

Accent on research, development

Challenging year ahead for PG&E Company

Fuel shortages, rising costs and the urgent need to plan ahead have made 1974 one of the most challenging and interesting years in Pacific Gas and Electric Company's history.

PG&E is faced with natural gas curtailments by the National Energy Board of Canada and the Federal Power Commission, severely cutting back the company's ability to use this fuel for electric generation purposes. Artificially low, federally regulated price levels have stimulated the consumption of natural gas while frustrating the search for additional supplies.

To assure adequate future supplies of natural gas, PG&E is looking to the province of Alberta, Canada and the Arctic region near the mouth of the Mackenzie River and Alaska's Prudhoe Bay. However, neither of these sources can be considered firm until Canada determines that a surplus of natural gas exists beyond its own requirements.

PG&E is also exploring the Rocky Mountain region for natural gas. Because abundant supplies of coal exist in this area, the company is joining with other utilities and the federal government in research and development projects geared to process coal into gas.

Reflecting the importance of research and development, PG&E's research and development budget for 1974 totals \$19 million. This program is devoted especially to research on environmental improvement and new energy sources, such as waste materials and solar resources.

The company also participates in the funding of the Electric Power Research Institute (EPRI), which is currently engaged in 143 research and development programs. EPRI's \$167 million dollar studies include coal gasification, the breeder reactor for nuclear power supply, shale oil extraction and underground electric transmission.

As a short-term substitute for natural gas, California's

utilities now are turning to low-sulfur fuel oil for the generation of electricity. PG&E's fuel oil requirements in 1973 totals six million barrels. This year, despite a very good hydroelectric power water supply, 20 million barrels of oil will be required. Estimated fuel oil requirements for 1975 will jump to 35 million barrels.

PG&E's search for oil is worldwide, but low-sulfur oil is scarce on the world market. Lack of refinery capacity contributed to fuel oil supply problems.

Dwindling supplies of oil have been matched by rising prices. PG&E's 1974 expenditure for oil will amount to \$160 million, compared with \$35 million last year.

Nor have escalating costs left PG&E unscathed in prices it must pay to obtain adequate supplies of natural gas. The average price the company pays for natural gas has more than doubled since 1968 — from 28 cents per thousand cubic feet to more than 64 cents in 1974.

Greater wage and material costs, higher interest rates on borrowed money to meet needed expansion and environmental costs have added to the cost of energy. Despite the rate increases PG&E has required, however, its rates remain among the lowest in the nation.

The company's planning must involve electric generation free from dependence upon oil or natural gas. Here in PG&E's North Bay Division, geothermal power at The Geysers is of significant value.

PG&E's 10 geothermal units in Sonoma County currently produce 396,000 kilowatts of electricity, making The Geysers power plant the largest operating geothermal power facility in the world and the only one in the United States. Unit 11, scheduled for commercial operation in 1975, will bring The Geysers total generating capacity to 502,000 kilowatts. Plans call for 15 units to be in operation by 1977, bringing total capacity of the plant to 908,000 kilowatts. PG&E's geothermal generation currently displaces

the need for four million barrels of fuel oil per year.

Dwindling supplies of oil and natural gas also have made nuclear power generation a most urgent necessity, and PG&E is actively seeking suitable sites for nuclear power plants.

Passage of the Coastal Conservation Act of 1972 has resulted in an intensive search inland for suitable nuclear power plant sites. PG&E's search has been narrowed to nine "candidate" areas within the company's service territory. Preliminary geological studies indicate that these areas may involve favorable plant sites if adequate supplies of condenser cooling water can be developed.

The company also is participating with three other utilities and the California Department of Water Resources in investigating a nuclear power plant site near Wasco in Kern County.

Construction of PG&E's Diablo Canyon nuclear power plant in San Luis Obispo County is approximately 70 per cent complete. These two 1,060,000-kilowatt units are scheduled for commercial operation by late 1976.

Planning ahead to meet future energy needs must be buttressed by energy conservation. In January of this year, the California Public Utilities Commission order California's utilities to urge their customers to voluntarily cut back electricity use by 15 per cent. PG&E has cut its own inhouse electrical use by more than 30 per cent.

Shermer L. Sibley, PG&E chairman and chief executive officer recently stated, "Our customers have responded excellently to the call for energy curtailment, eliminating waste and non-essential uses. Energy conservation, we would hope, will become a way of life for all of us.

"Mandatory curtailments of service have been avoided, and prospects for the remainder of the year are brighter. However, we must continue to use energy wisely."