UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

PROCUREMENT, LOGISTICS,
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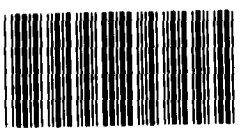

The Honorable John Melcher
United States Senate

Dear Senator Melcher:

Subject: Air Force's Plans To Convert the Heating System From Gas to Coal Fired at Malmstrom Air Force Base, Montana (GAO/PLRD-83-32)

In your letter of June 17, 1982, you asked us to assess the cost effectiveness of the Air Force's plans to convert the heating system at Malmstrom Air Force Base to a central coal-fired system. Your request was based on a constituent's letter indicating that by using high efficiency conventional gas equipment, the Government could save about 80 percent of the Air Force's estimated costs of $50 million for the coal-fired system and an additional 30 percent on fuel costs.

We reviewed the Air Force's proposal for constructing the coal-fired system and discussed the justification for the proposed system with Air Force engineering officials at Malmstrom and at the Air Force Engineering and Construction Division of the Directorate of Engineering and Services, Bolling Air Force Base, Washington, D.C.

The Air Force's planned construction of a coal-fired system complies with Department of Defense and Air Force policy and directives requiring the use of coal or other alternate fuels in lieu of natural gas and petroleum as a primary energy source in new major fuel-burning installations. These directives implement the provisions of (1) Public Law 95-620, the Powerplant and Industrial Fuel Use Act of 1978 and (2) Public Law 96-418, the Military Construction Authorization Act, 1981, as codified under Public Law 97-214, the Military Construction Codification Act. We believe the Air Force's decision to use a coal-fired system was consistent with the cited legal requirements.

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In view of the existing legislation which effectively negated the use of natural gas, the Air Force did not prepare an economic assessment of using a gas-fired system at Malmstrom. Therefore, we did not assess the cost effectiveness of the plan to convert to a coal-fired system.

BACKGROUND

The Air Force has developed a plan for constructing a coal-fired central heating plant at Malmstrom. A concept study on the change to coal was conducted in 1977 by a private architect/engineering firm for the Air Force. This was followed by a design study which resulted in detailed plans for a coal-fired central heating plant. The design is now complete and is ready for contract bid solicitation.

This plant is currently estimated to cost about $50 million, and these funds are included in the Defense budget for fiscal year 1983. This coal plant will replace a small heating plant consisting of 3 gas-fired boilers and 66 other existing oil and gas-fired units which presently supply heat and hot water to the industrial part of the base. Heating for the family housing area and several other facilities on the base will not be affected by the new plant.

The proposed plant will have three coal-fired boilers with a rated capacity of 85 million Btu's heat input per hour each. Also, Air Force plans call for storing a 180-day supply of coal to preclude a sudden interruption of fuel supply.

Many of the units to be replaced are over 25 years old and are in various stages of deterioration. Most of the gas distribution lines associated with these facilities are over 30 years old and will also need replacement in the near future.

DECISION TO USE COAL-FIRED EQUIPMENT BASED ON LAW

The Powerplant and Industrial Fuel Use Act of 1978 was passed for the purpose, among others, of encouraging and fostering the greater use of coal and other alternate fuels as a primary energy source in lieu of natural gas and petroleum. Section 202 (42 U.S.C. 8312) states that except as otherwise provided in the act, natural gas or petroleum shall not be used as a primary energy source in a new major fuel-burning installation consisting of a boiler. According to section 212 (42 U.S.C. 8322), the Secretary of Energy shall grant an exemption to use natural gas or petroleum if

--it is likely that an adequate and reliable supply of coal or another alternate fuel will not be available within the first 10 years of the useful life of the installation or will not be available at a cost which does not substantially exceed the cost of using imported petroleum as a primary energy source during the installation's useful life,

--one or more site limitations exist which would not permit the location or operation of such an installation using coal,

--the use of coal or another alternate fuel would violate environmental requirements, or

--the use of coal or another alternate fuel would not allow the petitioner to obtain adequate capital for financing the installation.

The operator of a major fuel-burning installation may, if it wishes, apply for an exemption. When the petition is based on cost, the Secretary is to grant a permanent exemption if he finds substantial excess cost for the use of coal or another alternate fuel.

Section 808 of the Military Construction Authorization Act, 1981, codified as 10 U.S.C. 2690 by section 6 of the Military Construction Codification Act, states that

"Except as provided in subsection (b), a new heating system that requires a heat input rate of fifty million British thermal units per hour or more and that uses oil or gas (or a derivative of oil and gas) as fuel may not be constructed on lands under the jurisdiction of a military department."

Subsection (b) states that the provision above may be waived only in rare and unusual cases. Also, under subsection (c), service may not be provided in increments to avoid the prohibition in subsection (a).

NATURAL-GAS-FIRED SYSTEM
COST ESTIMATES

We were told that the Air Force had not sought an exemption for the new plant at Malmstrom. Nor did the Secretary of the Air Force waive the military construction prohibition on the use of oil or gas for heating fuel for new systems constructed on lands under his jurisdiction. However, in accordance with your request, we made some inquiries into the cost of constructing and using a gas-fired system.

Air Force engineering officials and representatives of architect/engineering firms estimated the cost to replace the system at Malmstrom with gas equipment from a low of $15 million to a high of $31 million. These estimates did not include the cost of replacing the existing gas distribution system, which in February 1982 was estimated to cost about $1.6 million. In addition, we obtained estimated annual costs for the use of either natural gas or coal from Departments of Defense and Energy officials. These estimates showed that the use of natural gas over a 25-year period would cost from $6 million to $15 million more than coal. Data was not readily available for us to estimate the other life-cycle cost elements for the natural gas system, such as costs of operations and maintenance, building reconstruction and remodeling, contingencies, or salvage value.

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As your Office requested, we did not obtain written comments from the Air Force on our findings. However, we discussed them with officials at Malmstrom and at the Air Force Engineering Headquarters at Bolling Air Force Base.

Copies of this report are being sent to the Secretaries of Defense and the Air Force. Also, copies will be made available to other interested parties upon request.

Sincerely yours,

Donald J. Horan

Donald J. Horan
Director