

ELECTRICITY AND MINING

1. ELECTRICITY

The annual output capacity of Israel's electric power plants has remained unchanged since 1954 at 230,000 Kwh. To this, the output capacity of the Jerusalem power plant — 9,000 Kwh — must be added. The total length of high tension cables in the country was 2,957 km at the end of September 1955 — 250 km more than in 1954. The length of low tension cables was 2,982 km — 340 km more than in 1954.

During 1955, the Palestine Electric Corporation installed 372 new connections for industry, 145 for irrigation, 3,029 for commercial use and 31,804 for domestic use. Table 90 gives the main types of customers of the Palestine Electric Corporation.

TABLE 90

CUSTOMERS OF THE PALESTINE ELECTRIC CORPORATION, 1954 AND 1955

Branch	December 1954	October 1955	Change in per cent
Industry	10,719	10,969	+ 2.3
Irrigation	1,695	1,806	+ 6.5
Others	285,512	314,474	+10.1
<i>Total</i>	297,926	327,249	+ 9.8

SOURCE: *The Palestine Electric Corporation.*

Sales of electricity increased by 17 per cent in 1955, most of which is due to an increased demand for irrigation, resulting from the completion of new water projects and the expansion of the irrigated agricultural area. The electricity consumption for irrigation rose by as much as 26 per cent. The supply of electricity for domestic and commercial consumption was likewise increased, due to the extension of the network to a number of new areas and suburbs.

In comparison with 1954, charges for electricity rose, by November 1955, by an average of only 1 per cent. The average charge for electricity supplied to industry fell by 1.1 per cent and the cost of power for irrigation decreased by 0.5 per cent. There was, however, an increase of 4.5 per cent in the price of electricity for domestic use.

The total amount invested by the Palestine Electric Corporation in 1955 reached IL. 32.8 millions, or more than three times the total invested in 1954. Of the total amount invested in 1955, IL. 15.4 millions were spent on the construction of power stations and other buildings, as well as on the extension of the electric network. The remaining IL. 17.3 millions covered purchases of machinery and equipment, and their installation costs.

TABLE 91

SALES OF ELECTRICITY, 1954 AND 1955
(in millions of Kwh)

<i>Branch</i>	1954	1955	<i>Change in per cent</i>
Industry	270.3	300.6	+11
Irrigation	200.7	253.3	+26
Other Uses	424.5	494.0	+16
<i>Total</i>	895.6	1,047.8	+17

SOURCE: *Palestine Electric Corporation.*

The expansion of agriculture and industry (especially the chemical industry), the construction of extensive water projects and the linking of new areas and settlements to the electricity network will require a considerable increase in electricity output during the coming years. Two units, each with an output capacity of 20,000 Kwh are to be completed in 1956, while two further units to be installed in 1957 will each have a capacity of 50,000 Kwh. Two reserve power stations, each of 10,000 Kwh, will likewise be installed in 1957. The capacity of transformer stations is also to be increased so as to parallel the increased capacity of the power stations. The length of the general network of electric cables will also be extended.

2. MINERALS AND MINING

Large-scale investment in mining took place in 1955 as in previous years; this was accompanied by a relatively large increase in the output of minerals and a trend towards profitability. Investments in quarries and mines during 1955 totalled IL. 16.3 millions and, in November, the number of persons employed in this branch reached 1,700. It is, however, still impossible to determine whether and to what extent it is economically worth while exploiting minerals, since most of them are still at the stage of basic investment and it is difficult to distinguish between investments and production costs. The period of experimental production and "running in" is naturally more prolonged in large plants, especially in mines and quarries.

Dead Sea Works

Since the resumption of work at Sdom in 1952, some IL. 22 millions have been invested in the Dead Sea Works, IL. 11.2 millions of this in 1955. The old plant was rehabilitated and a new plant, equipped with modern automatic machinery, was erected. The network of channels and basins was expanded, as was the electric power plant, while the mechanical work shops were re-equipped.

The annual production capacity of the factory is now 135,000 tons of potash as against a production capacity of the old plant of 50,000 tons per annum. Production started in June 1955, but output was small owing to various technical difficulties and only 14,000 tons of potash were produced during the year. The number of persons employed in the Dead Sea Works reached 526 in November 1955, but of these only 135 were engaged in production, while the remainder worked on construction, administration and various other jobs. Of the potash produced, 11,690 tons,

valued at IL. 892,000, were exported, the remainder being sold on the local market. Demand for potash on the world market is large, since it constitutes an essential raw material for agriculture and various industries. Last year, Israel potash was marketed in Italy, Ireland, Great Britain, South Africa, Tunisia, Japan, Ceylon and Cyprus, after the domestic demand, of some 5,000 tons per annum, had been fully satisfied. The opening of the railway line to Beersheba will considerably reduce transport costs both to the domestic market and to the harbour from which the potash is to be exported, and will thus increase its power to compete on the world markets.

Last year witnessed the establishment of the Dead Sea Bromide Company, a subsidiary of the Dead Sea Works. This company will produce bromine and its derivatives, mainly for export. The company's buildings have already been erected and production on an experimental scale will start in 1956.

Phosphates

Some IL. 5.8 millions have been invested in the phosphate quarrying plant since its erection, IL. 2.1 millions of this in 1955. Two hundred and forty workers were employed by the undertaking in November 1955, as against 190 in July 1954. Production totalled 72,200 tons in 1955, as compared with 52,500 tons in 1954, representing an increase of 37 per cent. Almost the entire output was sold in the domestic market. Altogether, 68,500 tons of phosphates, valued at IL. 1.2 millions, were marketed locally last year. As an exporter of phosphates, Israel may be able to exploit the natural advantage of the relative proximity of her deposits to the port of loading, and this will become more advantageous with the construction of harbour facilities in the south of the country. Other suppliers of phosphates to the world market are obliged to transport their product over great distances to the ports of loading.

As a result of improvements in the enrichment plant and of efficiency in exploitation at the quarries, the quality of the phosphates has been raised and now conforms to international standards. The phosphorus content of processed material is now 28.5 per cent, as against 27.5 per cent in 1954 and 21.2 per cent in 1952. Experimental quarrying in the Ein Yahav area has recently disclosed new deposits, characterised by a higher phosphorus content than those in the vicinity of the Oron plant. It has, however, not yet been established whether the quantities available at Ein Yahav will justify commercial exploitation.

The Phosphate Company reduced its operational deficit and succeeded in approaching profitability in the current year, apart from depreciation and interest.

The entire output of the phosphate plants, the main product of which is superphosphate fertilizer, is now sold to the Fertilizers and Chemicals Company Ltd. Superphosphate production reached 101,000 tons in 1955, as compared with 85,000 tons in 1954, an increase of 19 per cent. The plant supplied the entire local requirements of superphosphates last year, and even exported 11,000 tons, mainly to Cyprus.

After improvements in the production processes, the quality of the superphosphates reached world standards, its phosphoric acid content now being between 16 and 17 per cent. Superphosphate production for domestic consumption and export leads to a saving, or earning, of foreign currency at the rate of some \$10 per ton.

Other Minerals

The quarrying of clay and glass sand in the Negev and their use as raw materials for the ceramic, chemical and glass industries began in 1951. The total sum invested in Negev Ceramic Materials Ltd., from the commencement of activities in 1951 until 1955, was IL. 257,000. The company sold about 28,000 tons of various clays and 51,700 tons of glass sand during this period. Today, it supplies all the glass sand required by the Israel glass industry, as well as 80 per cent of the clays used by the ceramic industry.

Ground clearance and construction work on the copper plant at Timna began in 1955 and it is expected that production will start in the middle of 1957. The copper reserves at Timna are estimated at one million tons and, of this amount, deposits containing a proved seven million tons of copper-bearing ore have already been surveyed. The average copper content of these deposits is 1.4 per cent and, in certain strata, concentration reaches 2.5 per cent. The investment required for the erection of the copper plant has been estimated at IL. 12 millions, of which the equivalent of IL. 7 millions will be in foreign currency. It is planned that the plant, in its initial stages, will process 1,500 tons of ore per day.

Israel Mining Industries is a company conducting field research and prospecting as well as laboratory and pilot plant experiments; it also plans the exploitation of various minerals. The expenditure of this company during 1955 totalled IL. 2.1 millions and its activities during the year were mainly connected with the erection of the copper plant at Timna. Trial excavations and pilot research were also conducted to explore the possibilities of exploitation of the iron deposits discovered in Eastern Galilee and of the manganese deposits found at Timna.

3. OIL

After several years of preparations, geological mapping and core drilling, oil was discovered at Heletz during September 1955. The results of drillings carried out do not, as yet, provide sufficient data for assessing the quantities of oil that may be found in this country, or the extent to which the discovery of oil will affect the economy. Domestic consumption of oil during 1955 was at the rate of some 25,000 barrels per day, or 9.2 million barrels per annum. The value of Israel's oil imports in 1955 totalled \$34.2 millions. The development of agriculture and industry and, more particularly, the expansion of water and electric power projects, have resulted in oil consumption rising yearly and it is expected that this year it will reach 10.2 million barrels. Apart from the saving of foreign currency resulting from a reduction in fuel imports, the Government will receive an additional income from royalties which oil companies are legally obliged to pay, at a rate of 12.5 per cent of the value of their output. The importance of this income will increase as production expands.

At a later stage, the Government will have yet another source of revenue, from the income tax levied on the profits of the oil companies. Further, the discovery of oil in large quantities will have a beneficial effect on the development of the petrochemical industry.

The expenditure of the companies prospecting for oil totalled IL. 9.9 millions in 1955, as against IL. 8.9 millions in 1954. Current expenditure increased from IL. 4.3 millions in 1954 to IL. 6.2 millions in 1955, while the expenditure on equipment was reduced from IL. 4.6 millions in 1954 to IL. 3.7 millions in 1955.

Deep drilling was carried out during 1955 to a total depth of 16,100 metres, as compared with 1,200 metres in 1954. Core drilling executed during 1955 totalled 17,100 metres. The discovery of oil at Heletz was preceded by ten "dry" drillings in various parts of the country. The ratio of 10:1 between "dry" and "positive" drillings is considered normal in countries where oil has been discovered in the past. The total number of drillings carried out in Israel is, however, still too small to permit the drawing of far-reaching conclusions.

Towards the end of 1955, the production rate at Heletz Well No. 1 was between 260 and 270 barrels per day, some 1 per cent of the domestic demand. More than 1,000 tons of oil were taken from this well in 1955. The foreign currency cost of importing one ton of crude oil is \$28. The net foreign currency saving resulting from the exploitation of one ton of local oil, after deduction of foreign currency expenditure involved in such exploitation, has been estimated at \$13. The annual foreign currency saving from an oil well such as Heletz 1, producing approximately 35 tons per day, thus amounts to some \$166,000. The costs of transporting oil from Heletz to Haifa amounted, in 1955, to IL. 7.8 per ton; these costs will be reduced to IL. 4 per ton when a co-ordinated transport system by pipeline and rail is introduced.

The oil discovered at Heletz is of 32° A.P.I. quality and its specific weight is similar to that of Kuwait oil. One of the by-products of oil production is a gas suitable for industrial use. The quantity of this gas is, however, insufficient for the time being to warrant commercial exploitation.