



**TEMSAN**  
TURKISH ELECTROMECHANIC INDUSTRIES CO.



**REPUBLIC OF TURKEY  
MINISTRY OF ENERGY AND  
NATURAL RESOURCES**

[www.temsan.gov.tr](http://www.temsan.gov.tr)





# Mission Vision

To operate in activities setting added value to the national economy in the energy sector.

To be a global brand in its sector.

# TEMSAN

It is affiliated to Ministry of Energy and Natural Resources and is State Owned Enterprise (The Decree of the Council of Ministers dated 13.11.1975 and numbered 7/10907)

General Directorate of TEMSAN has been providing service in its premises at Yenimahalle district in ANKARA since 1985.

## Ankara Factory

Ankara Factory is located near premises of General Directorate of TEMSAN.

98.349 m<sup>2</sup> Area

25.889 m<sup>2</sup> Closed Area

16.000 m<sup>2</sup> Production Hall



## Diyarbakır Factory

Diyarbakır Factory consisting of welded assembly hall, manufacturing hall for turbine and manufacturing hall for generator was established in 1982.

30.000 m<sup>2</sup> Closed Area

13.000 m<sup>2</sup> Production Hall

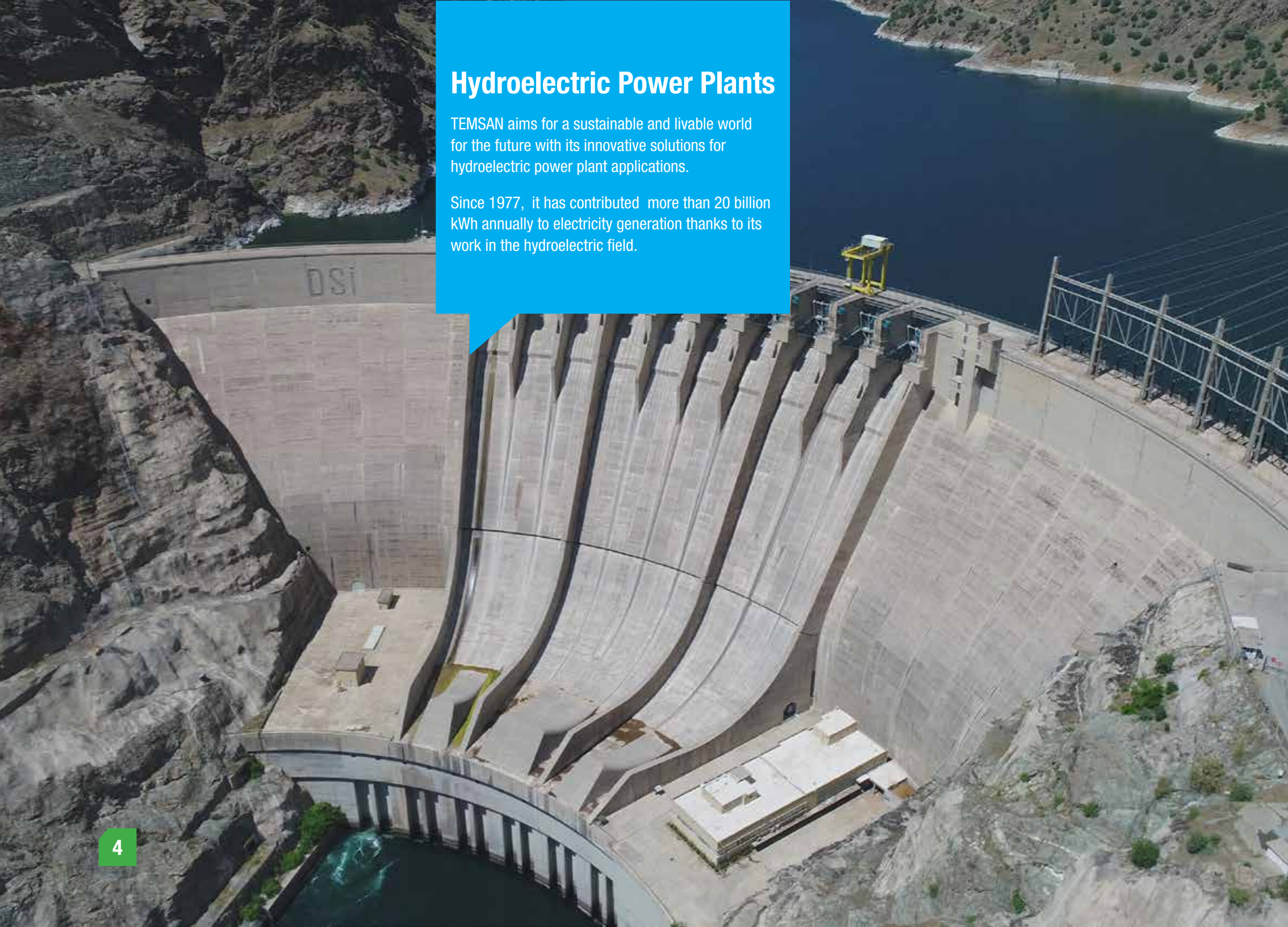
100 MW Annual Production Capacity



# Hydroelectric Power Plants

TEMSAN aims for a sustainable and livable world for the future with its innovative solutions for hydroelectric power plant applications.

Since 1977, it has contributed more than 20 billion kWh annually to electricity generation thanks to its work in the hydroelectric field.





# ENERGY SYSTEMS AND MISCELLANEOUS INDUSTRY ACTIVITIES



- › Manufacturing all kinds of turbines, generators and transformers
- › Manufacturing all kinds of pressure boilers and tanks as well as steam boilers
- › Preparing construction projects and contracting
- › Steel construction works and building machinery
- › Project design, manufacturing and installation of energy transmission lines and similar equipment
- › Project design and installation of all kinds of automation systems on turnkey basis
- › Project design of switchgear and their equipment and fields on turnkey basis
- › Manufacturing electric motors and pumps
- › Manufacturing and trading of all kinds of equipment for power generation, transmission and distribution
- › Conducting commercial activities for the needs of the power plants such as project design and feasibility studies for power plants, manufacturing and provision of the equipment needed, erection of such plants, rendering consultancy and supervision services, testing commissioning and all kinds of maintenance, repair and rehabilitation works
- › Contracting in goods, services, consultancy and construction projects for power generation, transmission, storage and distribution plants and industrial plants and carrying out testing, R&D and M&D activities for equipment and systems used in these plants
- › Carrying out project approval and acceptance procedures on behalf of the Ministry for the licensed and unlicensed power generation plants depending on the power output and type determined by the Ministry
- › Establishing accredited testing laboratories and rendering laboratory services needed in energy industry
- › Preparing reports and conformity certificates for tested and manufactured products and rendering consultancy, counselling, supervision, reporting, testing and similar services in regard to the matter for state organisations and institutions and private sectors

# R&D

## HYDRAULIC TURBINE DESIGN

In our firm , designs of hydraulic turbines of different types (reaction and impulse) and model and function tests of impulse type turbines are performed. Analytical studies are carried out to increase the efficiency of the turbines developed by our firm and these studies are tested in real environment in TEMSAN turbine test station. Calculation, design and analysis are performed with HAD and Structural Analysis programs to ensure that they work in the most efficient manner.

## MANUFACTURING TECHNOLOGY

Manufacturing technologies change with the developing technology. Our company closely follows the current developments and conducts researches and tests on innovative manufacturing technologies to be used in the sector. In this context, Pelton Turbine runner has been produced by using carbon fiber material by layered production technique and carried out its mechanical tests.



## MILHES Project

It is a project for domestically design, production, installation, testing and commissioning of components (Turbine, Generator, Excitation, Auxiliary Systems, Control Systems) of Hydropower Plants within the scope of TÜBİTAK KAMAG 1007 project. In that context, Kepez HPP of EÜAŞ was selected as a leading (pilot) plant. TEMSAN is one of the executive organisations in the project. Design and manufacturing of auxiliary systems, manufacturing of generator, dismantling and erection work of power plant are realized by TEMSAN. Organisations such as TÜBİTAK-MAM and TOBB-ETU are parts of the project.

## TEMSAN Hydraulic Turbine Testing Facility

TEMSAN Hydraulic Turbine Testing Facility was built especially for the function and model tests of action (impulse) type hydraulic micro turbines (Pelton, Banki and Turgo). It was designed with a vision for testing different types of turbines in the future and future expansion of the testing facility. With the asynchronous generator positioned horizontally, function tests of micro turbines up to 500 kW and model tests of Pelton turbines can be carried out. With the two pump lines, testing is possible in variable flow rates and heads.

# BOTAŞ / DÖRTYOL TERMINAL PORT

FSRU

(Floating LNG Storage - Gasification Unit) Terminal

## DÖRTYOL TERMINAL PORT

During the modification works at Dört Yol port, required infrastructure for FSRU as well as LNG vessels to berth and moor, 10 dolphins using 216 poles together with 4 stock dolphins for FSRU vessels to berth, a platform to place arms and other equipment that will establish the connection to the natural gas network, the dolphin on which the e-house is situated to be used to establish the communication with the vessels and catwalks that will provide connection and access between the dolphins and the platform was provided.

Distance of the platform constructed to the land is 1820 meters and farthest point of the port is 2200 meters away from the land.

The natural gas pipeline of 2 km in length and 30 inch in diameter is installed under the sea.





# KARAKAYA HEPP

## TURBINE REHABILITATION PROJECT

**1800 MW**

It is 3<sup>rd</sup> largest power plant of Turkey with an installed capacity of 1800 MWe.

**Second Largest**

It is 2<sup>nd</sup> largest hydroelectric power plant (HEPP) of Turkey.

**5720 mm**

The diameter of turbine runner of power plant having the largest turbine runner in Turkey is 5720 mm.

**7.500.000.000 kWh**

It can meet all electrical energy requirements which 2.000.000 people need in their daily life (housing, industry, metro, government office, environmental luminance etc.).

**6x300 MW**

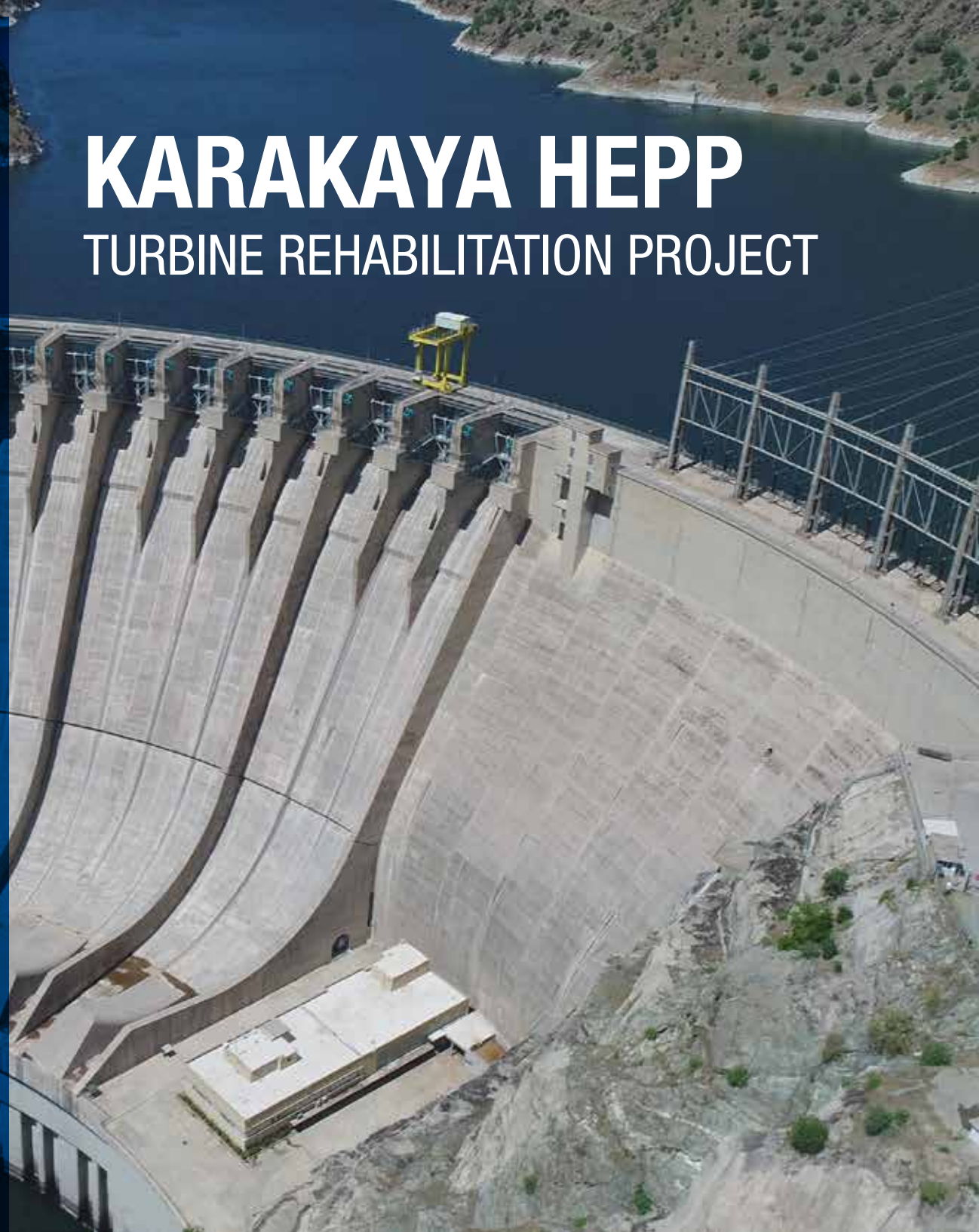
Nominal Flow rate: 235 m<sup>3</sup>/s

Net Head: 144 m

Maximum water level of Karakaya Dam which is 2<sup>nd</sup> largest dam built on river after Atatürk Dam on The Euphrates (River) is 693 m.

**1987**

Karakaya HEPP built by DSI was put into operation in 1987.





# 7x25 MW Trailer Mobile Power Plant Project

Considering supply security and emergencies, it was decided to supply 7X25 MWe Trailer Mobile Power Plant by EÜAŞ and TEMSAN. Each unit with an installed capacity of 25 MW consists of an aero-derivative gas turbine-generator set which can operate with double fuel (diesel + natural gas) mounted on trailers. Mobile power plants will be transferred to the points determined by EÜAŞ and their availability will be ensured. It is aimed to transport the electrical energy to the required point as soon as possible and to meet the demand with this project.

**1355 MW**

It is 8<sup>th</sup> largest power plant of Turkey and 2<sup>nd</sup> largest power plant of Kahramanmaraş with an installed capacity of 1355 MWe.

**Second Largest**

It is 2<sup>nd</sup> largest lignite thermal power plant of Turkey.

**Eighth-Largest**

It is also 8<sup>th</sup> largest power plant of Turkey.

**2.800.000.000 kWh**

It can meet all electrical energy requirements which 900.000 people need in their daily life.

**Specialist**

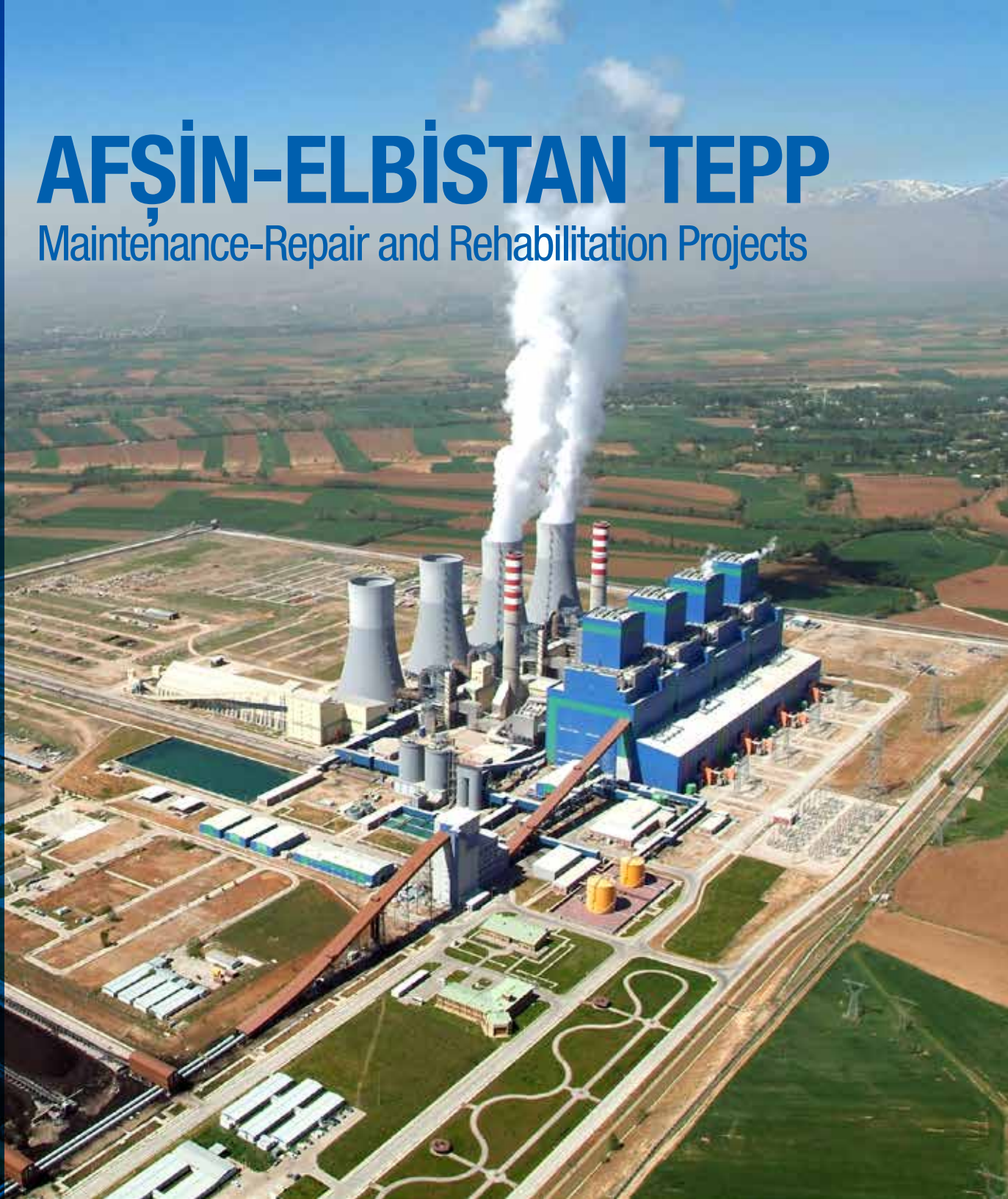
The service is performed to Afşin-Elbistan Thermal Power Plant, one of the largest plants in the region, by team of specialists of maintenance & repair and site.

**1984**

Afşin-Elbistan TEPP was put into operation in 1984.

# AFŞİN-ELBİSTAN TEPP

## Maintenance-Repair and Rehabilitation Projects



# Domestic Manufacturing Incentive 31,5%

## Value-Added

As it is known, in case of usage of domestic turbine and generator, domestic manufacturing incentive is applied in purchase of energy within scope of YEKDEM .

## 2,3 Dollar Cent Incentive Share

The investors who prefer TEMSAN products will be able to sell the electricity as 9,6 dollar cent/kWh per unit by also adding domestic manufacturing incentive share of 2,3 dollar cent/kWh to the their electricity sale price of 7,3 dollar cent/kWh .

# Domestic Manufacturing Means Profit





## TEMSAN PAU (PROJECT APPROVAL UNIT)

### PROJECT APPROVAL AND ACCEPTANCE PROCESSES OF ELECTRICITY FACILITIES

Until September 2019, approvals of 106 pre-projects, 203 final projects, 35 restoration projects, 196 provisional acceptances and 29 statement approvals were realized by TEMSAN Project Approval Unit at our company re-authorized by the EİGM letter dated 34.12.2018 and numbered 34783. In addition, 25 project approvals and 11 provisional acceptances were rejected and the input of 622 MWe was provided to our national electricity grid.

The following procedures including also the electronic reviews of each of them are generally carried out in TEMSAN Project Approval Management

- ✓ Pre-project review and approvals,
- ✓ Restoration project review and approvals,
- ✓ Final project review and approvals,
- ✓ Engineering report review,
- ✓ Formation of partial, restoration and provisional acceptance committee and acceptances

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## STAKEHOLDERS



## MEMBERSHIPS





#### Ankara Headquarters

 Çamlıca Mahallesi 145. Cadde No:16  
06200 Yenimahalle / ANKARA / TÜRKİYE


 +90 (312) 397 55 75 (8 Hat)

 +90 (312) 397 55 73


 www.temsan.gov.tr

 temsan@temsan.gov.tr

#### Ankara Factory

 Çamlıca Mahallesi 145. Cadde No:16/A Yenimahalle ANKARA / TÜRKİYE

#### Diyarbakır Factory

 Dökmetaş Mahallesi Elazığ Bulvarı No:429 DİYARBAKIR / TÜRKİYE

 +90 412 339 04 54 (9 Hat)

 +90 412 339 04 50

 turkiyeelektromekaniksanayi.dyb@hs01.kep.tr

 dyb.fabrika@temsan.gov.tr

 Türkiye Elektromekanik Sanayi  Türkiye Elektromekanik Sanayi

