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USSR Report

ENERGY

(FOUO 20/80)

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CONTENTS

ELECTRICAL POWER

CENTRAL COMMITTEE CONFERENCE ON POWER INDUSTRY

Moscow ENERGETICHESKOYE STROITEL'STVO in Russian No 8, Aug 80 pp 2-12

[Article: "In the Central Committee of the Communist Party of the Soviet Union"]

[Text] A conference of power system construction engineers and workers of power engineering and power machine construction enterprises and institutes was held in the CPSU Central Committee on June 2nd and 3rd on questions of the development of power engineering.

The following participated in the work of the conference: member of the politburo of the CPSU Central Committee and secretary of the CPSU Central Committee, A.P. Kirilenko, member of the politburo of the CPSU Central Committee and secretary of the CPSU Central Committee, M.A. Suslov, member of the politburo of the CPSU Central Committee and secretary of the CPSU Central Committee, K.U. Chernenko, candidate member of the politburo of the CPSU Central Committee and secretary of the CPSU Central Committee, M.S. Gorbachev, secretaries of the CPSU Central Committee, V.I. Dolgikh and M.V. Zimyanin, Deputy Chairmen of the USSR Council of Ministers, N.K. Baybakov, V.E. Dymshits, N.V. Martynov and V.N. Novikov, President of the USSR Academy of Sciences, A.P. Aleksandrov, Chairman of the AUCCTU, A.I. Shibayev, first secretary of the Komsomol Central Committee, B.N. Pastukhov, department heads of the CPSU Central Committee, Ministers of the USSR, directors of a number of central departments, secretaries of the central committees of the Communist Party of the union republics, kray party committees, and oblast party committees, responsible officials of the CPSU Central Committee, the USSR Council of Ministers and the USSR People's Control Commission.

The conference was opened with a speech by A.P. Kirilenko*.

*The speech of comrade A.P. Kirilenko is presented here based on the text published in the newspaper PRAVDA for June 4th, 1980.

Our party, he noted, has consistently taken a course towards the electrification of the nation and towards the advanced development of power engineering since the first years of the formation of the Soviet state.

The start for this was the historic GOELRO [state commission for the electrification of Russia] plan which was adopted, the 60th anniversary of which will be noted in December of 1980. V.I. Lenin was correct a thousand times over when he proclaimed that "Communism is the Soviet power plus the electrification of the entire nation."

The Soviet peoples are rightly proud of the achievements of domestic electrical power engineering. In just the last 15 years along, electrical power generation has almost tripled in the nation and 165 million KW of new power capacities have been brought on line. Over the period since 1964, the electrical power equipment to worker ratio has increased by a factor of 1.9 in the industry and by a factor of 8 in agriculature. The electrical power consumption for the everyday needs of the populace has increased by a factor of 2.7.

But no matter how great these successes, problems of the development of electrical power engineering - this most important sector of our economy - have not lost and will never lose their urgency. The Party is working from the fact that the further economic and social progress of the nation and improving the standard of living of the Soviet peoples can be assured only with advancing growth in the power engineering potential of the national economy.

You know well what a deep analysis of the state of affairs in our fuel and energy complex has been made by general secretary of the CPSU Central Committee and chairman of the Presidium of the Supreme Soviet of the USSR, Comrade L.I. Brezhnev in his speech to the November (1979) plenum of the party Central Committee. In it, along with other fundamental national economic tasks, the basic issues of the prospects for our power engineering were also put forward. It is essential, L.I. Brezhnev emphasized, to think through the entire set of power engineering problems, and to substantially improve the fuel and energy balance in the nation in the 1980's. Comrade L.I. Brezhnev has made it a first priority task to develop a scientific, well thought out, economically substantiated power engineering program for the long term.

Leonid Il'ich is constantly devoting attention to power engineering and the sectors related to it, and the battle of party organizations and all workers to implement the plans for boosting the power engineering equipment to worker ratio in the national economy as well as to save fuel and energy. In considering the preparation for this conference with great interest, he wished its participants fruitful work and asked that his sincere greetings be conveyed.

At the conference, said A.P. Kirilenko, we have in mind the discussion of measures directed towards the successful implementation of the directives of the CPSU Central Committee concerning the efficient development of the fuel and energy complex, taking into account the rising demands of Soviet society and the prospects for scientific and engineering progress. It is also expedient to consider which additional measures must be implemented in order to absolutely carry out the plan for 1980 for the construction and bringing on line of power engineering facilities, and thereby create a good beginning for its growth in the 11th Five-Year Plan.

This year is a special year. It completes the 10th Five-Year Plan, and is the year of preparation for the 26th CPSU Congress. There can be no doubt that power engineers, just as all of the nation's workers, will do everything possible to meet this outstanding event in the life of the party and the entire Soviet people in a worthy manner and with new, high production achievements.

The most important task consists in stepping up the pace of scientific and engineering progress in electrical power engineering. It has earlier occupied and even now occupies the leading positions in the world based on such indicators as specific fuel consumption, per unit capacities of power plants, the voltage levels of electrical networks and the scales of heating supply. In this case, and this is gratifying to note, power engineering systems in the 10th Five-Year Plan are increasingly being outfitted with highly economical plants, high power nuclear reactors and refined electrical engineering equipment.

New power units have gone into service at existing nuclear power plants in recent years: at the Chernobyl'skaya, Kurskaya, Leningradskaya, Beloyarskaya, Armyanskaya and Bilibinskaya nuclear power stations. Large hydroelectric plants have been brought on line at the Sayano-Shushenskaya, Ust'-Ilimskaya, Nurekskaya and other hydroelectric power stations. The construction of the highest power capacity thermal electrical power stations in Europe has been completed: the Zaporozhskaya and Uglegorskaya stations. Some 129,000 kilometers of new high voltage electrical power transmission lines have been placed in service in the 10th Five-Year Plan.

A solid basis for the continuous growth of Soviet electrical power engineering is domestic power and electrical machinery construction. The technical retrofitting and expansion of the scales of production in the largest machine construction association has been consistently carried out in the 10th Five-Year Plan. The capacities of the gigantic "Atommash" Volgodonsk nuclear machine construction plant are being built up at a fast pace. The output of reactors and turbines for nuclear power stations, electrical equipment, power conversion equipment and other types of power engineering machinery and equipment has been substantially increased.

The motherland places a high value on the self-sacrificing labor of power system builders, operational engineers and workers of the enterprsises of power engineering machine construction. Many workers, engineers, technicians and staff personnel have been cited with governmental awards for their great labor successes. The achievements of the advanced collectives were noted in the opening remarks of general secretary of the CPSU Central Committee and chairman of the Presidium of the Supreme Soviet of the USSR, comrade L.I. Brezhnev.

The central committees of the communist parties of the union republics, as well as the kray and oblast committees of the party play a large role in solving important problems in building up the nation's power potential. They perform considerable organizational and political work in mobilizing the labor collectives for the execution of the national economic plans and meeting socialist obligations.

Thus, A.P. Kirilenko noted that serious quantitative and qualitative changes in power engineering are characteristic of the 10th Five-Year Plan. Along with this, the interests of further economic and social progress of the nation and the creation of the material and technical base of communism require a new powerful rise in our power engineering in the 11th Five-Year Plan.

In this regard, the CPSU Central Committee attributes special significance to the year 1980, during which 1 trillion and 300 billion kilowatt hours of electrical power should be generated. It is planned that the power capacities to be brought on line will increase by a factor of 1.4 to 1.5. An especially large growth in capacities - almost double that of the level for 1979 - is to be provided using nuclear and hydroelectric power stations. A provision is also made for the construction of 36,000 kilometers of high voltage electrical power transmisssion lines and about 122,000 kilometers of electrical power networks for agriculture.

All of the assignments of the state plan should be unconditionally carried out. Unfortunately, the plan for the construction of electrical power stations of the USSR Ministry of Energy was somewhat underfulfilled in 1979, and even in the first five months of the current year, the collectives of a number of construction starts did not meet the assignments. The construction of nuclear and thermal electrical power stations is to be accelerated without delay, especially those such as the Yuzhno-Ukrainskaya, the Chernobyl'skaya and Smolenskaya AES's, as well as the Moldavskaya, Barnaul'skaya, Tallinskaya and Tselinogradskaya TES's [thermal electric power stations]. Everything must be done to make up for the lag which has been allowed at the construction starts. It is specifically these which should now be the center of attention in the economic, party and trade union organs, as well as our Komsomol.

An important factor in placing the facilities under construction in service on time is completely providing them with materials and equipment. And by the way, this does not always happen in practice. The USSR Gosplan and Gossnab should check to see how much of the full equipment complement of materials and equipment is provided for the starting projects, and resolve the questions related to this in an operationally timely manner.

The central committees of the communist parties of the union republics and the party committees of the krays and oblasts, on the territories of which the electric.l power stations are being built, are called upon to increase their attention to power engineering construction projects, provide for a clear cut organization of the work as well as more complete utilization of the existing reserves and capabilities. The success of the operation, just as always, will depend a great deal on the skill of the organization and political work in the masses, the value of which has been revealed so brilliantly and convincingly by Leonid Il'ich Brezhnev in the books "Malaya Zemlya", "Vozrozhdeniye" and "Tselina".

The task of party organizations of power engineering construction projects consist in mobilizing the creative energy of the labor collectives to accelerate the construction and assure the placement of the power plants in service ahead of schedule. A point of honor of Communists and all workers of machine construction plants is to come as close as possible to the deadlines for the delivery of power equipment. The party organizations are to develop on a wider basis the effective forms of competition which have been tested in practice, such as the "worker relay race", the experience with the cooperation of Leningrad enterprises and organizations with the builders of the Sayano-Shushenskaya GES, and others.

Although the machine builders have done no small amount of work to boost production of progressive types of power engineering and instruments, they need to achieve better indicators. This especially applies to the ministries of power engineering machine construction and petrochemical machine construction. Some plants are meeting their agreed obligations with a delay. The managers of these enterprises attempt to explain the delay in equipment deliveries to power engineering construction projects by interruptions in the material and technical support and inadequate rates in the build-up of production capacities. This. of course, occurs. The USSR Gosplan and Gossnab should listen to the voice of the ministries and render them the requisite assistence. At the same time, both the ministries themselves and the directors of the enterprises subordinate to them should wage an effective battle to observe plan discipline and boost the organizational level of production and labor.

In order to correct the trouble with the deliveries in power engineering equipment, the colleagues of the machine construction ministries, and the

ministers V.V. Krotov, A.K. Antonov and K.I. Brekhov personnally are to implement specific practical measures directed towards the clear-cut performance of the set tasks by each production association and enterprise. It is required that special attention be devoted to the timely provision of equipment to nuclear power stations under construction.

One of the important assignments of 1980 and subsequent years, continued A.P. Kirilenko, is the accelerated expansion of work on the creation of the Ekibastuz and Kansko-Achinsk fuel and power complexes. They are of enormous significance for the entire national economy, for the development of the productive forces of Siberia and Kazakhstan and for the supply of electrical power to the central regions of the nation. As is well known, the minister P.S. Neporozhniy was subjected to sharp criticism at the November plenum of the Central Committee because the construction of the electric power stations included in the Ekibastuz complex was handled in an extremely unsatisfactory fashion. It should be noted that conclusions were drawn from this criticism. The first power unit is already in operation at Ekibastuz. Now, the USSR Ministry of Energy should assure that three more units go on-line in the current year.

The USSR Coucil of Ministers adopted a decree the other day "On Providing the National Economy and Populace with Fuel, Electrical and Thermal Energy in the Autumn and Winter Period of 1980/81". Provisions are made in it for assignments to increase the production of fuel oil, overfullfill the plan for coal and gas extraction and for additional savings in fuel and electrical power. The workers of the coal and oil industry should persistently fight for an increase in the extraction of fuel, do everything that depends on them so that the set assignments will not only be fulfilled, but overfulfilled. Railroad workers are obligated to assure uninterrupted delivery of coal and fuel oil to electrical power stations.

The preliminary calculations made by the USSR Gosplan and the USSR Ministry of Energy, said A.P. Kirilenko, show that to assure a reliable power supply to the national economy, it is necesary to place in service several millions of kilowatts more of new power engineering capacities than in the current five-year plan.

It is planned that the primary support for this be based on progressive trends in power engineering. This is primarily the predominant development of nuclear power engineering in the European area of the USSR. By the end of 1985, the increase in capacities of the nation's nuclear electric power stations will be almost twice as great as in the 10th Five-Year Plan. During the course of the future five-year plan, the following stations will generate current for the first time: the Kalininskaya, Zaporozhskaya, Khmel'nitskaya, Rostovskaya, Balakovskaya and other AES's. A provision is made in a number of cities for the construction of heat supply nuclear stations. High power thermal electric power stations will likewise be constructed in the eastern regions

of the nation based on inexpensive coals. And in the Tyumenskaya oblast, there will be large electrical power stations using local natural and casing-head gas.

The next important direction is the further drawing on the hydroelectric reserves for the power engineering balance of the nation, taking into account for the necessity for the comprehensive utilization of these reserves. The construction of the Sayano-Shushenskaya GES with a capacity of 6,400,000 kilowatts will be completed, as well other large stations such as the Nizhnekamskaya, the Kolymskaya and Cheboksarskaya, with the completion of the construction of which, the utilization of the hydroelectric power resources of the Volga will be completed. The construction of water storage and gas turbine stations is planned to improve the flexibility of power systems.

A key work area is the construction of ultralong electrical power transmission lines. This is primarily the direct current Ekibastuz-Tsentr line with a voltage of one and a half million volts and a length of 2,400 km, via which up to 42 billion KW will be transmitted annually to the European area of the nation in the future. Ahead for the 11th Five-Year Plan is the completion of the construction of two more extremely large electrical power DC transmission lines: Ekibastuz-Chelyabinsk and Ekibastuz-Itat in the Krasnoyarsk kray.

On the whole, the power engineering construction program for the 11th Five-Year Plan signifies the entry of domestic power engineering into a qualitatively new phase of its development. Its realization requires the serious restructuring of the work methods of the builders, project planners, machine builders and operational workers. Because of the new trends in power engineering development, it is now especially necessary for nuclear, scientific and design organizations, enterprises, builders and installation workers to solve greater and complex engineering problems.

An especially large volume of work falls on the shoulders of the army of the two million workers and specialists of the USSR Ministry of Energy. It is necessary to make even more efficient use of the existing production and scientific potential in the sector. The ministry is obligated to achieve perceptible results in curtailing the timeframes for the construction of electrical power stations, make wide use of standard design solutions, progressive structural designs and new construction materials in project planning as well as reduce labor expenditures in the erection of buildings and structures.

No few good words were said at the time about the rapid construction of the Ladyzhinskaya, Zaporozhskaya and Uglegorskaya GRES's, as a result of which, substantial economic savings were achieved. However, this valuable experience is as yet being poorly utilized in practice. Even such a progressive form of construction organization as brigade subcontracting is being used to an inadequate extent.

A central link in the resolution of the construction tasks is a further increase in labor productivity. It is necessary to assure a clear-cut organization of work execution at all construction sites, reduce worker time losses to a minimum, make better use of equipment and motor vehicle transportation as well as curtail the specific weights of manual labor and auxiliary personnel.

A decisive step is to be taken to dispense with that defective planning practice in power engineering construction in which the placing of capacities on-line is provided basically at the end of a year, while the capital investments are scattered over an extraordinarily large number of projects. Because of this, funds are "cut off" at construction starts at many projects to the detriment of the operation, and at the end of the year, overtime work is utilized and the construction quality is degraded.

Greater tasks, emphasized A.P. Kirilenko, confront scientists and chief design engineers, as well as all workers of scientific research and project planning organizations - the creators of the new equipment for power engineering. Their duty is to fight even more efficiently to accelerate scientific and technical progress in power engineering machine construction, and to see that the equipment which is designed is not only not inferior to the better world models, but also superior to them in terms of its economy and service life.

Cases are also known where some designers, in having designed some new, it would seem, progressive equipment, were not able for years to bring it up to standards. It hardly needs to be proved what kind of national economic losses are caused by errors committed by designers and production engineers and how negative an impact this has on the power supply to consumers.

Power engineers have not without justification criticized machine builders for the quality of the equipment supplied. But the justified complaints of machine builders concerning the quality of the metal which sometimes arrives with defects and assortment deviations must also be supported. A reliable barrier to the fabrication of equipment of inadequate quality which does not meet modern requirements should be created in every labor collective of every sector: in machine construction, metallurgy and power engineering.

I would also like to touch upon the problem of power engineering equipment modernization and reconstruction said A.P. Kirilenko. A good example in this regard is the reconstruction of the turbines and generators of the Bratskaya GES, as a result of which, the set capacity of the station was increased by 400,000 kilowatts with comparatively low outlays. Power engineers make claims that they are ready to modernize many electric power

stations. But they need the equipment for this. It is thought that greater attention should be devoted to this question and it needs to be solved through planning procedures.

And yet something more about an important problem: about the automation and control of technological processes. The USSR Ministry of Energy and Ministry of Instrument Construction recently approved a good program for joint work on the introduction of comprehensive automation at electrical power stations.

Comrade L.I. Brezhnev posed the problem of thrifty utilization of heat and power at the November Plenum of the CPSU Central Committee. ". . . No matter at what pace we develop power engineering," he said, "Saving heat and power will also be the most important nationwide task in the future."

The level of work to seek out and utilize reserves in the saving of fuel, electrical and thermal energy at enterprises and in organizations still does not meet the set requirements. Wasteful use of fuel and energy is permitted at numerous industrial enterprises, in kolkhozes and sovkhozes, as well as municipal and everyday servcies organizations. There are serious deficiencies in setting standards for the consumption fo fuel and energy. It is indicative that about 1,400 enterprises were found in 1979, for which overstated standards were established which did not provide an incentive to fight for savings. A maximum concentration of efforts is likewise necessary for the design of highly efficient, less energy intensive equipment, as well as new energy saving technological processes.

A.P. Kirilenko devoted considerable attention to the advanced work experience of party organizations in the mobilization of labor collectives to accelerate the pace of expansion of power engineering. The practice of the comprehensive approach of the Leningrad oblast party organization to the solution of extremely important problems related to the development, mastery and increase of the output of power equipment is deserving of support. The central committees of the Communist Parties of the Ukraine, Belorussia and Estoniya, the Krasnoyarsk Kray committee of the CPSU, the Voronezh, Sverdlovsk Zaporozh'ye, Irkutsk, Saratov and Kostroma oblast committees of the CPSU as well as the Moscow Municipal Committee of the Party have accumulated much of value in resolving problems of power engineering development.

All of those great capabilities which the party organizations have for increasing the level of organizational and educational work must be utilized more extensively. Pratical assistance is to be rendered to the builders of electrical power stations and electrical power transmission lines in the organization for morale boosting visual aids agitation, and questions of organizing nonlocal editions of central and republic newspapers on construction sites should be thought through. Then A.P.

Kirilenko underscored the fact that, as was indicated at the November Plenum of the CPSU Central Committee our duty is to also think of the power engineering of the future well in advance. This concerns the expansion of the construction of nuclear electric power stations with fast neutron reactors, the expansion of work on controlled thermonuclear fusion as well as the utilization of solar and geothermal energy and superconductivity phenomena. The USSR State Committee on Science and Engineering, the USSR Academy of Sciences, USSR Gosplan and the ministries and departments will undoubtedly set about the working out of these urgent scientific and engineering problems with a high degree of responsibility, and will assure the comprehensive resolution of all questions related to the utilization of scientific discoveries as well as to the design and introduction of new equipment.

In conclusion, A.P. Kirilenko, in touching upon international questions, noted that the imperialist circules, and primarily in the U.S., have seriously complicated the international situation through their own actions. Under these conditions, the Central Committee of Our Party, the Politburo of the Central Committee and Comrade L.I. Brezhnev personally, in being deeply involved in the problems of internal development, at the same time are devoting enormous attention to the conduct of a Leninist course of foreign policy, strengthening the unity and cooperation of the socialist cooperation, fighting for the preservation and deepening of detente as well as for the termination of the arms race and strengthening peace.

The world situation dictates the necessity of the successful implementation of the plans for the development of Soviet electrical power engineering, which plays an exceptional part in further building up the nation's economic and defense potential. The reckoning of the Carter administration that the so called "economic measures" being taken by it to fight against the USSR will exert a retarding influence on the development of our economy and its power engineering, is collapsing.

The Soviet people possess enormous forces and capabilities, and confidently travels the Leninist path of Communist construction.

The minister of power engineering and electrification of the USSR, P.S. Neporozhniy, presented a report at the conference on measures to provide for the implementation in 1980 of the plan for the construction and installation work, the bringing on-line of new power capacities and on the major trends in the development in power engineering.

In characterizing the state of affairs in the sector, and having noted a number of existing deficiencies in the operation and construction of power engineering facilities, P.S. Neporozhniy dealt with the work underway, which is directed, in particular, towards increasing the efficiency

of power construction as well as the execution of the considerable and demanding plan assignments for bringing in power capacities.

Comrade P.S. Neporozhniy said in particular:

"This year, new capacities amounting to 1.6 times more than in the previous year should be brought on-line. It should be noted that more than 7 million KW of capacities should be brought on line at nuclear electric power stations, where each million kilowatts brought into service will make it possible to save two million tons of petroleum products annually for the national economy. In 1980, about 156,000 km of electrical power transmission lines will be constructed."

"Such a program has never been executed by us previously. Now, power engineers and power builders are working intensively to implement this program, and are striving to carry out the socialist obligations adopted at the start of the year."

"However, the totals for five months of work show that along with the execution of the plan with respect to the basic technical and economic indicators (electrical power output, income, etc.), the plan for construction and installation work on construction starts for power engineering facilities, and primarily for nuclear power stations, has only been 92 percent carried out by the ministry."

"Some seven months still remain until the end of the year and this is enough time to correct the situation and make up the deficiency."

"All of the requisite resources will be concentrated in the days just ahed on the construction projects underway, and prior to the end of the second quarter, the complete outfitting of the facilities with the main and auxiliary equipment should be completed, as well as with the missing metal structures and reinforced concrete, and all questions concerning the project planning and estimate documentation should be resolved."

"Considering the lag which has been allowed in the implementation of the plan for the construction of power engineering facilities and buildings with respect to new capacities coming on line, additional measures have been worked out by the ministry to increase the pace of work at the projects which are underway."

"Questions of power engineering construction are regularly taken up at the meetings of the staff and the party committee of the ministry, where the directors of the main administrations and associations, construction and installation organizations report on the work which has been done to implement the decisions which have been made and realize the plan assignments. Through a decision of the staff, responsible

officials of the ministry are assigned to the individual construction starts.

Groups of skilled specialists are sent out from scientific research and project planning organizations of the ministry for the operationally timely resolution of questions which arise during the course of construction of power engineering facilities, as well as for the wider introduction of advanced methods of work performance and to render practical assistance on site in refining the work organization, curtailing losses of work time and improving the utilization of construction machinery and mechanisms at the project.

Collectives of construction industry enterprises have been mobilized to carry out the assignments for the fabrication of building structures for construction starts ahead of schedule. All deliveries of metal structures and prefabricated reinforced concrete will be completely finished in the first half-year. Because of the overloading of plants for the production of nonstandardized equipment, other enterprises of the ministry have been called upon for its fabrication.

P.S. Neporozhniy further reported that the USSR Ministry of Energy in conjunction with the Central Committee of the trade union and party organizations is doing a great deal of work at construction sites which is directed towards improving the organization of socialist competition to fulfill and overfulfill the assignments of the national economic plan for 1980. The overwhelming majority of construction and installation brigades have been involved in the competition. The totals of the competition are regularly discussed at the staff level, where operational steps are taken to assure the fulfillment of the assumed obligations.

The minister especially underscored the direct dependence of the successful completion of national economic plan assignments and the assumed socialist obligations for 1980 on the timely deliveries of equipment, noting that the situation which has arisen is alarming. P.S. Neporozhiy criticized a number of machine construction ministries and departments as well as supplier plants, which drag out the deadlines for equipment deliveries and permit an imbalance in the main and auxiliary equipment which is supplied, something which creates definite difficulties.

Having expressed confidence in the fact that the directors of the appropriate ministries and suppliers of equipment will take immediate and effective steps directed towards a clear cut and timely fulfillment of their plans and obligations to the USSR Ministry of Energy, P.S. Neporozhniy dealt with the program for further expansion of electrical power engineering, primarily in the 11th Five-Year Plan, which provides for the following in particular:

In the area of thermal electric power stations: The accelerated construction of primarily the large power complexes: the continuation of the construction of electrical power stations at the Ekibastuz coal open pit mine with the bringing on-line of significant capacities during the five-year plan; the placing in service of the first units at the KATEK [Kuybyshev Motor Vehicle, Tractor, Electrical Equipment and Carburetor Plant] electrical power stations, which will provide electrical power for the electrically power intensive production in Siberia and will make it possible to transmit some of the electrical power to the center of the nation via ultrahigh capacity power lines; the construction of electrical power stations using casing-head gas in the Tyumen'oblast, from which the electrical power will be transmitted via 1,150 KV power lines to the Urals, as well as the construction of a large 4.8 million KW capacity electrical power station with units of 800,000 KW each using solid fuel (Kuznets coal).

In the area of nuclear power engineering: Building up the capacities going on-line at the AES's already under construction and the forced construction of new AES's with the placing of the capacities on line in the 11th Five-Year Plan. The program for the construction of nuclear power stations is designed so that beginning in 1981, all of the growth in electrical power generation in the European area of the Soviet Union will basically come from nuclear power stations: the Khmel'nitskaya, Zaporozhskaya, Rostovskaya, Balakovskaya, Kalininskaya, Ignalinskaya AES's, and others.

The minister of power engineering and electrification of the USSR noted that to carry out the broad program of AES construction, it is necessary to solve a number of organizational problems, since the structural designs of AES's are characterized by a high metal capacity, the extensive use of alloy and special steels, complexity in the manufacture of the production process equipment and the performance of the construction and installation work, as well as the necessity of meeting the requirements for radiation safety and other special features.

The USSR Ministry of Energy has worked out measures for high speed flow-line construction of nuclear electric power stations with the annual bringing on-line of one million KW at each station. The first such flow is being organized in the construction of the Zaporozhskaya AES, the construction experience with which will be used in the organization of the flow-line construction of nuclear power stations with capacities of 4 to 6 million KW each.

However, the following is needed for this:

--A sharp increase in the quality and completeness of the production process equipment packages delivered by industry, an increase in the

requirements placed on the quality of the construction and installation work, assurance of a strict schedule for work performance and the change-over of nuclear power stations to series construction;

--Completely resolve questions of material and technical supply of nuclear power stations under construction, assure the execution of the physical work volumes for AES construction starts and projects which are underway within the timeframes needed for flow-line erection of series nuclear power stations;

--Provide for maximum stability of equipment supplied by industry during the 11th Five-Year Plan and do not make an serious changes in its structural design, something which can lead to a disruption of the schedules which have been worked out for the flow-line construction of nuclear power stations;

--Assure the advanced allocation and timely supply of the annual funds for material and technical resources, increasing the norms set in this case for the residual materials which are carried over.

In the area of centralized heat supply: Continue the further development of TETs construction, for which it is necessary to bring in substantial capacities in the 11th Five-Year Plan for central heating and electric power stations; in this case, it is planned that by the end of the five-year plan, the capacities of large nuclear heat and electric central power stations (ATETs) and nuclear heat supply stations (AST) will be brought on line.

In dealing additionally with the questions of *hydroelectric power engineering construction,* P.S. Neporozhniy underscored the necessity of wider development of hydroelectric power engineering. He noted that the Soviet Union has the greatest hydroelectric power potential, however, as yet only 18 percent of it is used, i.e., to a significant lesser extent than in the developed capitalist nations.

In such extremely large collectives of hydroelectric builders of the USSR ministry of energy as Bratskgesstroy, Vilyuygesstroy and Taymyrenergostroy, only 8 to 10 percent of the overall work volume goes for work on the construction of the hydroelectric engineering facilities, while the bulk of the capacity of these subdivisions is utilized in industrial construction.

The question of the necessity of disassembling obsolete equipment at thermal electric power stations and simultaneously modernizing and retrofitting worn out equipment at large thermal and hydroelectric power stations was touched upon in the address of the minister of power engineering and electrification of the USSR.

In touching on the problems of the development of *electrical power network construction,* P.S. Neporozhniy emphasized the necessity of a considerable growth in the placement of electrical power transmission lines at voltages of 35 KV and above in service, including the operational start for the direct current 1,500 KV Ekibastuz-Tsentr power line and the alternating current 1,150 KV Ekibastuz-Ural and Surgut-Ural power lines.

The minister noted in the report the construction of such custom designed facilities as nuclear electric power stations, and large GRES's in the eastern regions of the nation, as well as ultralong electrical power transmission lines requires outfitting the construction organizations with more refined and higher capacity equipment, especially motor vehicle transportation.

The successful erection of the large stone and earth dams of the powerful GES's in the nation's eastern regions likewise depends in many respects on the presence of large load capacity dump trucks, powerful bulldozers, scrapers and excavators, the demand for which is not completely satisfied.

Also mentioned was the fact that it is necessary to devote special attention to the rebuilding and expansion of the bases of the construction industry of the ministry because of the transition to the fabrication of completely new types of reinforced concrete and metal structures, as well as other products.

It was noted that the USSR Ministry of Energy is working on the problems of mastering nontradiational methods of generating electrical power. Thus, the first electrical power station using solar energy will be constructed in the Crimea; it is planned that electrical power stations using the heat of geothermal water will be built in Kamchatka, in Dagestan and in other regions of the nation.

In touching on the problems of stable operation of the Unified Power System of the USSR and meeting the peak loads, P.S. Neporozhniy noted that since the operation of thermal and nuclear power stations, from the viewpoint of liability and economy, is most efficient in a steady-state mode, i.e., in the base region of the load charts, it is necessary to expand the construction of flexible hydroelectric, water storage and gas turbine electric power stations.

The results of calculations which have been made show that, to assure stable operation of the power systems, it is necessary to have up to 25 percent of the capacity in the form of flexible power capacities. Under these conditions, it is essential to make more complete use of the hydroelectric power resources of the rivers of the European area of the nation, to implement the planned program for the construction of water storage power stations, and also to resolve the questions of through transfer via

superlong electrical power transmission lines of the flexible power capacity of Siberian GES's to Tsentr. The effectiveness of such power transmission is confirmed by engineering and economic developmental work and operational experience in the power systems.

In conclusion, P.S. Neporozhniy, on behalf of the official staff of the ministry, assured the CPSU Central Committee and the USSR Council of Ministers that the two million member army of power engineers is fully resolved to assure the advanced development of power engineering and electrification of the nation, as well as to create the conditions for a reliable power supply for industry, agriculture and the populace.

The deputy chairman of the USSR Council of Ministers, chairman of the USSR Gosplan, N.K. Baybakov, analyzed the development of power engineering in the 10th Five-Year Plan, and underscored the need to create the appropriate reserve of capacities in power systems, accumulate stocks of fuel at electrical power stations, and increase the pace of power engineering construction, expecially, the construction of nuclear power stations.

Deputy chairman of the USSR Council of Ministers, V.N. Novikov and V.E. Dymshits, spoke in their addresses about problems of the machine construction ministries and the USSR Ministry of Energy as well as measures to support advanced development of power engineering. They noted that these ministries should work in a goal oriented manner to standardize the power engineering equipment being produced, to use standard designs for electrical power stations on a wider basis, and they underscored the need to reinforce labor discipline in the subdivisions of the USSR Ministry of Energy and improve the quality of the construction of power engineering facilities.

The president of the USSR Academy of Sciences, academician A.P. Aleksandrov discussed the great contribution of scientists to the improvement of the fuel and energy balance of the nation, the utilization of the latest achievement of science and engineering in the design of custom made power engineering equipment and the promising trends in the work to increase the capacities and the level of automation of nuclear power stations, including those with fast neutron reactors.

The ministers V.V. Krotov, K.N. Rudnev, Ye.P. Slavskiy and the first deputy minister A.I. Mayorets reported on measures taken in the sectors to provide for the timely supply of equipment to power engineering construction starts, improve the technical level and quality of the steam turbines and boilers being produced, as well as the nuclear reactors, electrical equipment using high voltage devices and automation equipment for electrical and thermal power generation processes.

The director of the All-Union Scientific Research Institute for Electrical Machine Construction, academician I.A. Glebov, the chief design engineer for steam and gas turbines of the "Khar'kov Turbine Plant" production association, Yu.F. Kosyak and the general director of the "Izhorskiy Plant" production association, L.V. Tupitsyn, talked in their addresses about the measures being taken to curtail the timeframes for placing high efficiency types of machines and power sets in production, as well as the design of a standardized series of turbogenerators and hydroelectric generators, as well as large electrical machines.

The chief of the Gidroproyekt Institute, L.P. Mikhaylov, presented a report to the conference, in which he noted that for the purpose of reducing the estimated cost and curtailing the duration of the construction of hydroelectric facilities, the institute has changed over to planning hydroelectric stages in steps and territorial industrial complexes, taking into account the prospects for the development of a region and the repeated dislocation of collectives from one construction project to another. Such project plan solutions make it possible to efficiently utilize the construction project bases and settlements designed for facilties already under construction. The base and settlement for the Boguchanskaya GES has been planned on this principle, the engineering draft of which was approved at the start of the current year. Maximum utilization is made in the project plan of the capabilities of the existing Bratskgesstroy bases, because of which, the estimated cost of the Boguchanskaya GES has been successfully reduced by 70 million rubles.

The technical and economic substantiation has been worked out by the institute for the largest regional base in the construction industry in the region of Lesosibirsk, which will provide structures and materials for the construction of the stage of powerful GES's: the Sredne-Yeniseyskaya, Turukhanskaya, Osinovskaya and Podkamenno-Tungusskaya. The advanced construction of such a base will make it possible to reduce the time required for the construction of these hydroelectric stages by six to eight years and reduce their estimated cost by 350 to 400 million rubles.

An engineering project plan for the first Yuzhno-Ukrainskiy power engineering complex in the nation has also been developed, the complement of which includes a nuclear electric power station with a capacity of 4 million KW, as well as water storage and hydroelectric stations with an overall capacity of 2.2 million KW. All of the electrical power stations of this complex are joined together technology by means of the joint utilization of the water reservoirs being built for both the cooling of the circulation water of the nuclear power station and for the energy storage. The combining of the facilities into a single complex will make it possible to save more than 10 percent of the capital investments, material and labor expenditures during the construction and operational periods of the complex.

In critically analyzing the work of the institute, L.P. Mikhaylov additionally noted that the time has come where it is necessary to improve the coordination between the USSR Gosplan and USSR Gosstroy in work to create regional and intersectoral schemes for the development of production forces, and the scientific substantiation of the composition and capacity of a power complex, taking into account the layout, concentration and construction sequence of all of the facilities of the infrastructure. It is well known that the technical level of hydroelectric stage construction is determined by the design solutions embodied in the project plan. In terms of the layout, structural design and production process design solutions, the project plans for domestic hydroelectric power stations are in many cases superior to foreign ones, something which is acknowledged by international engineering public opinion. However, this does not give us the right to be self-satisfied, since the results of a comparison of project plans with respect to the mechanisms used in the construction do not argue in our favor. Hydroelectric power engineering construction projects are in need of larger load capacity dump trucks, powerful bulldozers, wide belt transporters, high productivity drilling equipment, concrete pumps, tunnel drilling combines, etc., where the majority of this equipment can be manufactured by domestic industry. The introduction of high output machines and mechanisms will allow for a substantial improvement in labor productivity, a reduction in the duration and cost of construction and a boost in the technical level of the project planning.

Further, L.P. Mikhaylov, in dealing with questions of project planning for nuclear electric power stations, noted the existing deficiencies and discussed measures directed towards reducing the cost and curtailing the time required for AES construction. Thus, the specialists of the institute have substantiated the economic efficiency of increasing the capacity of the Kurskaya and Chernobyl'skaya AES's, and are working out measures to increase the capacity of the Smolenskaya AES. The realization of these proposals will make it possible to dispense with the discovery of new sites, as well as organize three long term construction flows using the forces of the collectives which have been put together, using existing construction bases and settlements. Because of this, the labor expenditures for the series of power units in the 11th Five-Year Plan will be reduced by more than 20 percent.

To reduce the construction labor intensity of nuclear power stations, scientists and engineers of Gidroproyekt have proposed the erection of the structure of the main frames of AES's in monolithic prefabricated reinforced concrete using a specially developed technology. When the first reactor unit was erected using this technology, the duration and labor intensity of the construction work directly on the unit was cut in half. At the present time, this technology is being refined, and will be introduced in the future at all of the AES's under construction in

our country. The institute specialists are likewise working on project plan solutions, which will make it possible in the 11th Five-Year Plan to reduce labor outlays for construction and installation work by a factor of 1.5 as compared to the indicators achieved in the 10th Five-Year Plan.

The chief of Krasnoyarskgesstroy, F.I. Sadovskiy, reported that the collective of builders of Krasnoyarskgesstroy, which is constructing the Sayano-Shushenskaya and Maynskaya GES's in the Krasnoyarsk kray, as well as thermal electric power stations in Krasnoyarsk, Abakan and Minusinsk, are making provisions to bring two hydroelectric units on line this year with an overall capacity of 1,280,000 KW at the Sayano-Shushenskaya GES and two power units with an overall capacity of 170,000 KW at thermal electrical power stations.

Based on work totals for five months, the plan for the "electrical power engineering" sector has been fulfilled by 106 percent, while that for construction starts has been fulfilled by 102.5 percent. The construction and installation work on the plants being brought on line and the dams being constructed are going ahead in accordance with the schedule. Krasnoyarskgesstroy, in conjunction with the party committee, has developed effective measures, the execution of which is being monitored, to realize the entire complex of construction and installation work provided by the plan for bringing the power capacities on line.

The introduction of advanced methods of labor, brigade subcontracting and the comprehensive mechanization of the preparation, delivery and reworking of concrete play a substantial role in the fulfillment of the plan for the construction and installation work and the most important topical assignments. In particular, as a result of the mechanization of the manual labor of concrete workers, the output per shift for concrete pouring, figured per one concrete worker, amounts to 10 to 15 m^3 at the present time.

S.I. Sadovskiy additionally noted that the economic impact of hydroelectric power stations under modern conditions has been substantially improved, while the specific capital investments in their construction have come close in terms of the amount to the capital investments in the construction of thermal electrical power stations, taking into account the expenditures for the development of the fuel base.

The experience acquired in the construction of large hydroelectric units, the technical outfitting of the construction organizations and the use of new methods of work production make it possible at the present time to significantly curtail the time required for the construction of hydroelectric stations.

The USSR Ministry of Energy, in conjunction with the Krasnoyarsk kray committee of the CPSU has developed proposals for the acceleration of the comprehensive utilization of the hydroelectric power resources of Eastern Siberia.

In line with these proposals, the construction of a series of hydroelectric stations is planned on the Yenisey River, which will make it possible to considerably increase the power potential of the Combined Power System of Siberia and improve the fuel and energy balance of the Urals and the European area of the nation by means of transmitting inexpensive electrical power via direct current electrical power transmission lines at a voltage of 1,500 KV and alternating current lines at a voltage of 1,150 KV.

The locations of the GES's in the immediate vicinity of the mineral and raw material and forest resources creates favorable conditions for the construction of new large territorial production complexes in the Krasnoyarsk kray.

A deep water route from the mouth of the Yenisey will be run through the water reservoirs of the series of hydroelectric stations to Krasnoyarsk, something which will make it possible to provide for the passage of seagoing vessels, and in conjunction with the northern sea route, will allow for the creation of an additional main transport line, which will tie the European area of the nation to Siberia in bypassing the heavily loaded section of railroad lines through the Urals.

In 1978, general secretary of the CPSU Central Committee and chairman of the Presidium of the Supreme Soviet of the USSR, Comrade L.I. Brezhnev rated very highly the labor of the collective of builders and installation workers of Krasnoyarskgesstroy and all the participants in the creation of the Sayano-Shushenskaya GES when he was present for the occasion of the placing of the first hydroelectric sets of the Sayano-Shushenskaya GES in operation. This became a factor of enormous mobilizing force for us, and inspired the placing of the subsequent sets on line ahead of schedule.

In noting that the upcoming five-year plan will be the last step in the construction of the Sayano-Shushenskaya GES, S.I. Sadovskiy advanced the opinion that it is expedient to form a single large capacity construction organization for the erection of the hydroelectric stations of the entire Yenisey series, set up a single regional base for the construction industry and a well equipped comfortable city for the builders at Lesosibirsk, and organize the directorate for the Yenisey series of GES's under construction; he also proposed the financing of the construction for the entire series, and not for the individual facilities. This will create the conditions for widescale flexibility with resources and their more efficient utilization.

In the report of the director of the Ekibastuzenergostroy trust, E.Ye. Filatov, it was noted that the collective of Ekibastuz power builders are faced in the current five-year plan in the future with the construction and bringing on line of four large thermal electric power stations with an aggregate capacity of 16 million KW and two unique design substations for the direct current electrical power transmission lines at a voltage of 1,500 KV and for the 1,150 KV alternating current lines.

However, the work pace still does not come up to the standards for the tasks of accelerated construction and placement in service of the facilities of the Ekibastuz fuel and power complex.

The power builders of Ekibastuz have completely accepted as their fault the justified criticism made in the address to the USSR Ministry of Energy by the general secretary of the CPSU Central Committee and chairman of the Presidium of the Supreme Soviet of the USSR, Comrade L.I. Brezhnev at the November (1979) Plenum of the CPSU Central Committee.

The resolution of the Plenum of the CPSU Central Committee was discussed at a meeting of the party and management active membership of Ekibastuz power builders. The assignments of all construction subdivisions are specified in the adopted decree.

In cooperation with the Orgenergostroy Institute, measures have been worked out to eliminate the lag which has been permitted and to assure that three more power units with an overall capacity of 1.5 million KW will go on line in the current year. These have been reviewed and approved by the management of the ministry.

The state of affairs at the power units under construction (Nos. 2, 3 and 4) inspires confidence in the reality of the fulfillment of the set assignment. At the present time, the installation of the second turbine set is being completed, on which the start-up alignment work will begin in June, and by the end of July, it is planned that a comprehensive test of the second power unit will be made. All of the construction work has been completed on power unit No. 3, which assures the opening up of a wide front for the installation of the equipment. The collectives of installation workers are faced with the execution of an intense work program.

The mobilization of the collectives of power builders for the execution of this program is the major task of all organizational and ideological and educational work at the construction projects.

The scope of socialist competition will broaden, and will become increasingly efficacious. Valuable initiatives of the nation's leading collectives have been disseminated and supported: competition under the

slogan "Work Without Falling Behind", "Accomplish the Five-Year Assignments with the Fewest Personnel". There are 54 brigades working on the construction project using the method of brigade subcontracting.

The creative cooperation of the power builders with the plants supplying the equipment and structures, which was started in the past year, has become an indespensable part of our work.

The introduction of new forms of socialist competition and the search for other ways of ascertaining internal reserves are helping us to build up the pace of construction. Since the start of the year, the construction of the facility has gone ahead with the overfulfillment of the plan for construction and installation work, and there is sonfidence that the 1980 plan will be overfulfilled.

One of the basic measures to assure the accelerated placement in service of the capacities of the Ekibastuz GRES's is the organization and refinement of methods of flow line construction of the electrical stations of the fuel and power complex.

The organizational fundamentals of flow-line construction were established in the USSR Ministry of Energy in 1979 by means of creating independent construction and installation organizations for each flow. At the present time, the methods of flow-line construction are widely utilized in construction practice. As a result, the builders are now ahead of the installers by one unit, and by the end of the year, the gap will reach two units. The construction work has started on the Ekibastuz GRES-2. With this organizational scheme, it is very important to have a clear cut interaction of all subdivisions participating in the flow, as well as the designers, builders, installers, structures and equipment suppliers and builders of the power grid facilities.

We well understand the entire complexity and responsible nature of the task of creating the Ekibastuz fuel and power complex, said E.Ye. Filatov.

The past years of construction have taught us a great deal. All of the builders of the complex are completely resolved to achieve considerable successes in the construction of the Ekibastuz GRES's, and to give of their strength, knowledge and experience for the successful realization of the tasks of the party.

The manager of the "Mosenergo" regional power engineering administration, I.N. Yershov, and the director of the Reftinskaya GRES, Yu.V. Ivanov, shared the experience of the work of their own collectives to reduce specific fuel consumption for the generation of electrical and thermal power as well as to speed up the mastery of the newly introduced capacities.

The secretary of the Central Committee of the Communist Party of the Ukraine, A.A. Titarenko, and the secretary of the Leningrad oblast committee of the CPSU, A.P. Dumachev told of the great contribution of party committees and labor collectives to the organization of the construction and the mastery of the capacities of the power engineering facilities, as well as about the work experience of the enterprises in saving fuel and energy resources, increasing the efficacy of socialist competition and designing highly economic power equipment. The secretary of the party committee for the construction project of the Ryazanskaya GRES, L.A. Temenova shared the working experience of the party organization and the collective of builders and installation workers who successfully completed the construction of the first stage of the electrical power station in a short period of time.

At the meetings of the sections, a broad group of questions concerning the improvement of construction organization and the operation of power engineering facilities was universally discussed, as well as the improvement in the economy, reliability and service life of the power equipment being produced and assuring its timely delivery to construction starts.

The work of the construction section was opened by the introductory address of the first deputy minister P.P. Falaleyev who chaired the section and characterized the situation in power engineering construction over the past five months of the current year; he directed those present towards the discussion of such priority questions as the concentration of all resources on projects under construction and the development of measures which should be taken by the managers of construction projects for the purpose of absolutely fulfilling the asignments set before them.

The following spoke at the meeting of the construction section:

The chief of the construction administration of the Smolenskaya AES, B.M. Reva, noted the necessity of developing series project plans for the RBMK-1000 and VVER-1000 reactor units, being constructed by the industrial flow-line method from standardized structural components.

From this viewpoint, the structural technology and layout design solutions for the first stage of the Smolenskaya AES with two RBMK-1000 reactors are the prototypes for a series-produced AES. The project plan developed by Gidroproyekt provides for a significant increase in the prefabricated structures of the main frame, the use of reinforced panels and ribbed cover plates: a new engineering design of the prefabricated monolithic variant. All of this has made it possible to reduce the labor outlays for the installation of 1 m^3 of prefabricated reinforced concrete by six percent and the pouring of 1 m^3 of monolithic concrete by 14 percent, as well as significantly curtail the time for the erection of the structures.

Along with this, emphasized B.M. Reva, there are still a large number of standard dimensions for structures and products which are not provided in the products lists of the enterprises of the Main Power Engineering Construction Industry Administration; it is difficult to provide complete packages of structures fabricated at different plants; auxiliary facilities are constructed using numerous standard and individual project plans. The speaker further dealt with tasks which confront the collective for the successful bringing of thefirst reactor on line.

the chief of the construction administration for the Zeyskaya GES, A.M. Shokhin, analyzed paths which promote a reduction in the time and cost of hydroelectric power construction, noting in particular the wide use of container type stock structures, something which permits a reduction in the duration of the preparatory period and a reduction in loabor outlay. Deficiencies were also noted in future planning, which have a ruinous impact on the retention and timely transfer of the collective of hydroelectric builders from one project to another; untimely and incomplete financing, which leads to an increase in the duration of primarily the preparatory period.

A.M. Shokhin talked about the efficiency of the new continuous concrete pouring technology, developed by Orgenergostroy in conjunction with Glavvostokgidroenergostroy and Zevagesstroy, which when used provides for the preparation of the concrete mix in mobile concrete mixer units directly at the pouring site with the subsequent widescale utilization of transporters. The utilization of this technology, according to preliminary figures, will make it possible to reduce the labor outlays per cubic of pured concrete by 30 percent as compared to the indicators achieved at the Toktogul'skaya GES. The speaker criticized the position of Gidroproyekt project planners who did not take an active part in the development of this promising technology.

The chief of the construction administration of the Chernobyl'skaya AES V.T. Kizima, briefly generalized the experience with the construction of the first stage of the AES: the creation of a stable and skilled collective, a well thought out organization of the construction base, the development of a progressive technology and strict operation by operation control, as well as the introduction of a control system without local level cost accounting construction and installation subdivision.

The speaker reported on the fundamentally new decisions taken in the construction of the second stage of the Chernobyl'skaya AES, which have made it possible to reduce labor outlays in the erection of the reactor room and the other rooms by 18 to 23 percent (up to 23,000 man-days per million rubles of construction and installation work), noting in this case the deficiencies in material and technical support, the timely readiness of the project planning estimate documentation, as well as in the quality and deadlines for the delivery of technological equipment.

The manager of the Spetsset'stroy trust, N.Ye. Preobrazhenskiy, discussed the tasks of the trust in the 11th Five-Year Plan for the construction of 1,500 and 1,150 KV power lines. By way of preparation, an analysis was made of the project plan solutions, a scheme was worked out for flow-line construction, the work volumes were distributed between the construction subdivisions and personnel are being trained.

The speaker analyzed a number of problems, the solution of which will promote the fulfillment of the plan assignments within the established deadlines: the development of a stable plan for capital investments over the years for the entire construction period, comprehensive supply of material and technical resources, increasing and modernizing the fleet of machines and mechanisms, etc.

The deputy minister of the electrical engineering indistry, G.P. Voronovskiy, covered the tasks of Minelektrotekhprom to supply the USSR Ministry of Energy with electrical equipment and cable products, especially for nuclear power stations, criticized the work of individual enterprises of Minelektrotekhprom, and reported on measures which are directed at the absolute fulfillment of the deliveries of equipment provided by the plans in the 11th Five-Year Plan.

The chairman of the governing board of the USSR Stroybank, M.S. Zotov, analyzed the state of affairs in the USSR Ministry of Energy with the utilization of the capital investments being allocated, noting in particular the scattering of capital investments among several projects under construction simultaneously, something which has a considerable influence on the deadlines for the construction of facilities and their cost; the increase in the estimated cost of facilities; the lack of appropriate supervision of the correctness for payment for equipment and its installation, as well as failure to install it on time; unsatisfactory warehousing and storage of structures and equipment; losses in work time, downtime of machines and mechanisms; over-consumption of wage funds, etc.

The speaker noted that a powerful economic lever which promotes the concentration and saving of resources is the transition to accounting based on commodity production. In the current year the USSR Ministry of Energy is planning to transfer a considerable number of subordinate organizations over to this form of accounting.

The director of the Uralenergostroy trust, A.P. Doronin, discussed the positive experience with the construction of the Reftinskaya GRES, which is now being used for the construction of the 4,800 MW capacity Permskaya GRES, and covered the project plan design solutions and planned organization of work on this, one of the largest electrical power stations in the nation.

The secretary of Irkutsk oblast committee of the CPSU, P.I. Miroshnikov, discussed the problems related to the increasing of the thermal and electrical capacities in the oblast, and acquainted the audience with the organizational and mass political work carried out by the oblast committee for the timely placement of electrical power engineering facilities in service, and also analyzed deficiencies in providing national economic enterprises with thermal and electrical energy.

The second secretary of the Khabarovsk kray committee of the CPSU, L.K. Obuzhenkov, described the course for the implementation of the program of power engineering construction worked out by the USSR Ministry of Energy in conjunction with the kray committee for the kray in the 10th Five-Year Plan, and acquainted the audience with the tasks for the development of electrical power engineering in the 11th Five-Year Plan, and also dealt with a number of specific measures taken to promote the construction of a number of power facilities within the plan timeframes.

The chief of Naryngidroenergostroy, K.B. Khuriyev, discussed the positive experience with the construction of the Kurpsayskaya GES, in particular: the use of the highly skilled collective of builders from the Toktogul'skaya GES, existing production bases, the concrete plant of the Toktogul'skaya GES with the delivery of concrete of special compositions over 40 km; dispensing with the construction of the civilian residential facilities (the builders are housed in the city of Karakul'); the development of the structural designs for the main structures of the hydroelectric unit, taking into account their ease of manufacture; a flow-line method of construction, etc. Thus, there appeared the real possibility of placing the first units on-line in 1980--1981, i.e., four to five years after the start of hydroelectric power station construction.

The deputy minister of power engineering and electrification of the USSR, F.V. Sapozhnikov, dealt with the tasks which are to be solved by the project planning and scientific research organizations so that new standard project plans are created in short periods of time, the implementation of which will make it possible to curtail labor expenditures and construction times, reduce the material consumption of the facilities, significantly reduce the number of standard dimensions for structures and types of main and auxiliary equipment, and improve the quality and reliability of the structures.

The speaker further took up to tasks related to the design of the series project plan for AES's with the VVER-1000 reactors, the organization of construction using flow-line methods and the study of alternative sources of electrical and thermal energy.

The deputy chief of Gosgortekhnadzor, M.P. Alekseyev, acquainted the audience with the experience accumulated in the field of observing safety

regulations at all stages of the project planning, construction and operation of AES's; he dealt with questions of strengthening technological discipline, increasing the quality of the equipment delivered to AES's and the creation of specialized plants.

The speaker, in noting the cumbersome nature of the structure and the existence of numerous organs monitoring the operational safety of AES's, proposed the creation of a single code of regulations on AES safety and the concentration of the entire inspectorate in a single government organ.

The chief of the construction administration of the Kostromskaya GRES, N.Z. Simakov, in acquainting the audience with the experience in organizing the work on the construction of the custom made prototype power unit with a capacity of 1,200 MW, reported that on the 60th anniversary of the GOELRO plan, the collective of builders and installers have planned to put it in trial industrial operation.

The deputy chairman of the USSR Gossnab, V.N. Ksintars, talked about measures taken in the field of supply of material and technical resources to all AES's under construction and a significant number of thermal and hydroelectric power stations. Along with this, the speaker noted the failure to determine the demand for material resources on time (the fault of the project planners), the lack of limit charts and deficiencies in the utilization of motor vehicle transportation and construction equipment.

Some 750 persons participated in the work of the sections. The proposals put forward were generalized and reported to the plenary session in the CPSU Central Committee by the section leaders: first deputy chairman of the USSR Gosplan, N.I. Ryzhkov, and the first deputy ministers of power engineering and electrification of the USSR, P.P. Falaleyev and Ye.I. Borisov.

In his address, P.P. Falaeyev noted that more than 260 persons participated in the work of the construction section, including responsible officials of the CPSU Central Committee, the AUCCTU, the Komsomol central committee, secretaries of the central committees of the communist parties of the union republics, secretaries of oblast committees of the Party and managers of ministries and departments as well as large construction projects and power machine construction enterprises.

Major attention was devoted to questions of assuring the bringing of power capacities on-line in the current year. The task set of increasing the power capacities placed in service this year is a very difficult examination for the USSR Ministry of Energy, and it tests our readiness to start the new five-year plan.

The work of the section showed that all of the conference participants understand this quite well and acknowledge their responsibility for the resolutions of the problems set forth in the address by A.P. Kirilenko. In many reports, the reasons for the lag which has developed over the past five months were analyzed and approaches to eliminating this lag were planned.

As is well known, some 3.4 million KW of power capacities should be brought on line in the first half-year. Despite the existing lag, we are figuring on fulfilling the assignment by bringing the hydroelectric units at Dneproges-2 and the Zeyskaya GES on-line ahead of schedule.

The measures planned for the earilier delivery deadlines of structural components, and the concentration of labor and material and engineering resources will make it possible to figure that by the end of June, 61 units of turbine sets with an overall capacity of 13.8 million KW will be turned over for installation.

The plan for the placement of electrical power network facilities in service in the first quarter has been met and there is confidence in the fulfillment of the plan for the first half-year. In this case, special attention is being devoted to assuring the placement of electrical power transmission lines in service for transmitting the power of new electrical power stations.

A most important direction of our work in the area of preparing for winter is the elimination of gaps between the set and available capacity. I can report to the conference that the task will basically be fulfilled by the onset of the winter load maximum.

The construction organizations of the USSR Ministry of Energy assumed full responsibility for criticism directed towards them at the November (1979) Plenum of the CPSU Central Committee. We understand that we still have many deficiencies in planning and project planning, in using equipment and work time, as well as in construction organization and technology, including the use of brigade subcontracting.

The results of the analysis show that not all of the construction and installation subdivisions of the ministry have concentrated their efforts on construction starts. A difficult situation has been created at individual nuclear and thermal electric power stations in connection with the lag in construction and installation work.

Those managers and party organizations are acting correctly under these conditions who concentrate their labor resources on the most important facilities under construction, are tirelessly engaged with questions of improving labor productivity and developing efficient forms of socialist

competition. The positive experience of the collectives of Naryngidroenergostroy and the construction administrations of the Reftinskaya and Ryazanskaya GRES's should be cited in this regard.

The talk in the construction section at the conference concerned the difficulties caused by the untimely delivery of power engineering equipment for construction starts.

Along with this, it was noted with justification that under the strained conditions of the concluding year of the five-year plan, we should not forget about the need to create a construction surplus for 1981 so as to set a good pace at the start of the 11th Five-Year Plan.

There are reasons to assume that the USSR Gossnab and the USSR Ministry of Ferrous Metallurgy are in agreement with this position and will assure the delivery of rolled metal product for the entire annual stock no later than November of 1980, and will set aside additional resources for the creation of the surplus at nuclear electric power stations.

The increasing volumes of power capacities brought on line require increasing the volumes of construction and installation work by a factor of 1.5 in the "electrical power engineering" sector as compared to the volume achieved in the 10th Five-Year Plan. A special feature of the upcoming five-year plan will also be an increase in the labor outlays because of the turnaround in the construction of nuclear power stations and the transition to the construction of more labor intensive pulverized coal electrical power stations (as compared to the previously constructed gas-fuel oil stations), something which necessitates increases in the number of workers in construction.

And what are the ways of solving the problems posed?

First of all, maximum load relief for the ministry from the construction of facilities for nonpower-engineering functions. It is necessary to implement the planned release of the subdivisions of the USSR Ministry of Energy from the construction of industrial and other facilities starting in 1981. This will make it possible to shift Bratskgesstroy, Kuybyshevgidrostroy, Kamgesenergostroy, Volgogradgidrostroy, Taymyrenergostroy and other strong collectives over to the expansion of power engineering.

Secondly, the refinement of planning and management. Work from the fact that power engineering construction is a capital intensive sector with an extensive construction cycle, where large labor outlays are required to complete this cycle, it is necessary to have a clear-cut percpective of one to two five-year plans in power engineering.

In accordance with the decree of the CPSU Central Committee and the USSR Council of Ministers, "On Improving the Planning and Strengthening the Effect of the Economic Management Mechanism to Boost Production Efficiency and Work Quality", 14 construction and installation trusts and administrations with an annual volume of construction and installation work of more than one billion rubles have been shifted over to planning, activity estimation and accounting with the customer based on the volume of construction commodity production. Some 12 plants in the construction industry have been shifted over to planning based on the indicator of standardized pure product output.

The development of a broad comprehensive program directed towards improving the technical level and efficiency of power engineering construction is being completed: the reduction of labor expendtiures and construction times, the lowering of the consumption of material resources, etc.

Thirdly, the implementation of the achievements of science and engineering in construction practice. We have the following in mind: a transition to project planning and construction of standard nuclear, thermal and water storage electrical power stations, increasing the level of prefabrication, introducing industrial buildings and structures, new materials, the creation of a continuous technology for the erection of hydroelectric structures, etc.

A promising trend in the organization of flow-line construction of nuclear and high power thermal electrical power stations and electrical network facilities and hydroelectric power stations by stages.

Other interesting proposals were also made by the conference participants, in particular, to improve the existing management structure for capital construction, which will be attentively considered by the ministry.

It is essential for the realization of the planned program that construction and installation organizations be outfitted with new, highly productive construction machines and means of transport, which can handle the increased work volumes. The USSR Ministry of Energy can solve these problems to a significant extent with its own forces. However, for this the plants of the ministry are to be freed from deliveries of machine construction products to other sectors.

The urgent necessity of assuring comprehensive and timely equipment deliveries and pipes of an increased level of factory readiness with the modular packaging of the products supplied for thermal and nuclear power stations brought up to 90 percent must underscored. It is essential to increase the output of hydroelectric turbines in the shortest possible periods so as not to delay bringing capacities on-line at hydroelectric units with a high level of construction readiness, especially in the European area of the USSR.

In connection with the construction of the custom design electrical power transmission lines, the USSR Minelektrotekhprom should provide for the development, testing and debugging of the series produced equipment for 1,150 and 1,500 KV power lines, and also increase the output of large cross-section conductors.

For the purposes of further industrializing and accelerating power engineering construction in the 11th Five-Year Plan, it is necessary to assure the advanced development of the base for the construction industry of the ministry. The need for this is due to a change in the structure of power engineering construction and the territorial arrangement of the power units, as well as the significant expansion of the volumes of nuclear electric power station construction and ultrahigh voltage electrical power transmission lines.

In his address to the November (1979) Plenum of the CPSU Central Committee, general secretary of the CPSU Central Committee and chairman of the Presidium of the Supreme Soviet of the USSR, comrade L.I. Brezhnev pointed out the major drawbacks which are inherent in power engineering construction. The proposals and measures which were considered by the section in light of these instructions are absolutely useful and their implementation will make it possible to put existing reserves into effect to increase the power engineering potential of our motherland.

In closing the conference, A.P. Kirilenko noted that it had done some useful work and made it possible to not only analyze the situation in electrical power engineering from all sides, and exchange experience, but also to point out ways of overcoming the existing difficulties and look ahead to the future of power engineering. It is a pleasure for me to report, he said, that Leonid Il'ich Brezhnev has shown a great interest in the work of the conference. He has expressed firm confidence that Soviet power engineers will complete the 10th Five-Year Plan honorably and will meet the 26th Congress of the CPSU in a worthy manner.

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