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ACHIEVEMENTS AND ERRORS OF RUMANIAN ELECTRICAL EQUIPMENT INDUSTRY

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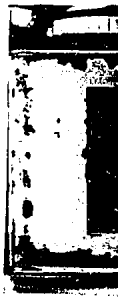
The Rumanian People's Republic has undertaken a program to increase domestic production of electrical equipment since Rumanian production has never been able to satisfy the demand. Before World War II, the percentage of domestic supply for individual items was as follows:

Item	1931	1935	1937
Electric motors	13.2	2	15
Electric bulbs	--	6.5	47
Household equipment	6.2	17.7	26.8
Batteries	93.3	83	96
Entire industry	13.8	19.4	24.8

In 1937, 40 percent of the raw materials, by value, were imported for the production of electrical equipment. Nationalization of the 75 electrical equipment enterprises, and their reduction to 12 in 1948 created a basis for increased and more efficient domestic production.

Output in 1950 - 1951 was considerably higher than the prewar level. The variety of products greatly increased. Domestic production satisfied 65 percent of the demand. By the end of the Five-Year Plan it is expected that production will fulfill approximately 90 percent on the average needs and 100 percent for some items. In fact, it is expected that telephone centrals, electrical machinery of some types, household equipment, and batteries will be exported.



However, the increased level of production has created new problems. Present facilities must be expanded and new plants must be built. This process is already under way. The Sovrommetal (Soviet-Rumanian Metallurgical Enterprise) will supervise construction of a number of electrical equipment plants in Resita. These plants will produce steam turbines, hydroelectric turbines, and electric generators. The Vulkan Factory in Bucharest will be developed and expanded to produce steam boilers for thermoelectric stations and mechanical equipment such as sluices, pressure equipment, and sluice valves for hydroelectric stations. The Electro-Putere Uzina (Electro-Putere Electrical Equipment Plant) in Craiova has begun the output of transformers necessary for distribution stations, high-tension equipment for central power plants, and electric motors rated at 50 to 2,000 kilowatts.

Other plants which will undergo expansion are as follows: the Electro-Precizia Fabrica (Electrical Instrument Plant) in Datulung, which will produce induction and fractional horsepower motors; Electro-Motor (Electric Motor) in Timisoara, which will produce induction motors of 7.5 to 30 kilowatts; and the Dinamo Uzina (Dinamo Cotroceni Electric Plant) in Bucharest which will produce special motors, large induction motors, direct current machinery, and generators for rural electrification. The Electro-Magnetica Uzina, formerly the Vestitorul Telephone Equipment Factory, in Bucharest, is being expanded for the manufacture of measuring instruments, relays, automatic telephones, automatic telephone centrals, and other items.

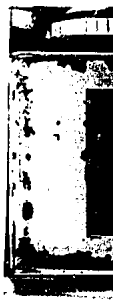
A number of new plants will be built. They include a factory to be set up in Bucharest for the production of low-tension equipment; a factory for the production of electric cables and conduits, which at present are being manufactured at Electro-Cablul (Electro-Caplul Electrical Equipment Plant) and at industria farmei (Sarmei Industrial Wire Factory) in Campi Turzii; a radio manufacturing plant, to be built with materials from the USSR; and a modern factory for electrical insulation material. Plans for this latter factory were drawn up in the USSR. The USSR is making all necessary processes available to it. Additional planned constructions include a factory for ceramic insulation. Plans for this factory were drawn up in the USSR. Equipment will come from Electro-Ceramica of Turda. A new institute for research and testing will be established. The institute will be equipped with a laboratory for the development of new types of products and facilities for research for the development of new constructions.

In accordance with provisions of the Five-Year Plan, a production shop has begun operations at Electro-Aparataj (Electrical Equipment), a new shop has been added at Electro-Precizia; a new lathe shop has opened in Dinamo, and shops are being placed in operation in Electro-Putere. These additions have contributed greatly to increased production in these enterprises.

At the same time, the social welfare of workers has been furthered by the opening of canteens, baths, and recreation halls at Electro-Motor in Timisoara, Dinamo, the Electro-Precizia Electric Plant in Stalin, at the electrical equipment plant in Sacele, and in others. A number of day nurseries have also been established.

The electrical equipment industry achieved marked successes in the first 2 years of planned management. The 1949 plan was fulfilled 122.5 percent, the 1950 plan was fulfilled 102 percent, the plan for the first half of 1951 was fulfilled 108.5 percent.

The manufacture of new products was undertaken. Electrical machinery and equipment for the mining, metallurgical, and cement industries was begun. Large units such as 7,000-kilowatt converters, 480-kilowatt motors for the cement industry, 190-kilowatt motors for the petroleum industry, motors of 520 kilowatts



and 1,000 kilowatts for furnaces and turboblowers, as well as transformers of 5,000 kilovolt-amperes were produced. In addition, a number of new products are being manufactured by mass production for the first time. These include alternating current meters, polyphase alternating current meters produced by Electro-Magnetica, telecommunications equipment by the Radio Popular Factory, dial measures, measuring instruments of various types, switches, automatic protection devices, elevator motors, motors for cranes, street cars, new types of generators for the electrification of villages and SMT (machine and tractor stations), high-tension insulators, radio sets, household electrical equipment, and other items. In 1950 and 1951, almost the entire demand for machines and tools for the petroleum, cement, and machine tool industries can be met domestically.

To maintain this rate of production, specialists were trained for the maintenance of machines and equipment, and skilled workers were developed. They include winders, machine tool specialists, operators of fraising machines, lathes, and die equipment.

Production costs have been progressively cut. In 1950, the cost of electrical equipment items was 13.5 percent lower than in 1949. In the first quarter 1951 priceshad declined 12 percent, and in the second quarter they were an additional 2 percent lower.

The campaign for the conservation of scarce raw materials was successful. Copper was replaced by aluminum or sheet iron in machines and equipment. Plastics were used for insulation instead of rubber.

A campaign was instituted to produce domestically materials which were formerly imported. Thus production began on magnets for telephones, telephone chords, and precision mechanisms for electric and telephone meters. This campaign was led by Electro-Motor and Electro-Precizia which adopted new methods and created a series of standardized products. Electro-Motor reduced cost prices 34 percent from 1950 to 1951. The two plants fulfilled their 1951 plans in only 8 months.

Competitions achieved great success in the field of electrical equipment production, attracting 71.3 percent of all workers in the second quarter of 1951. In addition to individual competitions, there were 110 teams which participated in group competitions. Technicians, innovators, and rationalizers produced new methods and techniques. For example, C. Ionescu of the Acumatorul (Battery) Plant developed a method for the simultaneous production of many plates. This resulted in a saving of 1,404,480 lei. Dan Ioan of Electro-Aparataj developed adjustable induction coils for polyphase alternating current, which led to an annual saving of 1,352,962 lei. Stoenescu (fnu) and I. Morega introduced a new method for testing electrical machines. This led to an annual saving of 1,065,750 lei. Thirty-eight innovations and new methods were introduced in electrical equipment enterprises in the second quarter of 1951.

The expansion of the industry may be seen in the following investment and production percentages:

Year	1948	1949	1950	1951	1952	1953	1954	1955
Increase	100	195	240	300	370	445	550	690

The percentage of annual increase represented by these figures is as follows:

Year	1948	1949	1950	1951	1952	1953	1954	1955
Rate of increase	--	195	123	125	123	120	124	125

These figures do not include the value of investments in the new turbo-generator plant in Resita, nor of the electric cable division of Industria Sarmei.

Over-all production increase in the industry, on a constant price basis, is as follows:

Year	1949	1950	1951	1952	1953	1954	1955
Production increase	100	171	238	320	435	550	695
Rate of increase	--	171	139	134	136	126	126

The increase in production of principal items is as follows:

Year	1949	1950	1951	1952	1955
Motors	100	222	320	440	1025
Generators	100	117	242	374	1710
Transformers	100	123	248	282	510
Radio sets	100	215	218	326	545
Insulated wiring	100	106	119	131	161
Over-all production	100	176	302	400	685

Despite these achievements mistakes were made. There was a tendency to fulfill the investment plan as rapidly as possible without regard for its true purpose. Financial arrangements and expenditures were made without provision for the material or equipment purchased and in spite of the inadequate labor force available. On 1 January 1951, only 65 percent of production equipment was in use. The situation was little better on 1 July 1951.

Machine tools acquired through import or domestic production remained unpacked for long periods of time. At Electro-Precizia in Stalin, 12 semiautomatic lathes were not unpacked for a year. At Electro-Putere in Craiova and Electro-Aparataj in Bucharest, a number of machine tools lay idle for a long period before they were placed in operation. This situation shows that enterprise managements are content to fulfill the investment plan on paper without understanding that the rational use of tools is a basic duty. Managements did not place equipment into immediate operation because the investment plan did not specify immediate use. The production plan followed the line of least resistance.

Installed machinery was improperly used. Much time was lost between shifts. Only the first shift in a plant made fairly good use of the equipment. Fluctuations in the labor force and unauthorized absences further reduced the operating time of machinery. Various excuses were made. Dinamo, Electro-Aparataj, and

Electro-Magnetica, in June 1951 claimed that they lacked certain necessary materials. However, when these materials were delivered, they remained unused for so long a time that some were no longer in good condition. Most machines work only one shift, where two or three could be established. Electro-Magnetica operates machines in one shift only, except for bakelite presses which operate in two.

Certain machines are more used than others, for example, the parallel lathe of Electro-Motor and the mechanical press of Electro-Precizia. This creates bottlenecks in production. At the same time, other machines stand unused. The percentage of use of machines in each enterprise is as follows:

	Percentage of Use					
Enterprise	Parallel Lathe	Automatic Lathe	Vertical Fraising Machine	Planer	Mechanical Press	Shaping Machine
Dinamo	60	43	--	35	29	54
Electro-Motor	71	--	35	35	59	33
Electro-Precizia	33	43	49	--	78	--
Electro-Aparataj	36	40	27	26	25	--
Vestitorul	29	26	23	28	51	--
AEG (Bucharest)	44	--	35	35	--	--
Entire industry	38	32	31	28	38	43

A better utilization of tools would overcome many difficulties and bottlenecks in production. There is also a need for greater cooperation among electrical equipment enterprises and between such enterprises and other industries. Greater cooperation would elimimate errors such as the following: Electro-Magnetica has unused automatic lathes while Electro-Aparataj suffers from an acute shortage of screws made by these lathes. IMB of Timisoara sent parts for processing and repair to Bucharest. Electro-Motor in Timisoara is equipped to do just such work and could have saved time and cost of transportation.

Another problem facing the electrical equipment industry is the use of reserve capital equipment. At the end of 1949, more than 40 percent of such equipment was in reserve. In 1950, the figure dropped to 35 percent. The situation by enterprise at the end of 1950 was as follows:

	Percentage of Unused Capital Goods	
Enterprise	End of 1949	End of 1950
Electro-Putere, Craiova	66.5	50
Dinamo, Bucharest	10	22
Electro-Banat, Timisoara	20	13
Electro-Aparataj, Bucharest	[illegible]	40
Electro-Casnica, Bucharest	[illegible]	--

This is partly due to the fact that the General Directorate of Electrical Equipment of the Ministry of Electrical Energy did not require enterprises to place equipment into operation immediately. Therefore, unfinished and unmounted equipment remained at Electro-Putere, Electro-Precizia, Dinamo, and other enterprises. In 1950 only 37 percent of all production paid for was actually delivered. Other delays were caused by the late termination of construction projects by the Ministry of Constructions at Electro-Aparataj, Dinamo, and Electro-Precizia, and the late completion of a project by Ipromet (Institute for Metallurgical Planning).

In 1950 and 1951, there was not a sufficiently effective relationship between the developmental and the manufacturing process. A great number of prototypes and models are prepared for a small variety of products. This necessitates a great amount of study, planning, and tool changes.

The supply situation is hampered by errors resulting from the failure of numerous enterprises to respect delivery schedules and to maintain the quality of products, as has been the case with Otel Rosu (Red Steel), Patria, Muncitorul Liber Leather Plant, Laminorul Roll Mill, Electro-Ceramica, and others.

Electro-Aparataj, for example, could not fulfill the plan for April - May 1951, because of the failure of supplying enterprises, especially Muncitorul Liber of Bacau which produced large size screws in order to fulfill its tonnage plan instead of the small ones that had been ordered. Muncitorul Liber delivered only 10.3 percent of orders for May 1951. Other plants, such as Fabrica de Scule (Tool and Equipment Factory) in Rasnov, Industria Sarmei in Turda, Otelul Rosu, Laminorul of Bucharest, Electro-Ceramica, Electro-Izolantul, and others, have caused bottlenecks and difficulties throughout the industry. They failed to deliver such products as commutators of various types, circuit breakers, and others for lack of parts. Otelul Rosu, Electro Ceramica, and Laminorul failed to deliver parts of copper, ceramics, or steel.

There is a great need for properly trained and skilled personnel. To satisfy this lack training, schools have been formed within enterprises. Three intermediate professional schools and three electrical equipment schools have been formed in Bucharest, Iasi, and Timisoara to prepare intermediate and advanced personnel for the electrical equipment industry. Workers and technicians have returned from the USSR with new methods and techniques.

The plan for the training of personnel is not being followed, however, and the need continues to grow. The management of enterprises must devote even greater attention to the problem. At Electro-Putere, in July 1951, the men in charge of the training school were not familiar with conditions within the enterprise. They were unable to state how many students would complete the course, and did not know how many new ones were expected to register for the third quarter of 1951. Of the number of workers in the electrical equipment industry, more than 35 percent lack training. The training plan for the first half of 1951 was fulfilled only 50 percent. School statistics in percentages are as follows:

	First Quarter			Second Quarter		
Place of Training	Plan	Took Courses	Finished Courses	Plan	Took Courses	Finished Courses
Place of work	100	61.5	4.7	100	57	35.7
Training courses	100	53	5.3	100	40	30
Advanced schools	100	12	--	100	--	--

Some plants, such as Electro-Putere, are forced to use untrained workers for skilled jobs, and as a result the percentage of rejects and poor quality products is high.

However, some sectors of the electrical equipment industry succeeded in fulfilling norms to an outstanding degree. For example, the machine ship of Electro-Putere fulfilled norms 200 percent in July 1951. The plant fulfilled the transport plan 300 percent in the same period. At Dinamo, the average fulfillment was 193 percent in July. Electro-Tehnica achieved 178 percent in June. Electro-Motor attained 178 percent in June.

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