

Construction of Substations and Transmission Lines



گروه مهام شرق
نماد ما می توانیم

At Moham Shargh Group, we provide an extensive range of services to cater to the varied needs of our clients:

Design and Engineering Expertise: Our team of seasoned engineers utilizes cutting-edge technology to devise innovative solutions tailored to the specific requirements of each project.

Construction Capabilities: From site preparation to final commissioning, we possess the knowledge and resources to construct high-voltage substations and transmission lines of any size and complexity.

Quality Assurance and Safety Standards: We adhere strictly to the highest industry standards for quality and safety, ensuring that every project is executed with meticulous care and precision.

Environmentally Sustainable Practices: We are dedicated to minimizing environmental impact through sustainable construction methods and the integration of renewable energy technologies.

Transmission Line Construction Process: The construction processes for substations and transmission lines differ due to distinct purposes, components, and construction requirements. Here's a brief overview of the main differences:



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Substation Construction Process:

Our construction process follows a systematic approach to ensure timely completion and superior quality:

- **Site Preparation:** This involves land clearing, grading, and site preparation for construction. Substations require a relatively flat and stable area to accommodate various structures and equipment.
- **Foundation Construction:** Substructures such as transformers, switchboards, and control buildings require sturdy foundations to bear weight and ensure stability. Excavation, concrete pouring, and curing are standard procedures in this stage.
- **Structure and Equipment Installation:** Once the foundations are in place, steel structures or other support structures are erected to support the equipment. This includes the installation of transformers, switchboards, circuit breakers, capacitor banks, and other components as per design specifications.
- **Electrical Wiring and Connection:** This stage involves the installation of electrical wiring, cables, busbars, and connectors to interconnect the various components inside the substation. It also includes the installation of grounding systems to ensure electrical safety.
- **Testing and Commissioning:** After the completion of construction, comprehensive testing and commissioning procedures are conducted to verify the performance, reliability, and safety of the substation. These tests include insulation tests, circuit breaker tests, and protective relay tests.

Transmission Line Construction Process:

- **Route Selection and Review:** Transmission lines require meticulous planning to determine the optimal route, taking into account factors such as terrain, environmental impact, land ownership, and regulatory requirements. Mapping is conducted to evaluate the feasibility of the proposed route.
- **Tower/Foundation Construction:** Towers or transmission poles are erected along the route to support the conductors. Construction of tower foundations involves excavation, concrete pouring, and anchoring to ensure stability.
- **Conductor Wiring:** Conductors (wires) are strung between transmission towers or poles, often using specialized equipment such as helicopters or traction machines. This process requires precision to maintain proper tension and spacing.
- **Insulation Installation:** Insulators are installed on masts or transmission poles to support conductors and provide electrical insulation. They help prevent electrical leakage and ensure transmission line reliability.
- **Earthing and Lightning Protection:** Earthing systems are installed at intervals along the transmission line path to safely dissipate lightning and fault currents. Lightning protection devices such as lightning arresters may also be installed to safeguard the equipment.
- **Installation of String Accessories:** Additional accessories such as vibration dampers, spacer dampers, and fly deflectors may be installed to enhance transmission line performance and reliability.
- **Testing and Commissioning:** Transmission lines, like substations, undergo testing and commissioning to ensure proper performance and safety. This includes line energization tests, insulation resistance tests, and thermal imaging inspections.

