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ENERGY OIL COMMITTEE

Western Axis Sub-Committee

AXIS NAVAL CONSUMPTION OF LIQUID FUELS AND LUBRICANTS, 1943

January 1944

GERMAN AND ITALIAN NAVAL CONSUMPTION OF LIQUID FUELS
AND LUBRICANTS, 1943

I. CONSUMPTION IN 1943

Total consumption of liquid fuel and lubricants by German naval forces in 1943 and by the Italian navy during the first eight months of the year is estimated at two million metric tons. Of this total, German naval forces are estimated to have consumed 1,592,000 tons, of which 11,000 tons were aviation gas line, 28,000 tons motor fuel (for the shore establishments), 45,000 tons lubricants, 732,000 tons Diesel oil, and 776,000 tons fuel oil. Italian naval forces in the first eight months of the year consumed 408,000 tons, of which 3,000 tons were lubricants, 10,000 tons motor fuel, 30,000 tons Diesel oil, and 362,000 tons fuel oil.

The average monthly rate of consumption by the German Navy was 156,000 tons and by the Italian Navy 51,000 tons.

The estimates of consumption by shore establishments make allowance for conversion to solid substitute fuels of an estimated 15 percent of gasoline powered vehicles, for a total saving of liquid motor fuel of 5,000 tons.

II. COMPARISON WITH THE BRITISH ESTIMATES

British estimates of consumption of liquid fuels and lubricants by the German and Italian navies are available for the first eight months of 1943. Total consumption is put at 1,247,000 tons or a monthly rate of 156,000 tons, which is 15 percent lower than the corresponding American estimate of 1,464,000 tons. It may be noted, however, that the British estimate of German naval consumption in September is only 9 percent below the American estimate (121,000 tons as compared with the American estimate of 133,000).

III. CONSUMPTION IN 1944

Ignoring the possibility of invasion, consumption by German naval forces in the first six months of 1944 is tentatively estimated at 800,000 tons of liquid fuel and lubricants. The figure is reached on the basis of the following assumptions and considerations:

1. slightly reduced activity by German submarines and certain other craft as compared with 1943;
2. limited use of French and Italian vessels still in German hands in the Mediterranean;
3. continued conversion to solid substitute fuels of vehicles in the shore establishment.

Additional naval requirements in the six months following an Allied invasion may be tentatively estimated, on the basis of various assumptions, as in the order of 200,000 tons.

IV. METHODOLOGY

The consumption of liquid fuels and lubricants by the German Navy during the whole of 1943 and by the Italian Navy during the first eight months of 1943 has been estimated on the basis of:

1. the number of vessels of each type in each navy;
2. consumption per day at sea and in port by type of vessel and by product (aviation gasoline, Diesel oil, fuel oil) and ratios between consumption and lubricants;
3. average rates of activity per month (i.e., average number of days at sea per month) by individual ships in the case of large German units and by type of vessel in the case of small German units and the Italian fleet;
4. number of shore personnel and assumptions as to the number of men per motor vehicle, average consumption of motor fuel (by product) and lubricants per vehicle per month. Given these basic data, the estimates of total consumption were easily obtained by a simple process of multiplication. No allowance was made for wastage and losses, since it was believed that this factor was provided for by the liberal basic consumption rates employed.

TABLE I

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GERMAN AND ITALIAN NAVAL CONSUMPTION OF LIQUID FUELS AND LUBRICANTS, 1943

(Thousand metric tons)

	<u>Gasoline</u>	<u>Lubricants</u>	<u>Diesel Oil</u>	<u>Fuel Oil</u>	<u>Total</u>
1. German Navy	39 ¹	46	732	776	1593
2. Italian Navy ²	10	6	30	362	408
GRAND TOTAL	49	52	762	1138	2001

¹ Includes 11,000 tons of aviation gasoline for special naval craft.² January through August 1943.

TABLE II

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GERMAN NAVAL CONSUMPTION OF LIQUID FUELS AND LUBRICANTS, 1943

(Thousand metric tons)

<u>Class of Vessel</u>	<u>Gasoline</u>	<u>Lubricants</u>	<u>Diesel Oil</u>	<u>Fuel Oil</u>	<u>Total</u>
1. Battleships and Cruisers	--	2	30	93	125
2. Destroyers	--	3	--	268	271
3. Submarines	--	22	540	-	562
4. Other craft	11 ¹	17	151	415	594
5. Shore establishments	28	1	11	-	40
	<u>39</u>	<u>45</u>	<u>732</u>	<u>776</u>	<u>1592</u>
GRAND TOTAL					

¹ Aviation gasoline for special naval craft.

TABLE III

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ITALIAN NAVAL CONSUMPTION OF LIQUID FUELS AND LUBRICANTS, JANUARY THROUGH AUGUST, 1943

(Thousand metric tons)

<u>Class of Vessel</u>	<u>Gasoline</u>	<u>Lubricants</u>	<u>Diesel Oil</u>	<u>Fuel Oil</u>	<u>Total</u>
1. Battleships and Cruisers	--	1	--	92	93
2. Destroyers	--	2	--	161	163
3. Submarines	--	1	24	-	25
4. Other craft	--	(2	6	109	117
5. Shore establishments	10	(	--	-	10
	<u>10</u>	<u>6</u>	<u>30</u>	<u>362</u>	<u>408</u>
GRAND TOTAL	10	6	30	362	408