JSC «ELEKTRTARMOQQURILISH»

Year of establishment:	1962
Form of ownership:	Joint-Stock Company
Type of activity: **transmission lines;**	Construction of high- voltage Substation construction; Construction of fiber-optical communication line (FOCL); Metal (steel) structures manufacturing.
Number of employees:	511 people.
Put into operation **High - voltage transmission lines:**	30 735 km
including:	35 kV HV transmission line - 5 429 km 110 kV HV transmission line - 11 854 km 220 kV HV transmission line- 9 598 km 500 kV HV transmission line - 3 854 km
Substations:	22 340 mVa
including:	35 kV substation - 846 mVa 110 kV substation - 3 554 mVa 220 kV substation - 9 631 mVa 500 kV substation - 8309 mVa
Manufacturedmetal structures:	381 000 tn.

ABOUT COMPANY

"Elektrtarmoqqurilish" Joint-Stock Company was founded in 1995 on base of the "Sredazelektrosetstroy" (Central Asian trust for the construction of power transmission lines and substations) trust by the Ministry of Energy of the USSR, formed in 1962 in order to carry out the construction of power transmission lines (power lines) and substations in the Republicsof Central Asia and South Kazakhstan.

The main activity of "Elektrtarmoqqurilish" JSC is turnkey construction in the following areas:

- construction of high voltage transmission lines;
- substation construction;
- construction of fiber-optical communication line (FOCL);
- metal (steel) structures manufacturing.

"Elektrtarmoqqurilish" JSC consists of the Head Office located in Tashkent and the following branches:

- Department of Construction, Tashkent;
- Mechanized Column № 47 (MC-47), Fergana;
- Mechanized Column № 48 (MC-48), Samarkand;
- Mechanized Column № 71 (MC-71), Tashkent.
- Chirchik Metal Construction Plant (ChZMK), Chirchik;

Construction and installation work is carried out by the Construction Department of the "Elektrtarmoqqurilish" JSC and Mechanized Columns № 47, № 48 and №71, which are mobile and relocated depending on the territorial location of the implemented project.

Chirchik Metal Construction Plant (ChZMK) is the largest specialized enterprise,which produce metal towers for 35-500 kV high - voltage transmission lines as well as industrial metal structures.

In 1971, "Elektrtarmoqqurilish" JSC began construction of 500 kV power lines. The first inter-republic 500 kV power line «Tashkent State District Power Station (The Republic of Uzbekistan) - Chimkent (The Republic of Kazakhstan), with the line length of 111 km, was commissioned in 1972.

In 1973, the first 500 kV power line «Tashkent GRES - Syrdarya GRES"with the length of 178 km, connecting the two largest power stations of the Republic of Uzbekistan - Tashkent and Syrdarya, was completed and commissioned.

In 1975, 500 kV power line «Syrdarya GRES- Leninskay substation" in Andijan with the length of 312 and the first substation of 500 kV "Leninskay" with transformer group of 501 thousands kVa was put into operation.

During the period from 1974 to 1976 were built 500 kV "Nurek hydroelectric power station" with the length of 113 km and 500 kV "Regar -Guzar " (I Circuit) with the length of 250 km.

In 1977 the second substation in Uzbekistan 500 kV "Guzar" was put into operation with the capacity of 500 thousand kVA.

With implementation of these facilities, Dushanbe-Wakhsh and southern regions of Uzbekistan are joined to the Central Asia united energetic system.

In 1977, "Elektrtarmoqqurilish" JSC started the construction of the 500 kV high - voltage transmission line "Syrdarya GRES-Guzar", designed to supply the power of the Nurek Hydroelectric Power Station to the Uzbek power system and feed Dushanbe - Vakhsh system from the Syrdarya GRES.The length of the high - voltage transmission line was 342.6 km, and 44 km of the route passed through the most difficult mountain sections with elevations of more than 2000 m above sea level at the intersections of two mountain passes of Jizzakh and Kitab, in conditions of special ice.

With the completion of the construction of the 500 kVhigh - voltage transmission line "Syrdarya GRES–Guzar", all the main power stations of the integrated power system –"Tashkent and Syrdarya GRES, Nurek and Toktagul Hydroelectric Power Stations were connected by 500 kV lines.

Implemented projects of 500 kV high - voltage transmission line from 1971 to 1992 years

№	OBJECT NAME	LENGTH, KM
1	TashGRES - Chimkent	111 km
2	TashGRES - Syrdarya GRES	178 km
3	Syrdarya GRES –Lochin Substation	312 km
4	Nurek GRES - Regar (I-II Circuit)	229 km
5	Regar - Guzar	250 km
6	Syrdarya GRES - Guzar	342.6 km
7	Mary GRES - Karakul	419 km
8	Toktagul - Frunze	129 km
9	Toktagul - Lochin	176 km
10	Djambul - Frunze	216 km
11	Chimkent - Djambul	169 km
12	Frunze - Alma-Ata	61 km
13	Regar - Surkhan	162 km
14	Karakul - Guzar	200 km

Since independence in 1991 "Elektrtarmoqqurilish" JSC built such important objects for the economy of the Republic of Uzbekistan such as:

№	Object name	Voltage, kV	Length, (Transmission line- km, Substation - mVa)
1	Reconstruction of HV transmission line Syrdarya Thermal Power Station –Guzar	500	65,6
2	Input – Output of HV transmission line Syrdarya Thermal Power Station –Guzar Sogdiana Substation	500	4,46
3	Construction of HV transmission line Novo-Angren Thermal Power Station - Uzbekistan	500	164
4	Construction of HV transmission line Guzar -Surkhan with the installation of the AT-2 in the Surkhan Substation	500	197; 501
5	Reconstruction of HV transmission line Syrdarya Thermal Power Station - Tashkent (1-25, 1-88)	500	35,7
6	Construction of HV transmission line Syrdarya Thermal Power Station - Sogdiana (II-Circuit)	500	218
7	HV transmission line removal Syrdarya GRES - Djizak	220	55
8	Construction of HV transmission line Surkhan – State Border	220	2×43,4
9	HV transmission lineremoval Syrdarya Thermal Power Station - Guzal 1,2	220	2 ×5,4
10	HV transmission line removal Syrdarya Thermal Power Station- Zarbdor	220	51,5
11	Input of HV transmission line Suvly Samarkand -Sogdiana substation	220	2×32,4
12	Inputof HV transmission line Djizak - Samarkand–Sogdiana substation	220	2×21,8
13	Inputof HV transmission line Rudaki-Samarkand–Sogdiana substation	220	2×13
14	Reconstruction of HV transmission line Syrdarya Thermal Power Station -Metallurgy, Pechnaya (1&2Circuitline)	220	2×8,5
15	Reconstruction of HV transmission line Syrdarya Thermal Power Station- Metallurgy Substation, Pechnaya(3&4 Circuit)	220	2×8,9
16	Construction of HV transmission line Takhiatashskaya GRES–Substation Kungrad soda plan	220	2×138
17	HV transmission line removal Overhaul of the Tashkent - Osh highway	220	
18	Construction of HV transmission line Mubarek - Bukhara oil refinery	220	60,8
19	Construction of HV transmission line Talimardjan GRES - Kokdumalak Substation	220	99,4
20	Construction of HV transmission line Karshi – Guzar at the Shurtan Gas Chemical Complex substation	220	2×29,3
21	Construction of HV transmission line wind farms of ShurtanGas Chemical Complex	220	15,8
22	Construction of HV transmission line Beruni - Khorezm	220	19,5
23	Construction of HV transmission line Kokdumalak–Bukhara oil refinery	220	89,6
24	Construction of HV transmission line Bukhara oil refinery- Bukhara oil refinery substation	220	2×2,5
25	Inputof HV transmission line Karakul - Bukhara to 220kV Bukhara oil refinery substation	220	2×26,5
26	Construction of Uzbekistanskaya Substation	500	2×501
27	Construction of Sogdiana substation	500	501
28	Construction of Shurtan Gas Chemical Complex substation	220	40
29	Construction of Bukhara oil refinery substation	220	40
30	Construction of Bukhara oil refinery substation	220	
31	Construction of Kokdumalak substation	220	40




Since 2006, the Company has been systematically working to introduce new, high-performance equipment and use modern construction methods.

During the period from 2006 to 2009, over 152 units of technicians were purchased. Wire mounting technology by the “Tension Method” has been implemented, the 2nd metal structure fabrication workshop of the Chirchik Metal Construction Plant was updated, which allows today to produce up to 8,000 tons of metal structures per year.

Today, the Company has competent and qualified engineering and technical personnel who are constantly improving their experience both in specialized training centers and directly at construction sites. Quality control of construction and installation work is ongoing.

The above mentioned allows the Company to build a 500 kV high - voltage transmission linearound the clock, in any climatic and topographic conditions. The average construction speed of 500 kV high - voltage transmission line is at least 30 km per month.

The average speed of FOCL installation is at least 70 km per month, both for existing transmission towers and for separately installed towers.


The main machines and mechanisms used in construction of high - voltage transmission line and substations (124units)




№	Availability of basic construction mechanisms and machines	Units
1	Bulldozers: KOMATSU D-155, CHETRA, B-10M, T-130	48
2	Excavators (0.25-1m3)	12
3	Excavator planner on the chassis URAL 4320	3
4	Tractor crane (TK-53)	4
5	Trailed crane (T-75)	8
6	Truck crane (MAZ, KRAZ, ZiL)	18
7	Crawler crane (DEK-251)	2
8	Pneumatic crane	1
9	Winch tractor	5
10	Support tractor	4
11	Drilling Machine	5
12	Car towers	6
13	Board car URAL 4320	6
14	Car van on chassis URAL 4320	1
15	Mobile workshop MP 4320-40 on the URAL 4320 chassis (Complex for FOCL)	2

Auxiliary machines and mechanisms used in construction of high - voltage transmission line and substations




№	Name of the main construction mechanisms and machines	Units
1	Hydraulic lift	1
2	Trailer	7
3	MAZ truck	5
4	KAMAZ truck	26
5	KRAZ truck	7
6	ISUZU truck	3
7	Dump trucks	19
8	Brigade cars	13
9	Fuel trucks	7
10	Welding units	12
11	Generators	25
12	Impact Wrench BOSH GDS-30	21

MECHANIZED COLUMN №47 OF "ELEKTRTARMOQQURILISH"JSC

Mechanized columnNº 47 of "Elektrtarmoqqurilish" JSC was established in Kokand as part of "Sredazelektrosetstroy", on the basis of an order of the Minister of Energy and Electrification of the USSR № 44 of 02/19/1963.

Since January 26, 1970, on the basis of an order of the Minister of Energy and Electrification of the USSR, Mechanized column № 47 was relocated to Fergana, where it is currently placed.

In 1995, with the transformation of the "Sredazelektrosetstroy" trust into JSC "Elektrtarmoqqurilish", Mechanized column № 47 acquired the status of a branch of an Open Joint Stock Company.

The main activity of the branch is the construction, installation, reconstruction, commissioning and repair of 35-500 kVhigh-voltage transmission lines and substations. Currently, the number of workers and employees is 14 people.

As a branch of "Elektrtarmoqqurilish" JSC, Mechanized columnNº 47 was directly involved in the construction of the 500 kV Syrdarya GRES-Guzar, participated in the development of the Kokdumalak gas condensate field, Oil Refinery in the Karaulbazar region of the Bukhara region, as well as in the construction of:

500 kV high - voltage transmission line "Nurek hydroelectric power station - Regar";

500 kV high - voltage transmission line Syrdarya State District Power Station - Substation Leninskaya;

500 kV high - voltage transmission line "Guzar-Surkhan";

500 kV high - voltage transmission line Novo-Angren Thermal Power Station - 500 kV Substation Uzbekistan;

220 kV high - voltage transmission line "Kairakum hydroelectric power station –"Kuilukskaya" substation.

In 2005, Mechanized columnNº47 took an active part in eliminating the consequences of a landslide in the territory of Asakinskiy district of Andijan region, the spill of the Karadarya river in the territory of Andijan region, which borders the Republic of Kyrgyzstan, in the winter of 2006, an avalanche at the Kamchik pass and others. In difficult and dangerous conditions, the Mechanized column restored damaged power lines.

In 2010, the construction of 500 kVhigh - voltage transmission line "Uzbekistan Substation"in the village of Khotamtoy was completed, where Mechanized columnNº47 was the main contractor for construction and installation works.

Since 2006 to 2009 the fleet of machines and mechanisms of the Mechanized columnwas thoroughly updated through the acquisition of imported high-quality equipment.

MECHANIZED COLUMN №48 OF "ELEKTRTARMOQQURILISH" JSC

Mechanized column №48, was organized in accordance with the order of the Ministry of Energy and Electrification of the USSR in 1963.

Initially, Mechanized columnNº48 specialized in the construction of electric grid facilities with a voltage of 35-110 kV in the Samarkand, Tashkent, Bukhara, Kashkadarya regions of the Uzbek SSR, as well as in the Tajik SSR.

In 1995, with the transformation of the "Sredazelektrosetstroy" trust into "Elektrtarmoqqurilish" OJSC, Mechanized columnNº48 acquired the status of a branch of an Open Joint Stock Company.

The main activity of the branch is the construction, installation, reconstruction, commissioning and repair of high-voltage transmission lines and substations with a voltage of 35-500 kV.

The number of workers and employees is 22 people.For conscientious work, many workers were awarded high Government awards, orders, medals, such as: "Honored Power Engineer of the Uzbek SSR", "Honored Builder of the Uzbek SSR", "Veteran of the Energy of Uzbekistan", "Excellent Power Engineer"; Certificates of honor of the Supreme Council of the Uzbek SSR, the Ministry of Energy of the USSR, the Ministry of Energy of the Uzbek SSR, JSC "Uzbekenergo".

In 1965, Mechanized column №48 began the construction of its first 220 kV high-voltage transmission lines in Bukhara-Karshi. The work was carried out in the most difficult climatic conditions (in desert conditions).

In 1968, Mechanized column №48 built 220 kV "Chopan-Ata" Substation in the Samarkand region.

Since 1974, Mechanized column №48 began the construction of 500 kV high-voltage transmission lines. During the period from 1974 to 2010, Mechanized column №48 was involved in construction of the following sites:

500 kV high-voltage transmission line "Nurek hydroelectric power station - Regar";
500 kV high-voltage transmission line "Regar - Guzar";
500 kV high-voltage transmission line "Syrdarya Thermal Power Station – Guzar";
500 kV high-voltage transmission line "Mary - Karakul";
500 kV high-voltage transmission line "TashGRES - Syrdarya Thermal Power Station";
500 kV high-voltage transmission line "Rogun - Regar";
500 kV high-voltage transmission line "Karakul - Guzar";
Input and Output of 200-500 kV high - voltage transmission line to 500 kVSogddiana substation;

500 kV high - voltage transmission line “Guzar - Surkhan”.

With the participation of Mechanized column №48, many 35-500kV substations were built, such as:

110kV Bagizagan Substation;
110kV Shakhrisabz Substation;
110kV Penjikent Substation;
220kV Samarkand Substation;
220kV Kattakurgan Substation;
220kV Shakhrisabz Substation;
220kV Karshi Substation;
220kV Mubarek Substation;
220kV Kuyumazar Substation;
220kV Turon Substation;
220kV Shurtan MCC Substation;
500kV Karakul Substation;
500kV Surkhan Substation;
500kV Sogdiana Substation.

For the construction on such scale of electric grid facilities, Mechanized column №48 was equipped with modern high-passability vehicles, high-performance equipment - tractors, bulldozers, truck and tractor cranes, drilling machines, telescopic towers and other specialized machines and mechanisms.

Mechanized column's team took an active part in the development of the “Buzachi” gas condensate and oil fields on the Mangyshlak peninsula of the Kazakh SSR, the “Kokdumalak” condensate field, the “Mingbulak” oil field, and the construction of an oil refinery in the Bukhara region, providing external power supply to these complexes.

MECHANIZED COLUMN №71 OF "ELEKTRTARMOQQURILISH"JSC

Mechanized column № 71 was founded in March 1967, and located in the southwestern industrial zone of Tashkent.

The production buildings, spare parts warehouse, pump station building, motor workshop, turning and locksmith workshop, material warehouse, finished goods warehouse, administrative and household building, gas station, fuel and lubricant warehouse, and carpentry workshop are located on the territory of Mechanized column № 71.

Mechanized column № 71 is equipped with 45 units of specialized automotive equipment: tractors, dump trucks, truck cranes, etc., 18 cars, 6 trailers and semi-trailers, as well as 16 units of bulldozers and tractor tractors, one of which is equipped with a winch.

The whole number of employees is 49 people.

Mechanized column № 71 carried out a huge work on the construction, reconstructionand removal of high-voltage transmission lines.

The first 500 kV of high-voltage transmission lines in Uzbekistan - "Tashkent State District Power Station - Syrdarya State District Power Station", was built with the participation of the Mechanized column № 71. For the last 27 years, the following high-voltage transmission lines have been built:

500 kV high-voltage transmission line "Frunze-Alma-Ata";
500 kV high-voltage transmission line "Novo-Angren GRES" - Substation Tashkent;
500 kV high-voltage transmission line "Guzar-Karakul";
500 kV high-voltage transmission line "Nurek - Regar";
500 kV high-voltage transmission line "Guzar-Surkhan";
500 kV high-voltage transmission line "Novo-Angren Thermal Power Station- 500 kV Substation Uzbekistan";
220 kV high-voltage transmission line "Kurpsayskaya State District Power Station - Substation Suzak (in dimensions 330 kV);
220 kV high-voltage transmission line "Dzharkurgan-State Border";
220 kV "State Border-Mazari-Sharif" (Afghanistan);
220 kV high-voltage transmission line "TashGRES" - "Oktyabrskaya" - "Fakel";
110 kV high-voltage transmission line "Gograndag - Okarem";
110 kV high-voltage transmission line "Tuyamuyun - Turtkul";
110 kV high-voltage transmission line "Serakhs - Sovetobad";
110 kV high-voltage transmission line "Khauzhan - Serakhs";
110 kV high-voltage transmission line "Tashauz-Pakhta" ();
220 kV high-voltage transmission line "Shatlyk - Serakhs";
220 kV high-voltage transmissions line "Takhiatashskaya GRES - Substation Biruni";
220 kV high-voltage transmission line "Biruni - Khorezm";
220 kV high-voltage transmissions line "Takhiatashskaya GRES - "Kungrad Soda Plant";
Removal of the 220 kV of high-voltage transmission line "Angren-Irrigation" from the A-373 Tashkent-Osh highway zone;
Reconstruction of 220kV of high-voltage transmission line "Syrdarya State District Power Station-Substation Djizak";
Reconstruction of 220kV of high-voltage transmission line "Syrdarya State District Power Station-Substation Zarbdor";
Reconstruction of 500 kV of high-voltage transmission line "Syrdarya State District Power Station - Substation Guzar";
Input of 220 kV of high-voltage transmission line "Djizak-Samarkand at the Sogdiana substation";
Reconstruction of 220 kV of high-voltage transmission line "Syrdarya GRES- Metallurgy-Pechnaya";
Reconstruction of 500 kV of high-voltage transmission line "Syrdarya GRES - Substation Tashkent".

And also such large substations were built, such as:

220 kV Substation "Yuzhnaya" in the city of Tashauz;
220 kV "Fakel" Substation;
220 kV "Sputnik" Substation;
220 kV "October" Substation;
220 kV "Tashkent" Substation;
220 kV "Urgench" Substation;
500 kV "Uzbekistan" Substation.

CHIRCHIK METAL CONSTRUCTION PLANT (CHZMK)

Year of foundation: 1963

Form of ownership: Branch of "Elektrtarmoqqurilish" Joint Stock Company

Type of activity: Production of metal structures

Number of employees: 76 people.

Metal structures produced: Over 381,000 tons

Chirchik Metal Construction Plant (ChZMK) is one of the largest specialized enterprises for the production of metal towers for power lines and substations with a voltage of 35 - 500 kV.

Initially, the plant was engaged in the manufacture of metal, reinforced concrete structures and repair of construction equipment. In the 90s. the plant was reconstructed and 10 bridge cranes with a lifting capacity of 10 to 20 tons, 6 units of press equipment were put into operation.

Since 2010, the production capacity of the plant has increased to 32,000 tons. ofmetal structures per year, with the right to provide an EU certificate (European Union), due to the introduction of new high-tech equipment of European production, acquired at their own expense.

The main directions of the ChZMK development are the re-equipment of technical equipment and the transition to the most automated operating mode.

The new high-tech line for processing 4 types of metal profiles was implemented in the plant. The production capacity of this new line allows producing over 22,000 tons per year. The line consists of 4 cars:

1. Portal machine SATRONIK LS 3000.

Machine for sheet metal processing using oxygen and plasma cutting technology. The processed material is structural high-alloy and low-alloy steel, the cutting range is from 4 mm to 200 mm.

2. KD 615 \ KBS 750, KALTENBACH profile drilling and sawing machine

The machine is suitable for efficient drilling, punching and threading of a rolling profile, such as I-beams, T-beams, channels, angles, full profile and strip steel, working range from 50x5 to 640x415 mm, as well as cutting the profile at the angle of a band saw. The installation is best suited for efficient drilling, threading of a rolling profile, as well as for sawing a profile at various angles with a band saw such as:

processing of angular steel from 50x50x5 to 220x220x25; I-beams from 50x5 to 650x415 mm; processing a hollow profile and strip steel.

3. Stamping and cutting machine KPS A166, KALTENBACH

Stamping and cutting machine KPS A166, KALTENBACH is used for fast stamping and cutting of angular steel up to 160x160x10 mm.

4. Gietart Sprint 1.4 shot blasting machine.

The machine is designed for shot blasting the metal surface from rust.

In the production process, ChZMK uses materials from the best manufacturers of rolled metal products –"Uzmetkombinat"JSC and enterprises of the CIS countries that have certificates of quality.During all production activities, the company has never received complaints from customers regarding the quality of its products.

The plant has a full range of equipment, incorporating highly qualified engineering and technical personnel. The company is constantly working to implement new technologies and increase the range of products.

Using the latest technologies makes it possible to assemble sets of metal structures of towers and ship them by road and rail as soon as possible, the plant has its own railway tracks.

ChZMK carries out strict step-by-step quality control of the manufacture of towers:

Control of project documentation;

Control of raw materials;

Control of technical operations;

Tower assembly control.

Complex parts and welded joints of metal structures are subject to 100% control.

The plant's products are certified by UzStandard Agency and meet the highest quality requirements.

Power transmission towers manufactured by ChZMK have been in operation throughout the Central Asian region for 53 years. Over the years, the plant has produced more than 360,000 tons of metal structures of the highest quality. Over the years, the company has accumulated vast experience in the manufacture of towers for operationin various climatic conditions.

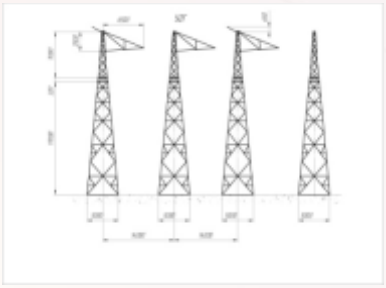
-Steel towers (poles) of power lines and outdoor switching substations with voltage from 35 kV to 500 kV, designed to absorb constant and temporary loads and designed for operation in slightly aggressive and medium-aggressive environments.

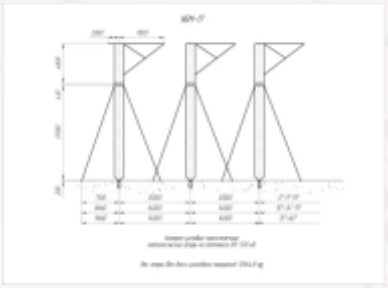
-Power transmission towers and outdoor switching substations portals made of carbon and low alloy steels, except for steels with increased corrosion resistance, designed for operation in areas with an estimated outdoor temperature of minus 40˚C to plus 45˚C.

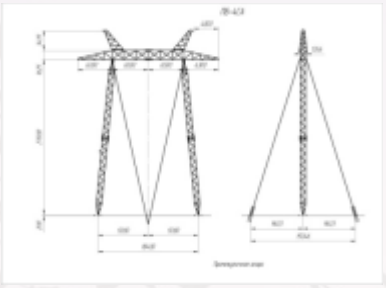
-Power transmission towers and outdoor switching substations portals made oflow alloy steels with increased corrosion resistance designed for operationin slightly aggressive environments, in areas with an estimated outdoor temperature not below minus 50˚Cwith sheet thickness above 16 mm and not below minus 40˚Cwith sheet thickness 5-16 mm.

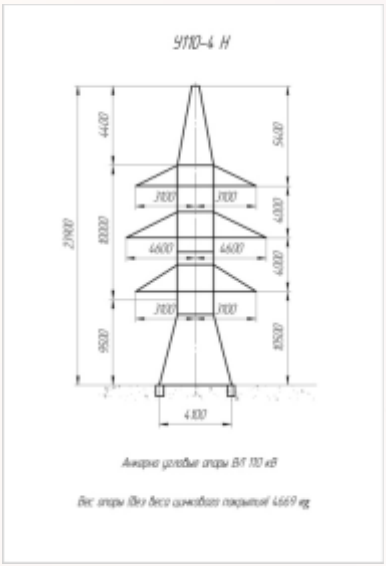
According to the type of connection, the design of the power transmission towers and outdoor switching substations portalsare divided into welded, bolted (collapsible) and combined types.

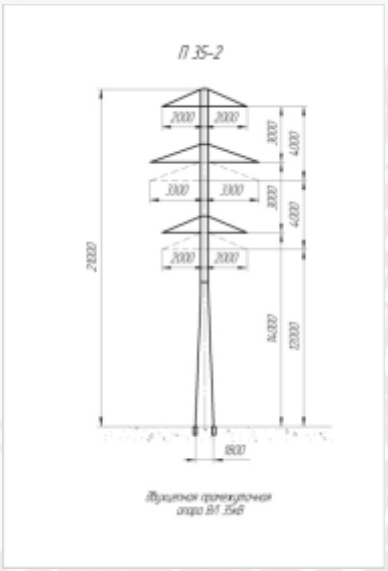
Types of metal towers for the OHL line produced by the Chirchik Metal Construction Plant

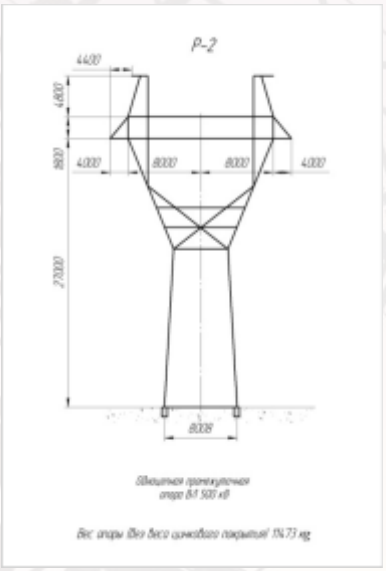












The Chirchik Metal Construction Plant has successfully mastered the production of antenna-mast structures for cellular companies. This was made possible thanks to the introduction of new technological equipment that ensures the execution of more accurate types of parts for assembling antenna mast structures.

Chirchik Metal Construction Plant intends to sell its high-quality products in the countries of the near and far abroad.

Since 2007, the Management Systemsthat meet the requirements of International Standards consistently are being developed, implemented and operated at the Company.

In 2007, the Company passed the Quality Management System in accordance with the International Standard ISO 9001:2008. In the process of implementation, 104 employees of the Company were trained in specialized courses – trainings.

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