SUNSIS®

'Saving the Future'

www.sunsis.co

We reliably manage Solar Power Plants of 159 MW at 27 fields in 13 cities in Turkey and abroad.

Established in 2016, Sunsis offers engineering, maintenance, monitoring and analysis services for the solar power plants located in Turkey and abroad.

SUNSiS®

'Saving the Future'

21st century, the solar age

The 19th century being referred to as the coal age or the 20th century as the petroleum age, Sunsis believes that the 21st century will be referred to as the solar age. Established with this belief, Sunsis manages the production process based on the feedbacks it receives from the equipment at the solar power plants.

It instantly identifies all the unfavourable circumstances which may affect the performance of the plant.

It responds to the problems identified and performs periodical maintenance, and thus enables the plant to generate power with its highest performance.

Just leave the management of your plant to Sunsis and focus on your other investments.

MONITORING AND ANALYSIS

MAINTENANCE

OPERATION MANAGEMENT

AUTHORIZED TECHNICAL SERVICE

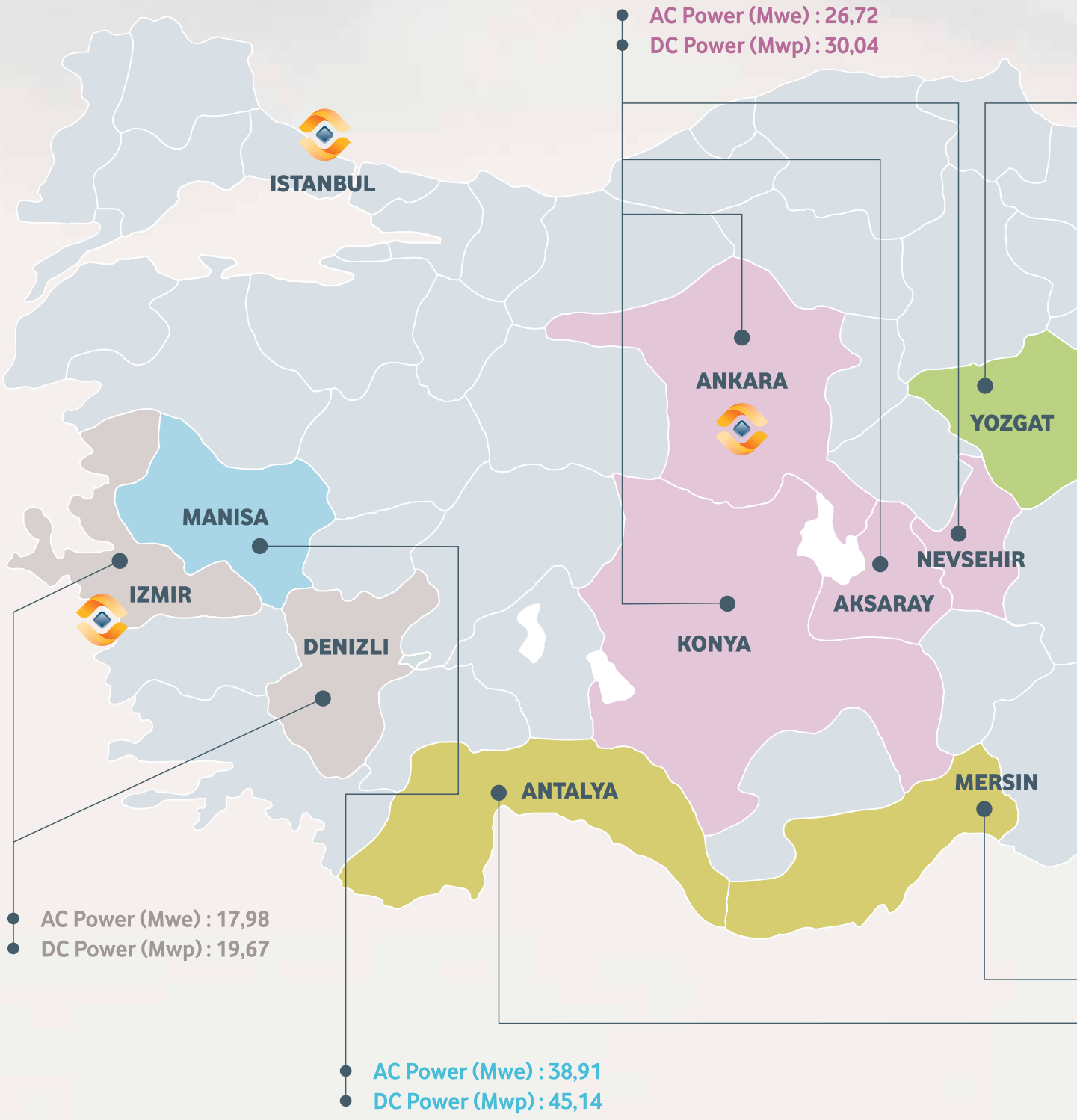
PERFORMANCE REVIEW

SECURITY SURVEILLANCE SERVICES

Regional Organization

We actively offer services in 5 regions with 42 employees.

Head Office	: 5 Engineers, 4 Administrative Staff Members, 1 CPA, 2 Finance Specialists, 1 Budget Specialists, 6 Accountants, 3 CCTV Operators	22
Field	: 5 Engineers, 15 Technicians	20
	TOTAL	42



AC Power (Mwe) : 18,46
DC Power (Mwp) : 20,76

AC Power (Mwe) : 16,71
DC Power (Mwp) : 19,71

REGION	AC POWER (Mwe)	DC POWER (MWp)
Manisa	38,91	45,14
Izmir, Denizli	17,98	19,67
Konya, Aksaray, Nevsehir, Ankara	26,72	30,04
Yozgat, Sivas	18,46	20,76
Kahramanmaras, Mersin, Antalya	16,71	19,71
UKRAINE	19,98	23,69
TOTAL	**138,76**	**159,01**

Monitoring and Analysis

Instant production-consumption monitoring, efficiency analysis and data reporting.

Thanks to its experienced technical personnel specialized in their fields as well as the analysis program it has developed, Sunsis provides all the investors -no manner where they are located- with the ability to:

- Access to immediate data of the plant,
- Review the return on production,
- Analyse production values of the plant and compare the same with the production values expected,
- Assess the plant performanc,
- Instantly identify the malfunctions at the plant,
- Create periodical (daily, monthly, yearly) reports based upon the analyses made,

Maintenance

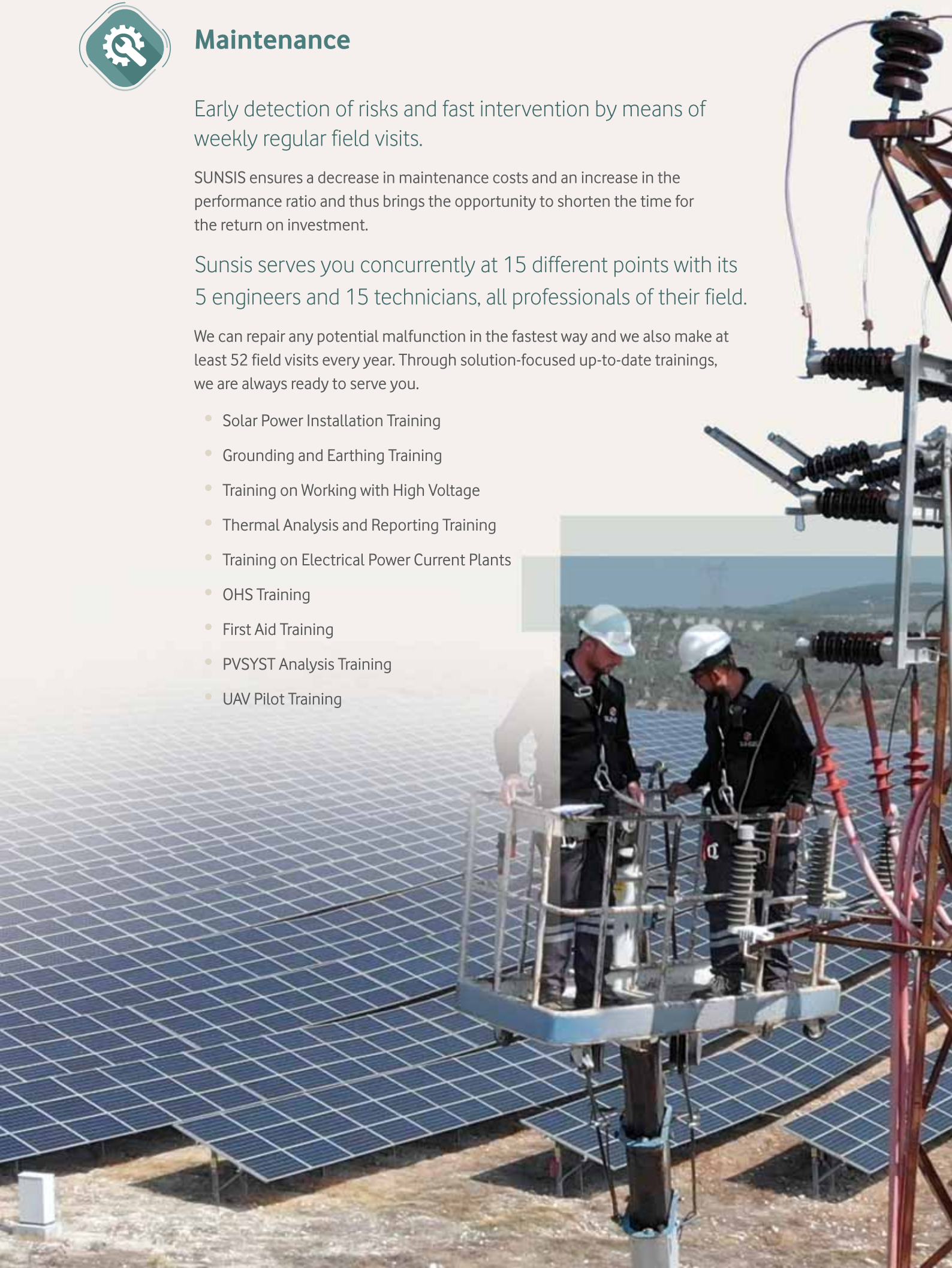
Early detection of risks and fast intervention by means of weekly regular field visits.

SUNSIS ensures a decrease in maintenance costs and an increase in the performance ratio and thus brings the opportunity to shorten the time for the return on investment.

Sunsis serves you concurrently at 15 different points with its 5 engineers and 15 technicians, all professionals of their field.

We can repair any potential malfunction in the fastest way and we also make at least 52 field visits every year. Through solution-focused up-to-date trainings, we are always ready to serve you.

- Solar Power Installation Training
- Grounding and Earthing Training
- Training on Working with High Voltage
- Thermal Analysis and Reporting Training
- Training on Electrical Power Current Plants
- OHS Training
- First Aid Training
- PVSYST Analysis Training
- UAV Pilot Training



Services for detection and maintenance activities enhancing the efficiency of the plant

Troubleshooting:	The malfunctions adversely affecting the production at the plant are identified and notified to the field personnel.
Protective Maintenance:	The equipment requiring control at the plant are identified, and weekly, monthly and yearly maintenance plan calendars are prepared.
Predictive Maintenance:	The data obtained through the system and the previous malfunctions are assessed, and any potential malfunction is attended prior to occurrence.
Seasonal Maintenance:	The electrical and mechanical equipment at the plant are analysed and maintained on the basis of the seasonal conditions.
Stock Management:	The spare parts required for minimizing the production loss are identified, controlled and monitored.
Performance Review:	The plant performance is reported by means of testing PV module degradation, testing PV module loss due to impurities, and making I-V curve analyses.

Troubleshooting in 24 hours and responding to the problem in 48 hours.

At least 52 field visits every year with weekly and monthly maintenance.

- Periodical static maintenance
- Stock management support with the products in the stocks of Sunsis.
- Grass removal, snow removal and module cleaning services.

Operation Management

Insurance follow-up, warranty management, stock control and official authority procedures.

- Insurance follow-up: Issuing insurance policies via insurance companies, making applications to the insurance companies in case of malfunctions and losses covered by the insurance, preparing reports and presenting the same to the experts in the insurance process.
- Follow-up of invoicing, collection procedures, amounts to be paid to EDAS/TEDAS.
- Warranty process management: Contacting the authorized services of the malfunctioning products and preparing reports on the causes of the malfunctions, and by means of such reports, arranging the replacement of the malfunctioning products covered by insurance in case of the manufacturer's defect.
- Stock control: Preparing the plant spare part list and managing the procurement and logistics processes; providing spare part support as needed through the pool stock management.
- Making suggestions and preparing reports on occupational health and safety.
- Power control at consumption plants as per the regulations.

Authorized Technical Servic

Response to malfunctions with AE-Refusol guarantee

These are the services through which, for products and services under warranty, malfunctions are responded in a timely manner and the necessary actions are taken.

- Response to software malfunctions of the system without replacement of any hardware item.
- Response to software and hardware malfunctions on the field within 48 hours following receipt of notice of the malfunction.
- In cases where malfunctioning inverter is sent to our service centre, repair within 24 hours following receipt of the same by our centre.

Advanced Energy REFUsol

Performance Review

Thermal mapping of the field by means of thermal drone, troubleshooting and I-V analysis

- Thermal analysis of field panels and junction boxes by means of a thermal camera.
- Performance measurement through I-V.
- PV module degradation test.
- Test on PV module loss due to impurities.
- PV module shading analysis.

Security Surveillance Services

Installation and surveillance services for field security

- Installation and commissioning of closed circuit camera system.
- Monitoring the field/plant area by means of closed circuit camera system.
- Informing the field supervisor and security forces in case of exposure of the plant area to external risks and threats.

Our Service Packages

Solar power, a renewable energy resource fitting to our ecosystem, is spreading rapidly in our country as well just as in the entire world.

Professional companies must be assigned absolutely for the protection and operation of these valuable investments made with high costs.

Hardware

- 1 Thermal Drone
- 1 I-V Test Device
- 1 Thermal Camera
- 2 Cable Test Devices
- 5 Grounding Measurement Devices
- 21 Mobile Phones with Thermal Camera
- 21 Clamp Meters
- 21 Infrared Thermometers
- 21 Fully-Equipped Tool Boxes
- 21 Computers
- 21 Vehicles (4 x 4 Vehicle Tracking System)
- 4 Workstations
- 12 User Monitors
- 6 Video Walls

OUR SERVICES	BASIC PACKAGE	STANDART PACKAGE	PREMIUM PACKAGE
Plant performance analysis	●	●	●
Performance reporting	●	●	●
Production forecast and analysis	○	●	●
Network analysis	○	●	●
Troubleshooting	○	●	●
Predictive maintenance notification	○	●	●
Maintenance planning	○	●	●
Technical service management	○	●	●
Technical service reporting	○	●	●
Spare part management	○	●	●
Module cleaning planning	○	●	●
Field visits	○	●	●
Reporting of plant-related activities and remotely-monitored data	○	●	●
Planning of maintenance and repair activities	○	○	●
Predictive maintenance planning	○	○	●
Preventive and corrective maintenance	○	○	●
Planned control of inverter, panel and transformer junctions by means of thermal camera	○	○	●
Spare part management and stock control	○	○	●
Coordination with network operators (EDAS/TEDAS)	○	○	●
Follow up of invoicing, collection procedures, amounts to be paid to EDAS/TEDAS	○	○	●
Management of procedures related to EDAS/TEDAS/BDDK (Banking Regulation and Supervision Agency)	○	○	●
Management of warranty procedures	○	○	●
Control of insurance contracts and consultancy during contract preparation process	○	○	●
Consultancy on occupational health and safety	○	○	●

Package Services ● Out-of-Package Optional Services ○

ADDITIONAL SERVICES			
Thermal control of PV Modules	○	○	○
Performing grounding measurement	○	○	○
Performing commissioning tests	○	○	○
Analysing project design sheets, making necessary suggestions and revisions	○	○	○
Offering quality control service at the plant construction stage	○	○	○
Installing and commissioning the monitoring system	○	○	○
Supplying the 3G data link used for data communication and following up the invoice payments	○	○	○
Module cleaning	○	○	○
Grass removal	○	○	○
Periodical control of the fire-fighting system	○	○	○
I-V Test	○	○	○

Our Projects

MANISA - ADALA - BIAXIAL SOLAR TRACKING

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant of fixed and biaxial solar tracking with 223 string inverters, located in Salihli, Manisa.

MANISA - DOMBAYLI

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant consisting of 352 string inverters, located in Salihli, Manisa. The plant is one of the largest Solar Power Plants installed at a single site in Turkey.

MANISA - KULA - ESENYAZI

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant consisting of 88 string inverters, located in Esenyazi quarters of Kula, Manisa.

MANISA - KULA - BASIBUYUK

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant consisting of 198 string inverters, located in Basibuyuk quarters of Kula, Manisa.

MANISA - SALIHLI

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant consisting of 42 string inverters, located in Salihli, Manisa.

MANISA - GORDES

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant consisting of 25 string inverters, located in Gördes, Manisa.

IZMIR - TIRE

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant consisting of 176 string inverters, located in Tire, Izmir.

DENIZLI - GUNEY

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant consisting of 60 string inverters, located in Guney, Denizli.

MERSIN - YALAMIK

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant consisting of 21 central inverters, located in Tarsus, Mersin.

KONYA - YUNAK

Sunsis has undertaken monitoring, maintenance and repair services of the 2MW Solar Power Plant in Konya. In this extent, the plant located in Yunak district and consisting of 66 string inverters has been integrated to the SCADA system on October 21, 2016 and carries on its production activities under the guarantee of Sunsis.

KONYA - ILGIN

Sunsis has undertaken monitoring, maintenance and repair services of the 4MW Solar Power Plant in Konya. In this extent, the plant located in Ilgın district and consisting of 88 string inverters has been integrated to the SCADA system on October 21, 2016 and carries on its production activities under the guarantee of Sunsis.

KONYA - ALTINEKIN

Sunsis has undertaken monitoring, maintenance and repair services of a plant consisting of 88 string inverters, located in Konya. The plant has been integrated to the SCADA system on November 7, 2016 and carries on its production activities under the guarantee of Sunsis.

AKSARAY - UNIAXIAL SOLAR TRACKING

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant of uniaxial solar tracking with 50 string inverters, located in Agzikarahan, Aksaray.

SIVAS - IMAMDAMI

Sunsis has undertaken monitoring, maintenance and repair services of a plant consisting of 18 central inverters, located in Sivas. The plant has been integrated to the SCADA system on November 7, 2016 and carries on its production activities under the guarantee of Sunsis.

SIVAS - YAGDONDURAN

Sunsis has undertaken monitoring, maintenance and repair services of a plant consisting of 6 central inverters, located in Sivas. The plant has been integrated to the SCADA system on November 7, 2016 and carries on its production activities under the guarantee of Sunsis.

SIVAS - YASSICABEL

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant consisting of 80 string inverters, located in Yassicabel, Sivas.

KAHRAMANMARAS - YARBASI

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant consisting of 42 string inverters, located in Yarbasi, Kahramanmaras.

KAHRAMANMARAS - YENIYAPAN

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant consisting of 46 string inverters, located in Yeniyapan, Kahramanmaras.

NEVSEHIR - CARDAK

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant consisting of 59 string inverters, located in Cardak, Nevsehir.

NEVSEHIR - ALADDIN

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant consisting of 66 string inverters, located in Aladdin, Nevsehir.

NEVSEHIR - GUVERCINLIK

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant consisting of 100 string inverters, located in Guvercinlik, Nevsehir.

YOZGAT - SIRCALI

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant consisting of 44 string inverters, located in Sircali, Yozgat.

YOZGAT - BEKTASLI

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant consisting of 107 string inverters, located in Bektasli, Yozgat.

ANKARA - SEREFLIKOCHISAR - 1

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant consisting of 75 string inverters, located in Sereflikochisar, Ankara.

ANKARA - SEREFLIKOCHISAR - 2

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant consisting of 100 string inverters, located in Şereflikoçhisar, Ankara.

ANTALYA - AKSEKI

Sunsis has entered into a contract for providing monitoring, maintenance and repair services for a plant with a power of 8.12 MW and consisting of 92 string inverters, located in Akseki, Antalya.

UKRAINE

Sunsis has undertaken and carries on the management of a plant in Ukraine consisting of 408 string inverters as well as the performance of the plant's monitoring, maintenance and repair services.

Sunsis performs maintenance and repair activities of a total of 551,404 panels, 45 centres and 2,913 string inverters in Turkey and abroad

SUNSİS®

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