

To meet the ever-increasing demand for alternative fuels, Clean Energy Fuels Corp. has begun construction on California's first large-scale LNG (liquefied natural gas) production plant near Boron, approximately 75 miles northeast of Los Angeles. Cosmodyne's 160,000 gallons per day nitrogen cycle liquefier is the heart of the plant. Cosmodyne was selected for its 50 years of cryogenic engineering experience, utilization of "green" refrigerant, and simple modular plant design that allows for quick and easy installation. The Cosmodyne liquefier was delivered on time in March 2008 and is currently being commissioned. The Boron plant is scheduled to begin commercial LNG shipments in the second half of 2008.

Working together with Clean Energy Fuels, Cosmodyne provided two liquefier systems, each consisting of a cold box rated for 80,000 gallons per day, a nitrogen compressor, booster loaded ACD turboexpanders, and a heat exchanger. In addition, a pipeline gas adsorption system feeding both liquefier systems was provided. Cosmodyne utilizes environmentally-friendly nitrogen as the refrigerant to liquefy the pipeline gas. The use of nitrogen eliminates the requirement for hazardous hydrocarbon refrigerant systems. Similarly, to reduce cost and increase safety, the liquefier layout was arranged

that major system components such as the compressor were able to be designed for non-hazardous area. Thus, limiting only those items in contact with natural gas to comply with the more costly NFPA-59 requirements. For example, due to the high feedgas pressures, the cold box piping and fractionating column were fabricated in stainless steel instead of aluminum. However, the cold box design with this added weight required close monitoring to meet the allowable road transportation limits. As a result, the liquefier layout was arranged so

At this new plant, Clean Energy will liquefy pipeline gas for shipment to customers by tanker trailers. The LNG will be used by vehicle fleets throughout California and the southwestern United States. The facility can be expanded to a production capacity of 240,000 gallons per day. The plant will also have LNG