



Installation, maintenance service the technical and engineering, and operation in power generation, oil, gas and petrochemical industrial in acceptable quality.



- ❖ **Thermal Power Plant (Simple Cycle & Combined Cycle) EPC (Engineering, Procurement Construction) Contractor.**
- ❖ **Power Plant O&M (Operation & Maintenance) Contractor.**
- ❖ **Power Plant Routine Maintenance Major Overhaul, Repowering and Rehabilitation General Contractor.**
- ❖ **Gas turbine Routine Maintenance. Hot Gas Path Inspection & Major Inspection Contractor.**
- ❖ **Supply Material, Spare Parts and Services for Power Plants and other Industries.**
- ❖ **Engineering & Technical Services for Power Plant and other relevant Industries General electric, SIEMENS, MITSUBISHI ,HITACHI , ANSALDO ,BBC**
- ❖ **Design and installation of gas station (GRS) and gas filtration systems.**



Company introduction

The industrial Ehdas Tavan Mahan (ETM) Company established in 2008 for responder to electric power requirements in Iran. By supported the our human specialization , equipment's, technical knowledge, experience and hi-tech knowledge, we able to service the technical and engineering, installation, maintenance and operation in power generation, oil, gas and petrochemical industrial in acceptable quality.

ETM offers a broad range of products and services for a large variety of applications. Based on our deep understanding of industry needs, our long experience, strong technical competencies, and continuous innovation, we can provide you outstanding reliability and performance.

The main activity of this company

- Steam & gas power plant: Installation, O&M (Operation & Maintenance) and repairing.
- Electrical: Generator, transformer ,substation, AC/DC motors
- Boiler :Construction , Installation and Maintenance of boiler parts
- Parts supply
- Human resources



Field of activity:

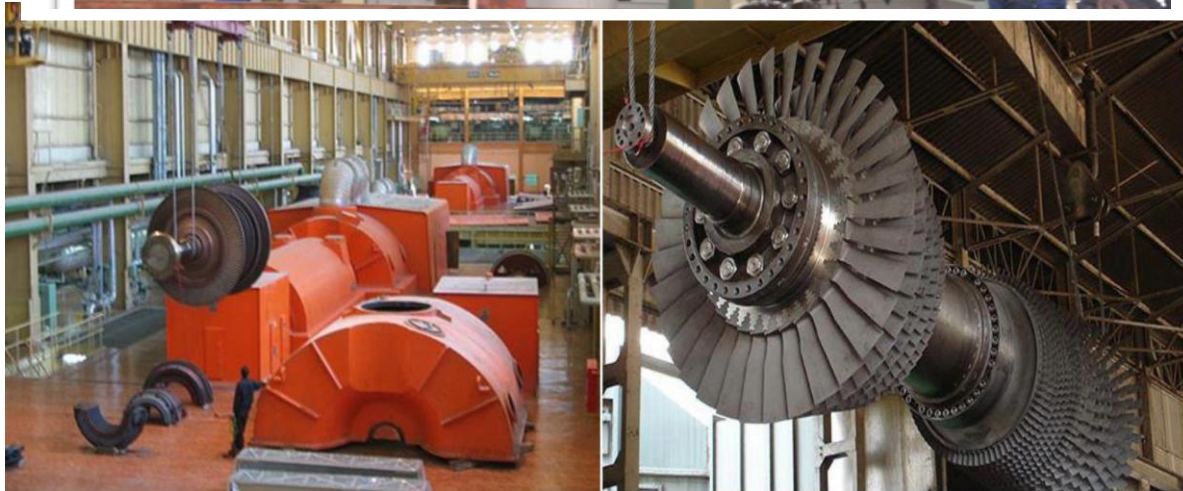
Steam and Gas Turbines

ETM's Industrial Turbine services offer turnkey turbine generator inspections and turbine repairs to stationary and rotating steam path components. More than just fully-equipped, we will minimize your downtime by reverse engineering and manufacturing parts directly in our facility. Keep things running smoothly with on-site inspections, shop repair services, technical services and parts, and quick turnaround.

Maintenance and repair unit prepared for service in maintenance, installation, quality, inspection and quality control fields for powerhouses and other industrials. We offer a full range of mechanical services and capabilities. When a breakdown occurs, we provide on-site services 24/7 in order to reduce downtime.

Our staff of experienced and highly skilled engineers, managers and technicians is adept at precision installation, machining and welding processes, which restore equipment to maximum performance.

We perform turbine repairs on all types of steam and gas turbines including Alstom, Toshiba, Mitsubishi, Hitachi, General Electric, Siemens-Westinghouse and more.



Fields of activity:

Electrical • Generator

We provide comprehensive refurbishment and repair of large utility generator stators and fields, including high voltage bushing refurbishment and the complete rewinding of inner liquid-cooled generators. Our seasoned generator repair specialists conduct full scope electrical testing, visual inspections and specialty tests to meet your exact requirements.

Our turbine-generator repair facility can accommodate generator field rewinds of any capacity, including large 4-pole nuclear units. Our generator experts can also perform a stator rewind on-site.

Through years of power generation industry experience, our generator repair specialists conduct full scope electrical testing, visual inspections and specialty tests as per customer requirements.

We invest heavily in the development of people, procedures and principle which facilitate improvements in design, reliability and performance.



Fields of Activity:

Electrical • transformer

Power transformers are the most important components of electrical energy supply networks. Although these components have high reliability, failures can occur due to external factors such as short circuits in the grid. Failures can also occur due to ageing effects of the active part, especially the insulation system, or ageing of important accessories such as bushings or on load tap changers. In case of failure, the first action is to identify the type of failure. The aim is to localize the failure itself as well as its root cause.

Repairing a transformer instead of replacing it can substantially reduce investment costs and provide a faster turnaround than buying a new transformer. Furthermore, to maximize the assets technical life, a refurbishment or overhaul can be an intermediate action when no failure has occurred and the ageing of the active part has reached a stage where the continued reliability of the transformer is unacceptable.

For preventive maintenance, refurbishment also known as reconditioning, is a frequent used option, in where equipment is taken to an authorized service workshop for a full inspection, thorough cleaning and individual component analysis and replacement according the maintenance schedule. The reconditioned equipment undergoes complete testing and comes with a warranty.

Key elements of our transformer services:

- 1- Fundamental repair, installation , overhaul & reconstruction all kind of power transformers, induction furnaces, electrolysis & distribution.
- 2- Overhaul & periodic services of various tap changers MR, ELIN, HYUNDAI (ELPERAM).
- 3- Build all kinds of coil for transformers & compensating reactors with voltage level of 400 kV.
- 4- Presenting engineering services such as perform electrical tests, installation of electric equipment, consultation & supervision in related project.
- 5- Design, calculation, construction & implementation of transformers cooling system in order to decrease temperature of transformer and increase remaining life of transformer.



Fields of Activity:

Electrical • **substation**

ETM has extensive experience in the construction of high-voltage substations from 34K-400K. Our jobs range from complete Static VAR systems to transformer upgrades and basic substation expansions. Our project list extends well into the civil, commercial, and industrial markets, including projects in Manufacturing, Colleges and Universities, Office and High-rise, Medical facilities, and more.

During construction we will work with regulatory agencies and utilities to ensure compliance and a smooth installation. We also do steel work and foundations, and offer maintenance plans and testing for future service

Expertise includes:

- . Complete substation design and installation - 400V to 400 KV
- . Foundation and footing design and installation
- . Steel design and installation
- . Transmission line - overhead and underground - design and Installation
- . Low and medium voltage controls and distribution
- . Medium and high voltage cable terminations, pulls, and repairs
- . Power houses and switchgear
- . High-voltage cable installation

Engineering Capabilities

- . High Voltage Substations - New
- . Substation Expansions
- . Transmission Lines & Upgrades
- . OCB Change out to SF6
- . Conventional and GIS
- . Static VAR Systems
- . Transformer Upgrades



Fields of Activity:

Electrical • AC/DC motors

ETM can cater for all types of AC and DC Motor repairs, refurbishment and rewinds. We are specialists in the repair and rewind of Hazardous Area Motors.

We have a very highly trained workforce, of Armature Winders, Electrical and Mechanical Fitters, Turners, and Semi-skilled personnel, backed up by very experienced Electrical and Mechanical Management Team.

We provide our customers with a experienced on site electric motor service, for fault finding refurbishment, repairs and specialist services such as dynamic balancing and vibration analysis.



Field of activity:

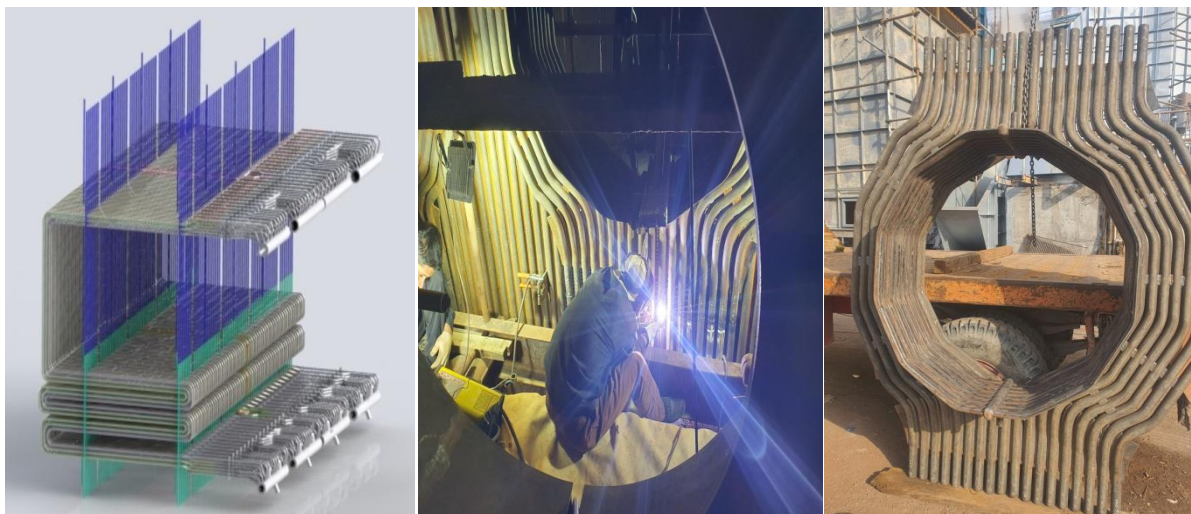
Industries

We have a deep understanding of the needs of specific industries and long experience with specific applications. This is the basis for our strong offer of efficient and reliable products and fast and economical services for a broad range of industries.

Field of activity:

Activities of power plant and industrial boilers

- Manufacture of pressure equipment, water tube boilers
- Manufacture of industrial heat exchangers, including bending pipes and bundle Tube
- Bending of pipes and tubes in different sizes, radii and angles.
- Production of finned pipes in a spiral method.
- Reconstruction and overhaul and complete re tube of water tube boilers.
- Making tube sheets and body.
- Supply and external supplies required for the reconstruction of water tube boilers



Field of activity:

Parts supply

ETM's multilingual customer support team provides a total gas & steam turbine power plant parts sourcing and procurement service. The customer support team is dedicated to providing our clients access to high quality, cost effective spare parts to support both planned and forced outages and normal inventory management.

Key elements of ETM parts sourcing and procurement service include:

- Support for Heavy Duty Industrial & Aero Derivative Gas Turbines manufactured by General
- Electric, Siemens, Mitsubishi, Hitachi, Westinghouse , ... and Solar .
- Extensive Network of Parts Manufacturers. Combustion Parts Support for both older Standard Diffusion Combustion Systems and more
- Recent Low Emission Systems. Consumable Parts Kits - Nuts, Bolts, Gaskets, Seals, etc.
- Turbine Auxiliary System Parts - Valves, Regulators, Coolers, etc.
- Electrical & Instrumentation Parts - Protective Relays, Transmitters, Switches, etc.
- Control System Parts - Turbine & Generator





Hot Gas Path/Combustion/Major Parts

- . Fuel Nozzles
- . Combustion Liners/Baskets
- . Cross Fire Tubes & Retainers
- . Flow Sleeves
- . Transition Pieces
- . Turbine Buckets/Blades
- . Turbine Nozzles
- . Shroud Blocks
- . Inlet Guide Vanes
- . Compressor Blades
- . Turbine Hardware/ Consumable Parts /Tool Kits
- . Turbine Specific Tool Kits .
- . Turbine Bucket/Blade Hardware Kits .
- . Transition Piece Hardware Kits .
- . Cross Fire Tube Hardware Kits.
- . Inlet Guide Vane Hardware kits .
- . Coupling Bolts, Casing Bolts.
- . Bolting, Doweling.
- . Gaskets, Seals, Lock Plates .

Turbine Electrical & Instrumentation Systems

- . Pressure Switches, Transmitters & Gauges
- . Temperature Switches, Transmitters & Gauges
- . Flame Detectors
- . Vibration Sensors
- . Thermocouples - Exhaust, Wheel space, Disc Cavity, Blade
- . Path & Bearing Drain
- . Ignition Transformers
- . Igniters/Spark Plugs
- . Ignition/Spark Plug Cables
- . Pump/Fan Motors
- . High Temperature Cabling - On Base

General Plant Systems

- . Tool Kits
- . Safety Equipment
- . Filtration

Turbine Fuel Delivery Systems

- . Fuel Nozzles - Gas Only, Liquid Only, Dual Fuel, . . . Water/Steam
- . Injection
- . Gas Control/Throttle Valves & Parts Kits
- . Liquid Bypass/Throttle Valves & Parts Kits
- . Fuel Forwarding Pumps
- . Y Strainers
- . Fuel Filters
- . Flow Dividers
- . Check Valves
- . Flexible Pig Tails

Turbine Auxiliary Systems

- . Accessory Gears & Parts
- . Load Gears & Parts
- . AA Compressors
- . Liquid Fuel Pumps
- . Lube Oil Pumps
- . Hydraulic Oil Pumps
- . Bearings
- . Oil Deflectors & Seals
- . Heat Exchangers
- . Pressure Regulating Valves
- . Pressure Relief Valves
- . Pump/Fan Motors
- . Air Inlet Filters
- . Oil Filters - Lube Oil, Hydraulic
- . Oil & Control Oil

Control & Protection Systems

- . Control System Spares - Control Cards.
- . Power Supplies HMI System
- . Replacements Excitation System
- . Generator Protection Relays
- . Current Transformers
- . Potential Transformers
- . Motor Control Center Parts

Field of activity:

Human Resources

Our team of experienced engineers, coordinators and technicians are adept at critical component removal and installations, precision machining and weld refurbishment processes, and all types of turbine repair procedures to optimize the performance of your units. We provide teams of skilled field service coordinators and technicians to assist in your entire unit overhaul from Open to Close. From valve inspections to alignments, our OCIC division has the tools and experience to provide you with a complete and successful turnkey outage service.

Our Generator & HV Substation Services Division features OEM-trained engineers and technicians that have the knowledge and equipment to diagnose and maintain your Generator. We can help you maximize the efficiency of your unit for the future.



Projects

Commissioning of Steam, Gas, Hydro and Industrial Power Plants:

- 1- Commissioning of Semnan Sodium Carbonate Factory, Semnan, Iran
- 2- Installation and Commissioning of 4 Hitachi Units of Ilam Petrochemical Gas Power Plant,
- 3- Installation and Commissioning of 2 Hitachi Units of Tehran Refinery Gas Power Plant,
- 4- Pre-Commissioning and Commissioning of Tabriz Gasoline Production Complex, Eastern Azerbaijan, Iran
- 5- Pre-Commissioning and Commissioning of Shiraz Petrochemical Complex, Shiraz, Iran
- 6- Design, Pre-Commissioning and Commissioning of the Optimization of the Haft Tapeh Sugar Cane Factory, Shiraz, Iran
- 14 - Installation and operation of two units and design of the control room of Haft Tapeh Sugar Cane Factory

Fundamental Repair of Steam, Gas, Hydro and Industrial Power Plants:

- 1 Overhaul of Montazer Ghaem Power Plant GE F9 (120 MW) (6 Units)
- 2 Overhaul of Shiraz Power Plant GE F9 (120 MW) (Units 4 and 6)
- 3 Overhaul of Bushehr Gas Power Plant (GE F5)25 MW (Unit 3)
- 4 Overhaul of Kazerun Gas Power Plant 120MW- MITSUBISHI (Unit 2)
- 5 Overhaul of Yazd Craft Unit 70 MW (Unit 1)
- 6 Overhaul of Cangan Power Plant GE 25MW(Units 1 and 4)
- 7 Overhaul of Loshan Steam Power Plant SIEMENSE 120MW (Unit 1)
- 9 Overhaul of Loshan GAS Power Plant 70 MW (Units 1 and 2)
- 10 Overhaul of Esfahan Mobarakeh Steel Steam Power Plant GE 80 MW (3 Units)
- 11 Overhaul of Soofian Gas Power Plant (GE 25MW ,Unit 1)
- 12 Overhaul of Tabriz Fiat Gas Power Plant (25 MW ,2 Units)
- 13 Overhaul of Qom Gas Power Plant HITACHI (120 MW , 4 Units)
- 13 Overhaul Qom Steam Power Plant 120MW (2 Units)
- 14 Overhaul of Arake petrochemical co. Power Plant GE F6 (1 units).
- 15 Overhaul of Tabriz petrochemical co Power Plant GE F6 (3 units).
- 16 Overhaul of Tabriz Petrochemical Complex.
- 17 Overhaul of Tehran Refinery.
- 18 Overhaul of Sahand Bonab 320 MW Steam Power Plant (Unit 1).
- 19 Major Overhaul of Taleghan Dam.





OVERSEAS PROJECTS

- 1 Electrical and Instrumentation Systems Major Overhaul of Shuiaba 25MW-GE F5 Gas Power Plant in Basra, Iraq (2 Units).
- 2 Installation and Commissioning of Shuiaba 132kV Unit Substation (Unit 1).
- 3 Installation and Commissioning of Rumailah oil field power station 12MW-GE10 Unit, Iraq.
- 4 Electrical and Instrumentation Systems Major Overhaul of South Baghdad Gas Power Plant (25 MW-GE) in Baghdad , Iraq (8 Units).
- 5 Electrical and Instrumentation Systems Major Overhaul of Khur-al-Zubair (GE F9) Gas Power Plant (120MW- GE) in Basra, Iraq (2 Units).
- 6 Construction of scrubber filter for Basmaya power plant.
- 7 Construction of filter separator for Basmaya power plant.
- 8 Reconstruction of two units of hot turbine parts in Hilla power plant (25MW-GE).
- 9 Pigging and heavy cleaning the gas transmission line from Iranian border to Baghdad.
- 10 Gas pipe line pigging for heavier cleaning of Basmaya power plant .
- 11 Gas pipe line pigging for heavier cleaning of Al –Mansurya power plant .
- 12 Gas pipe line pigging for heavier cleaning of Al – Quds power plant .
- 13 Gas pipe line pigging for heavier cleaning of Al – Sader power plant .

