



REDINET

Azatutyan ave. 24/7-24/8, Yerevan 0014, RA
Tel. +374 10 249106, e-mail. sales@redinet.am,
www.redinet.am



MAIN ACTIVITIES

Established in 2001 REDINET CJSC became the leading system integrator acting in regional market with branch in Georgia. Our main activities are:



Telecom Networks



Energy Sector



Fiber Optic Networks



Cyber Security

HUMAN RESOURCES

About 200 highly experienced & certified professionals

- **PhD – 8**
- **Engineers – 53**

Permanent monitoring and control of health and safety regulations



OWNED FACILITIES

- **Total premises above 7500 m²**
- **Office space above 2000 m²**



TECHNICAL RESOURCES

More than 80 (4x4) Specialized Vehicles and special tools



ISO AND OHSAS CERTIFICATES

ISO 9001:2015 ISO 27001:2013 ISO 14001:2015 OHSAS 18001:2007



LICENSES

Governmental Licenses for Professional Activities

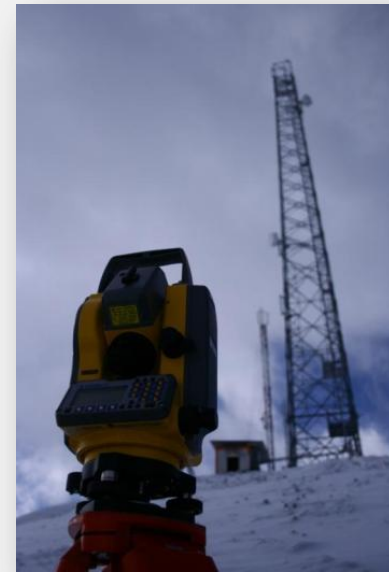


OWNED TOOLKITS

- Corning splicer 2 pcs
- Fujikura 60S FO splicer 2 pcs
- Corning OTDR 2 pcs
- Site Master Anritsu 8 pcs
- Ethernet Analyzer 2 pcs
- E1 channel Analyzer 3 pcs
- Power light meter 2 pcs
- Grounding resistance 3 pcs
- Trimble M-Series 3 pcs
- Concrete tester 3 pcs
- HP spectrum analyzer 1 pcs
- R & S signal generator 1 pcs
- NEMO outdoor 2 pcs
- NEMO handy 10 pcs
- NEMO analyze 2 pcs
- R&S GSM spectrum analyzer 2 pcs

QUALITY CONTROL

- Concrete foundation
- Steel construction
- Grounding and lightning
- Telecom implementation





Telecom Network

- **Mobile Base Stations**
- **Site acquisition**
- **Site design & project documentation**
- **Unique design with 3d modeling & compact site solutions**
- **Site construction**
- **Radio and transmission telecom equipment, supply, I&C**
- **Mobile sites design, supply & implementation**
- **Power line design, supply & construction**
- **Site power system design, supply & construction**
- **Supply, adaptation & optimisation of genset and ATS**
- **Operation & Maintenance Software**
- **Service & Maintenance SLA 24/7/365**



MOBILE SITE SOLUTIONS

- **Site design, project documentation, supply and construction**
- **Site acquisition, negotiation and permissions**
- **Design, supply and construction of power supply systems**
- **Telecom solutions design, site survey, TI I&C**
- **Telecom power systems I&C**
- **Mobile site FO infrastructure construction**
- **Maintenance SLA 24/7/365**
- **Enviromental service & maintenance for Datacenter and FM 200 fire-prevention systems**
- **Drive test and KPI Optimization**
- **Solar Power System design, and implementation**
- **Electromagnetic compatibility calculation**
- **Lightning prevention and grounding solutions design and supply**
- **Supply, procurement and warehousing**
- **Towers, masts and poles manufacturing, and installation**





SITE ACQUISITION

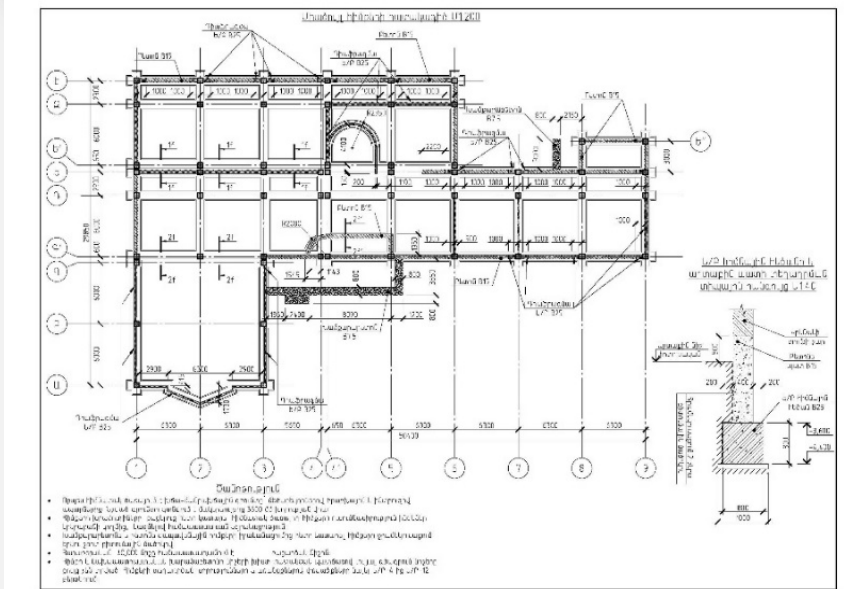
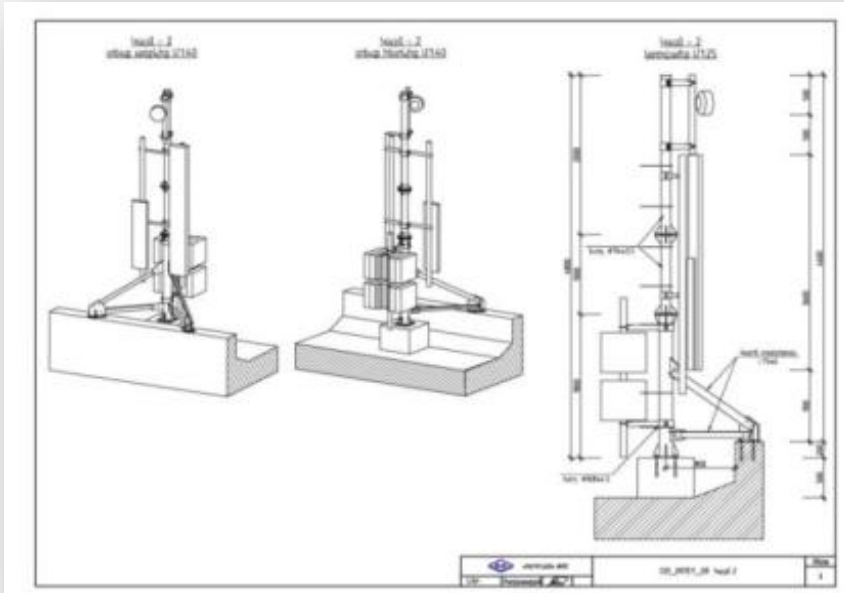
- **Site survey**
- **Negotiations and contracts signing**
- **Obtaining of all necessary permissions**
- **Troubleshooting**





SITE DESIGN & PROJECT DOCUMENTATION

- LEF
- As Built folders
- Power supply design
- Civil works quality control
- Towers unique design
- Static calculation
- Seismic calculation
- EMC calculation



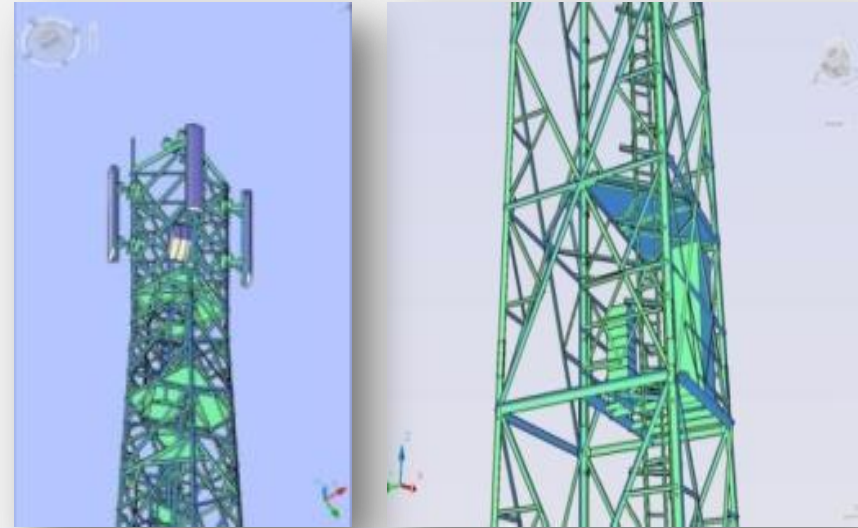


Telecom Network

UNIQUE DESIGN WITH 3D MODELING & COMPACT SITE SOLUTIONS

- Testing of each design in 3D model before manufacturing
- Special design which allows installation of all the equipment on the tower without using shelters

Projected



As Built





Telecom Network

SITE CONSTRUCTION

- Construction and supply of masts, poles and towers
- Unique design towers construction
- Solar, mobile, rooftop sites design, supply and construction



The highest GSM tower in Armenia 85m



The First Site In Region with Hybrid Energy Power Solution



Telecom Network

TELECOM EQUIPMENT SUPPLY, I&C

- **NSN BTS Flexi EDGE/Flexi WCDMA**
- **ALU MW LINKS AWY / MPR / LSY**
- **HUAWEI DCDU/RRU/BBU**
- **ERICSSON RBS/RRU/MINI LINK/CIU/TCU**





MOBILE SITES DESIGN, SUPPLY & IMPLEMENTATION



- **Mobile stations**
- **Quick on site assembly and dismantling**





POWER LINE DESIGN, SUPPLY & CONSTRUCTION

- Design and project documentation
- Acquisition of technical conditions
- Acquisition of all necessary permissions and documents
- Low-voltage lines supply and construction
- High-voltage lines supply and construction including power transformer





SUPPLY, ADAPTATION & OPTIMISATION OF GENSET & ATS

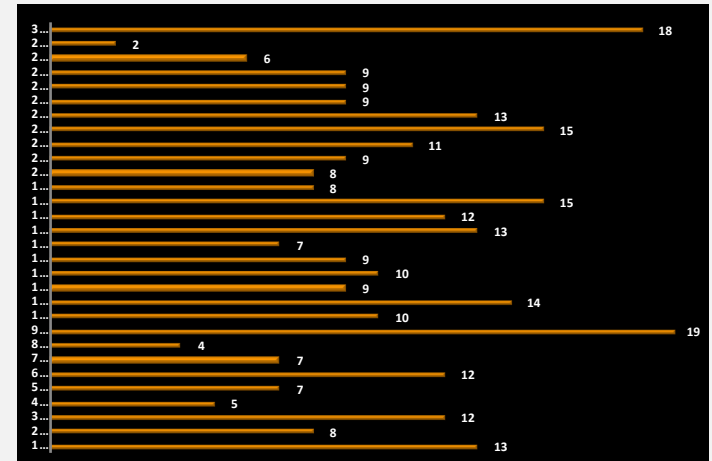
- Backup Power System Design
- Supply, installation and commissioning of genset & ATS
- Optimization of configuration parameters of ATS
- Main versus genset current control via Eltek smart pack system





OPERATION & MAINTENANCE SOFTWARE

- Requests real time tracking
- Data base sorting, searching, grouping and filtering
- Statistical analysis and reporting

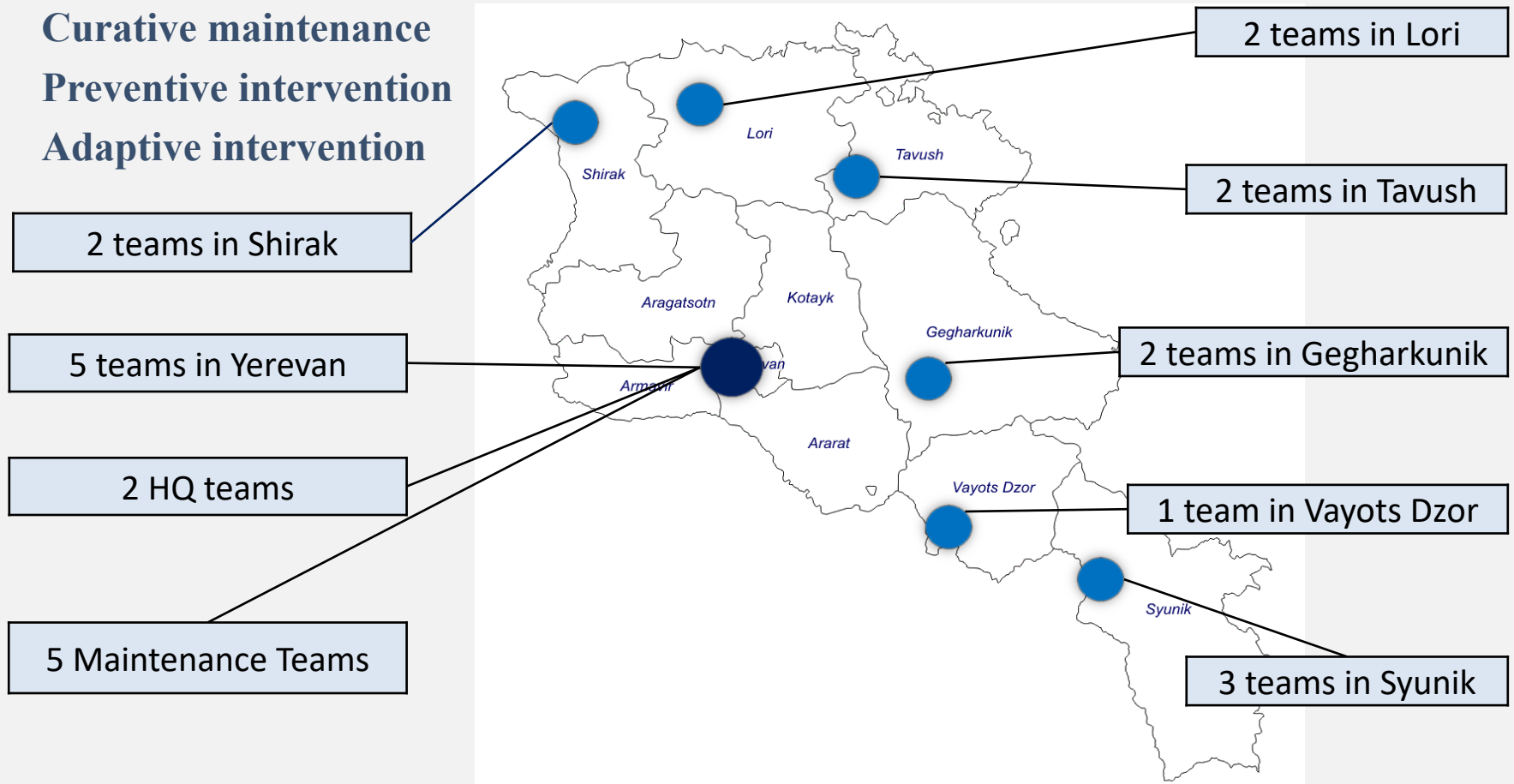




Telecom Network

S&M Teams Structure and Distribution SLA 24/7/365

- Curative maintenance
- Preventive intervention
- Adaptive intervention





Fiber Optic Networks

- **FO Networks Design**
- **FO cable, equipment and accessories supply**
- **FO Networks Deployment**
- **OPGW supply and implementation**
- **SCADA EMS Implementation**
- **SCADA OTN Implementation**
- **Service and Maintenance 24/7/365**



Fiber Optic Networks

- **FO Infrastructure design**
- **Acquisition and permissions**
- **Supply of FO & OPGW cables, equipment and accessories**
- **Construction works**
- **Assembling**
- **Testing**
- **Service and Maintenance 24/7/365**





Fiber Optic Networks

SCADA EMS/OTN IMPLEMENTATION

- **Design & preparing of project documentation including:**
 - OPGW, ADSS, OPAC, Underground Fiber Optic Communication Lines,
 - SDH Network,
 - Radio Transmission Network,
 - VoIP Communication (incl. Long Term Recording),
 - Backup Dispatch Center,
 - Fire Alarm & Suppression System,
 - Video Surveillance & Access Control Systems,
 - HVAC,
 - Energy Power System (incl. Power Substation, Reserve Energy Power System, Distribution, UPS, AC/DC Power Supply System, Diesel Generator)

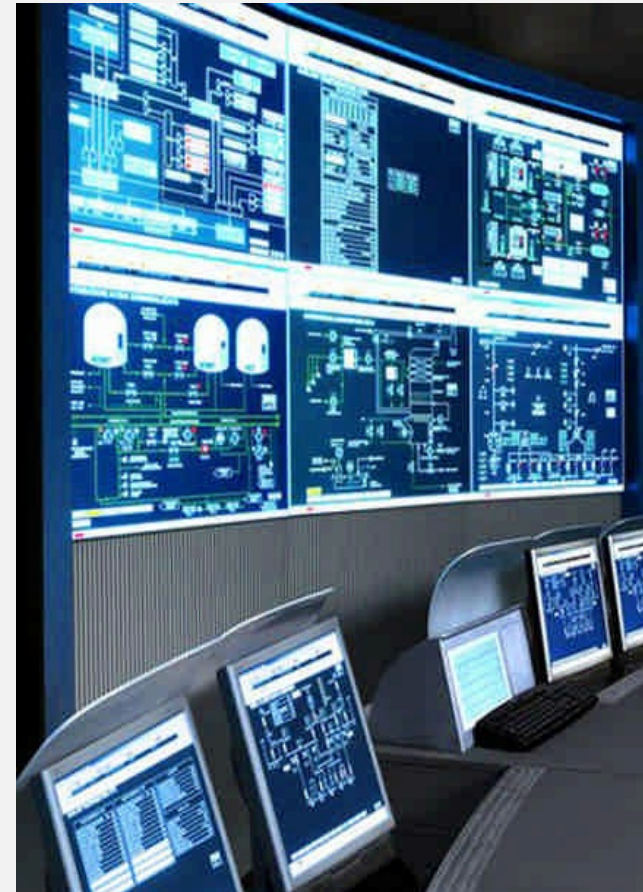




Fiber Optic Networks

SCADA EMS/OTN IMPLEMENTATION

- **Supply of all necessary hardware, equipment, materials & tools for:**
 - **OPGW, ADSS, OPAC, Underground Fiber Optic Communication Lines,**
 - **SDH Network,**
 - **Radio Transmission Network,**
 - **VoIP Communication (incl. Long Term Recording),**
 - **Backup Dispatch Center,**
 - **Fire Alarm & Suppression System,**
 - **Video Surveillance & Access Control Systems,**
 - **HVAC**
 - **Energy Power System (incl. Power Substation, Reserve Energy Power System, Distribution, UPS, AC/DC Power Supply System, Diesel Generator)**
 - **Maintenance & Service 24/7/365**

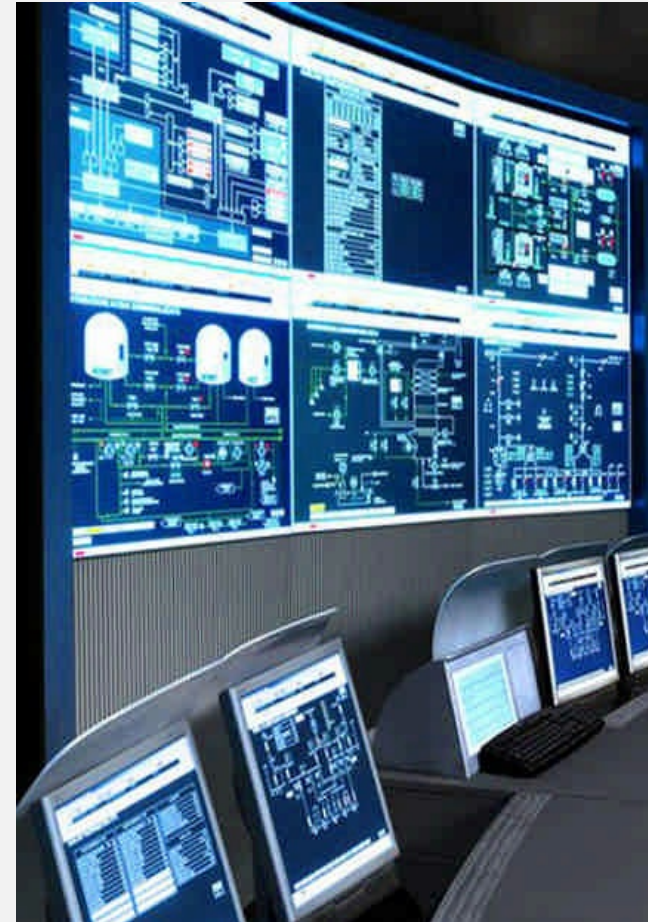




Fiber Optic Networks

SCADA EMS/OTN IMPLEMENTATION

- **Construction, deploying, implementation & commissioning of:**
 - **OPGW, ADSS, OPAC, Underground Fiber Optic Communication Lines,**
 - **SDH Network,**
 - **Radio Transmission Network**
 - **VoIP Communication (incl. Long Term Recording),**
 - **Backup Dispatch Center,**
 - **Fire Alarm & Suppression System,**
 - **Video Surveillance & Access Control Systems,**
 - **HVAC,**
 - **Energy Power System (incl. Power Substation, Reserve Energy Power System, Distribution, UPS, AC/DC Power Supply System, Diesel Generator)**

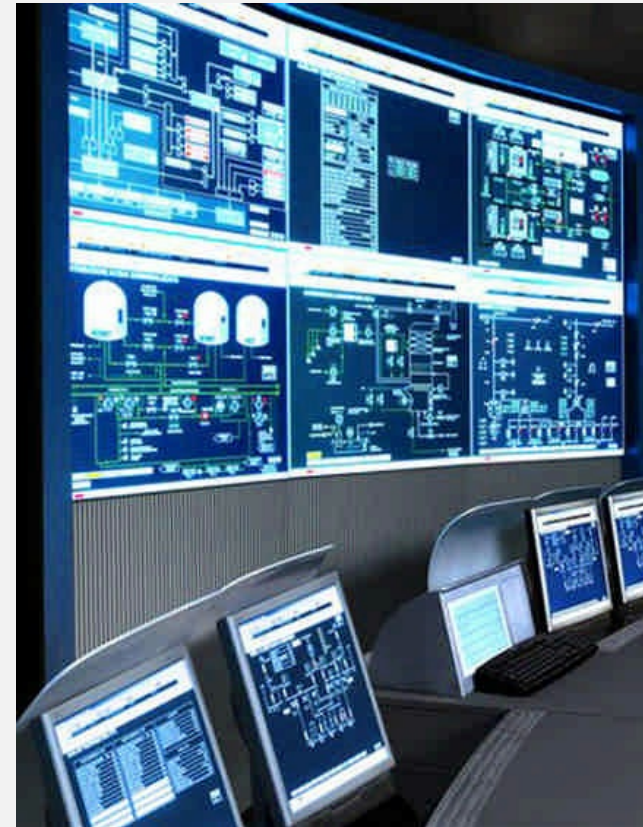




Fiber Optic Networks

SCADA EMS/OTN IMPLEMENTATION

- **Maintenance SLA 24/7/365 of:**
 - OPGW, ADSS, OPAC, Underground Fiber Optic Communication Lines,
 - SDH Network,
 - Radio Transmission Network,
 - VoIP Communication (incl. Long Term Recording),
 - Fire Alarm & Suppression System,
 - Video Surveillance & Access Control Systems,
 - HVAC
 - Energy Power System (incl. Power Substation, Reserve Energy Power System, Distribution, UPS, AC/DC Power Supply System, Diesel Generator)





Energy Sector

- **Solar power systems**
- **Solar water heaters**
- **Heat pumps**
- **High/Low Voltage Transmission Lines design and construction**
- **Power Generators, UPS, Batteries**
- **Simulation, design, delivery and deployment of lighting systems**
- **Lightning Protection and Grounding systems design, supply & implementation**
- **Service & Maintenance 24/7/365**



Energy Sector

STRING & MICRO INVERTER BASED SOLAR POWER STATIONS BOTH ROOFTOP & GROUND BASED

- Site survey
- Design
- Supply of equipment and materials
- I&C
- Service & maintenance 24/7/365





Energy Sector

MICRO INVERTER BASED SOLAR PHOTOVOLTAIC POWER SYSTEM

- Payback after 6 - 7 years
- Silicon Valley based 3-phase microinverter technology (protected by 44 patents)
- World rank top 5 «A» grade PV panels
- 20% more energy harvest than “String” system
- Per PV panel remote monitoring and reporting system
- Service & maintenance 24/7/365

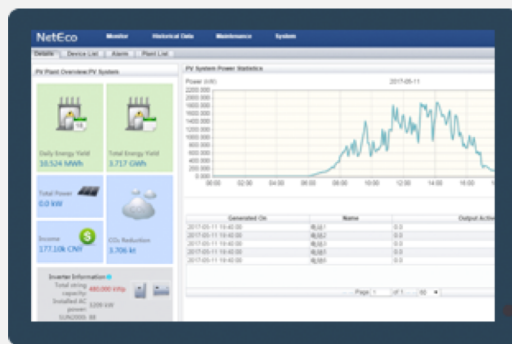




Energy Sector

STRING INVERTER BASED SOLAR PHOTOVOLTAIC POWER SYSTEM

- Payback after 5 - 6 years
- Based on HUAWEI Smart PV String Inverters (98% EU effectivity)
- World rank top 5 «A» grade PV panels
- Per “String” remote monitoring and reporting system
- Service & maintenance 24/7/365

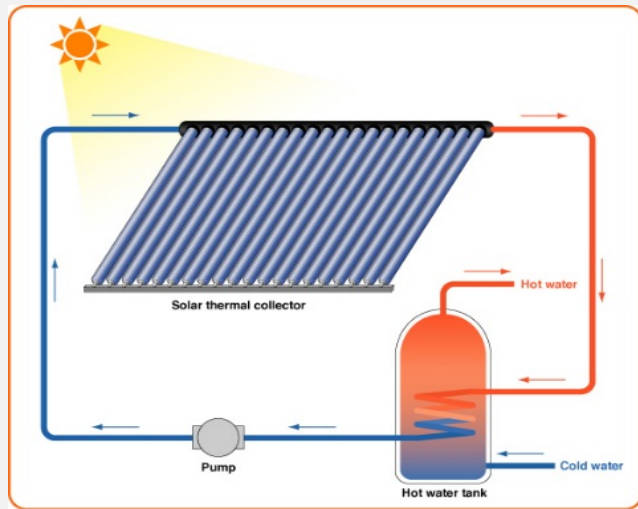




Energy Sector

SOLAR WATER HEATER SYSTEMS

- Site survey
- Design
- Supply of equipment and materials
- I&C
- Service & maintenance 24/7/365





Cyber Security

Solutions by:



CYBERARK

Company provides full scope of hardware and software solutions for big middle and small enterprises based on broad and exclusive portfolio.

Experience and trust:

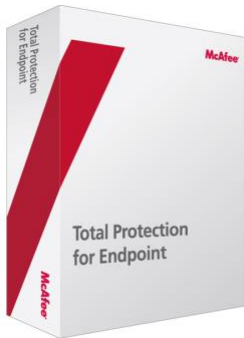
More than four years of successful cooperation on Armenian and Georgian markets.



Cyber Security



Solution types



- Data Loss Prevention (DLP)
- Web and Email Security
- Advanced Antivirus Protection
- Intrusion prevention and Dos/DDos protection (NextGen Firewalls, IPS/IDS)
- Mobile device security
- Risk analyses and audit
- Security Log and Event Management (SIEM)
- Database Security
- Application and change control



Cyber Security



Solution types



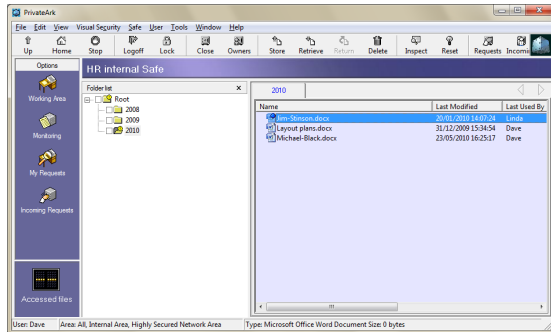
- File Storage transparent encryption
- Transparent encryption for Databases
- L2 Network traffic encryption and tunneling
- Certificate of Authority Centers
- Two factor authentication solutions
- Hardware Security Modules



Cyber Security



Solution Types



- Privileged Identity Management (Control of administrative accounts)
- Administrative session recording and evidence storing
- Unique Digital Vault solutions – Data storages with advanced security



MAJOR CUSTOMERS

Mobile Operators

- Orange Armenia CJSC (Ucom LLC)
- K-Telecom CJSC (VivaCell-MTS)
- Armentel CJSC (Beeline Armenia)
- Mobitel LLC (Beeline Georgia)
- Korek Telecom (Iraq)
- Karabakh Telecom CJSC

ISPs

- Rostelecom OJSC
- Ucom LLC
- FiberNet Communications LLC
- Harmony

Enterprises

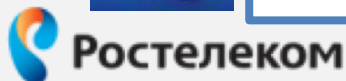
- Grand Holding
- Pepsi Co
- EKENG

Banks

- Central Bank of Armenia
- HSBC Bank Armenia CJSC
- Converse Bank CJSC
- Areximbank – Gazprombank Group CJSC
- Armenian Card CJSC
- Araratbank OJSC
- Armeconombank OJSC
- Liberty, Halyk, VTB Banks Georgia
- UCF Processing Georgia

Other companies

- South Caucasus Railway CJSC
- Electric Networks of Armenia CJSC
- ArmATS (ARMAERONAVIGATION)
- ArmRosGazprom CJSC
- Alstom (France)
- Parson Government Services Inc.
- Energy Power System Operator



PARTNERS



NOKIA

SIEMENS



CORNING

Narada



OUR EXPERIENCE

2009-2018 Orange Armenia (Ucom)

• Site acquisition	140 sites
• Design and project documentation	387 projects
• Site construction and Rollout	217 sites
• Power line design, construction, I&C	167 lines
• BTS implementation	331 sites
• BTS upgrade	453 sites
• MW transmission equipment implementation	390 links
• MW links SWAP	115 links
• Telecom power systems	110 sites
• Fiber optic deployment	50,8 km
• EMC calculation	104 projects
• Drive test	500 sites
• Implementation of Hybrid Solar Power System	2 sites
• Mobile sites supply	2 sites
• Shelter modification	10 sites
• Small Cells sites construction	21 sites
• BS Technical Maintenance 24/7/365	2009-2017
• FO Network Technical Maintenance 24/7/365	2009-2017
• Data-center Technical Maintenance 24/7/365	2009-2018



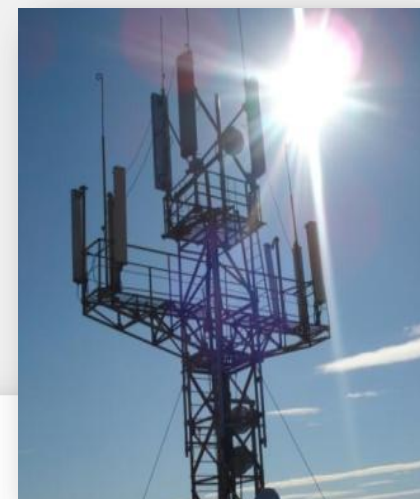
- Site acquisition 120 sites
- Design and project documentation 120 sites
- Sites construction more than 410 sites
- Implementation and commissioning of
 - Alcatel telecom equipment 220 sites
 - Huawei telecom equipment 170 sites
 - Ericsson telecom equipment 500 sites
- Fully loaded shelters supply 10
- FO network deployment 350 km
- BS Technical Maintenance 24/7/365 2017-2018
- FO Network Technical Maintenance 24/7/365 2009-2018
- Service Officec Technical Maintenance 24/7/365 2017-2018
- Data-center Technical Maintenance 24/7/365 2017-2018
- Fiber optic infrastructure construction in Yerevan underground, design and project documentation
- Sites power supply systems installation and construction works
- Supply of materials for masts and towers construction
- Implementation of Wi-Fi connection projects in Yerevan, Kotayk





2005-2018 ArmenTel CJSC (VEON)

- Site acquisition 200
- Design and project documentation 225 sites
- Sites construction 200
- Implementation and comissioning of 3G and LTE equipment 200 sites
- MW transmission equipment implementation 70
- Alarm control systems installation 300
- Automatic fire-prevention FM 200 systems service & maintenance for Datacenters and Call Centers
- Supply of spare parts for Fire Alarm Systems in 92 mobile sites and Service Centers
- Supply of passive optical materials
- Supply of Cables and Materials
- Civil maintenance works and Poles/Masts fixation to vertical position in 620 Base Stations
- MSC Yerevan facility construction
- MSC Kapan facility construction

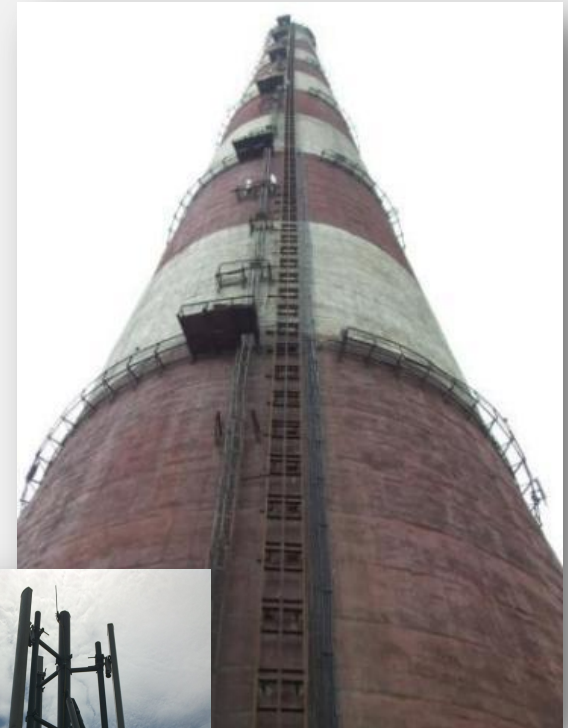




2009-2018

Beeline Georgia (MOBITEL LLC)

- Site acquisition more than 160
- Design and project documentation more than 160
- Sites construction more than 160
- LTE equipment integration more than 160
- MW equipment installation more than 160
- Unique towers design
- Poles and shelters supply, manufacturing and installation
- Alcatel BTS I&C
- Alcatel MW links I&C
- Air-conditioning systems implementation
- Grounding and lightening systems implementation



KARABAKH TELECOM CJSC

2010

- **More than 60 km length fiber optic infrastructure supply and construction including design and project documentation**

2010 - 2012

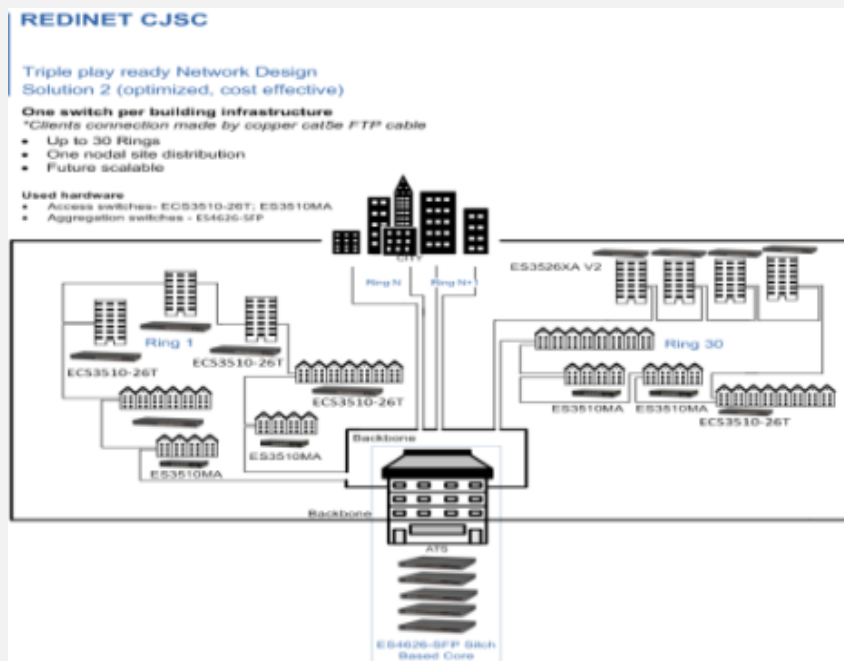
- **More than 60 km length fiber optic infrastructure maintenance**



KARABAKH TELECOM CJSC

2011

- Design, supply & deployment of FTTB architecture for citywide residential “triple play” network in Stepanakert



KARABAKH TELECOM CJSC

2013-2018

- **Supply and project management of 100 km Fiber Optic Cable installation**
- **Supply and project management of implementation of 1300 FO L2 switches**



SOUTH CAUCASUS RAILWAY CJSC

2011

- **Repair of railway bridges**
- **Inspection for detection of defects provision of technical expertise**
- **Metallic surface cleaning by means of sand-blasting**

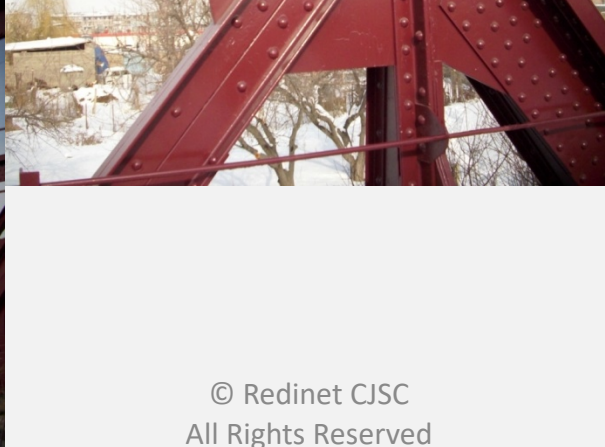


SOUTH CAUCASUS RAILWAY CJSC

BRIDGES REPAIRING

2011

- Recovery of defective sections
- Anti-corrosion painting of steel constructions



SOUTH CAUCASUS RAILWAY CJSC

2011 Yerevan - Ayrum

- Design, supply and implementation of backup link for telecom infrastructure

2012

- Unique design and supply of anchoring clamps for railway poles
- Supply of telecom grade, deep-discharge batteries (Energysys)

2014-2015

- Supply, Installation and 24/7/365 maintenance of Fire Alarm System



ACCESS ROADS FOR RAKMINERALS

2013-2014



KOREK TELECOM (IRAQ)

2011-2012

- 40 mobile cellss design, supply and assembling



KOREK TELECOM (IRAQ)

2013

- More than 160 gensets supply and installation



ALSTOM (FRANCE)

2012-2013

- **Design and project documentation**
- **Installation more than 100km OPGW**
- **Dismantling of existing earth wire and transportation to customer**
- **Optical splicing and measurements**
- **Integration and commissioning**



ERICSSON

2012 – 2013

- **More than 450 sites surveys reports**
- **More than 85 sites SWAP**
- **Materials supply**
- **Warehouse management**
- **As-built documentation**



PARSONS GOVERNMENT SERVICES INTERNATIONAL INC.

2013 -2014

10 unique sites construction, including:

- Design and project documentation
- Towers supply and erection
- Power supply system supply and installation
- Backup system supply and installation
- 25 existing sites upgrade



ACCESS ROADS FOR PARSONS

2013 -2014



CAUCASUS ONLINE (GEORGIA)

2013 -2015

- **Supply of 5000 pcs of Edge-Core L2 managed switches for Citywide Area Network for provision of «Triple Play» services**



Access Wired



Distribution Networks



Core Networks

HUAWEI

MAGTICOM SWAP PROJECT(GEORGIA)

2014 -2015



Implementation of the equipment for SWAP project of Magticom mobile network in Georgia:

- **SWAP more than 45 Micro Sites for Magticom GSM network**
- **SWAP more than 55 Macro Sites for Magticom GSM network**

ARMAERONAVIGATION

2014-2018

- **Supply and installation of Diesel Generators**
- **Supply and installation of Batteries**
- **Supply, installation, commissioning of two 15KVA online UPS systems, training of staff**
- **Supply and installation of Non-Rechargeable & Galvanic Batteries**
- **Microwave (7GHz) P3D modernization, new radio stations installation and commissioning.**
- **Redundant Data Center construction, equipment installation, commissioning**
- **DVOR-DME equipment dismantling, installation, commissioning**
- **Deployment of 8km FO cable and installation of FO infrastructure in the perimeter of the runway at the «Zvartnots» airport**
- **Construction works of ILS/DME navigation system in «Shirak» airport**
- **Dismantling, moving and installation of CD-80 system**



TELEVISION AND RADIO BROADCASTING NETWORK OF ARMENIA

2014-2018

- **Manufacturing of outdoor cabinets for telecommunication equipment**
- **Manufacturing of TV towers**



ARMENIA MARRIOTT HOTEL YEREVAN

2014-2018

- System platform upgrade to 4760 R5.2 and latest SW release R10.1
- Subscriber capacity extension with supply of analogue ports equipment
- Provision of Licenses, telephone subsets and materials
- Solution Premier Service (SPS)
- Fire Alarm System Recovery



CARREFOUR HYPERMARKET ARMENIA

2014

- Supply and installation of Alcatel-Lucent OmniPCX Office system for MAF Carrefour Hypermarket in Yerevan Mall





2015 - 2016

Complex Energy Saving Measures Solutions

- **Prisoner's Hospital**
- **Kosh Penitentiary**
- **Sevan Penitentiary**
- **Nubarashen Penitentiary**





**2016
LED Lights**



Armavir Penitentiary – cost effective LED lighting systems installation

- **1,680 LED bulbs (40W)**
- **137 outdoor LED luminaries (120W)**
- **8 light projectors (200W)**

ENERGY SAVING MEASURES



ARMENIA RENEWABLE RESOURCES AND ENERGY EFFICIENCY FUND

2016



ARMAVIR PENITENTIARY – 100kW SYSTEM POWERED BY APSYSTEMS MICRO-INVERTERS

2016

SOLAR WATER HEATER SYSTEM INSTALLED

- **Kosh Penitentiary - 160kW system with 60 Tubes is Installed**
- **Sevan Penitentiary - 80kW system with 33 Tubes is Installed**
- **Nubarashen Penitentiary - 72kW system with 30 Tubes is installed**



CORNET-AM

2008

- **WiMAX network implementation and deployment including design, supply, manufacturing, construction, TI and integration**

2009-2010

- **Fiber optic infrastructure design & construction**
- **EMC calculations**



AATVC

2008

- **WIMAX network implementation and deployment**

ICON

2008-2009

Communications

- **Sites unique design, construction**
- **Alcatel BTS, MW links installations and commissioning**
- **EMC calculations projects**



ArmRosgazprom

2008

- **Design of shelters**
- **Supply of 20 shelters**
- **Complete assembly and installation**



Rostelecom

2009-2011

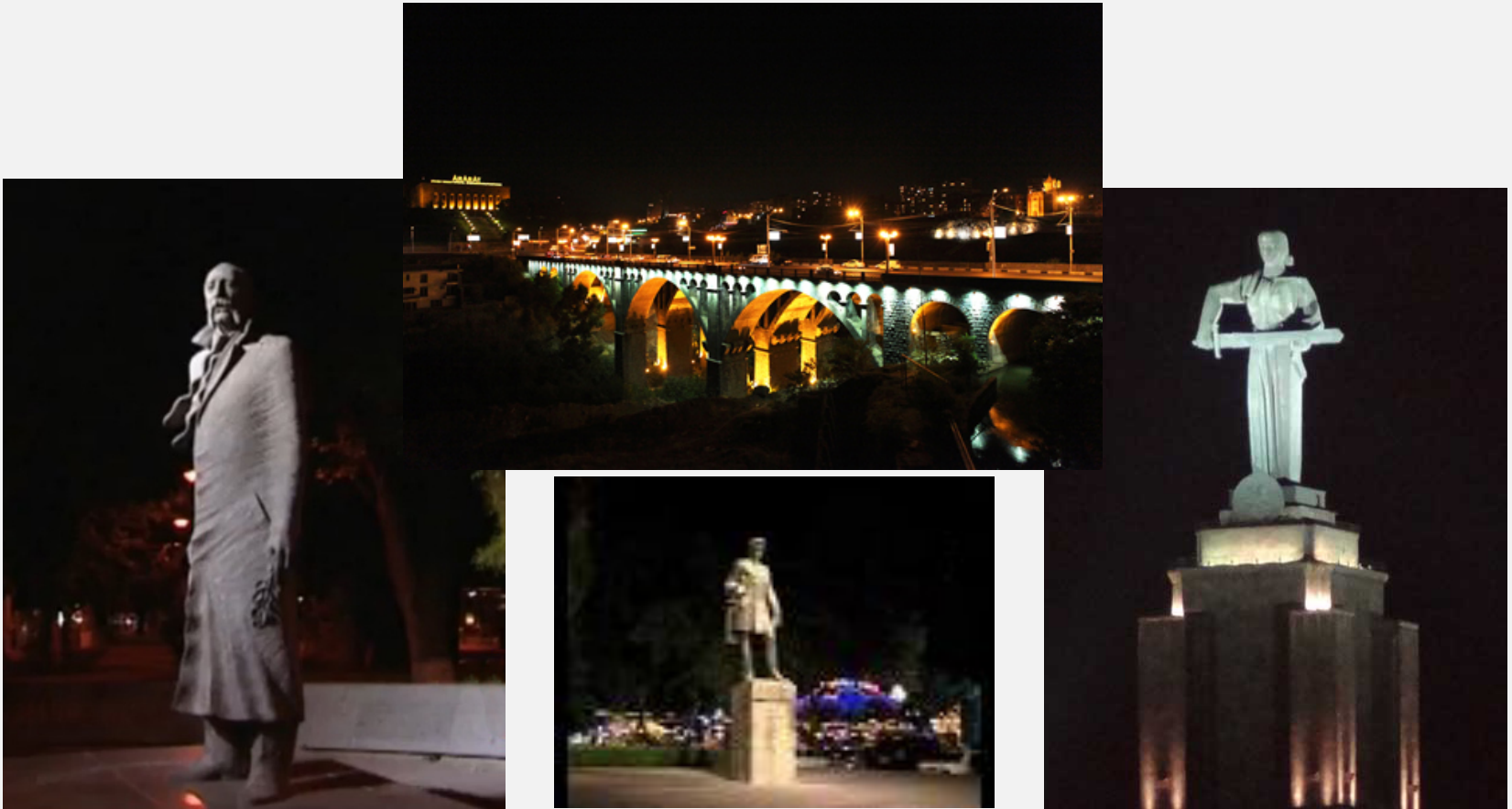
- **More than 30 km FO infrastructure design, construction and maintenance**
- **5 fully loaded shelters construction**

ARMENIAN AIRPORT STAINED-GLASS RECOVERY



YEREVAN MUNICIPALITY LIGHTING SYSTEM DEPLOYMENT

- Bridges, roads Lighting
- Monuments background Lighting



THANKS FOR YOUR ATTENTION