

011 ENERGY IMPACT STUDY OF THE MOVE OF ACTIVITIES FROM BROOKLYN NEW YORK 096718 75-0080



RESERVED FOR THE General Accounting Office by the Comptroller General of the United States
COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

RELEASED

B-178205

DEC 31 1974



The Honorable Hugh L. Carey
House of Representatives

BEST DOCUMENT AVAILABLE

Dear Mr. Carey:

As requested by your letter of December 13, 1973, we have made a study of the energy impact of moving Department of Defense activities from the Military Ocean Terminal, Brooklyn, New York, to Bayonne, New Jersey. On May 22, 1974, we discussed with your office the results of our work, which showed that the Army estimates that the move will result in an overall decrease in energy consumption. This report summarizes the information we obtained.

In 1964 the Secretary of Defense announced the closing of the Brooklyn facilities. Terminal operations moved to Bayonne in 1966, leaving only administrative functions in Brooklyn. On February 8, 1974, the Department of Defense announced that the remaining administrative functions at Brooklyn also would move to Bayonne. The move, which began in June 1974, is scheduled to be completed about September 1975 when the final section of renovated warehouse space at Bayonne will be ready.

The move involves about 1,136 military and civilian personnel employed by Department of Defense activities at Brooklyn. These activities include Headquarters, Eastern Area Military Traffic Management Command; the Military Traffic Management Command Information Systems Office, Eastern Area; the U.S. Army Communications Command, Eastern Area; and the U.S. Navy Military Sealift Command, Atlantic.

Enclosure I shows the energy consumed at Brooklyn and Bayonne during fiscal year 1973, the last full year before the move. This energy was used before energy conservation started at Brooklyn and included service to a large tenant, the U.S. Postal Service, whose requirements were not measured separately. The Postal Service moved from Brooklyn about October 1973. Therefore this data appears to have only limited value in measuring the change in energy consumption resulting from the move.

LCD-74-353

~~702208~~ 096718

B-178205

We asked the Army to estimate the changes in energy consumption resulting from the move, and we made some of the estimates from information the Army provided. The estimates show savings of from 1.6 to 2.2 million gallons of heating oil annually. (See enc. II.) These savings resulted mainly from (1) the heat's being turned off in the Brooklyn space, including unoccupied space previously heated to keep the fire protection system from freezing, and (2) the Bayonne space's being either fully heated or being heated to 55°.

The savings in heating-oil consumption will be partly offset by an increased gasoline requirement. The Army estimates that employees commuting to Bayonne will use about 209,300 additional gallons of gasoline annually; however, since about 12,800 gallons will be saved by eliminating Government interinstallation travel, the net increase will be about 196,500 gallons. (See enc. II.)

Electricity consumption at Bayonne will increase by about 7.6 million kilowatt-hours annually after the move. We estimate that electricity consumption at Brooklyn will decrease by 6.8 million kilowatt-hours, ^{1/} resulting in a net increase of about 800,000 kilowatt-hours annually. This increase can be attributed, in part, to air-conditioning of all office space at Bayonne; most of the space at Brooklyn was not air-conditioned.

At a January 15, 1974, meeting with your office, we agreed to get some preliminary information on the costs of the move. The Army gave us the tentative costs of the move and the resultant savings shown in the document justifying the move. According to the Department of Defense, the Army approved the justification document on July 12, 1974, and the cost figures may be revised as the actual move takes place.

The total costs of moving the Army activities are expected to be \$4.87 million, including certain costs for renovating facilities at Bayonne. The Army expects savings of about \$2.3 million a year as the result of eliminating 147 personnel associated with base operation functions at Brooklyn and reducing overall fuel requirements.

^{1/} Based on fiscal year 1974 trend after the Postal Service moved.

The Navy's moving costs are estimated to be \$2.3 million, including \$1.8 million for renovating facilities at Bayonne. The Navy does not expect any savings from the move, but the Department of Defense decided that collocation with the Army activities was necessary.

At our May 22, 1974, meeting, your office asked about the feasibility of moving the Bayonne activities to Brooklyn rather than the reverse. This does not appear feasible, since Brooklyn does not have sufficient storage area to house the activities located at Bayonne. As of March 31, 1974, the Army reported open storage space at Brooklyn and Bayonne as follows:

	<u>Brooklyn</u> (square feet)	<u>Bayonne</u> (square feet)
Occupied	a/ 646,173	2,673,874
Vacant	490,845	1,248,456
Common use (note b)	<u>984,507</u>	<u>4,299,384</u>
Total	<u>2,121,525</u>	<u>8,221,714</u>

a/ Includes 460,271 square feet leased to commercial tenants which will not relocate to Bayonne.

b/ Includes hallways, parking areas, etc.

The Brooklyn warehouse space is mostly in two eight-story buildings, which necessitates extra cargo handling; Bayonne space is in one-story buildings, for simplified cargo loading and unloading. Also, the Brooklyn facilities are in poor condition, since the Army has deferred maintenance for several years.

By letter dated November 18, 1974, the Department of Defense, in commenting on our report, indicated it agreed with the information we presented with certain minor changes. We have incorporated the changes in the report.

B-178205

Arthur M

2 We are sending a copy of this report to Congressman Brasco, as you agreed. We do not plan to distribute this report further unless you agree or publicly announce its contents.

Sincerely yours,

Comptroller General
of the United States

Enclosures - 2

BEST DOCUMENT AVAILABLE

FISCAL YEAR 1973 ENERGY CONSUMPTION

AT MILITARY OCEAN TERMINAL, BROOKLYN, NEW YORK
AND MILITARY OCEAN TERMINAL, BAYONNE, NEW JERSEY

	Amount consumed <u>(note a)</u>
MILITARY OCEAN TERMINAL, BROOKLYN	
Installation:	
Heating oil (gallons)	2,702,921
Electricity (kilowatt-hours) (note b)	15,793,200
Natural gas (cubic feet)	24,800
Gasoline (gallons)	362,124
Family housing (2 units):	
Electricity (kilowatt-hours)	12,060
Natural gas (cubic feet)	464,100
MILITARY OCEAN TERMINAL, BAYONNE	
Installation:	
Heating oil (gallons)	4,188,673
Electricity (kilowatt-hours) (note c)	20,892,264
Gasoline (gallons)	281,546
Diesel fuel (gallons)	78,451
Marine diesel fuel (gallons)	21,775
Family housing (125 units):	
Heating oil (gallons)	129,678
Electricity (kilowatt-hours) (note c)	780,000
Natural gas (cubic feet)	1,307,000

a/ Data obtained from several Army documents with minor adjustments because of noted discrepancies. GAO did not verify the Army data.

b/ Includes 1,440,403 kilowatt-hours used and paid for by a commercial tenant.

c/ Electricity consumption of the 125 family-housing units was not metered until November 1973. Before that electricity consumption was estimated to have been 38,000 kilowatt-hours a month. After installation of the meter, it was found that 65,000 kilowatt-hours a month was a more reasonable estimate. Therefore GAO used 65,000 kilowatt-hours, although the Army reported 38,000 kilowatt-hours. However, total kilowatt-hour consumption remained the same.

ESTIMATES OF CHANGES IN ANNUAL ENERGY CONSUMPTION
OF HEATING OIL AND GASOLINE DUE TO THE
MOVE OF DEPARTMENT OF DEFENSE ACTIVITIES
FROM BROOKLYN TO BAYONNE

HEATING OIL

The Army has used two different methods and obtained different results in estimating fuel-oil use at Brooklyn and Bayonne for fiscal year 1974, the year before the move. (See note a.) The Army and the Corps of Engineers each used a different method and obtained a different result in estimating the increased use of fuel oil at Bayonne after the move. (See notes c and d.) Combining these estimates in various ways produced calculated decreases in consumption ranging from 1.6 million gallons to 2.2 million gallons, as shown below.

	Gallons consumed		Net increase or decrease (-)
	Before move (note a)	After move (note b)	
Minimum savings:			
Brooklyn	1,702,400	-	-1,702,400
Bayonne	<u>3,137,000</u>	<u>3,228,700</u>	<u>c/ 91,700</u>
Total	<u>4,839,400</u>	<u>3,228,700</u>	<u>-1,610,700</u>
Maximum savings:			
Brooklyn	2,232,700	-	-2,232,700
Bayonne	<u>3,669,000</u>	<u>3,679,800</u>	<u>d/ 10,800</u>
Total	<u>5,901,700</u>	<u>3,679,800</u>	<u>-2,221,900</u>

a/ Consumption estimates of 1.7 and 3.1 million gallons are based on actual consumption for the first half of fiscal year 1974 extrapolated over the last half of 1974 using the patterns of use over fiscal years 1972 and 1973. Consumption estimates of 2.2 and 3.7 million gallons are average of actual use for fiscal years 1972 and 1973 and the estimated use for 1974.

b/ GAO estimate.

c/ Army estimate of increased consumption is based on an increase of 2.5 percent in average use (3.7 million gallons) for 1972, 1973, and 1974.

d/ Corps of Engineers estimate of increased consumption based on space, temperature to be maintained, and various factors affecting heat loss.

GASOLINE

	Gallons consumed		
	Before move	After move (note a)	Net increase decrease
Brooklyn personnel	360,700	598,400	237,700
Bayonne personnel	349,900	321,500	-28,400
Interinstallation travel	<u>12,800</u>	<u>-</u>	<u>-12,800</u>
Total	<u>723,400</u>	<u>919,900</u>	<u>196,500</u>

a/ The Army made transportation and gate surveys at both installations to estimate changes in gasoline consumption. The transportation surveys gave information on the location of the employees' residences, the mode of travel used in commuting to and from work, and the number of miles traveled. The gate surveys gave information also on the number of automobiles entering each installation and the average number of people in each automobile. From this basic data the Army developed a model which ultimately gave figures for the average gasoline consumed, in gallons per workday. This gasoline consumption was based on each employee's travel from his residence. The Army also estimated, in gallons per workday, the gasoline consumed for official interinstallation travel. We computed the annual gasoline consumption by multiplying the Army's estimates of gallons used per day by our estimate of about 250 workdays a year.