



pluton.ua

## REFERENCE LIST

| 1994-2020



## CONTENTS

3	METRO
23	CITY ELECTRIC TRANSPORT
53	RAILWAYS
63	INDUSTRIAL, IRON AND STEEL, MACHINE-BUILDING, RESEARCH AND DEVELOPMENT ENTERPRISES
75	POWER INDUSTRY

## METRO

<b>UKRAINE</b>	
KHARKIV METRO	4
KYIV METRO	6

<b>REPUBLIC OF KAZAKHSTAN</b>	
ALMATY METRO	8

<b>REPUBLIC OF AZERBAIJAN</b>	
BAKU METRO	10

<b>REPUBLIC OF BELARUS</b>	
MINSK METRO	14

<b>RUSSIAN FEDERATION</b>	
YEKATERINBURG METRO	16
MOSCOW METRO	18
KAZAN METRO	18
NIZHNY NOVGOROD METRO	19
ST. PETERSBURG METRO	19

<b>REPUBLIC OF UZBEKISTAN</b>	
TASHKENT METRO	20

<b>ROMANIA</b>	
BUCHAREST METRO	20




<b>REPUBLIC OF KOREA</b>	
BUSAN CITY METRO	21
DAWONSY COMPANY	21

<b>REPUBLIC OF TURKEY</b>	
IZMIR METRO	21








# KHARKIV METRO

KHARKIV, UKRAINE

## Turn-key projects:

- 2003-2009**

**3 traction substations of 23 Serpnia, Botanichnyi Sad, Oleksiivska metro stations.**  
 Supply of equipment, installation works, commissioning, startup.
- 2016**

**Traction substation of Peremoha metro station.**  
 Supply of equipment, installation supervision, commissioning, startup.
- 2017**

**Tunnel equipment for the dead end of Istorychnyi Muzei metro station and low voltage equipment for Kharkiv Metro Administration building power supply.**  
 Supply of equipment, installation, commissioning.



	NEX Switchgear 6 kV	1 set
	NEX Switchgear 10 kV	1 set
	DC Switchgear 825 V	26 units
	Transformer	10 units
	Rectifier	12 units
	Telecontrol equipment	1 set
	AC Switchgear 0.23...0.4 kV	5 sets
	DC Distribution Board	2 sets
	Communications Based Train Control Switchgear	2 sets
	Equipment for tunnels and depots:	
	Line Disconnector Cabinet	15 units
	Third Rail Power Supply Cabinet	1 unit
	Cables Connection Cabinet	40 units
	Switchover Cabinet	20 units
	Switchgear (Distribution unit)	1 unit
	Fans Automatic Control Cabinet	25 units
	Disconnectors Control Cabinet	2 units
	Shutters Control Cabinet	22 units
	AC Board	2 units
	Automatic Transfer Switch Cabinet	1 unit
	Battery chargers	3 units
	Battery	1 set
	Reactive power compensation installation	2 units



KHARKIV METRO,  
UKRAINE

## KYIV METRO

KYIV, UKRAINE

2004-2013



**Turn-key projects:** 11 traction substations of Syrets, Boryspilska, Chervony Khutir, Vyrlitsia, Demiivska, Holosiivska, Vasylkivska, Vystavkovy Tsent, Ipodrom, Teremky metro stations, Depot Kharkivske.

Supply of equipment, installation works, commissioning, startup.

2019



**Technical modernization of 11 combined traction step-down substations (replacement of 3 rectifiers, 4 transformers, supply of tunnel equipment, 6 modernization packages 825 V, supply of main ventilation fans automatic control system).**



NEX Switchgear 10 kV 6 sets  
DC Switchgear 825 V 132 sets



Transformer Resibloc 59 units  
Rectifier 59 units



AC Switchgear 0.23...0.4 kV 11 sets  
DC Distribution Board 5 sets  
Communications Based Train Control Switchgear 4 sets



Equipment for tunnels and depots :  
Line Disconnecter Cabinet 116 units  
Third Rail Power Supply Cabinet 39 units  
Cables Connection Cabinet 24 units  
Switchover Cabinet 27 units  
Switchgear (Distribution unit) 7 units



Fans Automatic Control Cabinet 42 units  
Well Pump Automatic Control System 5 units



Battery chargers 30 units  
Battery 5 sets



SCADA system 8 sets  
Software for microprocessor centralization of signalling, centralization and blocking system 1 set



Modernization package 825 V 10 units

### 2019

Development of design documentation on technical modernization of rectified current cubicles 825 V with replacement of high-speed circuit breakers VAB-28 at electrical substations of Sviatoshynsko-Brovarska line and Obolonsko-Teremkivska line.

Software development for operator's automated workstation of Kharkivske depot and workstation of shift signal electrical engineer on the basis of Citect SCADA system.



# ALMATY METRO

ALMATY, REPUBLIC OF KAZAKHSTAN

## Turn-key projects:

2008



6 combined traction step-down substation and 3 step-down substations of Rayimbek Batyr, Zhibek Zholy, Almaly, Abay, Alatau, Baikonur, Auezov Theater metro stations, Electrodepot. Supply of equipment, installation works, commissioning, startup.

2012 - 2014



Combined traction step-down substation of Sayran station and step-down substation of Moskow station. Supply of equipment, installation works, commissioning, startup.



PLUTON is the **General contractor** for supply, installation and commissioning of all traction and step-down substations of the First Line of Almaty Metro.



Switchgear 10 kV 9 sets  
NEX MV Switchgear 10 kV 2 sets  
DC Switchgear 825 V 79 units



Transformer 32 units  
Transformer Resibloc 71 units  
Rectifier 20 units



AC Switchgear 0.23...0.4 kV 21 sets  
DC Distribution Board 220 V 10 sets  
Signaling and communication automatics switchgear 10 sets



Equipment for tunnels and depots :  
Line Disconnector Cabinet 50 units  
Cables Connection Cabinet 119 units



Battery chargers 27 units  
Uninterruptible Power Supply Static System 4 sets  
Battery 10 sets



Telecontrol equipment 11 sets



ALMATY METRO,  
REPUBLIC OF KAZAKHSTAN

# BAKU METRO

BAKU, REPUBLIC OF AZERBAIJAN

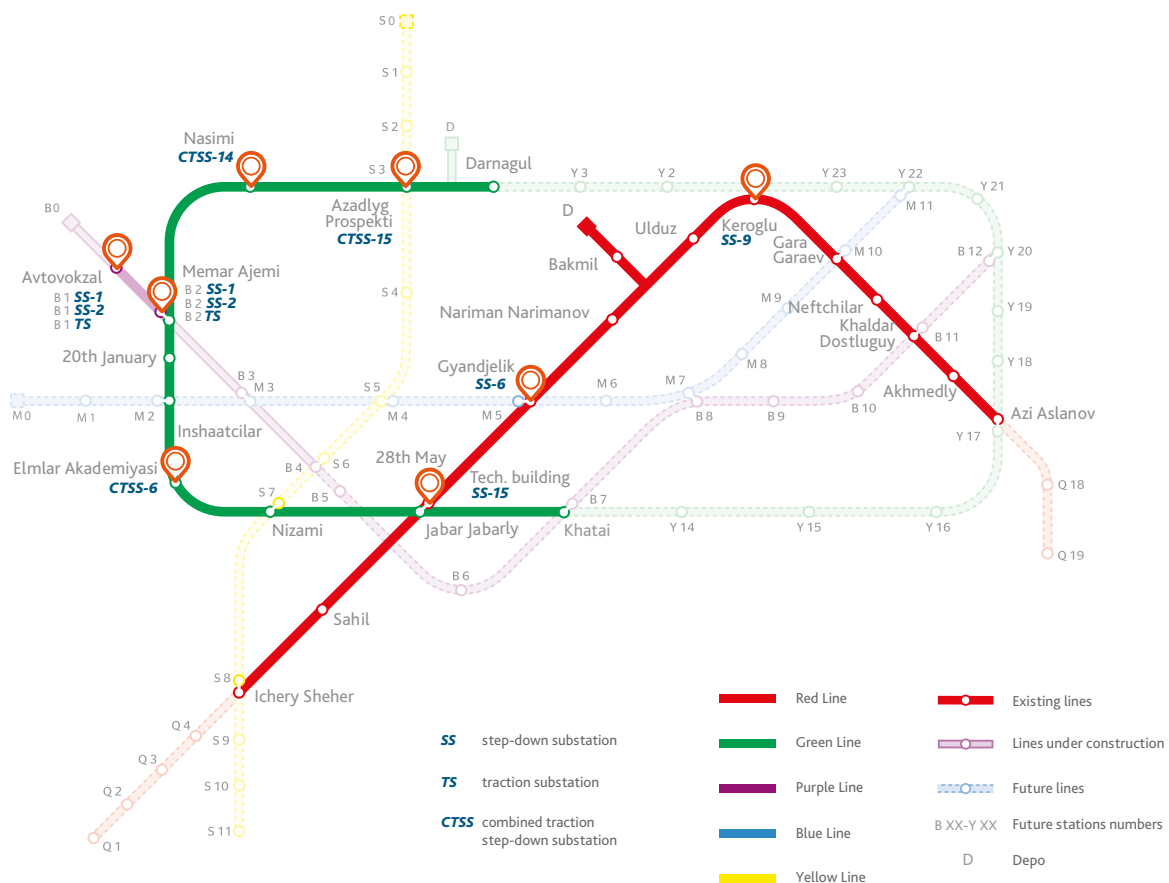
## Turn-key projects:

2008-2017



7 step-down substations, 2 traction substations and 3 combined traction step-down substations of Nasimi, Azadlig Prospekti, Keroglu, Avtovokzal, Memar Ajemi, Elmlar Akademiyasi, Gyandjelic metro stations and Technological building of Baku metro.

Design, supply of equipment, installation works, commissioning, startup.



Gas-insulated medium voltage switchgear

35 kV ZX1.2	6 sets
Switchgear 10 kV	2 sets
NEX Switchgear 10 kV	4 sets
DC Switchgear 825 V	72 units



Transformer

Transformer Resibloc	30 units
Rectifier	36 units
	17 units



AC Switchgear 0.23...0.4 kV	21 sets
DC Distribution Board	9 sets
Communications Based Train Control Switchgear	6 sets
Signaling and communication automatics switchgear	2 sets



Equipment for tunnels and depots :

Line Disconnector Cabinet	52 units
Cables Connection Cabinet	50 units



Climate support system (ventilation, conditioning)

	6 sets
--	--------



Uninterrupted power supply system 15 kVA	2 units
Uninterrupted power supply system 50 kVA	1 unit
Battery chargers	23 units
Battery	7 sets
Reactive power compensation installation	16 units



SCADA system

	8 sets
--	--------



BAKU METRO,  
REPUBLIC OF AZERBAIJAN

# BAKU METRO

BAKU, REPUBLIC OF AZERBAIJAN

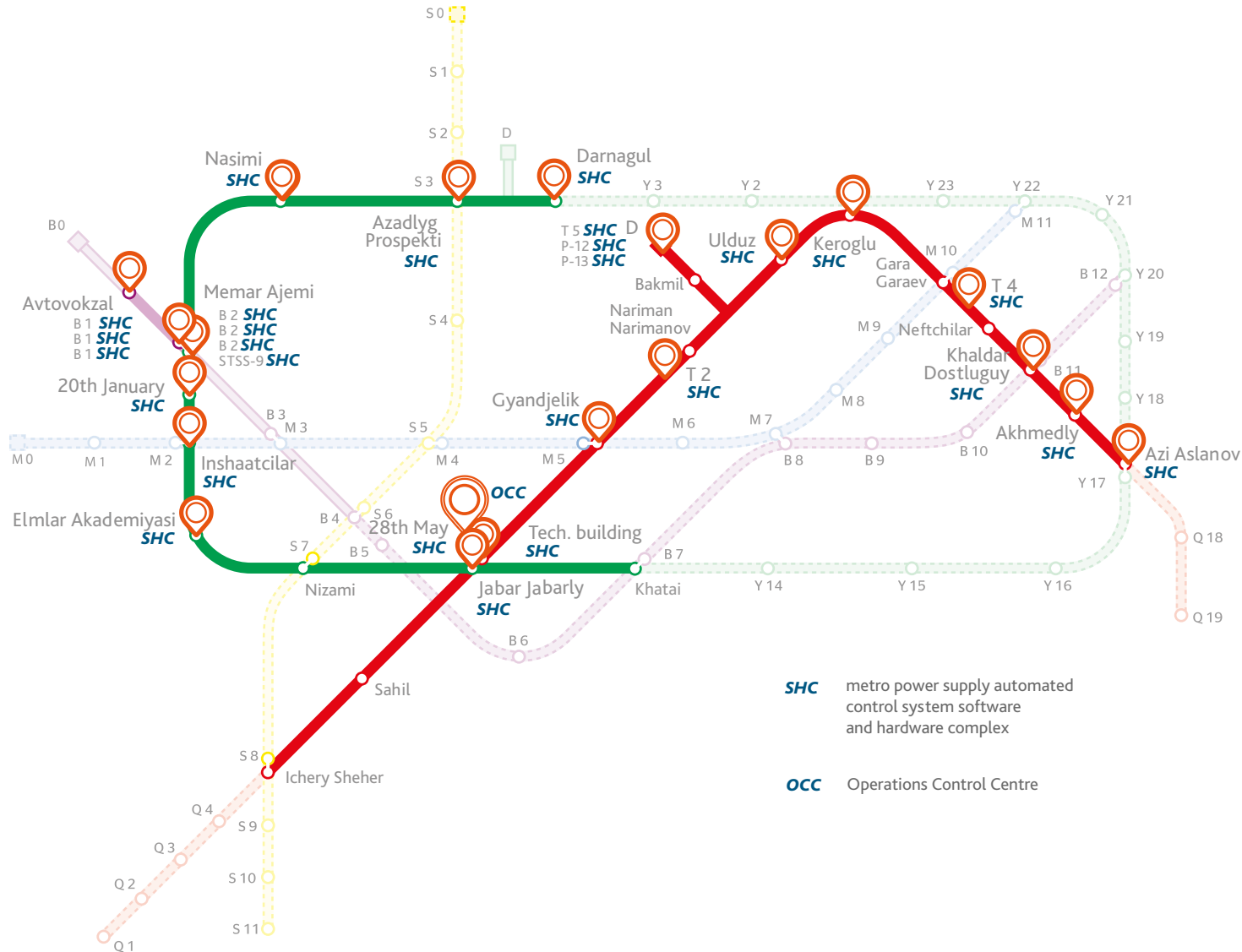
2013-2017



Turn-key project for automation of power supply operations control system of Baku Metro.



Design, supply of equipment, SCADA software for Operations Control Centre and remote stations (27 sites). Installation and commissioning, personnel training.



**SHC** metro power supply automated control system software and hardware complex

**OCC** Operations Control Centre



OPERATIONS CONTROL CENTRE,  
BAKU METRO,  
REPUBLIC OF AZERBAIJAN

# MINSK METRO

MINSK, REPUBLIC OF BELARUS

## Turn-key projects:

2004-2014



12 traction substations of Kamennaya gorka, Kuntsevshchina, Pushkinskaya, Uruchye, Borisovsky Trakt, Vostok, Institut Kultury, Petrovshchina, Mikhalovo, Grushevka, Malinovka metro stations, Depot.

Supply of equipment, installation works, commissioning, startup.

2018



4 traction substations of Yubileynaya ploshchad, Frantisek Bogushevich ploshchad, Vokzalnaya, Kovalskaya Sloboda metro stations.

Supply of equipment.



DC Switchgear 825 V

160 units

Traction network monitoring and protection system SMTN-3

14 units



Transformer Resibloc Rectifier

12 units  
12 units



Equipment for tunnels and depots :

Line Disconnecter Cabinet

81 units

Third Rail Power Supply Cabinet

10 units

Switchover Cabinet

34 units

Contactor cabinet

7 units



Fans Automatic Control Cabinet  
Temperature Control Unit

8 units  
11 units



MINSK METRO,  
REPUBLIC OF BELARUS

# YEKATERINBURG METRO

YEKATERINBURG, RUSSIAN FEDERATION

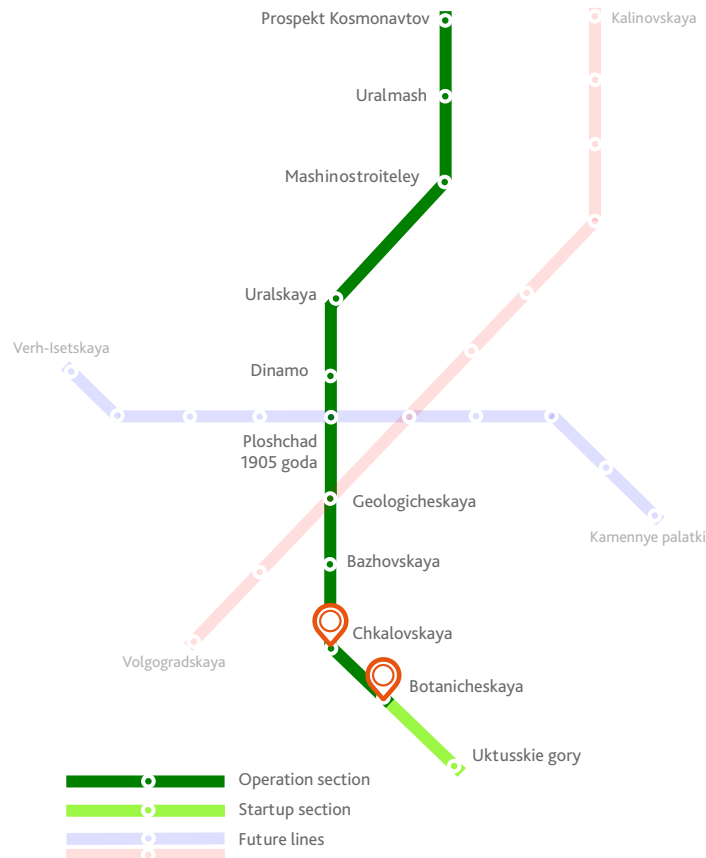
2011



## Turn-key project:

Supply of equipment package for 2 traction substations of Chkalovskaya, Botanicheskaya metro stations.

Installation supervision, commissioning, startup.



ZS1 Switchgear 10.5 kV 2 sets  
DC Switchgear 825 V 25 units



Transformer Resibloc 12 units  
Rectifier 6 units



AC Switchgear 0.23...0.4 kV 4 sets  
DC Distribution Board 2 sets  
Communications Based Train Control Switchgear 2 sets



Equipment for tunnels and depots :  
Line Disconnecter Cabinet 21 units  
Cables Connection Cabinet 23 units  
Thyristor circuitor cabinet 3 units



Battery chargers 8 units  
Battery 2 sets  
Reactive power compensation installation 4 units



Telecontrol equipment 2 sets



YEKATERINBURG METRO,  
RUSSIAN FEDERATION

## MOSCOW METRO

MOSCOW, RUSSIAN FEDERATION

1994-2009

Supply of equipment sets for traction substations:



AC Switchgear 0.23...0.4 kVDC  
Distribution Board

4 sets  
1 set



Rectifier

18 units



Equipment for tunnels and depots :  
Line Disconnecter Cabinet  
Cables Connection Cabinet

10 units  
17 units



## KAZAN METRO

KAZAN, REPUBLIC OF TATARSTAN, RUSSIAN FEDERATION

2011

Supply of equipment for traction substation of Kozya Sloboda metro station:



AC Switchgear 0.23...0.4 kV  
Reactive power compensation installation

2 sets  
2 units



Transformer Resibloc







6 units



## NIZHNY NOVGOROD METRO

NIZHNY NOVGOROD, RUSSIAN FEDERATION



Supply of equipment sets for traction substation of Strelka metro station:

	Switchgear 10 kV	1 set
	DC Switchgear 825 V	12 units
	AC Switchgear 0.23...0.4 kV	2 sets
	DC Distribution Board	1 set
	Communications Based Train Control Switchgear	2 units
	Converting and step-down transformers	13 units
	Rectifier	3 units
	Telecontrol equipment	1 set
	Equipment for tunnels and depots :	
	Line Disconnecter Cabinet	16 units
	Cables Connection Cabinet	15 units
	Battery chargers	2 units
	Guaranteed power supply system	2 units
	Voltage source inverter cabinet	1 unit

## ST. PETERSBURG METRO

ST. PETERSBURG, RUSSIAN FEDERATION

1998-2006 Supply of equipment sets for traction substations:

	Rectifier	4 units
	Equipment for tunnels: Line Disconnecter Cabinet	4 units



## TASHKENT METRO

TASHKENT, REPUBLIC OF UZBEKISTAN

### 2001 Supply of equipment for traction substations:



Rectifier

18 units

### 2019 Supply of equipment for CTSS-41 Turkiston:



DC Switchgear 825 V

13 units.



DC Switchgear 220 V

2 sets



Transformer Resibloc Rectifier

3 units

3 units



Equipment for tunnels and depot:

Line Disconnecter Cabinet

11 units

Cables Connection Cabinet

11 units

Power distribution box

175 units



Charging and rectifying unit VTEU/UBP

4 units

## BUCHAREST METRO

BUCHAREST, ROMANIA

### 2017 Implementation of project on outdated rectifier replacement for a new one for Piata Unirii 1 traction substation



Rectifier

1 unit



## BUSAN CITY METRO

BUSAN, REPUBLIC OF KOREA

2017 Supply of equipment for traction substation:



DC Switchgear 1500 V 2 units

## DAWONSY COMPANY

ANSAN, REPUBLIC OF KOREA

2018 Supply of equipment for Dawonsys Company own requirements:



DC Switchgear 1500 V 4 units

## IZMIR METRO

IZMIR, REPUBLIC OF TURKEY

2019 Supply of equipment for Halkapinar Depo substation.  
Installation and adjustment supervision.



DC Switchgear 750 V 6 units



Rectifier 1 unit





## CITY ELECTRIC TRANSPORT

### UKRAINE

KYIV CITY ELECTRIC TRANSPORT	24
LVIV CITY ELECTRIC TRANSPORT	26
VINNYTSIA TRANSPORT COMPANY	30
KRAMATORSK CITY ELECTRIC TRANSPORT	32
KRYVYI RIH FAST TRAM	34
KRYVYI RIH TROLLEYBUS	34
ODESA CITY ELECTRIC TRANSPORT	34
ZAPORIZHZHIA CITY ELECTRIC TRANSPORT	35
KREMENCHUK CITY ELECTRIC TRANSPORT	35
MYKOLAIV CITY ELECTRIC TRANSPORT	36
DNIPRO CITY ELECTRIC TRANSPORT	37
IVANO-FRANKIVSK CAPITAL CONSTRUCTION DEPARTMENT	37

### AUTONOMOUS REPUBLIC OF CRIMEA

CRIMEAN TROLLEYBUS	38
KERCH CITY ELECTRIC TRANSPORT	38

### RUSSIAN FEDERATION

RUSSIAN FEDERATION CITY ELECTRIC TRANSPORT	40
NABEREZHNYE CHELNY CITY ELECTRIC TRANSPORT	42

### REPUBLIC OF BELARUS

REPUBLIC OF BELARUS CITY ELECTRIC TRANSPORT	43
---	----

### REPUBLIC OF LATVIA

RIGA CITY ELECTRIC TRANSPORT	44
------------------------------	----

### REPUBLIC OF MOLDOVA

BELTSY CITY ELECTRIC TRANSPORT	44
--------------------------------	----

### SWITZERLAND

CITY ELECTRIC TRANSPORT OF SWITZERLAND	45
--	----

### GERMANY

CITY ELECTRIC TRANSPORT OF GERMANY	45
------------------------------------	----

### SWEDEN

STOCKHOLM ELECTRIC TRANSPORT	46
------------------------------	----

### REPUBLIC OF TAJIKISTAN

DUSHANBE ELECTRIC TRANSPORT	48
-----------------------------	----

### REPUBLIC OF POLAND

POZNAN CITY ELECTRIC TRANSPORT	50
LODZ CITY ELECTRIC TRANSPORT	50

### ROMANIA

ORADEA CITY ELECTRIC TRANSPORT	52
--------------------------------	----

# KYIV CITY ELECTRIC TRANSPORT

KYIV, UKRAINE

1998 - 2013



Supply of equipment for 31 Kyiv city electric transport traction substations.

Supply of equipment, installation works, commissioning, startup.



NEX Switchgear 10 kV  
DC Switchgear 600 V

1 set  
88 units



Distribution transformer  
Transformer Resibloc  
Rectifier

10 units  
2 units  
113 units



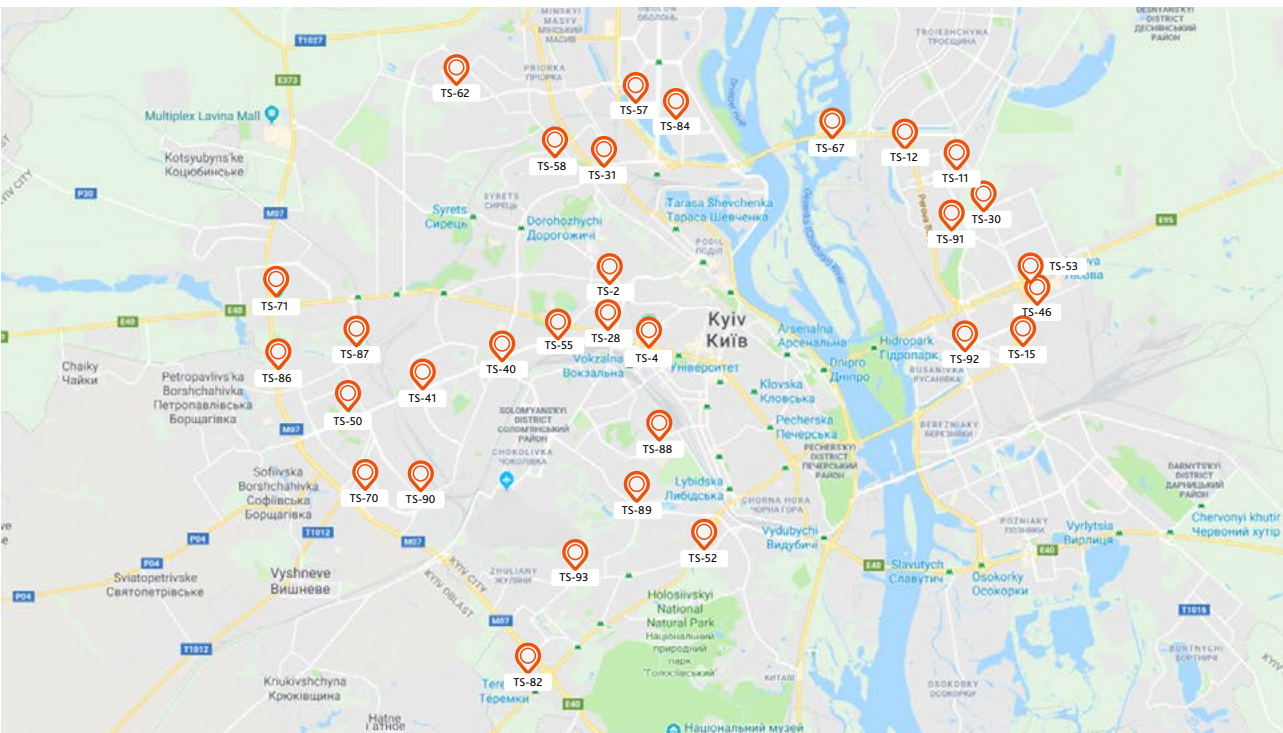
Auxiliaries cabinet  
Operating current cabinet  
Input device

17 units  
20 units  
16 units



Telecontrol equipment

2 sets





БОГДАН  
ХМЕЛЬНИЦЬКИЙ  
1888

# LVIV CITY ELECTRIC TRANSPORT

LVIV, UKRAINE

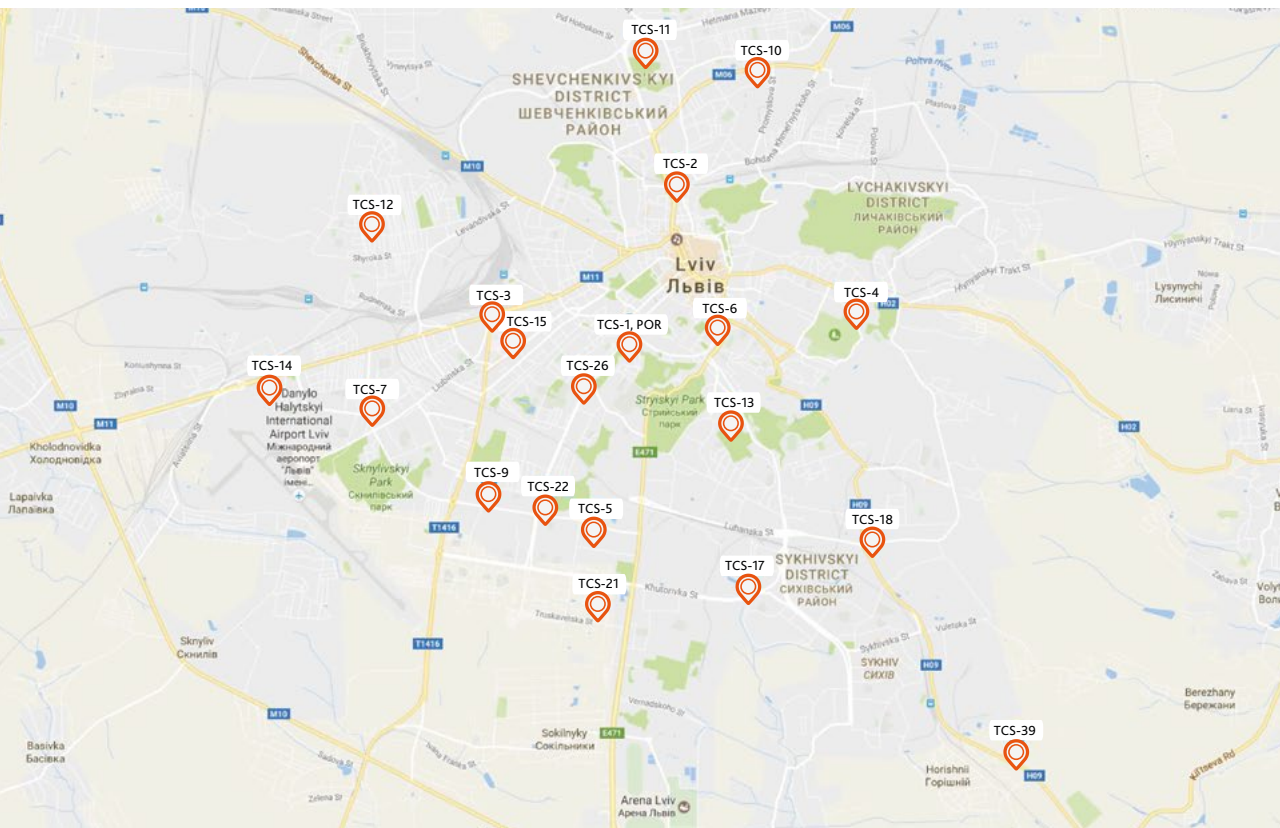
2011-2016



**Turn-key projects:**  
Modernization of Control Center and 19 Traction Converter Substations for Power Supply of Lviv City Electric Transport Network.

Design, dismantling, installation of Automated system for electric power consumption accounting (ASEPCA), Security alarm system (SAS) and Fire alarm system (FAS), supply of equipment, civil works, installation works, commissioning, training.

The Project was financed with the support of the European Bank for Reconstruction and Development (EBRD).



Switchgear 6 kV (complete and partial modernization of the existing switchgear 6 kV) 85 units  
Equipment for retrofit of existing Switchgear 6 kV 79 sets  
Equipment for retrofit of existing DC Switchgear 600 V 130 sets



DC Switchgear 600 V (complete replacement of existing switchgear 600 V) 40 units



**Equipment 0.4 kV**  
(newly installed equipment at substations):  
Automatic Load Transfer system for rectifier group 53 units  
Operating current cabinet 19 units



**Security alarm system and fire alarm system equipment in substations** 20 sets



**SCADA system for substations:**  
Telecontrol cabinet (newly installed equipment) 9 units  
Telecontrol cabinet (complete modernization of existing equipment) 10 units  
Automated system for electric power consumption accounting cabinet (newly installed equipment) 19 units



**Operations Control Center**  
(complete modernization of existing equipment):  
Power dispatcher, remote control engineer and remote control operator workstations 3 units  
Telecontrol cabinet 1 unit  
Automated system for electric power consumption accounting cabinet 1 unit  
Security alarm system and fire alarm system equipment 1 set



LVIIV, UKRAINE

# LVIV CITY ELECTRIC TRANSPORT

LVIV, UKRAINE

2014 -  
2016

Turn-key project:

Supply of three-unit modular traction substation for TS-17.

Installation works, commissioning, startup.

The Project was financed with the support of the European Bank for Reconstruction and Development (EBRD).



Module 3 units



NEX Switchgear 6 kV  
DC Switchgear 600 V 1 set  
12 units



Transformer Resibloc  
Rectifier 3 units  
3 units



Auxiliaries equipment 1 set



Telecontrol equipment 1 set



**THREE-UNIT MODULAR TRACTION SUBSTATION  
LVIV, UKRAINE**

## VINNYTSIA TRANSPORT COMPANY






VINNYTSIA, UKRAINE

2014

Turn-key project:

Supply of two-unit modular traction substation for Municipal Enterprise Vinnytsia Transport Company.

Installation works, commissioning, startup.

	Module	2	units
	NEX Switchgear 10 kV DC Switchgear 600 V	1 8	set units
	Converter transformer Rectifier	2 2	units units
	Auxiliaries equipment	1	set
	Telecontrol equipment	1	set




2019

Retrofit of 2 DC cubicles 600 V with replacement of high-speed circuit breaker.

Supply of equipment.

Reconstruction of traction substation №19.

Supply of equipment, installation and commissioning supervision.

	DC Switchgear 600 V	5	units
	Rectifier	1	unit
	Auxiliaries cabinet Operating current cabinet Cables combined protection cabinet	1 1 1	unit unit unit



VINNYTSIA, UKRAINE

# KRAMATORSK CITY ELECTRIC TRANSPORT






KRAMATORSK, UKRAINE

**2018** Turn-key project:  
Supply of three-unit modular traction substation for Municipal Enterprise Kramatorsk Tram and Trolleybus Authority.

Development of the project design and estimate documentation, installation works, commissioning, startup.

The Project was financed with the support of the European Bank for Reconstruction and Development (EBRD).



	Module	3	units
	NEX MV Switchgear 6 kV	1	set
	DC Switchgear 600 V	12	units
	Converter transformer	3	units
	Rectifier	3	units
	Auxiliaries equipment	1	set
	Telecontrol equipment and SCADA system	1	set



THREE-UNIT MODULAR TRACTION SUBSTATION  
KRAMATORSK, UKRAINE

## KRYVYI RIH FAST TRAM

KRYVYI RIH, UKRAINE

**1999** PLUTON is a General supplier of equipment for fast tram line (7 substations) in Kryvyi Rih.



Traction substations 7 units

## KRYVYI RIH TROLLEYBUS

KRYVYI RIH, UKRAINE

**2019** Development of design and estimate documentation on Technical modernization of power distribution center 6 kV and DC cubicles of traction substation №4 for Municipal Enterprise City Trolleybus, Kryvyi Rih.

## ODESA CITY ELECTRIC TRANSPORT

ODESA, UKRAINE

**2006** 2 city electric transport traction substations.

Supply of equipment, installation works, commissioning.



DC Switchgear 600 V 9 units



Rectifier 7 units



Auxiliaries cabinet 1 unit

Operating current cabinet 1 unit

Input device 1 unit



## ZAPORIZHZHIA CITY ELECTRIC TRANSPORT

ZAPORIZHZHIA, UKRAINE

2017-  
2018

### Turn-key project:

32 traction network monitoring and protection systems SMTN-3 for Zaporizhzhia City Electric Transport Municipal Enterprise Zaporizhelectrotrans.

Supply of equipment, installation works, commissioning.



Traction network monitoring and protection system

32 units



## KREMENCHUK CITY ELECTRIC TRANSPORT

KREMENCHUK, UKRAINE

2017-  
2019

Modernization of traction substation for Municipal Enterprise Kremenchuk Trolleybus Department

Supply of equipment, installation works, commissioning.



MV Switchgear 10 kV modernization package

3 sets



## MYKOLAIV CITY ELECTRIC TRANSPORT

MYKOLAIV, UKRAINE

**2019** Supply of two-unit modular traction substation for Municipal Enterprise Mykolaivelectrotrans within the framework of construction of new trolley line for Namyv microdistrict.

Supply of equipment, installation and commissioning supervision.



Module

2 units



NEX Switchgear 6 kV  
DC Switchgear 600 V

1 set  
7 units



Converter Transformer  
Rectifier

2 units  
2 units



Auxiliaries equipment

2 sets



Telecontrol equipment

1 set

# DNIPRO CITY ELECTRIC TRANSPORT

DNIPRO, UKRAINE

**2018** Equipment for Municipal Enterprise Dnipro Electrotransport traction substation TS-26.

Supply of equipment, installation supervision, commissioning.



DC Switchgear 600 V 2 units



Transformer 1 unit  
Rectifier 1 unit

**2019** Modernization of TS-15 traction substation.

Supply of equipment, installation and commissioning supervision.



DC Switchgear 600 V 2 units



Rectifier 2 units

Modernization of TS-17 and TS-19 traction substations.  
Design.

# CAPITAL CONSTRUCTION DEPARTMENT

IVANO-FRANKIVSK, UKRAINE

**2019** Development of design and estimate documentation on Mazepy street – Pivdenny Blvd. – Pivnichnyy Blvd. trolleybus line in Ivano-Frankivsk



## CRIMEAN TROLLEYBUS

AUTONOMOUS REPUBLIC OF CRIMEA

### Turn-key projects:

Reconstruction of mountain trolleybus line Simferopol-Alushta-Yalta substations .

2010



4 traction substations TS-9, TS-10, TS-11, TS-12.  
Supply of equipment, installation works, commissioning, startup.

2011



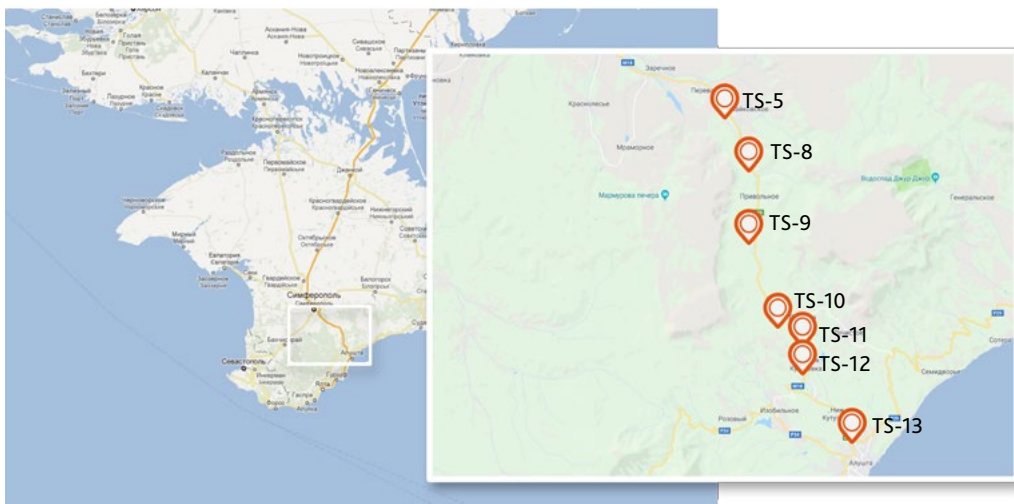
3 traction substations TS-5, TS-8, TS-13.  
Supply of equipment, installation works, commissioning, startup.



DC Switchgear 600 V 37 units



Auxiliaries cabinet 7 units  
Operating current cabinet 7 units



## KERCH CITY ELECTRIC TRANSPORT

AUTONOMOUS REPUBLIC OF CRIMEA

2007, 2010 Turn-key projects:

2 traction substations for Kerch city electric transport

Supply of equipment, installation works, commissioning, startup.



Chamber KSO-825 5 units  
DC Switchgear 600 V 12 units



Transformer 3 units  
Rectifier 3 units







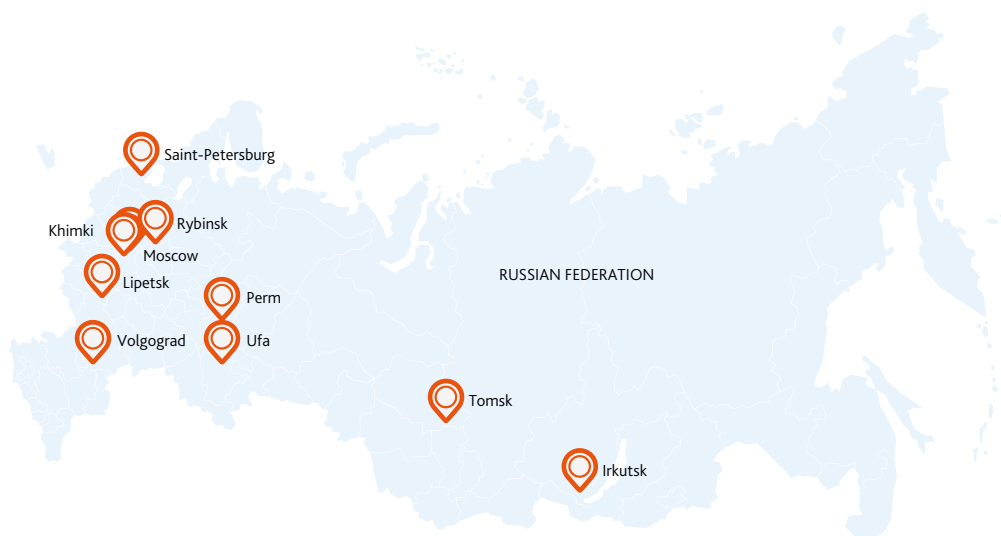
Auxiliaries cabinet 2 units  
Operating current cabinet 2 units  
Input device 2 units  
Cables combined protection cabinet 1 unit








## RUSSIAN FEDERATION CITY ELECTRIC TRANSPORT

- 1998 - 2006**  Supply of equipment for city electric transport traction substations in Moscow, Saint-Petersburg, Rybinsk, Volgograd, Ufa, Khimki, Tomsk, Lipetsk.
- 2001**  PLUTON is the General Supplier of equipment for Khimki trolleybus substation (Moscow Oblast) and Strogino trolleybus substation (Moscow, the Russian Federation).
- 2003**  Supply of equipment package for traction substations and depot of Moscow Monorail transport system first section.
- 2014**  Supply of rectifiers for traction substations of Perm and Irkutsk city electric transport.



	DC Switchgear 600 V	14 units
	Transformer Rectifier	12 units 130 units
	Auxiliaries cabinet	9 units
	Cable protection cabinet	1 unit
	Cables connection cabinet	30 units
	Double-pole earthing cabinet	30 units





MOSCOW MONORAIL,  
RUSSIAN FEDERATION








# NABEREZHNYE CHELNY CITY ELECTRIC TRANSPORT

NABEREZHNYE CHELNY, REPUBLIC OF TATARSTAN, RUSSIAN FEDERATION

2014

**Turn-key project:**  
Supply of three-unit modular traction substation.

Installation works, commissioning, startup.

	Module	3	units
	NEX MV Switchgear 6 kV	1	set
	DC Switchgear 600 V	12	units
	Transformer Resibloc	3	units
	Rectifier	3	units
	Auxiliaries equipment	1	set
	Telecontrol equipment	1	set



# REPUBLIC OF BELARUS CITY ELECTRIC TRANSPORT

1997-2016



Supply of equipment for the Republic of Belarus city electric transport traction substations.

Installation works, commissioning, startup.



DC Switchgear 600 V 158 units



Transformer TSZPU, TMPU, Resibloc Rectifier 33 units 74 units



Auxiliaries cabinet 6 units  
Cable protection cabinet 3 units  
Operating current cabinet 5 units  
Input unit 5 units



## RIGA CITY ELECTRIC TRANSPORT

RIGA, REPUBLIC OF LATVIA

2002 Supply of equipment for traction substations:



Rectifier	33 units
Transformer	8 units

## BELTSY CITY ELECTRIC TRANSPORT

BELTSY, REPUBLIC OF MOLDOVA

2014 Turn-key projects:  
Modernization of 4 traction substations for Beltsy city electric transport power supply network.

Dismantling, installation works, commissioning, startup.

The Project was financed with the support of the European Bank for Reconstruction and Development (EBRD).



Equipment for retrofit of existing Switchgears 600 V	33 sets
--	---------



Rectifier	12 units
-----------	----------



## CITY ELECTRIC TRANSPORT OF SWITZERLAND

**2010-2017** Supply of MWA measuring modules and KUB cables insulation monitoring modules as a part of SGBA control and protection system (produces by ELPRO) for DC switchgears of city electric transport enterprises traction substations in Winterthur and Bern.

- Module MWA 34 units
- Module KUB 8 units



## CITY ELECTRIC TRANSPORT OF GERMANY

**2010-2017** Supply of MWA measuring modules and KUB cables insulation monitoring modules as a part of SGBA control and protection system (produced by ELPRO) for DC switchgears of traction substations of Germany city electric transport enterprises.

- Module MWA 297 units
- Module KUB 42 units



# STOCKHOLM ELECTRIC TRANSPORT

STOCKHOLM, SWEDEN

2013-2019



7 traction substations of Stockholm electric transport: Högberga, Baggeby, Käppala, Ropsten, AGA, Sikla, Arninge.

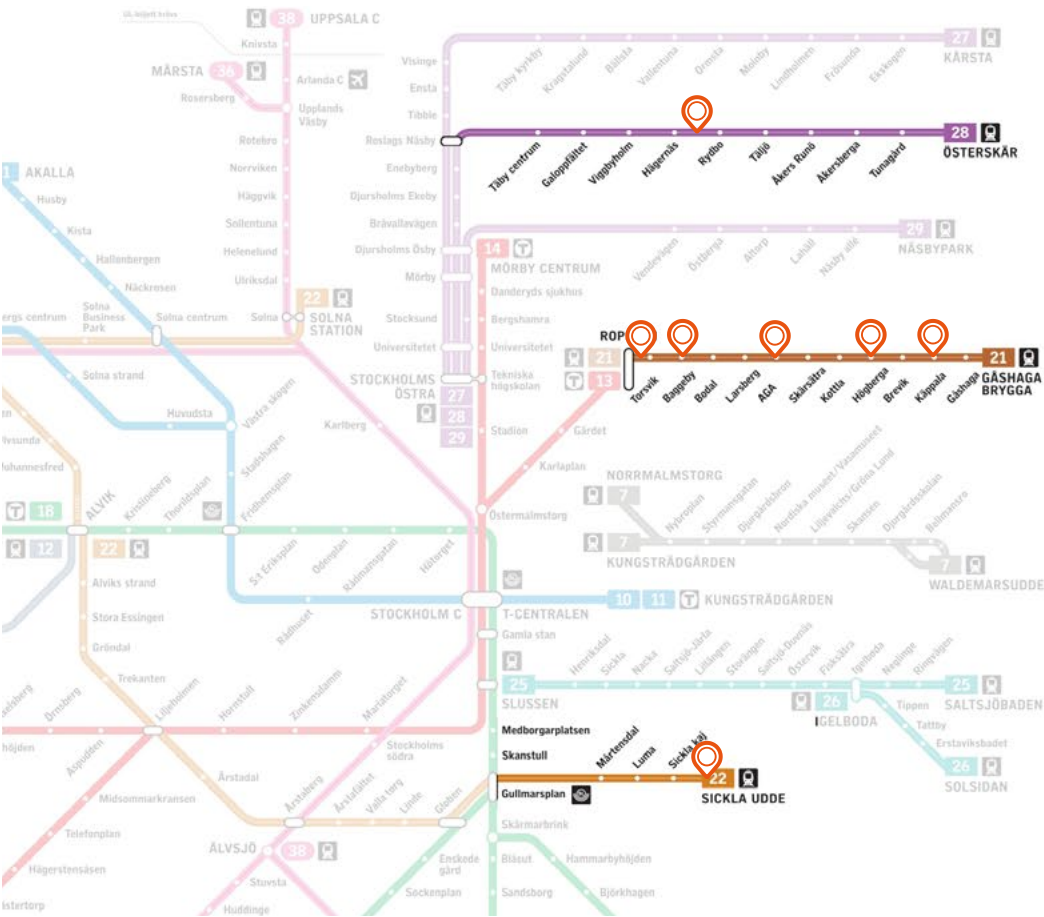
Supply of equipment, installation supervision and commissioning.

2020



Current project: supply of Konsthallen traction substation.

Supply of equipment, installation supervision and commissioning.



DC Switchgear 750 V	33	units
DC Switchgear 1500 V	6	units
High-speed circuit-breaker test device	7	units
Service equipment	2	sets



Rectifier	7	units
Rectifier series V-TPE	1	unit





## DUSHANBE ELECTRIC TRANSPORT

DUSHANBE, REPUBLIC OF TAJIKISTAN

2017-2018



Turn-key reconstruction of 3 trolleybus electric traction substations (TS-2, TS-4, TS-6) and supply of traction equipment for TS-3, TS-5, TS-7, TS-8, TS-9, TS-10 for State Municipal Unitary Enterprise Trolleybus, including power supply remote control system SCADA.

Dismantling, installation works, commissioning, startup, personnel training.

The Project was financed with the support of the European Bank for Reconstruction and Development (EBRD).



MV Switchgear 6 kV, 10 kV	3 sets
DC Switchgear 600 V	57 units



Equipment for retrofit of existing DC Switchgears 600 V	26 sets
---	---------



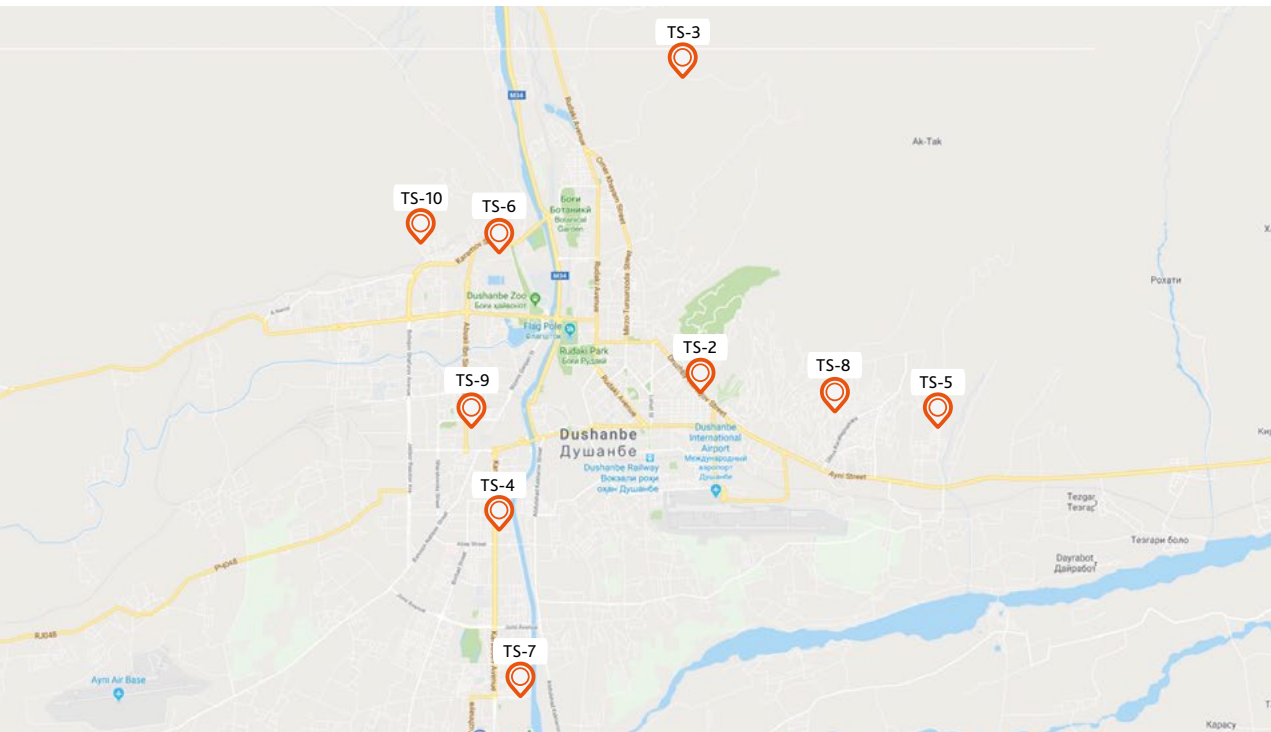
Converter Transformer	14 units
Rectifier	14 units



Equipment for substation power supply (auxiliary transformers, auxiliary cabinets, control current cabinets, UPS)	13 units
Cables combined protection cabinet	3 units



Telecontrol equipment	5 sets
SCADA system	1 set





**DUSHANBE,  
REPUBLIC OF TAJIKISTAN**

## POZNAN CITY ELECTRIC TRANSPORT

REPUBLIC OF POLAND

**2019** Trial operation of DC switchgear at Bóznicza substation:

Supply of equipment, installation works, commissioning, startup.



DC Switchgear 660 V

1 unit



## LODZ CITY ELECTRIC TRANSPORT

REPUBLIC OF POLAND

**2019** Turn-key project:

Telefoniczna traction substation.

Design, civil works, power cables laying, supply of equipment, installation works, commissioning, startup.



MV Switchgear 17,5 kV  
DC Switchgear 660 V

12 units  
23 units



Transformer  
Rectifier

6 units  
4 units



Auxiliaries equipment  
AC Switchgear 0.23...0.4 kV

1 set  
1 set



Telecontrol equipment and SCADA software

1 set



## ORADEA CITY ELECTRIC TRANSPORT

ORADEA, ROMANIA

**2019** Turn-key project:  
Supply of Cicero two-unit modular traction substation.

Design, supply of equipment, installation supervision, commissioning.



Module 2 units



Medium voltage switchgear SM6 20 kV 1 set  
DC Switchgear 750 V 6 units



Traction transformer 2 units  
Rectifier 2 units



Operating current cabinet 1 unit  
Auxiliaries cabinet 2 units  
Low voltage switchgear series Prisma 3 units  
Auxiliaries transformer 1 unit



Telecontrol equipment 1 set  
Contact network overvoltage protection unit OVLD 1 unit  
Protection unit DEPEC 1 unit

---

## RAILWAYS

---

<b>AUSTRALIA</b> SYDNEY PASSENGER RAIL NETWORK	<b>54</b>
<b>GEORGIA</b> GEORGIAN RAILWAY	<b>54</b>
<b>UKRAINE</b> UKRAINIAN RAILWAYS	<b>56</b>
<b>REPUBLIC OF POLAND</b> POLISH RAILWAY	<b>58</b>

---

## DEPARTMENTAL RAILWAYS

---

<b>RUSSIAN FEDERATION</b> IRON ORE ENRICHMENT WORKS ORENBURG MINERALS MAGNITOGORSK IRON AND STEEL WORKS	<b>58</b> <b>59</b>
<b>UKRAINE</b> SOUTHERN MINING COMPANY	<b>60</b>
<b>REPUBLIC OF KAZAKHSTAN</b> KOSTANAI MINERALS JSC	<b>60</b>

## SYDNEY PASSENGER RAIL NETWORK

SYDNEY, AUSTRALIA

**2017** Supply of equipment for secondary power supply inverter of Sydney suburban passenger railway network.

Motor Alternator Governor MAG-129 1 unit



## GEORGIAN RAILWAY

GEORGIA

**2011** Supply of sectioning point 3.3 kV for Tskhra-Dzma station of Marabda-Kartsakhi railway section.



Sectioning point 1 unit





**GR** Georgian Railway  
1997-1992

 **STADLER**

GRS-014

## UKRAINIAN RAILWAYS

UKRAINE

- 2011 - 2013** Supply of DC equipment package 3.3 kV for Bantysheve, Konstantynivka, Fenolne, Lozova, Blyzniuky substations of State Enterprise Donetsk Railway .
- 2013** Supply of equipment package for Ingulets traction substation of Regional branch Cisdnieper Railway (Prydniprovska zaliznytsia) (Kryvyi Rih). Installation works, commissioning.
- 2017** Supply of 4 equipment packages for retrofit of 10 kV cubicles with replacement of circuit breaker for Sknyliv, Striy traction substations, Regional branch Lviv Railway (Lvivska Zaliznytsia) (Lviv).
- 2018** Development of design and estimate documentation on reconstruction of TS-15-10/0.4 kV, Fastiv-1 station, the Regional branch Southwestern Railway (Pivdenno-Zahidna Zaliznytsia) (Fastiv).
- 2019** Development of design and estimate documentation on reconstruction of transformer substation TS-510 10/0.4 kV, Kyiv-Pasazhyrskyi station, the Regional branch Southwestern Railway (Pivdenno-Zahidna Zaliznytsia) (Kyiv).



Equipment for retrofit of existing Switchgears 10 kV

4 sets



DC Switchgear 3.3 kV

1 unit



Rectifier

5 units






## POLISH RAILWAY

REPUBLIC OF POLAND

- 2017** Rectifier set at Warsaw-Prague traction substation of Polish Railway (PKP Energetyka S.A.)  
Trial operation, supply of equipment.

	Transformer	1	unit
	Rectifier	1	unit
	Cathodic reactor	1	unit

## IRON ORE ENRICHMENT WORKS ORENBURG MINERALS

YASNIY, RUSSIAN FEDERATION

- 2010-2013** Rectifiers for modernization of 1.65 kV DC Works railway traction substations for Iron Ore Enrichment Works Orenburg Minerals.  
Supply of equipment, commissioning.

	Rectifier	3	units
---	-----------	---	-------

- 2019** Supply of 1.65 kV DC rectifier  
Supply of equipment, installation and commissioning supervision.

	Rectifier	1	unit
---	-----------	---	------







# MAGNITOGORSK IRON AND STEEL WORKS

MAGNITOGORSK, RUSSIAN FEDERATION

2007-2018






**Turn-key projects:**  
Supply of 6 traction substations 1.65 kV DC for Magnitogorsk Iron and Steel Works railways.

Installation supervision, commissioning, startup.

	DC Switchgear 1.65 kV	76 units
	Rectifier	18 units
	Transformer Resibloc	16 units
	Filtering device	7 units

2008-2016

**Turn-key projects:**  
Supply of 5 package semiconductor substations KVPP-4.0k-230N and KVPP-2.0k-230N.

	Rectifier	8 units
	Transformer Resibloc	3 units
	Input circuit breakers cabinet	7 units
	Section circuit breakers cabinet	4 units
	Line circuit breakers cabinet	5 units



## SOUTHERN MINING COMPANY

KRYVYI RIH, UKRAINE

**2014-2017**

Equipment for reconstruction of Southern Mining Company departmental railway traction substation TS-94.

Supply of equipment, installation supervision and adjustment.



DC Switchgear 1.65 kV

9 units



Rectifier

4 units

**2018**

Cubicles with disconnectors for traction substation reverse lines.

Supply of equipment, installation.



Modular unit with negative busbar switchgear 1.65 kV

1 unit



Negative busbar switchgear 1.65 kV

5 units

## KOSTANAI MINERALS JSC

ZHITIKARA, REPUBLIC OF KAZAKHSTAN

**2019** Supply of 1.65 kV DC rectifier for traction substation of Kostanai Minerals JSC (Zhitikara, Kostanay Region).







---

## INDUSTRIAL, IRON AND STEEL, MACHINE-BUILDING, RESEARCH AND DEVELOPMENT ENTERPRISES

---

---

### UKRAINE

MINING MACHINERY PLANT KRYVORIZHGORMASH	64
SCIENTIFIC AND PRODUCTION COMPLEX ISKRA	64
PRIVATE JOINT STOCK COMPANY ZAPOROZHTRANSFORMATOR (ZTR)	65
SPETSMONTAZHMODUL COMPANY	65
HEAVY ENGINEERING PLANT DNIPROTYAZHMASH	66
AZOVSTAL IRON AND STEEL WORKS	68
DONETSK IRON AND STEEL WORKS	68
ALCHEVSK IRON AND STEEL WORKS	69

---

### REPUBLIC OF MOLDOVA

MOLDAVIAN IRON AND STEEL WORKS	69
--------------------------------	----

---

### UKRAINE

ZAPORIZHSTAL STEEL WORKS	70
PUBLIC JOINT STOCK COMPANY VIT	71
LLC GAL-KAT	71
KRYUKOVSKY RAILWAY CAR BUILDING WORKS	72

---

## MINING MACHINERY PLANT KRYVORIZHGORMASH

KRYVYI RIH, UKRAINE

- 2002** Supply of electrical equipment package with frequency converters and automatic control system of drilling machine drives, provided for gypseous bottoms drilling.



## SCIENTIFIC AND PRODUCTION COMPLEX ISKRA

ZAPORIZHZHIA, UKRAINE

- 2005** Supply of automated frequency-controlled induction double-motor electric drive of radar antenna.



## PRIVATE JOINT STOCK COMPANY ZAPOROZHTRANSFORMATOR (ZTR)

ZAPORIZHZHIA, UKRAINE

2008

Supply of equipment:



Transformers cooling system control cabinet  
Connections cabinet

18 units

7 units



## SPETSMONTAZHMODUL COMPANY

MARGANETS, UKRAINE

2006

Supply of electrical equipment for gas cutting manipulator, including induction drive with frequency converter for industrial equipment production company Spetsmontazhmodul.



# HEAVY ENGINEERING PLANT DNIPROTYAZHMASH

DNIPRO, UKRAINE

## 2006 Supply of equipment for Tulachermet PJSC (Tula, Russian Federation):

Electric drive for car mule with asynchronous traction electric motors, including:

- Cabinet with Voltage Inverters 1 unit
- Three-phase Bridge Rectifier 1 unit
- DC Voltage Filter 1 unit

## 2008 Supply of equipment for Bachatsky open-pit coal mine (Belovo, Russian Federation):

- Thyristor traction DC electric drive, car mule drive 2 units

## 2009-2010 Supply of equipment for Joint Stock Company AEK (Alsu-2, Republic of Kazakhstan):

- Traction AC electric drive (frequency-controlled), car mule drive 2 units

## Supply of equipment for Novolipetsk Steel (NLMK) PJSC (Lipetsk, Russian Federation):

- Thyristor traction DC electric drive, car mule drive 4 units
- Automated control system of blast furnace discharge system with converting power units 2 units

## 2011 Supply of equipment:

- Traction AC electric drive (frequency-controlled), electrical equipment package and car mule automated control system 2 units

## 2013 Supply of equipment for Olenegorsk mining and processing plant OJSC (Olenegorsk, Russian Federation):

- Traction AC electric drive (frequency-controlled), car mule drive 1 unit





OLENEGORSK  
RUSSIAN FEDERATION

## AZOVSTAL IRON AND STEEL WORKS

MARIUPOL, UKRAINE

2003, 2004 Supply of equipment:



Rectifier

6 units



## DONETSK METALLURGICAL PLANT

DONETSK, UKRAINE

2007 Supply of equipment:



Synchronous motor thyristor exciter 1 unit



# ALCHEVSK IRON AND STEEL WORKS

ALCHEVSK, UKRAINE

2006 Supply of 2 package rectifying semiconductor substations KVPP-4000-230:



Rectifier

4 units



Line Circuit Breakers Cabinet (DC Switchgear 230 V)

8 units



# MOLDAVIAN IRON AND STEEL WORKS

RYBNITSA, REPUBLIC OF MOLDOVA

2008 Supply of equipment:



Transformers cooling system control cabinet

2 units



## ZAPORIZHSTAL STEEL WORKS

ZAPORIZHZHIA, UKRAINE

<b>2002</b>	Frequency converters and Collecting roller table automated control system, including:	
	Control Desk	3 units
	Speed Range Control Cabinet	2 units
	Remote Input device	6 units
	Frequency converters VSI-RP-400/430	18 units
<b>2005</b>	Coilbox coiling-uncoiling unit redundancy switch of nonstop hot rolling thin sheet mill	7 units
	Coilbox coiling-uncoiling unit of nonstop hot rolling thin sheet mill. Automated process control system (design, software, testing, startup)	1 unit
	Traction electric drive of portal car pusher with frequency converters VSI-T 400/540 (250 kW)	2 units



<b>2007</b>	NXS frequency converter for blast furnace batcher	10 units
	VSI-PN frequency converter, capacity of 320 kW, for drive stoves drive (Blast-furnace-2)	2 units



<b>2010</b>	Automatic control system and frequency converter for the new hot rolling table drive (light-sheet hot rolling workshop)	15 units
-------------	---	----------

<b>2012</b>	Rectifier	1 unit
-------------	-----------	--------

<b>2019</b>	Restoration of performance and reliable operation of speed setting cabinet for new hot roller conveyor.	
-------------	---	--

Turn-key supply of package semiconductor substation KVPP-4,0к-230N.

Design, manufacturing, supply, dismantling, installation and commissioning.

	Rectifier	2 units
	Converter transformer	2 units
	Input circuit breakers cabinet	2 units
	Section disconnectors cabinet	2 units
	Line circuit breakers cabinet	4 units
	Feeder lines connection cabinet	4 units

## PUBLIC JOINT STOCK COMPANY VIT

ZAPORIZHZHIA, UKRAINE

**2016** Supply of transformers cooling automated control cabinets for Public Joint Stock Company Ukrainian Research, Design and Technological Transformer Institute (VIT):



Transformers cooling system control cabinet 2 units



## LLC GAL-KAT

LVIV, UKRAINE

**2018** Supply of water-cooled rectifier V-TPV-18k-64-6N200SM for industrial enterprise ALC GAL-KAT:



Thyristor converter section 18 kA 64 V	2 units
Transformer TSZPU-2000/6G	1 unit
Remote control panel RCP-E	1 unit



## KRYUKOVSKY RAILWAY CAR BUILDING WORKS

KREMENCHUK, UKRAINE

2013 Turn-key project:

Equipment for special-purpose traction substation of Kryukovsky Railway Car Building Works test site for catenary power supply 27.5 kV AC, 3.3 kV DC, 600 V DC and 825 V DC.

Supply of equipment, installation works, commissioning.



Switchgear 27.5 kV	1	set
NEX Switchgear 6 kV	1	set
DC Switchgear 3.3 kV	1	unit



Converter dry type transformer 2500 kVA	2	units
Multisection thyristor rectifier	1	unit



Telecontrol equipment and SCADA software	1	set
--	---	-----



Auxiliaries and operative current cabinet	1	unit
Switching device	2	units



KRYUKOVSKY RAILWAY CAR BUILDING WORKS,  
UKRAINE





---

## POWER INDUSTRY

---

**REPUBLIC OF LITHUANIA**  
SUBSTATION ALITUS

76

**RUSSIAN FEDERATION**  
SUBSTATION ZLATOUST-500

76

**UKRAINE**  
KIROVOGRADBLENERGO PJSC  
SUBSTATION 35/6KV YERYSTOVO

77

77

**RUSSIAN FEDERATION**  
KALININ NUCLEAR POWER PLANT

78

**UKRAINE**  
DTEK KRYVORIZKA THERMAL POWER STATION  
ZUIVSKA THERMAL POWER STATION  
MARIUPOL HEAT SUPPLY NETWORKS MUNICIPAL AND COMMERCIAL ENTERPRISE

78

79

79

---

**SUBSTATION ALITUS**  
 REPUBLIC OF LITHUANIA

**2001** Supply of equipment for substation:



Transformers cooling system control cabinet 2 units



**SUBSTATION ZLATOUST-500**  
 RUSSIAN FEDERATION

**2005** Supply of 2 sets of transformers control systems:



Transformers cooling system control cabinet 2 units  
 Temperature control cabinet 2 units  
 Connection cabinet 2 units



## KIROVOGRADOBLENERGO PJSC

KROPYVNYTSKYI, UKRAINE

**2007** Supply of equipment for Chervonohutirska hydroelectric station:

Generator excitation system      2 units



## SUBSTATION 35/6 KV YERYSTOVO

HORISHNI PLAVNI, UKRAINE

**2010** Turn-key project:  
35/6 kV substation modernization. Supply of power transformers TMN-6300/35-U1, installation and commissioning works on replacement of two transformers, type TMN-4000/35-6U1 for two transformers TMN-6300/35-U1.



## KALININ NUCLEAR POWER PLANT

RUSSIAN FEDERATION

2004

Supply of equipment:



Transformers cooling system control cabinet

9 units

## DTEK KRYVORIZKA THERMAL POWER STATION

UKRAINE

2014 -  
2015

Reconstruction of pulverized coal feeders electric drives (24 units) and raw-coal feeders electric drives (4 units) including electric motors replacement and transfer to frequency regulation.



## ZUIVSKA THERMAL POWER STATION

UKRAINE

2012-2013

### Supply of equipment for Zuivska Thermal Power Station

Inspection of car pusher current collector system and provision of recommendations on reliable operation during winter.



Thyristor exciter for synchronous motors. 1 unit  
Installation and commissioning of mills.



## MARIUPOL HEAT SUPPLY NETWORKS

### MUNICIPAL AND COMMERCIAL ENTERPRISE

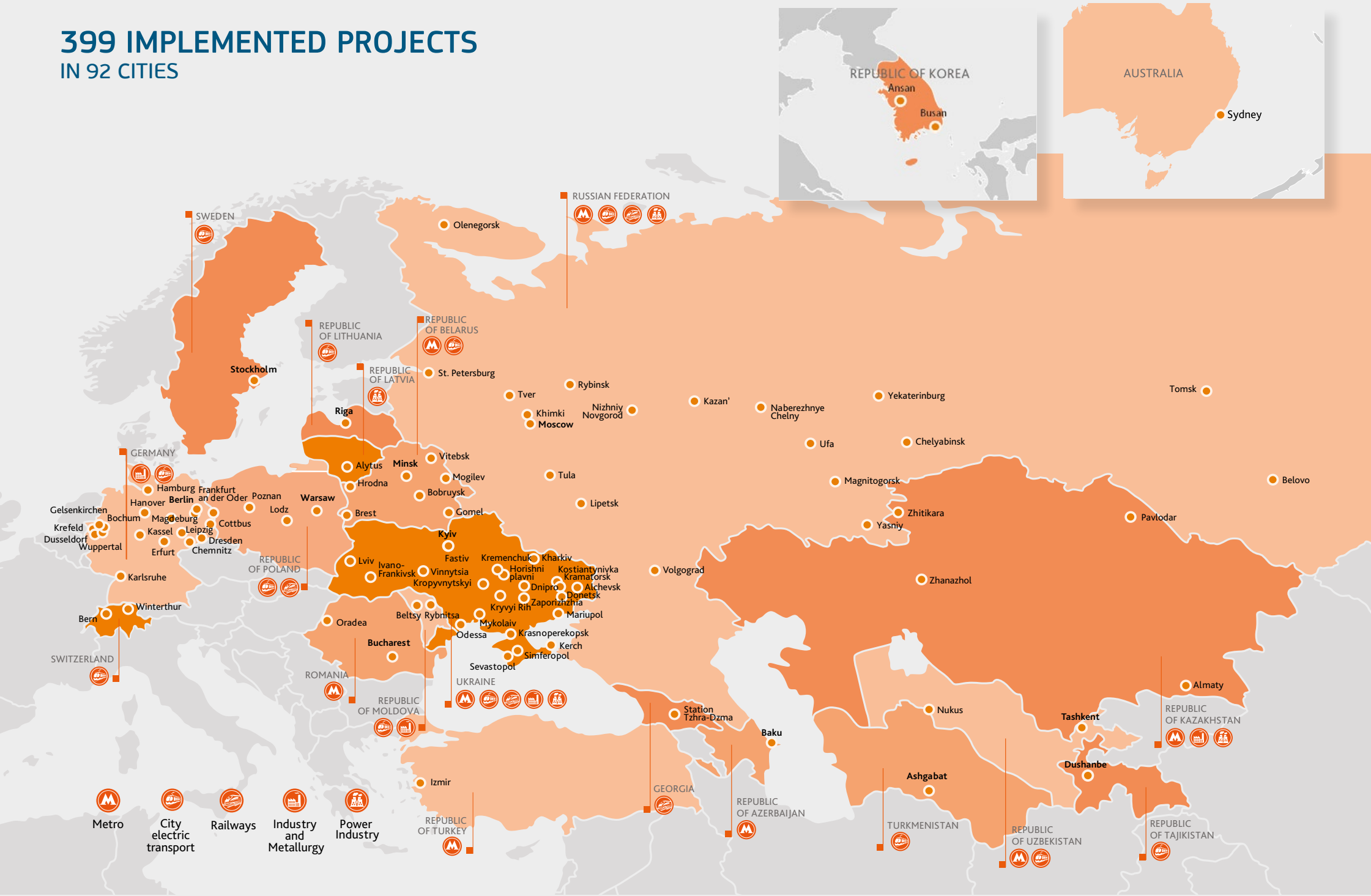
MARIUPOL, UKRAINE

2019

Development of the project design and estimate documentation on capital repair of 6 kV distribution center.



# 399 IMPLEMENTED PROJECTS IN 92 CITIES







For further information  
please visit our website at:  
<http://pluton.ua>

PLUTON PrJSC  
5 Novobudov St.  
Zaporizhzhia 69076,  
Ukraine

Telephone/Fax:  
+380 (61) 239-7900  
+380 (61) 239-7901

E-mail: [info@pluton.ua](mailto:info@pluton.ua)  
[www.pluton.ua](http://www.pluton.ua)