

EPYTECK

Power Generation (LLC)

YOUR ENERGY NEEDS

DEFINED BY EXPERTISE

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EPYTECK

Power Generation (LLC)

ESTABLISHED IN THE MIDDLE EAST IN 1992, EPYTECK POWER GENERATION LLC HAS RELOCATED ITS GLOBAL HEADQUARTERS TO THE UAE, IN 2015.

AS A PIONEER IN INNOVATIVE ENGINEERING, MANUFACTURING, AND CONSTRUCTION, EPYTECK'S ROOTS LIE IN MANUFACTURING, BUT IT HAS SINCE EXPANDED INTO A BUILD-AND-OPERATE MODEL, ENCOMPASSING ENGINEERING, MANUFACTURING, DISTRIBUTION, CONSTRUCTION, FULL EPC AND PROJECT DEVELOPMENT.

ALTHOUGH THE COMPANY'S CORE BUSINESS IS TRADITIONAL POWER STATIONS, IT HAS ALSO MADE SIGNIFICANT STRIDES IN THE RENEWABLE INDUSTRY.

THE COMPANY PROVIDES ALL THE NECESSARY SERVICES TO MEET THE DEMANDS OF THE EVER GROWING ENERGY MARKET IN THE MIDDLE EAST AND IS COMMITTED TO DELIVERING EFFICIENT AND SUSTAINABLE ENERGY SOLUTIONS TO ITS CLIENTS THROUGH A DIVERSE RANGE OF PRODUCTS AND SERVICES THAT ARE TAILORED TO SUIT THEIR SPECIFIC NEEDS.

EFFICIENCY IS A KEY ASPECT OF A SUSTAINABLE FUTURE, AND AT OUR COMPANY, WE BELIEVE THAT INNOVATION IS CRUCIAL TO ACHIEVING THIS GOAL.

WE ARE FULLY COMMITTED TO DRIVING INNOVATION IN ALL ASPECTS OF OUR BUSINESS AS WE WORK TOWARDS CREATING A MORE SUSTAINABLE FUTURE.

WE FIRMLY BELIEVE THAT ACCESS TO ELECTRICITY IS A FUNDAMENTAL HUMAN RIGHT AND NECESSITY, AND OUR ULTIMATE GOAL IS TO PROVIDE POWER TO PEOPLE AROUND THE WORLD.

IT IS THIS CORE BELIEF THAT DRIVES US TO WORK TIRELESSLY TOWARDS DEVELOPING INNOVATIVE AND SUSTAINABLE SOLUTIONS THAT CAN BRING ELECTRICITY TO EVEN THE MOST REMOTE AND UNDERPRIVILEGED COMMUNITIES.

AT EPYTECK, WE BELIEVE THAT OUR ENGINEERS ARE OUR ASSETS AND THIS DRIVES OUR COMMITMENT TO H.S.E.

We recognize that the health and safety of our employees, clients, and the public are of utmost importance. Hence, we have implemented a comprehensive health and safety program that adheres to all relevant regulations and standards. Our program includes regular training, hazard assessments, and the use of appropriate personal protective equipment. We also conduct regular safety audits to ensure that our work sites are safe and secure.

It is imperative that the Company's HSE Policy and its framework (as a separate document) demonstrate a clear understanding that all stakeholders share a collective responsibility to prevent occupational illness and ensure public safety. To this end, a genuine effort must be made to prevent accidents, mitigate occupational health hazards, and preserve a healthy working environment.

Furthermore, we go beyond all relevant environmental regulations and standards and strive to minimize waste, reduce emissions, and conserve resources. We also work closely with our clients to develop sustainable solutions that minimize the environmental impact of their projects.

By prioritizing these objectives, we can create a culture of safety and well-being that benefits all stakeholders and contributes to the long-term success of the organization. We are committed to protecting the environment and minimizing the impact of our work on the natural world.

H.S.E POLICY

We are committed to protecting the environment and minimizing the impact of our work on the natural world.

We adhere to all relevant environmental regulations and standards and strive to minimize waste, reduce emissions and conserve resources.

We also work closely with our clients to develop sustainable solutions that minimize the environmental impact of their projects.

OBJECTIVES

It is imperative that the Company's HSE Policy and its framework (as a separate document) demonstrate a clear understanding that all stakeholders share a collective responsibility to prevent occupational illness and ensure public safety.

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COMITMENT TO SAFETY

Our extensive experience has demonstrated that management involvement is crucial in establishing and maintaining an effective workplace safety culture.

A strong commitment to safety by management is the first and most critical step in achieving reduced accident rates and lower workers' compensation insurance premiums.

It is essential for management at all levels, particularly those at the highest levels of the organization, to fully commit to developing and maintaining a safe and healthy workplace for all employees.

FINANCING

Effective financing is the key turning ambitious projects into reality.

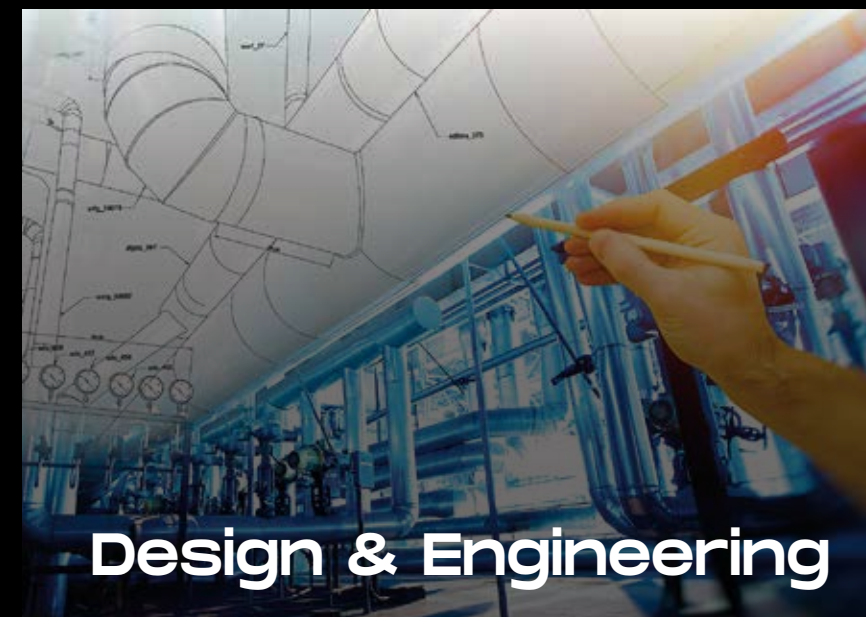
While many energy projects are clearly defined and urgently needed, securing the right financial structure is crucial.

EPYTECK supports its clients and partners with comprehensive expertise in developing innovative and attractive financing solutions, including Export Credit Financing, Project Financing, and Equity Participation.

EPYTECK benefits from strong, long-standing relationships with global financial institutions.

Leveraging its ties with leading international banks and export credit agencies—including regional and governmental financial bodies—Axalar offers customized, competitive financing packages tailored to each project's unique needs

DIVISIONS:



PROJECT DEVELOPMENT, MODELLING & ASSESSMENT

This division is responsible for developing bidding, development of projects, assessments and helping clients make the most informed decisions. We use our breadth of experience in the power sector along with financial modelling to best assess how to utilise and develop projects with our partners.

1. Project Development:

We work together with all stake holders to develop a sustainable business model and find the most suitable solution for the local grids. With our full team of engineers and financial modellers we conduct GIS studies to assess the viability of multiple are projects.

2. Resource Assessment:

We use advanced modeling tools to assess the required resources of the project and the most sustainable O&M options. This includes analyzing historical weather data and other relevant data to determine the expected energy output of the project.

3. Financial Modeling:

We develop detailed financial models to evaluate the economic viability of projects, based on financial impact, long term sustainability and client needs. This includes analyzing the project's costs, revenues, and cash flows to determine the expected return on investment.

4. Risk Assessment:

We conduct a comprehensive risk assessment to identify and mitigate potential risks associated with renewable energy projects. This includes analyzing regulatory, environmental, and other risks that could impact the project's success.

DESIGN & ENGINEERING

Our in-house design and engineering team help develop our concepts into reality. Working closely with our procurement division to ensure that project deliverables are met, this includes:

1. Conceptual Design:

We work closely with our clients to develop conceptual designs that meet their specific project requirements. This includes analyzing the site's topography, climate, and other environmental factors to determine the most suitable renewable energy technology for the site.

2. Detailed Engineering:

We use advanced engineering tools and techniques to develop detailed engineering plans for renewable energy projects.

This includes designing the electrical and mechanical systems, developing construction plans, and ensuring compliance with all relevant regulations and standards.

3. Construction Management:

We provide comprehensive construction management services to ensure that renewable energy projects are built to the highest standards. This includes managing the construction process, coordinating with contractors and suppliers, and ensuring that the project is completed on time and within budget.

4. Commissioning and Testing:

We provide commissioning and testing services to ensure that renewable energy projects are operating at peak performance. This includes testing the electrical and mechanical systems, verifying compliance with all relevant regulations and standards, and ensuring that the project is delivering the expected energy output.

DISTRIBUTION & PROCUREMENT

Our distribution and procurement Division, ensures that all supply chain issues are well handled and projects are developed on time, and has developed into a sprawling distribution hub for many of our brand partners:

1. Product Sourcing:

We work closely with our clients to identify the best renewable energy products and equipment for their projects. This includes analyzing the project's requirements, evaluating different products and equipment, and recommending the most suitable options

2. Procurement Management:

We provide comprehensive procurement management services to ensure that renewable energy products and equipment are sourced and procured efficiently and cost-effectively. This includes managing the procurement process, negotiating with suppliers, and ensuring that all products and equipment meet the required quality standards.

3. Logistics and Distribution:

We provide logistics and distribution services to ensure that renewable energy products and equipment are delivered on time and within budget. This includes managing the transportation process, coordinating with suppliers and contractors, and ensuring that all products and equipment are delivered to the project site safely and efficiently.

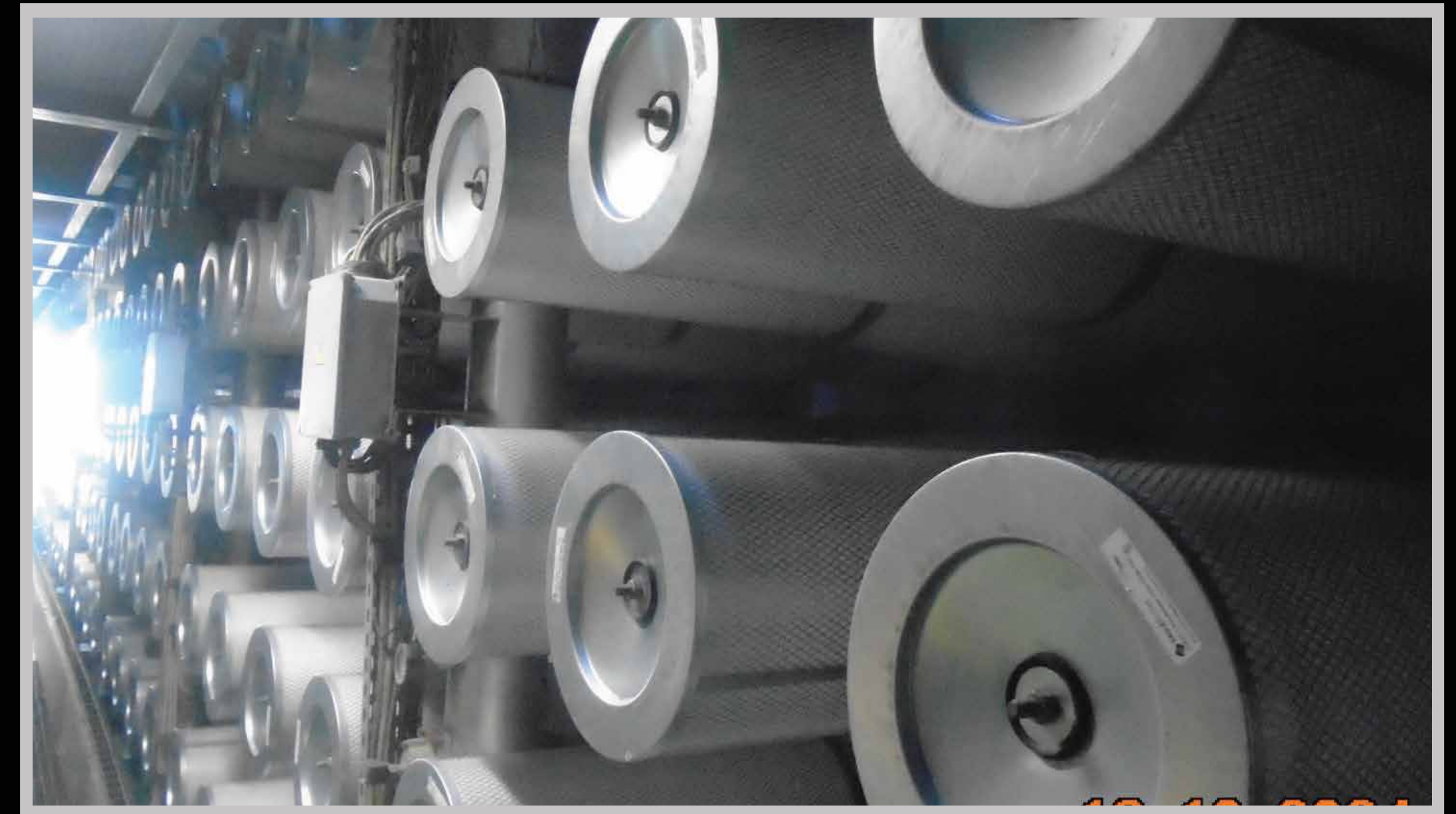
4. Inventory Management:

We provide inventory management services to ensure that renewable energy products and equipment are stored and managed efficiently. This includes managing inventory levels, tracking product and equipment usage, and ensuring that all products and equipment are properly maintained and serviced.

Deir Ali Power Plant Major Overhaul 2023: Funded by UAE Works:

6. DA II – TURBO GENERATORS (X 3) ANSALDO WY(X)23Z-109 – MAJOR OVERHAUL

- COMPLETE OVERHAUL OF ALL THE GENERATOR SHAFT BEARINGS;
- COMPLETE OVERHAUL OF THE COUPLING JOINT BETWEEN TURBINE AND GENERATOR;
- COMPLETE MAINTENANCE OF THE EXCITATION CHAMBER;
- EXTRACTION OF THE ROTOR FROM THE STATOR BODY;
- COMPLETE OVERHAUL OF THE ROTOR – ELECTRICAL AND MECHANICAL CHECKS – INSPECTIONS OF THE COIL ANCHORING AREA UNDER RETAINING RINGS;
- COMPLETE INSPECTION OF THE STATOR – CHECK DITCHING OF ELECTRIC BARS – CHECK OF WEDGES FASTENING – ELECTRICAL CHECKS;
- COMPLETE INSPECTION OF THE GENERATOR COOLING SYSTEM;
- COMPLETE OVERHAUL OF THE COLLECTOR RINGS, BRUSHES AND BRUSH HOLDERS;
- COMPLETE INSPECTION OF THE ELECTRICAL TERMINAL LEADS AND STAR POINT CONNECTION.



Deir Ali Power Plant Major Overhaul 2024: Funded by UAE Works:

7. DA III – ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) OF 724MW COMBINED CYCLE POWER PLANT (2+2+1 CONFIGURATION)

7.1 ENGINEERING SCOPE

7.1.1 BASIC & DETAILED ENGINEERING

7.1.2 PERMITS AND REGULATORY COMPLIANCE

7.2 PROCUREMENT SCOPE

7.2.1 MAJOR EQUIPMENT PROCUREMENT

7.2.2 PROCUREMENT MANAGEMENT

7.3 CONSTRUCTION SCOPE

7.3.1 SITE PREPARATION

7.3.2 CIVIL WORKS

7.3.3 MECHANICAL & ELECTRICAL INSTALLATION

7.3.4 INTERCONNECTIONS

7.4 PROJECT MANAGEMENT, HSE AND QA&QC



Tishreen Power Plant Major Overhaul 2023:

8. TSRN I&II – STEAM TURBINES (X 2) LMZ K-200-130-9 MAJOR INSPECTION WORKS:

- DISASSEMBLY OF STEAM TURBINE VALVES FOR INSPECTION AND CONDITION EVALUATION.
- INSPECTION AND CONDITION EVALUATION OF TURBINE MECHANICAL GOVERNOR SYSTEM.
- INSPECTION AND CONDITION EVALUATION OF TURBINE BEARINGS.
- INSPECTION AND CONDITION EVALUATION OF LUBE AND HYDRAULIC OIL SYSTEMS.
- DISASSEMBLY OF TURBINE UPPER CASINGS AND ALL NECESSARY AUXILIARY EQUIPMENT FOR THE PERFORMANCE OF CONDITION EVALUATION OF THE INTERNALS OF THE STEAM TURBINE (ROTATING BLADES, DIAPHRAGMS, SEALS, LABYRINTHS ETC.)
- PROVISION OF A WRITTEN REPORT FOR EACH ST WITH A LIST OF REQUIRED WORKS AND SPARE PARTS.
- TESTING THE AUTOMATIC CONTROL SYSTEM OF A STEAM TURBINE TYPE K-200-130-9 LMZ WITH THE ISSUANCE OF RECOMMENDATIONS, BEFORE REPAIR.
- CONDUCTING A VIBRATION EXAMINATION OF THE POWERTRAIN WITH THE ISSUANCE OF RECOMMENDATIONS, BEFORE REPAIR.



Tishreen Power Plant Major Overhaul 2023:

9. TSRN I&II — TURBOGENERATORS (X 2) ELECTROTIAZHMASH TFB-200-MT3 MAJOR INSPECTION WORKS:

- REMOVAL, INSPECTION, AND CONDITION EVALUATION (MECHANICAL AND ELECTRICAL) OF THE ROTOR.
- INSPECTION AND CONDITION EVALUATION (MECHANICAL AND ELECTRICAL) OF THE STATOR.
- INSPECTION AND CONDITION EVALUATION OF THE GENERATOR COOLING SYSTEM.
- INSPECTION AND CONDITION EVALUATION OF GENERATOR BEARINGS
- INSPECTION AND CONDITION EVALUATION OF THE EXCITATION SYSTEM
- PROVISION OF A WRITTEN REPORT FOR EACH GEN WITH A LIST OF REQUIRED WORKS AND SPARE PARTS.



Tishreen Power Plant Major Overhaul 2023:

10. TSRN I&II — BOILER (X 2) TKZ EN-670-13.8-545M (TGME206IACO) MAJOR OVERHAUL WORKS:

NON-DESTRUCTIVE TESTING OF THE METAL IN BOTH BOILERS FOR THE FOLLOWING MAIN COMPONENTS:

- DRUM
- HEATING SURFACE PIPES, PIPELINES WITHIN THE BOILER WITH AN OUTER DIAMETER OF 100 MM OR MORE
- COLLECTORS
- WELDED CONNECTIONS OF PIPELINES AND COLLECTORS WITH AN OUTER DIAMETER OF 100 MM OR MORE
- CAST PARTS DIA 100 MM AND MORE. FASTENERS (BOLT, NUTS, ETC)
- STATION PIPELINES (BOP PIPING: STEAM PIPELINES WITH AN OUTER DIAMETER OF 100 MM OR MORE, FEEDING PIPELINES WITH AN OUTER DIAMETER OF 76 MM OR MORE)

Tishreen Power Plant Major Overhaul 2023:

10. TSRN I&II — BOILER (X 2) TKZ EN-670-13.8-545M (TGME206IACO) MAJOR OVERHAUL WORKS:

DISMANTLING OF BOILERS PRESSURE PARTS AS FOLLOWS:

- FURNACE WATERWALL TUBE PANELS (FRONT, SIDE & REAR)
- SUPERHEATER TUBES (RADIANT, PLATEN, CONVECTION STAGE 1, STAGE 2, STAGE 3)



Tishreen Power Plant Major Overhaul 2023:

10. TSNR I&II – BOILER (X 2) TKZ EN-670-13.8-545M (TGME206IACO) MAJOR OVERHAUL WORKS:

REASSEMBLY WORKS ON THE BOILERS AS FOLLOWS :

- PREPARATION (CLEANING, CHAMFERING, NDTs), ASSEMBLY AND WELDING OF WATERWALL PANELS (FRONT, SIDE, REAR). NDTs AFTER WELDING. 100% BOROSCOPE INSPECTION OF NEW PANEL TUBES AFTER PREPARATION AND BEFORE WELDING.
- PREPARATION (CLEANING, BENDING, CHAMFERING, NDTs), INSTALLATION AND WELDING OF COMPLETE BLOCKS OF SUPERHEATER TUBES (RADIANT, PLATTEN, HP (STAGES 1 & 2), LP (STAGES 1, 2 & 3)). 100% BOROSCOPE INSPECTION OF NEW TUBES AFTER PREPARATION AND BEFORE WELDING AND ALSO OF EXISTING TUBE ENDS ON THE HEADERS BEFORE WELDING.
- REPAIR BY REPLACEMENT OF THE DAMAGED ECONOMIZER COIL TUBES IN THE LOWER PART AND IN OTHER PARTS OF THE ECONOMIZER AS NECESSARY. PREPARATION OF NEW TUBES AS IN SUPERHEATERS (ITEM #2). NDTs AFTER WELDING. 100% BOROSCOPE INSPECTION OF NEW TUBES AFTER PREPARATION AND BEFORE WELDING.
- WELD REPAIR THE COLLECTORS OF THE SECOND AND FIRST STAGES OF LP SUPERHEATERS. WELD REPAIR OF OTHER PLATTEN, RADIANT, HP AND LP SUPERHEATER COLLECTORS AS NECESSARY. NDTs AFTER WELDING. ATTEMPTORS ALL TO CHECK (NDTs PLUS 100% BOROSCOPE) AND REPAIR.
- PREPARATION, INSTALLATION AND WELDING OF ALL SEALINGS INSIDE THE BOILER. NDTs AFTER WELDING.
- REMOVAL OF OLD AND INSTALLATION OF NEW BURNERS. NDTs. COMMISSIONING AND PERFORMANCE TESTING OF THE NEW BURNERS.
- ADAPTATION WORKS ON THE ECONOMIZER DOWNTAKE TO ACCOMMODATE THE INSTALLATION AND REMOVAL FOR MAINTENANCE OF THE NEW BURNERS AND THEIR ACCESSORIES.
- MINOR REPAIRS AND NDTs AS NECESSARY OF THE HP SUPERHEATER PANELS IN (A) CEILING, (B) CONVECTION SHAFT REAR WALL (C) CONVECTION SHAFT FRONT WALL, (D) CONVECTION SHAFT FRONT WALL, (E) CONVECTION SHAFT SIDE WALLS, (F) TRANSIENT GAS DUCT ENCLOSURE.
- PREPARATION AND WELDING ON THE FRONT WATERWALL PANELS OF THE GAS RECIRCULATION DUCTS. NDTs AFTER WELDING.
- PIPING SPRING AND SUPPORT ADJUSTMENT IN ALL WATER-STEAM CYCLE PIPING.
- PREPARATION AND EXECUTION OF HYDRAULIC PRESSURE TESTING IN ALL CIRCUIT OF THE BOILER.
- METHOD STATEMENT AND SUPERVISION OF BOILER CHEMICAL CLEANING.
- METHOD STATEMENT, PREPARATION AND EXECUTION OF BOILER STEAM BLOW.
- SUPERVISION OF RESTORATION OF BOILER REFRACTORY LINING INSULATION.
- SUPERVISION OF RESTORATION OF BOILER CLADDING.
- SUPERVISION OF INSTALLATION AND REMOVAL OF ALL TEMPORARY STEEL SUPPORT STRUCTURES NECESSARY FOR THE WORKS ON BOILER.

Tishreen Power Plant Major Overhaul 2023:

11. TSRN I&II – TRADITIONAL (ANALOG) CONTROL SYSTEM REPLACEMENT WITH DCS WORKS:

11.1 SYSTEM DESIGN & ENGINEERING

11.1.1 ARCHITECTURE DESIGN

11.1.2 HARDWARE ENGINEERING

11.1.3 SOFTWARE CONFIGURATION

11.2 PROCUREMENT & FACTORY TESTING

11.2.1 HARDWARE PROCUREMENT

11.2.2 FACTORY ACCEPTANCE TEST (FAT)

11.3 INSTALLATION AND FIELD WORK

11.3.1 SITE PREPARATION

11.3.2 CABLING & TERMINATION

11.3.3 IO MAPPING & TESTING

11.4 COMMISSIONING AND INTEGRATION

11.4.1 LOOP CHECKING

11.4.2 INTERLOCK AND PROTECTION SYSTEM TESTING

11.4.3 OPERATOR TRAINING



ASSOCIATE PARTNERS

MAIN CONTRACT AND SUB CONTRACT DIVISION



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