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## World Gas Conference

The International Gas Union held its triennial meeting in Washington, D.C., 5 to 9 June. Talks by high-level participants among those present from 46 member countries provided a view of the increasing role of natural gas in the world's energy economy. Of special interest were presentations by speakers from Western Europe and the Soviet Union. West Germany, France, and Italy are major importers of hydrocarbons, and the Soviet Union has the world's largest total fossil energy reserves.

From the tenor of the talks, it was clear that the people of Western Europe are intent on maximizing the security of energy supplies. Thus six nations, including France and West Germany, have entered into a 27-year contract to obtain part of their natural gas from the Norwegian-controlled giant Troll field located in the North Sea. This source will supplement gas currently being obtained from the Soviet Union, the Netherlands, Algeria, and Libya. Western Europe as a consumer is in the agreeable position of being in the midst of a huge and enduring gas glut. The use of this fuel is expanding, replacing fuel oil and some coal in boilers and being employed increasingly in home heating. The change is not rapid, but it progresses and additional countries, including Spain and Greece, will be served.

The most significant talk at the conference was delivered by V. S. Chernomyrdin, Minister of the Gas Industry in the Soviet Union. He told of Soviet plans for production and use of his country's enormous proven reserves of hydrocarbons. Proven reserves change with price, technology, and exploration, but the probabilities are that the Soviet Union will retain a huge margin over the United States. The Soviets have a large unexplored continental shelf, and their technology is evolving and improving.

About 60 percent of that country's gas is located in northern Siberia, above the Arctic Circle, much of it near the mouth of the River Ob. Conditions there are extreme. For 3 months of the year, winds blow with hurricane force. The mean annual temperature is  $-10^{\circ}\text{C}$ . The permafrost is deep and heterogeneous, including pockets of brine. Nevertheless, the construction of production platforms, pipelines, and pumping stations is proceeding. Large segments of the production platforms, weighing 1000 metric tons or more, are fabricated in factories 1500 kilometers south of the gas fields. During the summer thaw, they are floated on pontoons northward on the River Ob. In the winter, they are conveyed on special trucks to the fields. From each platform about 20 wells are drilled employing controlled directional drilling. In addition to methane, the wells will produce substantial amounts of gas liquids. To bring the gas west from fields on the Yamal Peninsula, it is planned by 1996 to lay six pipelines, 1420 millimeters in diameter, operating at pressures of 75 atmospheres. The pipelines will pass through the Gulf of Baidarak, which for most of the year is covered with drift ice.

This year the Soviet Union will produce about 26 trillion cubic feet (tcf) of natural gas (about 50 percent more than the U.S. production. In succeeding years, production will increase steadily, exceeding 35.3 tcf in the 1990s, with growth to continue beyond the year 2000. In 1987 the share of gas in energy use in the Soviet Union amounted to 36 percent with a projected share of 40 percent in 1990. Environmental considerations and the Chernobyl incident have spurred use in the generation of electric power. From 1984 to 1987, consumption for that purpose increased about 37 percent. Future substantial markets lie in home heating and in the application of gas condensate for petrochemicals. The Russians are moving toward the use of compressed natural gas in motor vehicles. Already 250 automobile gas-filling compressor stations are functioning. In 1990 the number of trucks operating on compressed natural gas will exceed 500,000. Prospects are that transportation applications will increase further in scale and number. Chernomyrdin stated, "The development of compressed and liquefied gas stations will allow us to decrease the consumption of petrol and diesel fuel."

The energy content of world reserves of natural gas is now nearly equal to that of petroleum, and prospects are that gas energy content will continue to grow much faster than that of oil. With increasing exploitation of gas reserves and broadened applications, gas is likely to serve for some time as an impediment to drastic increases in the price of petroleum.—PHILIP H. ABELSON