AVCO Systems Division
Lowell Industrial Park
Lowell, Massachusetts
21 May 1975

FACT SHEET

ENERGY SAVINGS POTENTIALLY AVAILABLE BY RECOVERING NONFERROUS METALS FROM MUNICIPAL SOLID WASTES

THE PROBLEM - THE UNITED STATES FACES A PERIOD OF INCREASING ENERGY SHORTAGES AND DEPENDENCE UPON FOREIGN SOURCES TO MEET ITS ENERGY NEEDS

1. In 1971 the United States consumed energy at the rate of 69 quadrillion BTU's per year, and by 1980 its consumption is estimated to increase to at least 96 quadrillion BTU's.(1)

2. To fulfill its energy needs beyond its available domestic fuel resources, the Nation is importing natural gas, refined petroleum and crude oil at the rate of about $5 billion per year in 1971. If present trends continue, it is projected that the Nation may be importing fuels at the rate of about $50 billion (in 1971 dollars) by the year 2000.(2)

3. Increasing dependence upon foreign sources of fuels threatens the military strength of the Nation in times of national emergency, and adds to the balance of payments deficit.

IMPACT OF FUEL AND OTHER MINERALS IMPORTS ON THE U.S. BALANCE OF PAYMENTS, 1972 (2)

Imports of Minerals, Raw and Processed	$14 Billion
Exports of Minerals, Raw and Processed	$ 8 Billion
TRADE DEFICIT	$ 6 Billion

A SOLUTION - SAVE ENERGY BY RECYCLING NONFERROUS METALS FROM MUNICIPAL SOLID WASTES

1. It requires substantially less energy to recycle nonferrous metals from scrap than to produce identical new metals from the ore.

ENERGY CONTENT OF KEY NONFERROUS METALS PRODUCED FROM ORE AND PRODUCED BY RECYCLING SCRAP

Metal	Energy Requirements Produced from Ore KwH/Ton	Energy Requirements Produced from Scrap KwH/Ton	Energy Savings by Recycling KwH/Ton	Energy Requirement to Recycle Metal as Percent of Energy to Produce from Ore
Aluminum[3]	51, 400	2, 000	49, 400	4%
Copper[3]	13, 500	1, 700	11, 800	13%
Zinc[4]	6, 000	2, 700	3, 300	45%

2. Extensive resources in the form of scrap nonferrous metals are present in the Nation's municipal solid wastes. In 1972, it is estimated that Americans generated 225 million tons of solid wastes in their homes, businesses and institutions -- an average of six pounds per day per person.[5] It has been projected that by 1980, over 300 million tons will be discarded annually. At present, less than 1% of this material is being processed in modern resource recovery plants while the balance is being wasted in open dumps, sanitary landfills or incinerators.[6] Over 2.2 million tons of nonferrous metals are potentially recoverable annually from the Nation's municipal solid wastes, as follows:

KEY NONFERROUS METALS IN MUNICIPAL SOLID WASTES

Metal	Typical Weight[4] Percent of Metal in Municipal Solid Wastes	Estimated Total Metal Available 225 Million Tons of Municipal Solid Wastes
Aluminum Alloys	0.7%	1, 600, 000 Tons
Copper Alloys	0.15%	340, 000 Tons
Zinc Alloys	0.1%	225, 000 Tons
		2, 275, 000 Tons

3. Energy savings at the rate of about 84 billion KwH/year are potentially available by fully recovering and recycling the nonferrous metals present in municipal solid wastes. This is the equivalent of 287 trillion BTU's per year, or the energy equivalent of 2.3 billion gallons of fuel oil. Expressed another way, this is enough fuel to satisfy the total energy requirements of over 8 million U. S. homes every year.

ENERGY SAVINGS POTENTIALLY AVAILABLE FROM RECYCLING NONFERROUS METALS IN MUNICIPAL SOLID WASTES

Metal	Amount Available Annually	Energy Savings KwH/Ton	Total Energy Savings KwH
Aluminum Alloys	1,600,000 Tons	49,400	79040 Million
Copper Alloys	340,000 Tons	11,800	4012 Million
Zinc Alloys	225,000 Tons	3,300	742 Million
			83794 Million

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