioxide, commonly under very high pressure. Like ethanol, carbon dioxide can be highly corrosive to conventional pipelines, resulting in increased leakage rates, high repair costs, and general pipeline deterioration. The need to upgrade existing pipelines or construct new specialty pipelines for these substances has led to the emergence of product markets for components and materials related to specialty pipelines.

Substances carried in specialty pipelines - carbon dioxide, ethanol, biodiesel, and biomethane/biogas - have found market growth due to high petroleum prices, the

development of enhanced oil recovery methods using carbon dioxide injection, carbon capture and sequestration system development, the presence or potential for carbon emissions penalties in several world markets, industry and public interest in biofuels, and renewable fuels standards mandating increasing production and blending with petroleum fuels. These factors are driving a general shift in the energy economies of several world markets, towards technologies and fuels that mitigate greenhouse gas emissions and ensure greater energy security for countries with declining fossil fuel resources.

As these new energy economies gain traction, economies of scale continue to develop in support of renewable and other alternative energy products. Particularly in areas where alternative energy production or consumption is highly concentrated (for example, carbon dioxide enhanced oil recovery fields in Texas's Permian Basin), pipelines are emerging as an efficient means of transport to reduce costs associated with truck, barge, or rail transportation. In anticipation of increased demand for pipeline transport of alternative fuels and carbon dioxide, pipeline producers and operators have already investigated or established construction and operations procedures for the transmission of carbon dioxide, ethanol, biodiesel, and biomethane.

The design of specialty pipelines is, for the most part, based on existing technologies and materials used in existing pipeline transmission operations, as well as the oil & gas, renewable fuels, and chemicals industries. Components of specialty pipelines not found as extensively in existing pipelines for natural gas, petroleum, and petroleum products include protective coatings, large-diameter resin and plastic pipes, specialty industrial pumps and compressors for corrosive substances such as ethanol and carbon dioxide, specialty valves, and technologies able to detect pipeline leaks. Due to the increased risk of corrosion or stress-related cracking of specialty pipelines that carry ethanol or carbon dioxide, specialty pipelines also represent a notable market for state-of-the-art technologies used for existing petroleum pipelines to detect leaks, minimize corrosive wear, pitting, lamination loss, or metal loss. The further development of commercial pipelines for next-generation energy sector substances will depend on ongoing product specialization and operational experience with specialty pipeline components.

Specialty Pipelines, Components, Materials and Global Markets contains comprehensive data on the worldwide market for specialty pipelines, their components, materials, and supporting technologies, including historic (2006-2010) and forecast (2011-2015) market size data in terms of the dollar value of product shipments. The report identifies key trends affecting the marketplace, along with trends driving growth, and central challenges to further market development. The report also profiles leading

manufacturers and suppliers of specialty pipelines and that are most relevant to the specialty pipelines industry.

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