



**Electricity, gas, water, waste services**



## **Skills:**

### **Technical Expertise:**

Electricity Generation and Distribution: Understand the generation, transmission, and distribution of electrical power.

Gas and Water Systems: Learn about gas distribution and water treatment and distribution systems.

Waste Management: Gain knowledge of waste collection, recycling, and disposal methods.

### **Maintenance and Repair:**

Equipment Maintenance: Develop skills in maintaining and repairing electrical, gas, water, and waste treatment equipment.

Troubleshooting: Be adept at diagnosing and addressing issues in utility systems.

## **Safety Protocols:**

Occupational Safety: Prioritize safety for both workers and the public while adhering to safety regulations.

Emergency Response: Be prepared for responding to utility-related emergencies, such as power outages or gas leaks.

## **Environmental Compliance:**

Environmental Regulations: Stay informed about environmental laws and regulations related to utility operations.

Sustainability: Promote sustainable practices in utility operations to minimize environmental impact.

## **Technology Integration:**

Smart Grids and Automation: Embrace technologies like smart grids and automation for efficient utility management.

Data Analysis: Analyze data for optimizing utility operations and improving resource utilization.

## **Project Management:**

Project Planning: Develop skills in project planning, scheduling, and resource allocation.

Infrastructure Development: Be involved in the planning and execution of utility infrastructure projects.

## **Communication and Customer Service:**

Customer Engagement: Communicate effectively with customers, address their concerns, and provide support.

Public Relations: Manage public relations to ensure a positive image of utility services.

## **Regulatory Knowledge:**

Utility Regulations: Understand the regulatory framework governing electricity, gas, water, and waste services.

Compliance: Ensure compliance with utility regulations and reporting requirements.

## **Budget Management:**

Budgeting: Develop and manage budgets for utility operations.

Cost Control: Identify cost-saving measures and optimize resource allocation.

## **Water and Energy Efficiency:**

Efficiency Measures: Implement measures to reduce water and energy consumption in

utility operations.

Resource Conservation: Promote conservation practices among consumers.

### **Infrastructure Planning:**

Infrastructure Assessment: Assess the condition and capacity of utility infrastructure to plan for upgrades and improvements.

Asset Management: Manage utility assets effectively.

## **Skill tree tailored to the electricity, gas, water, and waste services industry, following the levels:**

This skill tree outlines a progression from foundational skills to advanced expertise within the electricity, gas, water, and waste services industry, including the acquisition of necessary licenses and certifications, and a focus on specialization and ongoing education. Please note that the specifics of each level can vary based on your role and career goals within the utilities sector.

### **Level 1: Foundation Skills (Utilities Industry)**

Safety Awareness in Utilities

Basic Knowledge of Utility Systems (electricity, gas, water, waste)

Communication Skills

Time Management

Adaptability

Basic Computer Literacy

Environmental Awareness

Basic Equipment Operation

### **Level 2: Core Skills (Utilities Industry)**

Utility System Safety Protocols

Utility System Operations

Customer Service in Utilities

Teamwork and Collaboration in Utilities

Basic Utility Engineering Concepts

Basic Regulatory Compliance

Project Coordination in Utilities

Energy Efficiency and Conservation

### **Level 3: Specialized Skills (Utilities Industry)**

Advanced Utility Systems Knowledge (e.g., power generation, water treatment)

Advanced Utility Engineering

Utility System Maintenance and Repair

Environmental Sustainability in Utilities

Advanced Customer Service and Conflict Resolution

Utility Asset Management

Renewable Energy Technologies

Water Quality Management

#### **Level 4: Advanced Skills (Utilities Industry)**

Expertise in a Specific Utilities Discipline (e.g., electrical grid management, wastewater treatment)

Advanced Utility System Design and Improvement

Leadership in Utilities Operations

Strategic Utility Planning

Health and Safety Leadership in Utilities

Risk Assessment and Mitigation in Utilities

Environmental Compliance and Sustainability Leadership

#### **Level 5: Licensing and Certification (Utilities Industry)**

Obtain Relevant Utility Industry Licenses and Certifications (e.g., Certified Utility Manager)

Compliance with Utility Regulations

Safety Certification

Quality Management Certification

Project Management Certification

Leadership and Management Certifications in Utilities

#### **Level 6: Continuing Education and Specialization (Utilities Industry)**

Continuous Learning and Skill Development in Utilities

Advanced Education (e.g., Master's or PhD in Utility Engineering)

Ongoing Industry Training (e.g., advanced safety training)

Specialization in a Utilities Niche (e.g., smart grid technology, wastewater reclamation)

Advanced Certifications in Specialized Utility Fields

Research and Publications in Utilities Industry

### **Optional Major Advice:**

Choosing the right major can significantly impact your career in electricity, gas, water, and waste services. Here are some recommended majors and fields of study:

**Electrical Engineering:** Pursue a degree in Electrical Engineering to specialize in the generation, distribution, and management of electrical power.

**Environmental Engineering:** Environmental Engineering focuses on sustainable water treatment and waste management practices, making it relevant to utility services.

**Civil Engineering:** Civil Engineering provides expertise in infrastructure development and maintenance, including water supply and waste management systems.

**Mechanical Engineering:** Mechanical Engineering majors can specialize in utility equipment maintenance and repair.

**Energy Management:** This major focuses on optimizing energy efficiency and renewable energy integration, which is relevant to the electricity and gas sectors.

**Environmental Science:** Consider a major in Environmental Science for a broader understanding of environmental regulations and sustainability in utility services.

**Project Management:** Pursue a major in Project Management for roles involving project planning and execution in utility infrastructure development.

**Business Administration:** A degree in Business Administration with a focus on operations or utility management can be valuable for leadership roles in the utility sector.

**Public Relations and Communications:** If you aspire to work in public relations and customer engagement within utility services, a major in Public Relations or Communications is beneficial.

**Data Science or Data Analytics:** In an era of data-driven decision-making, majors related to data science or data analytics can be relevant for roles involving data analysis and resource optimization.

**Occupational Health and Safety:** For roles involving safety management and compliance in utility environments, a major in Occupational Health and Safety is advantageous.