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ECONOMIC AND INDUSTRIAL AFFAIRS

(FOUO 11/81)



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CZECHOSLOVAKIA

GOAL-ORIENTED PROGRAM TO REDUCE FUEL CONSUMPTION VIEWED

Prague ELEKTROTECHNICKY OBZOR in Czech No 8, 1981 pp 417-420

[Article by Eng Ivan Kubec, ScC, and Eng Jiri Chomat: "State Goal-Oriented Program for Rationalization of the Consumption and Utilization of Fuels and Energy"]

[Text] In its decision concerning main directions for the economic and social development of the CSSR from 1981 through 1985, the 16th CPCZ Congress stipulated vital tasks for rationalized consumption and utilization of fuels and energy, which it regards as an important source for the restoration of our fuel and energy balance.

The effort to reduce energy consumption in our national economy must not be understood at the same time as a task for power-engineering experts alone but as a task for all our citizens.

The Current Situation

On the world scale Czechoslovak national economy still figures among energy-intensive economies despite the conceptual control of problems related to rationalized consumption of fuels and power since the early 1970's and despite considerable accomplishments in that area. Our country still has untapped assets whose liquidation will result in lower energy consumption when creating national income. We see the main sources of potential conservation in:

- More efficient valorization of the fuel and energy inputs in the entire process of production; i.e., in higher technological standards of production and innovation on the part of Czechoslovak manufacturers;
- Upgraded standards in utilization of fixed assets, which automatically implies higher economic outputs in those capacities;
- Lower material consumption in Czechoslovak national economy and, by extension, also lower consumption of power in the production and processing of materials;
- Reduced volume of manufactured energy-intensive industrial products to a level that is absolutely necessary for the further development of our national economy;
- More efficient use of energy in existing installations and capacities, particularly boilers, furnaces, electric drives, etc.;

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--The standard of fuel and energy conservation in every area of consumption.

The above outline discloses the macroeconomic as well as the narrowly technical economic, or power-engineering, character of the unused potential.

Ways Toward Solution

The long-range process now being introduced in the Czechoslovak national economy is focused on the use of every potential for conservation, which will affect to an increasingly greater extent every area of our life and which is implemented in two closely interrelated directions.

One is focused on the highest possible increase of efficiency in the entire production sphere and, thus, also on the solution of problems related to its consumption of materials and energy. As an instrument for this process the management uses the Set of Measures for Improving the Planned Management System of the National Economy after 1980, approved in early 1980 by the Presidium of the CPCZ Central Committee and by the CSSR Government.

According to the principles articulated in the Set of Measures, the plan must consistently upgrade the quality of production and raise it to a level higher than ever before, reduce energy and material consumption, utilize fixed assets to greater advantage and step up labor productivity. In the economic climate at present and in the future, intensification of the khozrashchet methods of management implies that every sector of management must strive to achieve the highest possible return on all resources invested in the production, which applies to power engineering as well.

The other path to lower energy consumption in the Czechoslovak national economy is a programmed goal-oriented approach combined with specific conservation measures assigned to individual organizations.

In view of the gravity of problems connected with the reduction of energy consumption in our national economy, that particular approach had been applied already when the first symptoms of a world energy crisis were only beginning to emerge, in other words, before the prices of crude oil and other fuels exploded.

Early in 1972, the CSSR Government approved the First State Program for Rationalization in Fuel and Electric Power Economy, which stipulated that 10 key branches in industry and transportation conserve during the 1972-1975 period 4.6 million tons of specific fuels (tsf) at the 1975 level. Review of the implementation of this program demonstrated that actual savings had exceeded the projected targets with annual savings of 6.4 million tsf on the 1975 level. During that period the consumption of energy in the Czechoslovak national economy declined more than 12 percent; i.e., an average 2.9 percent annually.

At that time structural changes in the Czechoslovak fuel and energy balance dramatically contributed to a rapid reduction of energy consumption by facilitating the liquidation of low-temperature carbonization of bituminous coal in the chemical plants in Zaluzi, and the introduction of the production of synthetic gas from heating oils as well as higher inputs of liquid and gaseous fuels in technological consumption and boiler economy. A very significant measure culminating during that

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particular period concerned the replacement of railroad steam traction with electric and diesel traction.

The basic tasks for the second stage of the programmed goal-oriented solution for reduced energy consumption in our economy were formulated in the Directives for Economic and Social Development of the CSSR in the 1976-1980 Period, adopted by the 15th CPCZ Congress in April 1976. The problems of a more efficient economy and higher valorization of all types of fuels, power, materials and raw materials were presented there as crucial tasks for improving the efficiency of our national economy; at the same time it was stipulated that from 2 to 2.5 percent of annual savings of fuels and energy be conserved in industrial branches during the 1976-1980 period.

On the basis of the tasks outlined by the [CPCZ] Congress a new state program for rationalization in the Sixth Five-Year Plan was drafted and adopted. It applied the experience gained during the preceding five-year plan in resolving problems concerning lower energy consumption. This program was conceived on a substantially broader basis; furthermore, it included a concept that resolved crucial problems by higher orders of innovations focused on modernization and expansion of the production of energy-saving appliances and on measures using incentives to stimulate the interest of our workers in conserving fuels and energy.

The task of the key industrial ministries to conserve 10.4 million tsf in 1980 as compared with 1975 was exceeded by 22 percent; consequently, the consumption of energy in creating national income was reduced an average 2 percent annually.

Although the assigned tasks were markedly exceeded, numerous shortcomings in the pursuit of basic objectives have come to light.

State Goal-Oriented Program 02

When planning the third stage of the programmed goal-oriented reduction of energy consumption in our national economy, we were able to proceed from the experience gained in the fulfilling the preceding two stages and from new conditions stemming from the implementation of the Set of Measures. They are reflected in the planning of the long-range goal-oriented program for rationalized consumption, conservation and utilization of fuels and energy in the 1981-1985 period and up to 1990.

The formulation of the objectives of that program proceeds from comprehensive assessments of all relevant social, economic, scientific-technological, technical and international factors and is focused on achieving the highest possible society-wide effect in the shortest possible time.

The planning of the long-range program began in 1977 with the selection of areas for potential conservation of fuels and energy and with compilation of specific proposals. The main sources of the proposal for the fulfillment of the program during that period were the confirmed achievements of scientific and technological development; introduction of international cooperation in the production of equipment; application of patents, licenses and know-how; proposals for the reconstruction and modernization of the existing power engineering installations and of technological processes, as well as the initiative of workers, innovators and comprehensive

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rationalization teams, on which we may always count, particularly in terms of minor measures of rationalization and technical organization.

When drafting the proposals, the branches and the Federal Ministry of Technological and Investment Development availed themselves of the work performed by our scientific research base and focused on rationalization of fuel and energy consumption. In particular, the results of the state research program at their disposal had been resolved by the Research Institute for Power Engineering in Prague and 40 cooperating organizations of scientific research in several other ministries. It focused on:

--An analysis of the state programs of scientific-technological development under study and on their processing with estimates of their effects on the solution of problems concerning reduction of power consumption in the Czechoslovak economy;

--An analysis of the development of specific consumption in the manufacture of energy-intensive products with the specification of their potential reduction and with proposals of specific measures that were simultaneously assessed in terms of technology, power engineering, economy and investment;

--An analysis of the past, current and future trends in reducing energy consumption in our national economy.

The solution of these problems offered a continuous, constantly complimented source of potential proposals for rationalization programs whose effects are being assessed in advance and which may be implemented at an opportune moment by means of the state goal-oriented program and the state plan.

In addition to this cumulative solution that compiles data and proposes methods of conservation, work is underway on specific technological research of new installation. Such programs are centralized in particular in the branches of metallurgy and construction.

The initial period of preparations was concluded in the spring of 1979 by Decision No 36, of the Presidium of the CSSR Government, summarizing the areas of technologically and economically feasible conservation measures and stipulating further operational programs.

In September 1979 the Presidium of the CPCZ Central Committee and the Presidium of the CSSR Government adopted Decision No 240, by which they approved the targets of the state goal-oriented program for rationalized consumption and utilization of fuels and energy, appointed the coordinating project manager for the entire program and project managers for partial programs, determined the extent of the required savings and listed the most vital operations and measures.

The project served as the springboard for the planning of the state goal-oriented program that was specified in cooperation with the coordinating project manager--i.e., the Federal Ministry of Technological and Investment Development--and the State Planning Commission with appropriate ministries for several chronological stages for which the specifics of the program were gradually formulated. At the same time our economic potential was considered in terms of the capacities of production, international cooperation and scientific-technological development, as well as in terms of achieving the projected structure of the Czechoslovak fuel and power balance.

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After consultations with the ministers of appropriate branches and with the chairmen of the KNV [regional national committees] the project was submitted to the Presidium of the CPCZ Central Committee and the CSSR Government, which approved it by Decision No 247 of 1980 as a part of the planning for the Seventh Five-Year Plan.

The definitive version of the program is being drafted with the objective to plan specific significant and efficient measures of fuel and energy conservation for inclusion in the state plan for the development of the national economy in the Seventh Five-Year Plan comprehensively in all structures from the viewpoint of their implementation (in capital investment and procurement of machinery and equipment) as well as of their impact on power engineering and economy.

It specifies total savings for individual branches and KNV, investment limits for their implementation and lists of specific projects of the state and economic plans.

Within the framework of annual plans the coordinating project managers of partial programs, or their subordinated organizations, are responsible for all savings stipulated by the state goal-oriented program as concerns both the amount of savings and the amount of the required material, technology and investments. This applies the principle based on the Set of Measures that the state plan considers and implements construction programs with budget costs over Kcs 10 million included in the state goal-oriented program, while the state plan stipulates the tasks and limits in whose framework economic plans must secure specifically as a priority program other construction, machinery and equipment not included in the construction budget.

In other words, in addition to the state goal-oriented program that will be a part of the Seventh Five-Year Plan, all investment projects of the program with budget costs over Kcs 10 million are specifically listed in the investment section of the plan, furthermore, the decision allocates to individual branches and KNV and breaks down according to years the total amount to be saved by the program.

The plan of the state goal-oriented program 02 lists specific tasks and means to conserve during the Seventh Five-Year Plan a total amount of 12.4 million tsf on the level of 1985 as compared with 1980 and, moreover, during the Eighth Five-Year Plan to target a saving of 27 million tsf on the level of 1990 over 1980. The overwhelming majority of such savings will be achieved by specific programs with investments of Kcs 17.9 billion in the current five-year plan and additional Kcs 17.6 billion during the next five-year plan.

Structural changes in the concept of our national economic development (a lower rate of the development of ferrous metallurgy and the change in the concept of housing construction) will save 1.6 million tsf and technical organizational measures will conserve 10.8 million tsf of the total savings in the Seventh Five-Year Plan. Measures specifically controlled on the level of the center will generate 36.8 percent of the savings; the remaining 73.2 [sic] percent of conserved fuel and energy will stem from measures specifically controlled on the level of the VHJ [economic production units] and enterprises.

Material Incentives

Material incentives stimulate the interest of workers on various levels of management, including managers in the enterprise sphere, in the fulfillment of the tasks

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specified in the state goal-oriented program for rationalized consumption and utilization of fuels and power; they will be implemented mainly by including vital objectives and tasks of the program in the state plan as mandatory tasks of the plan and, furthermore, by including appropriate tasks aimed at rationalization and development of specific consumptions in enterprise plans.

According to the Directives for Implementation of Wage Differentiation, issued by the Federal Ministry of Labor and Social Affairs in January 1981, all workers who may influence the result of appropriate measures for conservation of fuels and energy, from the plant manager through appropriate managers and technologists up to workers operating the equipment and appliances or responsible for specific measures, will be involved in the implementation of such tasks.

Implementation of planned rationalization measures and planned development of specific consumptions of fuels and energy are among the decisive criteria for the rating of workers, which determine the amount of their bonuses and rewards. If the planned tasks and objectives are achieved, the workers who were able to affect the fulfillment of the above-mentioned tasks receive the planned amount of bonuses and rewards. If the tasks are overfulfilled and if the resulting savings are conspicuously higher than the plan had projected, the amount of the bonuses is progressively increased; conversely, if the tasks are unfulfilled, the rates are progressively reduced.

In addition, a statewide competition for conservation of fuels and energy will offer ample cash rewards as material incentives to stimulate the interest of innovators and technicians in the introduction of the latest technology and top solutions in rationalized consumption of fuels and energy in the production.

The Purpose of Control in the Implementation of the Program

Since the Fifth Five-Year Plan, the method of implementation of the program for rationalized consumption of fuels and energy has been controlled and regularly reviewed every 6 months. Those responsible for individual tasks present their reports on the fulfillment of the plan to their superior central organs, which transfer the collected data to the coordinating project manager; i.e., the FMTIR [Federal Ministry of Technological and Investment Development].

Thus, the center receives prompt information about any emerging problems, which in many instances enables the branches and the FMTIR even under changed circumstances to set preconditions for the fulfillment or, as the case may be, overfulfillment of the stipulated rationalization programs.

Independently of the above-mentioned procedure, the People's Control Committee conducts random and cross-sectional reviews of the fulfillment of the objectives and specific measures assigned in the program.

The State Energy Inspectorate, which plays an important role in the control system, regularly verifies the accuracy of the data on the fulfillment of individual specific programs and the resulting savings reported by enterprises implementing measures specifically controlled on the central level. Furthermore, it reviews minor programs at random.

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The State Energy Inspectorate, which plays an important role in the control system, regularly verifies the accuracy of the data on the fulfillment of individual specific programs and the resulting savings reported by enterprises implementing measures specifically controlled on the central level. Furthermore, it reviews minor programs at random.

The State Energy Inspectorate also spot-checks consumers of gas, electricity and heat for their discipline in consumption (this includes cash fines to workers responsible for ascertained shortcomings). To all appearances this control is not related to the rationalization program but in reality it prevents contradictory, nonrational approaches that might negate the achievements of the program. The power-engineering sector has been equally successful in controlling and accrediting documentation of plans for new construction projects and energy installations (particularly in central heat supply).

The third sector of the State Energy Inspectorate--rationalization advisory service--is extremely important particularly for the implementation of minor rationalization programs. This service focuses on analyses of power-engineering operations and subsequent proposals of procedures to upgrade efficiency of operations, to survey the operations and so on.

The results of completed reviews indicate that on the whole the tasks of rationalization in fuel and energy consumption have been systematically exceeded during the Fifth and Sixth Five-Year Plans. Nonetheless, it appears that the highly exceeded savings stemming from minor rationalization programs that have been assessed by the enterprises themselves are not systematically controlled. On the other hand, most branches failed to implement to the full extent specific programs controlled by the center.

Direct investors blame this situation mostly on the problems connected with the acquisition of necessary installations, on inadequate consumer-supplier relations, on changes in the extent or in the technology of the production, which are reflected, also in the changes of achievable savings, and on overestimated or incorrect calculations of the results of rationalization programs.

The savings achieved in the Sixth Five-Year Plan could have been even higher if the supplier, particularly the engineering branches, had provided more favorable conditions for the material implementation of the program.

Problems with deliveries of high-voltage semiconductor technology for welders, rectifiers and drive controls have been in evidence for many years. Approximately 50 to 60 percent of the requirements have been satisfied and no dramatic turnabout in that situation may be foreseen in the near future. Similar circumstances also affect the delivery of streetcars manufactured by organizations of the Ministry of Metallurgy and Heavy Engineering.

The deliveries of new, highly efficient light sources for the industrial and non-production sphere will be improved in the foreseeable future and their installation will save our national economy 396,000 tsf on the level of 1985.

Also, the supplies of thermal insulating and heat-proof fibers and the deliveries of instruments for measuring and control of heat consumption in housing and public construction will improve.

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The state plan for the Seventh Five-Year Plan sets preconditions for overcoming chronic shortages of such materials; now it depends on responsible approaches on the part of the workers in appropriate branches to produce such materials promptly and in sufficient quantities.

Rationalization Is Everybody's Perennial Duty

With the steady progress of the preparations for the Seventh Five-Year Plan it is increasingly more self-evident that the increment of primary sources of energy designated for our domestic consumption during this five-year plan will drop substantially below that in the past and that most of it will be allocated for purposes other than power engineering (petrochemical industry). Under such circumstances the fuels and power for new construction and investment projects, including housing construction, may be acquired solely by conservation of energy in existing buildings and by utilization of secondary sources of energy. Our national economy may progress further only if these principles are observed.

It appears with increasingly greater urgency that we must advance to a new, qualitatively higher level of rationalization where the choice of programs will fully reflect not only the volume of the savings achieved but also the price and general availability of the given type of fuel for our national economy.

Furthermore, it is unconscionable that our domestic manufacture of machinery and equipment fails to respect the structural changes in the fuel and energy balance. On principle, the production of boiler equipment must be reoriented to combustion of solid fuels available in our country. In the final years of the Seventh Five-Year Plan and after 1985 more electric power will be generated in nuclear power plants and in general represent the increment of resources in the fuel and energy balance. However, priority must be given to its use in the existing areas of consumption as replacement of crude oil products. Next to heat and power generation, this involves also their exploitation in technological processes and in transportation. Necessary equipment, especially furnaces, kilns, means of transportation, etc., including necessary accessories, must be made available for that purpose. In this conjunction the Federal Ministry of Metallurgy and Heavy Engineering, Federal Ministry of General Engineering and Federal Ministry of Electrotechnical Industry, in cooperation with the FMTIR and the State Planning Commission, must reevaluate the existing structure of production with regard to the development of the fuel and energy balance and must supply in the shortest possible time equipment corresponding to the needs of our national economy.

At the same time, the period before 1985 should be used to plan structural changes in organizations of production, in order to acquire equipment necessary for efficient utilization of additional electric power generated in nuclear power plants.

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The experience with the implementation of programs for rational exploitation of fuels and power thus far has confirmed that the program of the goal-oriented approach to the solution of positive development in power engineering consumption in Czechoslovak national economy is correct. It is imperative to develop here a concept as comprehensive as possible and to integrate it completely within the framework of the whole state plan.

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By adopting the directive for economic and social development in 1981-1985 by the 16th CPCZ Congress and by approving the Seventh Five-Year Plan, the stage of preparations for the state goal-oriented program of Rationalized Consumption and Utilization of Fuels and Energy will be completed and we shall proceed on to the stage of its implementation.

At the same time we have reached a new stage in the search for ways to fulfill the assigned tasks and also in the search for ways to intensify further rationalization programs in the Eighth Five-Year Plan.

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