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Fuel Savings As High As 55 Per Cent Made by Technological Changes Since War

Two major causes, fuel-saving devices and the substitution of other fuels which require less labor in their production, have reduced the demand for coal and brought increasing unemployment in the coal fields during the last two decades, according to a report of the National Research Project of the Works Progress Administration made public today by Administrator Harry L. Hopkins.

Principal conclusions of the report were summarized as follows:

"Improved fuel-saving techniques have affected production and employment in the entire fuel producing industry, including oil and natural gas, and have resulted in fuel savings per unit of product which, since the war, have amounted to more than 55 percent in central electric power stations, 28 percent on freight trains, and 15 percent in blast furnaces and cement plants. These influences are expected to continue. While a general revival of business would increase the demand for fuel, it would also encourage greater investments in fuel-saving equipment."

"Fuel Efficiency in Cement Manufacture, 1909-1935" surveys a typical fuel-consuming industry. Prepared in cooperation with the U. S. Bureau of Mines, the report points out that the average consumption of
energy at American cement plants declined from 189 pounds of coal or coal equivalent per barrel of cement in 1914 to 159 pounds in 1935. Continued progress of fuel efficiency in cement manufacture is expected, according to the report, as new improvements are adopted and as equipment already successfully applied is more extensively introduced.

Since progress of fuel economy in the cement industry has been less than in more important fuel-consuming industries, notably electric power stations and steam locomotives, the data presented for the cement industry are presented as a conservative picture of technological advances made in fuel utilization.

In his letter of transmittal, Corrington Gill, Assistant Administrator in charge of all WPA research, characterizes the progress made in fuel economy as "an outstanding example of man's ability to do more units of work with less raw material". At the same time he notes the effect which fuel-saving techniques have already had upon employment opportunities. "For more than half a century prior to 1918 the consumption of coal, especially bituminous coal, increased steadily. Since the war the growth in demand has been arrested, and employment opportunities have been curtailed for a large number of workers among the 1/2 to 2/3 million wage earners engaged in digging coal as well as for many others engaged in its transportation."

Fuel-consuming industries have achieved substantial savings by the recovery and use of by-product fuels formerly wasted, such as coke-oven, blast-furnace or refinery gases, the report shows. Other savings have been effected, it is found, by the use of devices for retrieving the heat formerly lost in stack gases or hot products and using it for preheating raw materials and air for combustion, or for generating steam; by
reductions in heat and power requirements through adoption of speedier
and more continuous methods of manufacture as in steel plants and petroleum
refineries; by the prevention of heat losses through radiation, convection
or conduction, with the use of insulation, seals against cold-air leakage
and other devices; by improved techniques for more efficient transfer of
heat and power; by more efficient generation of power through the use of
steam turbines, high steam pressures, superheat and waste-heat boilers;
and by the improvement of operating conditions with the greater use of
control instruments and with more skillful operators.

The report was prepared by Nicholas Yaworski, Vivian Spencer
and Geoffrey Saeger of the National Research Project, and by Dr. O. E.
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of the U. S. Bureau of Mines. Dr. Kiessling is in charge of the mining
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