

OPPORTUNITIES IN ENERGY

IOWA CAREER PATHWAYS



IOWA ENERGY – CAREER PATHWAYS INTRODUCTION

BACKGROUND:

Iowa's energy industry forms the backbone of communities across the state. Every time you turn on a light switch or cook on the stove you are connecting to an exciting field that employs tens of thousands of Iowans. Energy companies in electric, natural gas, oil and renewable energy technologies represent a range of growth careers, and a home for all kinds of people. The following tool contains energy career pathways information that shows career opportunities for every type of person, no matter what your interests or skills. You will probably see yourself represented in a few different families. We hope that you will explore and research jobs that sound interesting to you, and consider joining an industry that is part of the fabric of your community.

METHODOLOGY:

The information in this document was collected by the Council for Adult and Experiential Learning (CAEL) and paid for by a grant from the Iowa Department of Education. In addition to quantitative research, CAEL conducted focus groups with energy businesses in partnership with the Iowa Energy Workforce Consortium. Jobs descriptions and skills represent what employers in your community are looking for, and education and wage levels are based on labor market intelligence in the state of Iowa. Please note that all information has been averaged to help guide the reader in evaluating which jobs are of interest.

Using this information, the occupations for Iowa's energy sector were grouped into three levels based on the credentials/experience they required, and their potential pay:

1. **Entry Level:** These positions are the best entry points into a sector for an individual with little experience or education as they typically require only a HS diploma (occasionally a certification or minimal vocational training) and little to no prior related work experience.
2. **Mid-Level:** While these positions pay more than those at the entry level, they also involve more skilled work, requiring greater education—anywhere from vocational training (or certifications) to a 4-year bachelor's degree—and some level of related work experience.
3. **Senior Level:** These positions are typically high-level management positions and require significant education (typically a 4-year bachelor's or graduate degree) and extensive experience in the industry.

This information was also used to map out connections and paths between individual occupations within and across occupational families. For each occupation, any paths to other occupations are either one of two types:

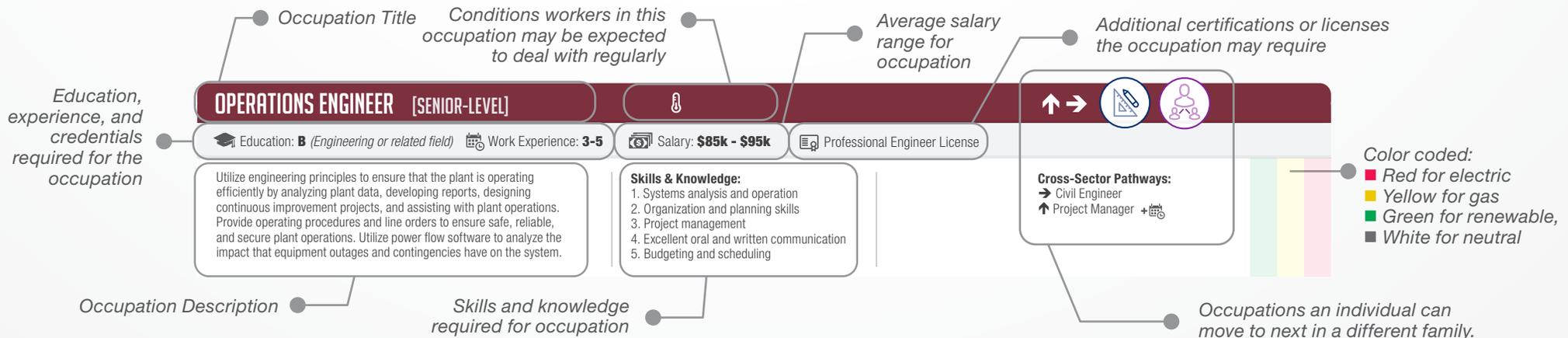
1. **Lateral (→)** meaning an individual can transfer into that occupation without significant extra education or experience. Often the average salaries are similar.
2. **Vertical (↑)** meaning an individual will need additional education or industry-related work experience to move up. This typically involves an increase in average salary.

WHAT'S INSIDE:

The information in the Pathways is broken down into two parts:

- Occupational Family Pathway Map:** shows the connections and pathways between occupations within each occupational family and provides basic information on each occupation.
- Sector Occupation Detail:** shows detailed information for each occupation in the occupational family. This information is laid out like the example below:

HS High School Diploma/HSED	H Heights	Vertical Pathway	(#) Years of Experience	Transmission and Distribution	Installation and Maintenance
V Vocational Training	ET Extreme Temperatures	Lateral Pathway	Licensure or Certification	Plant Operations	Administration and Management
AP Apprenticeship	O Outdoors	Additional Work Experience	Additional Education	Engineering and Systems Design	Customer Service and Sales
AS Associate Degree	T Travel				
B Bachelor's Degree	SW Shift Work/Odd Hours/On-Call				
M Master's Degree					



USING THE PATHWAYS:

The information in these pathways is not intended to provide an exhaustive or completely detailed picture of each occupational family, or a comprehensive list of every occupation an industry employer might hire. Rather, it is intended to provide the job-seeker or transitioning worker with a high-level view of common positions within each family, as well as potential opportunities for movement within and across family. Our hope is that they can then use this information as a starting point for further exploring specific occupational family and occupations of interest in order to make more informed decisions around their future career.



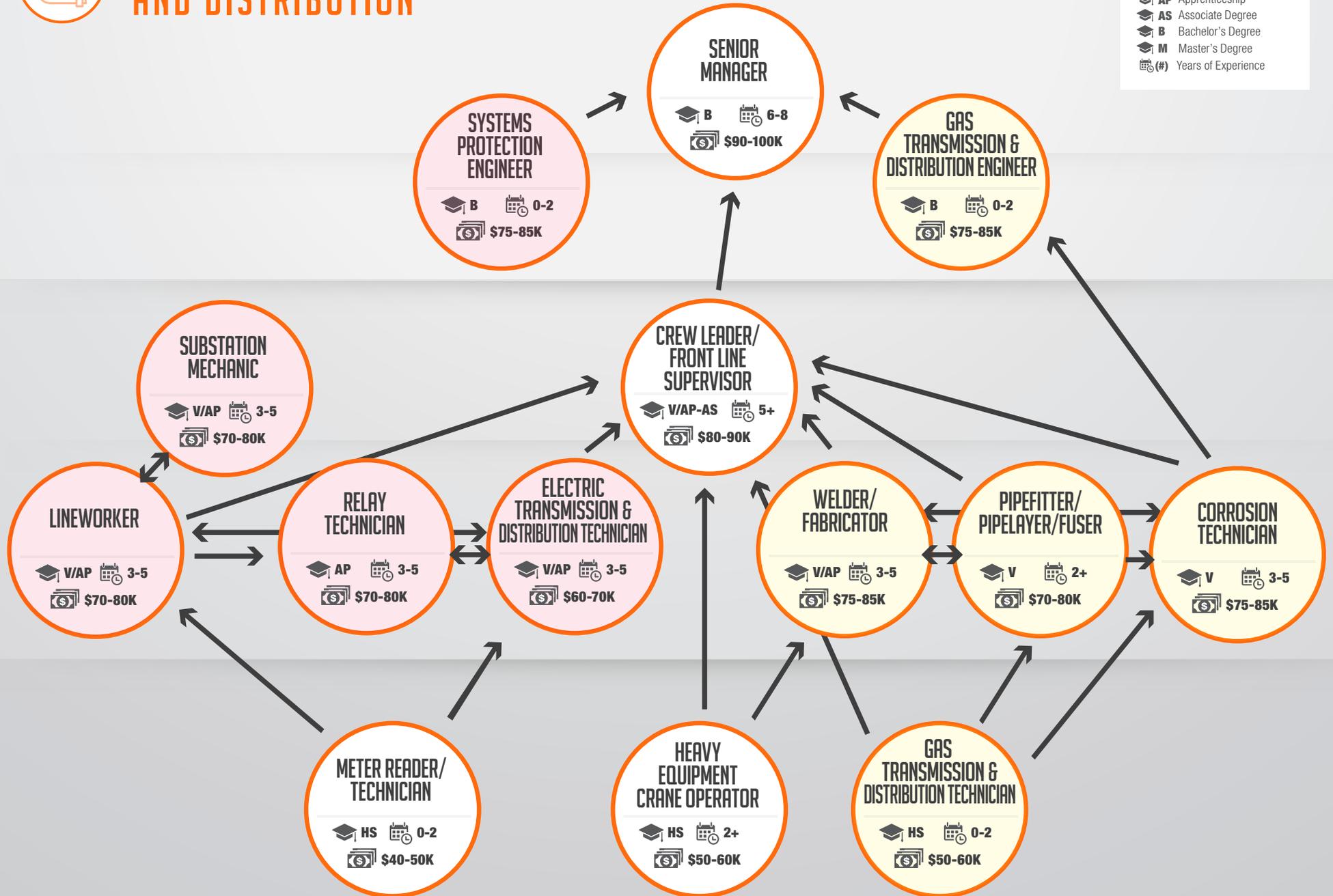
TRANSMISSION AND DISTRIBUTION

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree
- (#)** Years of Experience

SENIOR-LEVEL

MID-LEVEL

ENTRY-LEVEL





TRANSMISSION AND DISTRIBUTION

METER READER/TECHNICIAN [ENTRY-LEVEL]

Work Conditions  



 Education: **HS**  Work Experience: **0-2**  Salary: **\$40k - \$50k**

Read and record data collected from utility meters. May travel to and monitor meters in-person, recording unusual meter conditions, ensuring authorized use, delivering notices to customers, or repairing meter equipment. May monitor meters remotely. Uses specialized measurement and recording equipment.

Skills & Knowledge:

1. Data entry
2. Computer skills
3. Attention to detail
4. Physical endurance
5. Customer service

Cross-Family Pathways:

- General Laborer
- Customer Service Representative
- ↑ Energy Advisor +  **AS** + 

HEAVY EQUIPMENT/CRANE OPERATOR [ENTRY-LEVEL]

Work Conditions    



 Education: **HS**  Work Experience: **2+**  Salary: **\$50k - \$60k**  CDL, NCCER or NCCO certification

Safely operate heavy construction and maintenance equipment such as line and aerial lift trucks, cranes, bulldozers, and backhoes. Use equipment under direction of Crew Leader to assist in installation, alteration, addition, and repair of electrical systems and facilities.

Skills & Knowledge:

1. Heavy equipment and vehicle operation
2. Physical dexterity
3. Oral and written communication
4. Teamwork
5. Safety processes and procedures

Cross-Family Pathways:

- Heavy Equipment/Crane Operator

GAS TRANSMISSION & DISTRIBUTION TECHNICIAN [ENTRY-LEVEL]

Work Conditions   

 Education: **HS**  Work Experience: **0-2**  Salary: **\$50k - \$60k**  Commercial Driver's License (CDL)

Perform all types of work (except welding) in connection with construction, operations, and maintenance of gas facilities and lines; installs automatic controls used to regulate and monitor systems, responds to gas leaks; connects and disconnects gas equipment and appliances; turns gas services on and off.

Skills & Knowledge:

1. Physical strength and dexterity
2. Natural gas knowledge
3. Repair and maintenance
4. Equipment monitoring
5. Problem solving

-  **HS** High School Diploma/HSED
-  **V** Vocational Training
-  **AP** Apprenticeship
-  **AS** Associate Degree
-  **B** Bachelor's Degree
-  **M** Master's Degree

-  **H** Heights
-  **ET** Extreme Temperatures
-  **O** Outdoors
-  **T** Travel
-  **SW** Shift Work/Odd Hours/On-Call

-  Vertical Pathway
-  Lateral Pathway
-  Additional Work Experience
-  Additional Education

-  **(#)** Years of Experience
-  Licensure or Certification

-  Transmission and Distribution
-  Plant Operations
-  Engineering and Systems Design

-  Installation and Maintenance
-  Administration and Management
-  Customer Service and Sales



TRANSMISSION AND DISTRIBUTION

RELAY TECHNICIAN [MID-LEVEL]

Work Conditions



Education: **AP** Work Experience: **3-5** Salary: **\$70k - \$80k**

Assist in the installation, maintenance, programming and functional testing of protective relays/control circuits, revenue metering and ancillary equipment. Inspect and test equipment and circuits to identify problems using special diagrams that show wiring as well as testing devices. Open and close switches to isolate defective relays, then perform adjustments or repairs. Disconnect and replace equipment that manages voltage on high voltage power lines. Maintain and update installation, inspection, and maintenance records.

Skills & Knowledge:

1. Electrical components and systems knowledge
2. Schematic diagram reading
3. Problem solving
4. Troubleshooting
5. Multitasking

Cross-Family Pathways:

➔ Instrumentation and Control Technician

LINEWORKER [MID-LEVEL]

Work Conditions

Education: **V/AP** Work Experience: **3-5** Salary: **\$70k - \$80k**

Install and repair cables, wires and other equipment on electrical poles and transmission towers. Climb poles or use truck-mounted buckets to reach equipment using appropriate safety equipment. Identify defective devices such as fuses, switches, and wires. Inspect and test power lines and other equipment using special reading and testing devices. Lay underground cables.

Skills & Knowledge:

1. Electrical components and systems knowledge
2. Safety practices/procedures
3. Physical strength, dexterity, and endurance
4. Effective oral communication
5. Critical thinking and problem solving

SUBSTATION MECHANIC [MID-LEVEL]

Work Conditions

Education: **V/AP** Work Experience: **3-5** Salary: **\$70k - \$80k** Commercial Driver's License (CDL)

Perform routine operations and maintenance of electrical and mechanical equipment and systems at electrical substations. Serve as an expert on how a substation works and its equipment. Read electrical diagrams and troubleshoot malfunctioning electrical systems. Disassemble mechanical equipment and replace malfunctioning parts.

Skills & Knowledge:

1. Mechanical knowledge and reasoning
2. Maintenance and repair knowledge
3. Blueprint/diagram reading
4. Physical strength and dexterity
5. Teamwork

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree

- H** Heights
- ET** Extreme Temperatures
- O** Outdoors
- T** Travel
- SW** Shift Work/Odd Hours/On-Call

- Vertical Pathway
- Lateral Pathway
- Additional Work Experience
- Additional Education

- (#)** Years of Experience
- Licensure or Certification

- Transmission and Distribution
- Plant Operations
- Engineering and Systems Design

- Installation and Maintenance
- Administration and Management
- Customer Service and Sales



TRANSMISSION AND DISTRIBUTION

ELECTRIC TRANSMISSION & DISTRIBUTION TECHNICIAN [MID-LEVEL]

Work Conditions 



 Education: **V/AP**  Work Experience: **3-5**  Salary: **\$60k - \$70k**

Performs routine installation and maintenance operations at electrical substations. Inspect and test electrical equipment to identify problems using special wiring diagrams and testing devices. Disconnect and replace equipment that manages voltage on high voltage power lines.

Skills & Knowledge:

1. Electrical components and systems knowledge
2. Schematic diagram reading
3. Maintenance and repair
4. Effective oral and written communication
5. Physical dexterity

Cross-Family Pathways:

- ➔ Engineering Technician +  **AS**
- ⬆ Quality Assurance +  **B**

WELDER/FABRICATOR [MID-LEVEL]

Work Conditions 



 Education: **V/AP**  Work Experience: **3-5**  Salary: **\$75k - \$85k**  Welding Certification (e.g. AWS)

Use hand welding or flame-cutting equipment to join metal segments in connection with maintenance, repair, installation, and removal of transmission and distribution equipment or structures. Lay out, position, and secure parts prior to assembly. Monitor the fitting, burning, and welding processes to avoid overheating and warping, shrinking, distortion, and expansion of material.

Skills & Knowledge:

1. Welding skills and equipment
2. Physical dexterity
3. Attention to detail
4. Organization skills
5. Troubleshooting

Cross-Family Pathways:

- ⬆ Quality Assurance +  **B**

PIPEFITTER/PIPELAYER/FUSER [MID-LEVEL]

Work Conditions 

 Education: **V**  Work Experience: **2+**  Salary: **\$70k - \$80k**  CDL, OQ certification

Lay pipe for steam or gas mains for renewable natural gas. Follow the directions of others or written instructions to lay out pipe routes. Cut pipes to required size. Position pipes to prepare them for welding or sealing. Connect pipe pieces and joints using welding equipment or other sealing techniques. Find pipes in need of repair or replacing using special magnetic or radio indicators. Work safely and use appropriate safety equipment.

Skills & Knowledge:

1. Plumbing/pipefitting knowledge
2. Attention to detail
3. Good oral communication
4. Basic math
5. Physical strength

-  **HS** High School Diploma/HSED
-  **V** Vocational Training
-  **AP** Apprenticeship
-  **AS** Associate Degree
-  **B** Bachelor's Degree
-  **M** Master's Degree

-  **H** Heights
-  **ET** Extreme Temperatures
-  **O** Outdoors
-  **T** Travel
-  **SW** Shift Work/Odd Hours/On-Call

-  Vertical Pathway
-  Lateral Pathway
-  Additional Work Experience
-  Additional Education

-  **(#)** Years of Experience
-  Licensure or Certification

-  Transmission and Distribution
-  Plant Operations
-  Engineering and Systems Design

-  Installation and Maintenance
-  Administration and Management
-  Customer Service and Sales



TRANSMISSION AND DISTRIBUTION

CORROSION TECHNICIAN [MID-LEVEL]

Work Conditions

Education: **V** Work Experience: **3-5** Salary: **\$75k - \$85k**

Install, maintain, and operate cathodic protection systems on gas mains, looking for corrosion. Takes part in installing and removing gas meters and regulators and valves as required, taking tests of pressures and odor levels, investigating and repairing leaks, operating and maintaining tools and equipment. Observes system and plant gauges and charts and makes adjustments to equipment as required.

- Skills & Knowledge:**
1. Inspection and investigation
 2. Repair and maintenance
 3. Physical dexterity
 4. Troubleshooting
 5. Attention to detail

CREW LEADER/FRONT LINE SUPERVISOR [MID-LEVEL]

Work Conditions



Education: **V/AP-AS** Work Experience: **5+** Salary: **\$80k - \$90k** Journeyman, CDL, OSHA Competent Person

Determine schedules and work activities of crew members/staff. Review job performance and provide feedback, as necessary. Ensure that all work is performed correctly and in a safe manner. Train personnel in the correct procedures to complete assigned tasks. Communicate effectively with others including crew members, bosses, and management.

- Skills & Knowledge:**
1. Leadership and supervisory skills
 2. Instruction and mentorship
 3. Effective oral and written communication
 4. Problem solving
 5. Scheduling and personnel management

Cross-Family Pathways:
↑ Project Manager + **B**

SYSTEMS PROTECTION ENGINEER [SENIOR-LEVEL]

Work Conditions



Education: **B** (*Engineering or related field*) Work Experience: **0-2** Salary: **\$75k - \$85k**

Assist in supervising/training other technicians in maintaining and improving electric transmission facilities. Analyze, monitor, and improve electrical protection and control systems for transmission, generation, and distribution equipment to ensure security, safety, reliability, and integrity. Minimize the probability of system outages and preserve the delivery of electrical energy to customers. Assists in preparing protective relay equipment specifications and settings coordination.

- Skills & Knowledge:**
1. Electrical components and systems knowledge
 2. Complex problem solving
 3. Project management
 4. Effective oral and written communication
 5. Budgeting and scheduling

Cross-Family Pathways:
→ Electrical/Power Systems Engineer
↑ Generation/Plant Engineer +
↑ Quality Assurance +

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree

- H** Heights
- ET** Extreme Temperatures
- O** Outdoors
- T** Travel
- SW** Shift Work/Odd Hours/On-Call

- Vertical Pathway
- Lateral Pathway
- + Additional Work Experience
- + Additional Education

- (#)** Years of Experience
- Licensure or Certification

- Transmission and Distribution
- Plant Operations
- Engineering and Systems Design

- Installation and Maintenance
- Administration and Management
- Customer Service and Sales



TRANSMISSION AND DISTRIBUTION

GAS TRANSMISSION & DISTRIBUTION ENGINEER [SENIOR-LEVEL]

Work Conditions  



 Education: **B** (Engineering or related field)  Work Experience: **0-2**  Salary: **\$75k - \$85k**  OQ Certification

Assist in supervising/training other technicians in maintaining and improving natural gas distribution facilities. Perform engineering evaluation of gas transmission system assets. Responsible for balancing the gas supply and demand. Control, dispatch and monitor operation of all company transmission lines, designated distribution points and remotely controlled gas systems. Direct activities of crews during emergency and planned shutdowns of feeder lines or remotely controlled systems.

Skills & Knowledge:

1. Natural gas knowledge
2. Complex problem solving
3. Project management
4. Effective oral and written communication
5. Budgeting and scheduling

Cross-Family Pathways:

- Mechanical Engineer
- Civil Engineer
- ↑ Generation/Plant Engineer + 
- ↑ Quality Assurance + 

SENIOR MANAGER [SENIOR-LEVEL]



 Education: **B** (Business Administration, Management or related field)  Work Experience: **6-8**  Salary: **\$90k - \$100k**

Schedule and oversee work of electrical and/or gas operations. Review crew member performance and provide feedback. Prepare and manage budgets. Report to management.

Skills & Knowledge:

1. Leadership/supervisory skills
2. Budgeting and scheduling
3. Personnel management
4. Financial management and cost control
5. Effective oral and written communication

Cross-Family Pathways:

- ↑ General Operations Manager + 

-  **HS** High School Diploma/HSED
-  **V** Vocational Training
-  **AP** Apprenticeship
-  **AS** Associate Degree
-  **B** Bachelor's Degree
-  **M** Master's Degree

-  **H** Heights
-  **ET** Extreme Temperatures
-  **O** Outdoors
-  **T** Travel
-  **SW** Shift Work/Odd Hours/On-Call

- ↑ Vertical Pathway
- Lateral Pathway
- +  Additional Work Experience
- +  Additional Education

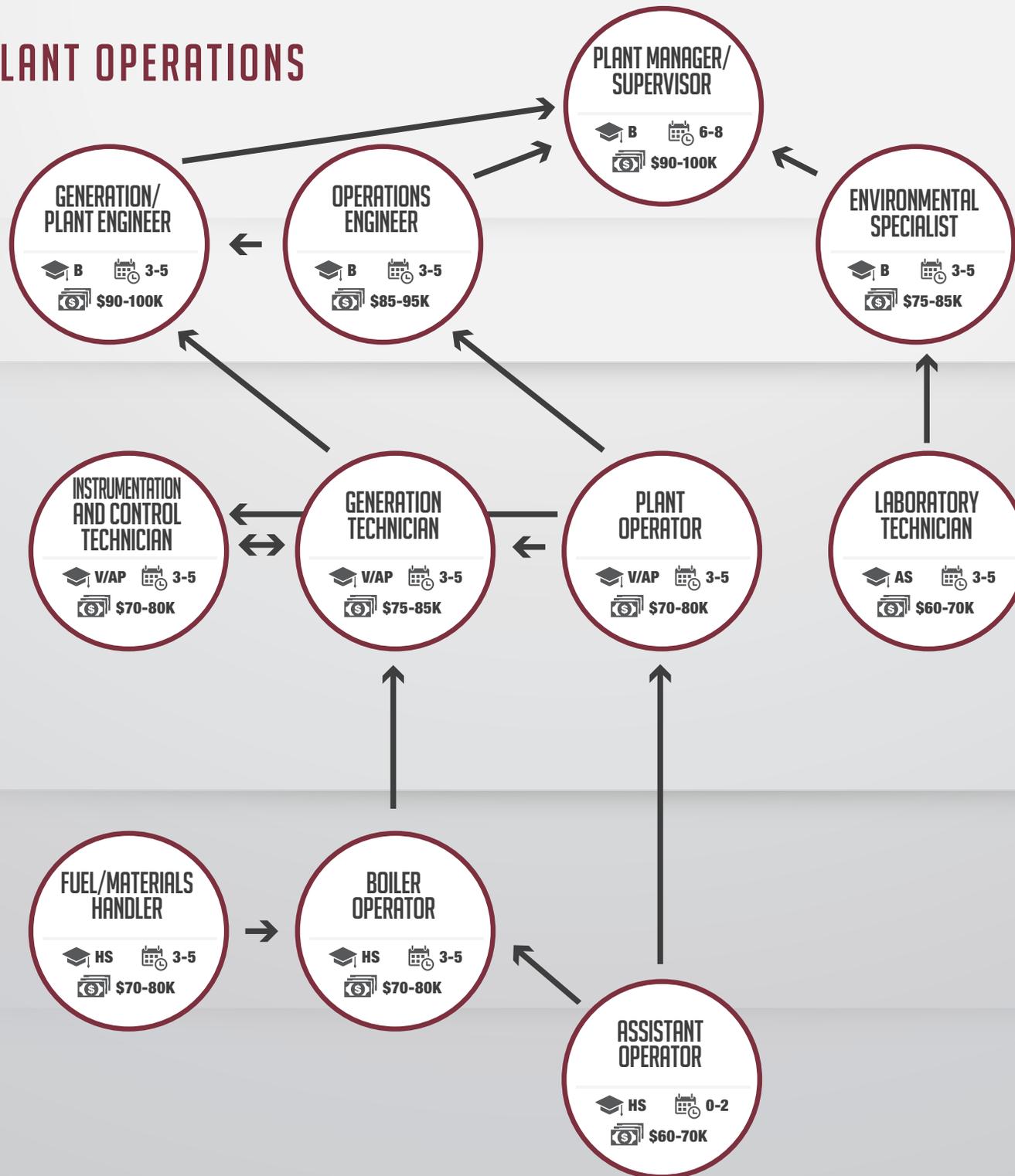
-  (#) Years of Experience
-  Licensure or Certification

-  Transmission and Distribution
-  Plant Operations
-  Engineering and Systems Design

-  Installation and Maintenance
-  Administration and Management
-  Customer Service and Sales



PLANT OPERATIONS



- HS High School Diploma/HSED
- V Vocational Training
- AP Apprenticeship
- AS Associate Degree
- B Bachelor's Degree
- M Master's Degree
- (#) Years of Experience

SENIOR-LEVEL

MID-LEVEL

ENTRY-LEVEL



PLANT OPERATIONS

ASSISTANT OPERATOR [ENTRY-LEVEL]

Work Conditions



Education: **HS** Work Experience: **0-2** Salary: **\$60k - \$70k**

Aid Operators in operation of plant equipment by providing tools and technical assistance; performing assigned maintenance and cleaning; and assisting with inspections. Report equipment conditions to Operators. Receive training and progressively learn to perform the duties of an Operator.

Skills & Knowledge:

1. Problem solving and mechanical reasoning
2. Attention to detail
3. Physical dexterity
4. Oral and written communication
5. Basic math

Cross-Family Pathways:

Maintenance and Repair Technician **V/AP**

FUEL/MATERIALS HANDLER [ENTRY-LEVEL]

Work Conditions



Education: **HS** Work Experience: **3-5** Salary: **\$70k - \$80k** Forklift Operator certification

Handle fuel and materials necessary for energy generation or manufacturing. Operate loaders and forklifts to unload fuel from trucks or train cars and transport to yard or boiler. Responsible for safe handling and transport practices as well as quality monitoring. Inspect and monitor related equipment.

Skills & Knowledge:

1. Equipment/forklift operation
2. Physical strength/dexterity
3. Attention to detail
4. Safety practices and procedures
5. Effective oral communication

Cross-Family Pathways:

Heavy Equipment/Crane Operator

BOILER OPERATOR [ENTRY-LEVEL]

Work Conditions



Education: **HS** Work Experience: **3-5** Salary: **\$70k - \$80k**

Operate and maintain boiler and steam generation systems to ensure efficiency. Monitor temperatures, pressures, and flow rates on all systems and ensures production goals. Inspect and repair boiler and steam fixtures/equipment. Test, analyze, and record chemical content in steam and water systems, providing treatment according to guidelines.

Skills & Knowledge:

1. Equipment operation
2. Safety practices and procedures
3. Effective oral communication
4. Physical dexterity/strength
5. Troubleshooting

Cross-Family Pathways:

Maintenance and Repair Technician **V/AP**

HS High School Diploma/HSED
V Vocational Training
AP Apprenticeship
AS Associate Degree
B Bachelor's Degree
M Master's Degree

H Heights
ET Extreme Temperatures
O Outdoors
T Travel
SW Shift Work/Odd Hours/On-Call

Vertical Pathway
 Lateral Pathway
+ Additional Work Experience
+ Additional Education

(#) Years of Experience
 Licensure or Certification

Transmission and Distribution
 Plant Operations
 Engineering and Systems Design

Installation and Maintenance
 Administration and Management
 Customer Service and Sales



PLANT OPERATIONS

INSTRUMENTATION AND CONTROL TECHNICIAN [MID-LEVEL]

Work Conditions



Education: **V/AP** Work Experience: **3-5** Salary: **\$70k - \$80k**

Diagnose mechanical and electrical problems and perform preventive and corrective maintenance of all plant instrumentation, as well as tuning, configuration and repair of all control systems. Responsibilities include maintenance of temperature, pressure, flow and level instruments and control loops.

Skills & Knowledge:

1. Electrical/mechanical knowledge
2. Repair and maintenance knowledge
3. PLC programming
4. Troubleshooting
5. Blueprint/diagram reading

Cross-Family Pathways:

- Relay Technician

GENERATION TECHNICIAN [MID-LEVEL]

Work Conditions



Education: **V/AP** Work Experience: **3-5** Salary: **\$75k - \$85k**

Responsible for the operation of plant equipment and performing routine maintenance. Responsible for the safe and efficient repair, maintenance and cleaning of all equipment. Inspect equipment including motors and belts, fluid levels and filters. Do preventive maintenance checkups on machines, mechanical equipment, and buildings.

Skills & Knowledge:

1. Mechanical knowledge and reasoning
2. Operating and monitoring equipment
3. Blueprint/diagram reading
4. Troubleshooting
5. Physical dexterity

Cross-Family Pathways:

- Electrician
- Relay Technician
- Engineering Technician + **AS**

PLANT OPERATOR [MID-LEVEL]

Work Conditions

Education: **V/AP** Work Experience: **3-5** Salary: **\$70k - \$80k**

Operate and control the equipment that generates energy from a variety of sources including renewables. Work safely and use appropriate safety equipment. Use special testing tools to test generation machinery. Do preventative maintenance checkups on generation equipment and repair, if necessary. Adjust the control on the generation equipment as power usage changes.

Skills & Knowledge:

1. Effective oral and written communication
2. Problem solving
3. Systems analysis and failure mitigation
4. Computer skills
5. Multitasking

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree

- H** Heights
- ET** Extreme Temperatures
- O** Outdoors
- T** Travel
- SW** Shift Work/Odd Hours/On-Call

- Vertical Pathway
- Lateral Pathway
- Additional Work Experience
- Additional Education

- (#)** Years of Experience
- Licensure or Certification

- Transmission and Distribution
- Plant Operations
- Engineering and Systems Design

- Installation and Maintenance
- Administration and Management
- Customer Service and Sales



PLANT OPERATIONS

LABORATORY TECHNICIAN [MID-LEVEL]

Work Conditions

Education: **AS** (Chemistry or related field) Work Experience: **3-5** Salary: **\$60k - \$70k** Certified Laboratory Technician

Conduct chemical experiments, tests and analyses in support of fuel production and generation. Operate and maintain laboratory equipment. Assist in developing and conducting programs of sampling and analysis to maintain quality standards among plant systems (including boilers, cooling, etc.). Conduct or assist in air and water quality testing and assessments, environmental monitoring and protection activities, and development of and compliance with standards.

Skills & Knowledge:

1. Strong chemistry and biology knowledge
2. Laboratory equipment use and calibration
3. Experimental testing and research
4. Effective written communication skills
5. Troubleshooting

GENERATION/PLANT ENGINEER [SENIOR-LEVEL]

Work Conditions



Education: **B** (Engineering) Work Experience: **3-5** Salary: **\$90k - \$100k** Professional Engineer License

Provide engineering analysis of plant equipment and systems in order to increase generation efficiency and ensure plant runs at maximum performance. Troubleshoot process problems and considers cost factors. Purchase fuel and arrange transport of fuel to plant. Help ensure compliance with environmental, health, and safety requirements. Manage Generation Technicians, determining work schedules and activities.

Skills & Knowledge:

1. Mechanical knowledge and reasoning
2. Advanced systems analysis
3. Safety processes/procedures
4. Effective oral and written communication
5. Personnel management

Cross-Family Pathways:

- Mechanical Engineer
- Technical Sales Representative
- ↑ Maintenance Manager +

OPERATIONS ENGINEER [SENIOR-LEVEL]



Education: **B** (Engineering or related field) Work Experience: **3-5** Salary: **\$85k - \$95k** Professional Engineer License

Utilize engineering principles to ensure that the plant is operating efficiently by analyzing plant data, developing reports, designing continuous improvement projects, and assisting with plant operations. Provide operating procedures and line orders to ensure safe, reliable, and secure plant operations. Utilize power flow software to analyze the impact that equipment outages and contingencies have on the system.

Skills & Knowledge:

1. Systems analysis and operation
2. Organization and planning skills
3. Project management
4. Excellent oral and written communication
5. Budgeting and scheduling

Cross-Family Pathways:

- Civil Engineer
- ↑ Project Manager +

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree

- H** Heights
- ET** Extreme Temperatures
- O** Outdoors
- T** Travel
- SW** Shift Work/Odd Hours/On-Call

- Vertical Pathway
- Lateral Pathway
- Additional Work Experience
- Additional Education

- (#)** Years of Experience
- Licensure or Certification

- Transmission and Distribution
- Plant Operations
- Engineering and Systems Design

- Installation and Maintenance
- Administration and Management
- Customer Service and Sales



PLANT OPERATIONS

ENVIRONMENTAL SPECIALIST [SENIOR-LEVEL]



Education: **B** (Chemistry or related field) Work Experience: **3-5** Salary: **\$75k - \$85k**

Provides technical support and participates in solving complex operating problems related to plant chemistry. Coordinates research and analysis activities according to applicable regulations, safety, manufacturing processes or other considerations. Reviews research and testing, and interprets results of laboratory activities to ensure that quality standards, efficiency and schedules are met. Manages Laboratory Technician staff, evaluating performance and coordinating budget/staff resources.

- Skills & Knowledge:**
1. Expertise in chemistry and biology
 2. Experimental research design
 3. Laboratory management
 4. Budgeting and scheduling
 5. Complex problem solving

- Cross-Family Pathways:**
- Chemical Engineer
 - Quality Assurance

PLANT MANAGER/SUPERVISOR [SENIOR-LEVEL]



Education: **B** (Business Administration, Engineering, or related field) Work Experience: **6-8** Salary: **\$90k - \$100k**

Direct the efforts of all plant personnel to meet all established safety, quality, performance, generation, and delivery requirements. This includes directing and initiating cost savings efforts and quality programs, development of budgets, and meeting stated financial objectives. Inspect records and log book entries to determine the efficiency in which the plant is operating. Determine schedules and work activities of team members. Communicate and coordinate with other management personnel in other areas of company.

- Skills & Knowledge:**
1. Leadership and supervisory skills
 2. Financial management and cost control
 3. Project management
 4. Report preparation
 5. Personnel management

- Cross-Family Pathways:**
- Senior Manager
 - Supervising Engineer
 - ↑ General Operations Manager

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree

- H** Heights
- ET** Extreme Temperatures
- O** Outdoors
- T** Travel
- SW** Shift Work/Odd Hours/On-Call

- Vertical Pathway
- Lateral Pathway
- Additional Work Experience
- Additional Education

- (#)** Years of Experience
- Licensure or Certification

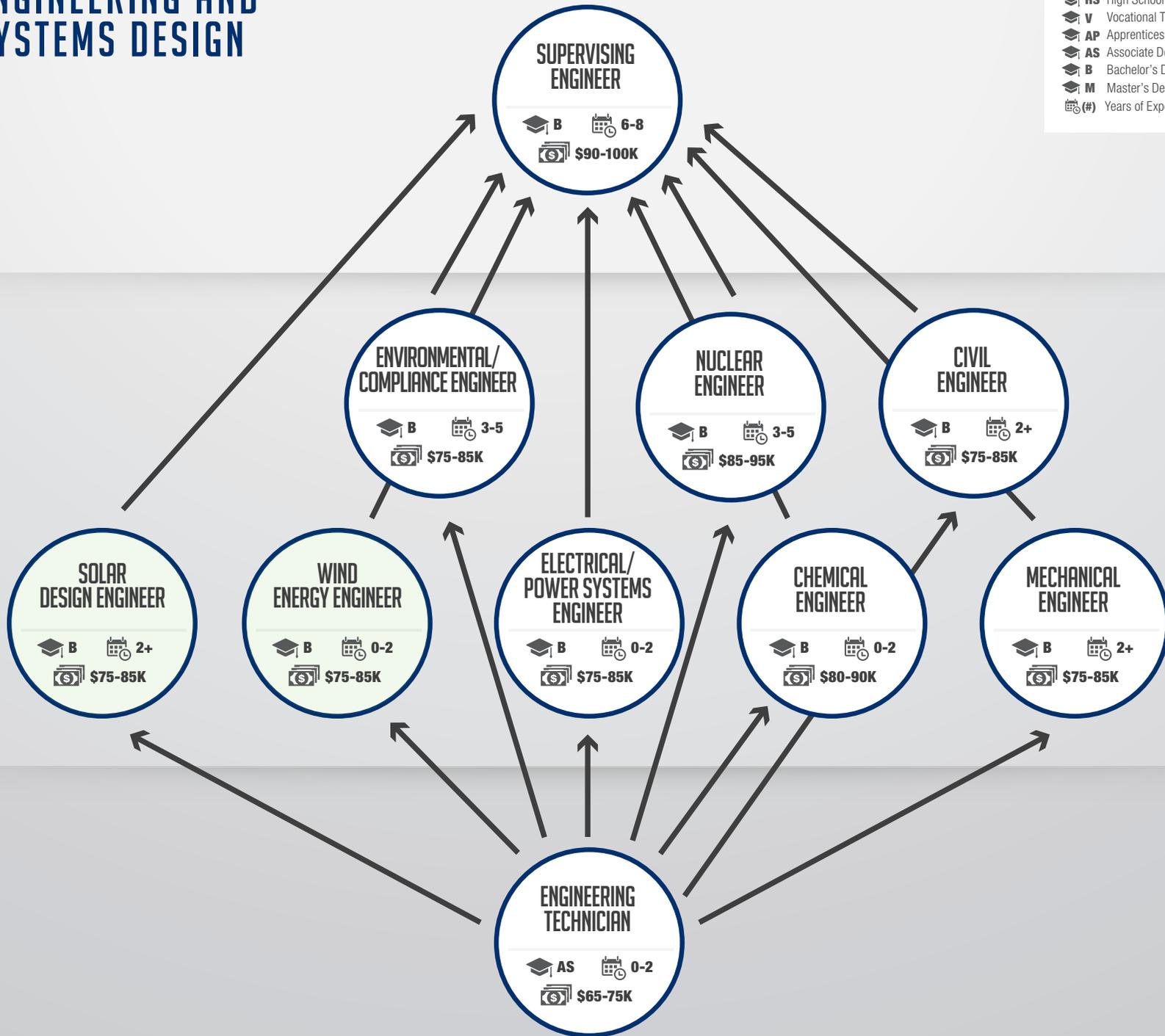
- Transmission and Distribution
- Plant Operations
- Engineering and Systems Design

- Installation and Maintenance
- Administration and Management
- Customer Service and Sales



ENGINEERING AND SYSTEMS DESIGN

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree
- (#)** Years of Experience



SENIOR-LEVEL

MID-LEVEL

ENTRY-LEVEL



ENGINEERING AND SYSTEMS DESIGN

ENGINEERING TECHNICIAN [ENTRY-LEVEL]

Work Conditions



Education: **AS** (*Engineering Technology or related field*)

Work Experience: **0-2**

Salary: **\$65k - \$75k**

Work with engineers in applying engineering standards and practices in planning generation and distribution systems. Their work is more narrowly focused and application-oriented than that of the scientists and engineers they assist. This can involve preparing project documentation and files, preparing requests for materials, providing technical support, and preparing technical reports.

Skills & Knowledge:

1. Significant math and science
2. Blueprint and diagram reading/design
3. Problem solving
4. Teamwork
5. CAD software

Cross-Family Pathways:

- ↑ Gas Transmission & Distribution Engineer + **B**
- ↑ Systems Protection Engineer + **B**
- ↑ Generation/Plant Engineer + **B** +
- ↑ Operations Engineer + **B** +

ELECTRICAL/POWER SYSTEMS ENGINEER [MID-LEVEL]

Education: **B** (*Engineering Technology or related field*)

Work Experience: **0-2**

Salary: **\$75k - \$85k**

Apply electrical theory to engineering projects involving the design and operation of power systems. Perform calculations to determine how electrical systems should be built. Use computer assisted engineering and design software and equipment to perform engineering tasks. Design relay and control panel layouts and prepare purchase specifications for devices.

Skills & Knowledge:

1. Electrical design and diagramming
2. Troubleshooting
3. Systems analysis
4. Complex problem solving
5. Strong math and science

MECHANICAL ENGINEER [MID-LEVEL]



Education: **B** (*Mechanical Engineering or related field*)

Work Experience: **2+**

Salary: **\$75k - \$85k**

Use knowledge of machines and mechanical engineering to oversee the design, installation, operation, and maintenance of equipment systems. This work can include: discovering why equipment fails and making repair recommendations to the maintenance crew; establishing technical requirements for the modification of equipment; and overseeing the installation of new equipment.

Skills & Knowledge:

1. Mechanical knowledge
2. Blueprint and diagram reading/design
3. Strong math and science
4. Complex problem solving
5. Good written communication

Cross-Family Pathways:

- Generation/Plant Engineer
- Technical Sales Representative

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree

- H** Heights
- ET** Extreme Temperatures
- O** Outdoors
- T** Travel
- SW** Shift Work/Odd Hours/On-Call

- ↑ Vertical Pathway
- Lateral Pathway
- + Additional Work Experience
- + Additional Education

- (#)** Years of Experience
- Licensure or Certification

- Transmission and Distribution
- Plant Operations
- Engineering and Systems Design

- Installation and Maintenance
- Administration and Management
- Customer Service and Sales



ENGINEERING AND SYSTEMS DESIGN

ENVIRONMENTAL/COMPLIANCE ENGINEER [MID-LEVEL]

Work Conditions



Education: **B** (*Engineering or related field*) Work Experience: **3-5** Salary: **\$75k - \$85k**

Using tools and principles from a variety of engineering disciplines, establish practices to prevent, control, and/or remediate environmental, health and safety hazards in operations. Inspect equipment to evaluate and ensure compliance with environmental regulations. Provide environmental engineering assistance to Regulatory Analysts/Managers. Monitor progress of environmental improvement programs.

Skills & Knowledge:

1. Knowledge of safety procedures and environmental regulations
2. Monitoring processes and materials
3. Judgement and decision making
4. Complex problem solving
5. Effective oral and written communication

Cross-Family Pathways:

- Health and Safety Manager
- Regulatory Affairs Manager/Analyst

CIVIL ENGINEER [MID-LEVEL]

Education: **B** (*Engineering or related field*) Work Experience: **2+** Salary: **\$75k - \$85k**

Perform engineering duties in planning, designing, and overseeing construction and maintenance of building structures and facilities such as pipeline and power plants. Direct or participate in surveying to lay out installations and guide construction. Inspect project sites to check on progress and make sure workers are following design specifications and safety standards.

Skills & Knowledge:

1. Systems planning and design
2. Strong math and science
3. Organizational and planning skills
4. Complex problem solving
5. Effective oral and written communication

WIND ENERGY ENGINEER [MID-LEVEL]



Education: **B** (*Engineering or related field*) Work Experience: **0-2** Salary: **\$75k - \$85k**

Responsible for managing and analyzing wind assessment resources; designing and validating wind farm layouts; determining optimal meteorological tower locations and configurations; creating monthly reports using onsite and reference stations' recorded wind data; and performing wind farm energy production assessments, site suitability analysis, and wind turbine power performance tests.

Skills & Knowledge:

1. Knowledge of wind power and aerodynamics
2. Knowledge of electrical systems
3. Systems planning and design
4. Complex problem solving
5. Effective oral and written communication

Cross-Family Pathways:

- Quality Assurance

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree

- H** Heights
- ET** Extreme Temperatures
- O** Outdoors
- T** Travel
- SW** Shift Work/Odd Hours/On-Call

- Vertical Pathway
- Lateral Pathway
- Additional Work Experience
- Additional Education

- (#)** Years of Experience
- Licensure or Certification

- Transmission and Distribution
- Plant Operations
- Engineering and Systems Design

- Installation and Maintenance
- Administration and Management
- Customer Service and Sales



ENGINEERING AND SYSTEMS DESIGN

SOLAR DESIGN ENGINEER [MID-LEVEL]

Work Conditions



Education: **B** (Electrical Engineering or related field)

Work Experience: **2+**

Salary: **\$75k - \$85k**

Design large photovoltaic or solar thermal systems. Develop the specifications and integration requirements that allow solar power to safely, effectively and efficiently flow into the power grid. Create electrical three-line diagrams for solar power systems using computer-aided design software; Run computer simulations of solar PV generation to optimize efficiency and system performance. Provide technical direction or support to field teams during installation, start-up, testing, system commissioning, and performance monitoring.

Skills & Knowledge:

1. Solar and electrical systems knowledge
2. Systems design and evaluation
3. Construction management
4. Complex problem solving
5. Effective oral and written communication

Cross-Family Pathways:

- ➔ Technical Sales Rep.
- ⬆ Quality Assurance

CHEMICAL ENGINEER [MID-LEVEL]

Education: **B** (Chemical Engineering or related field)

Work Experience: **0-2**

Salary: **\$80k - \$90k**

Provide technical and engineering support related including the development of processes to separate components of liquids or gases, or generate electrical currents using controlled chemical reactions. Develop safety procedures to be used by workers who will be near on-going chemical reactions. Conduct research to develop new and improved chemical processes related to energy generation and transmission.

Skills & Knowledge:

1. Strong chemistry, physics, and math knowledge
2. Systems analysis and planning
3. Complex problem solving
4. Troubleshooting
5. Effective oral and written communication

NUCLEAR ENGINEER [MID-LEVEL]



Education: **B** (Nuclear Engineering or related field)

Work Experience: **3-5**

Salary: **\$85k - \$95k**

Design and oversee the construction and operation of nuclear reactors and power plants. Monitor activity in a nuclear facility to ensure safety rules and laws are followed. Perform experiments that provide information about how to use and dispose of nuclear material.

Skills & Knowledge:

1. Knowledge of nuclear energy and reactions
2. Systems analysis and planning
3. Complex problem solving
4. Benchmarking and safety standards
5. Judgement and decision making

Cross-Family Pathways:

- ➔ Quality Assurance

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree

- H** Heights
- ET** Extreme Temperatures
- O** Outdoors
- T** Travel
- SW** Shift Work/Odd Hours/On-Call

- Vertical Pathway
- Lateral Pathway
- Additional Work Experience
- Additional Education

- Years of Experience
- Licensure or Certification

- Transmission and Distribution
- Plant Operations
- Engineering and Systems Design

- Installation and Maintenance
- Administration and Management
- Customer Service and Sales



ENGINEERING AND SYSTEMS DESIGN

SUPERVISING ENGINEER [SENIOR-LEVEL]

Work Conditions



Education: **B-M** (Engineering or related field) Work Experience: **6-8** Salary: **\$90k - \$100k** Professional Engineer License

Design large photovoltaic or solar thermal systems. Develop the specifications and integration requirements that allow solar power to safely, effectively and efficiently flow into the power grid. Create electrical three-line diagrams for solar power systems using computer-aided design software; Run computer simulations of solar PV generation to optimize efficiency and system performance. Provide technical direction or support to field teams during installation, start-up, testing, system commissioning, and performance monitoring.

Skills & Knowledge:

1. Solar and electrical systems knowledge
2. Systems design and evaluation
3. Construction management
4. Complex problem solving
5. Effective oral and written communication

Cross-Family Pathways:

- Plant Operations Manager/Supervisor
- Senior Manager

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree

- H** Heights
- ET** Extreme Temperatures
- O** Outdoors
- T** Travel
- SW** Shift Work/Odd Hours/On-Call

- Vertical Pathway
- Lateral Pathway
- Additional Work Experience
- Additional Education

- (#)** Years of Experience
- Licensure or Certification

- Transmission and Distribution
- Plant Operations
- Engineering and Systems Design

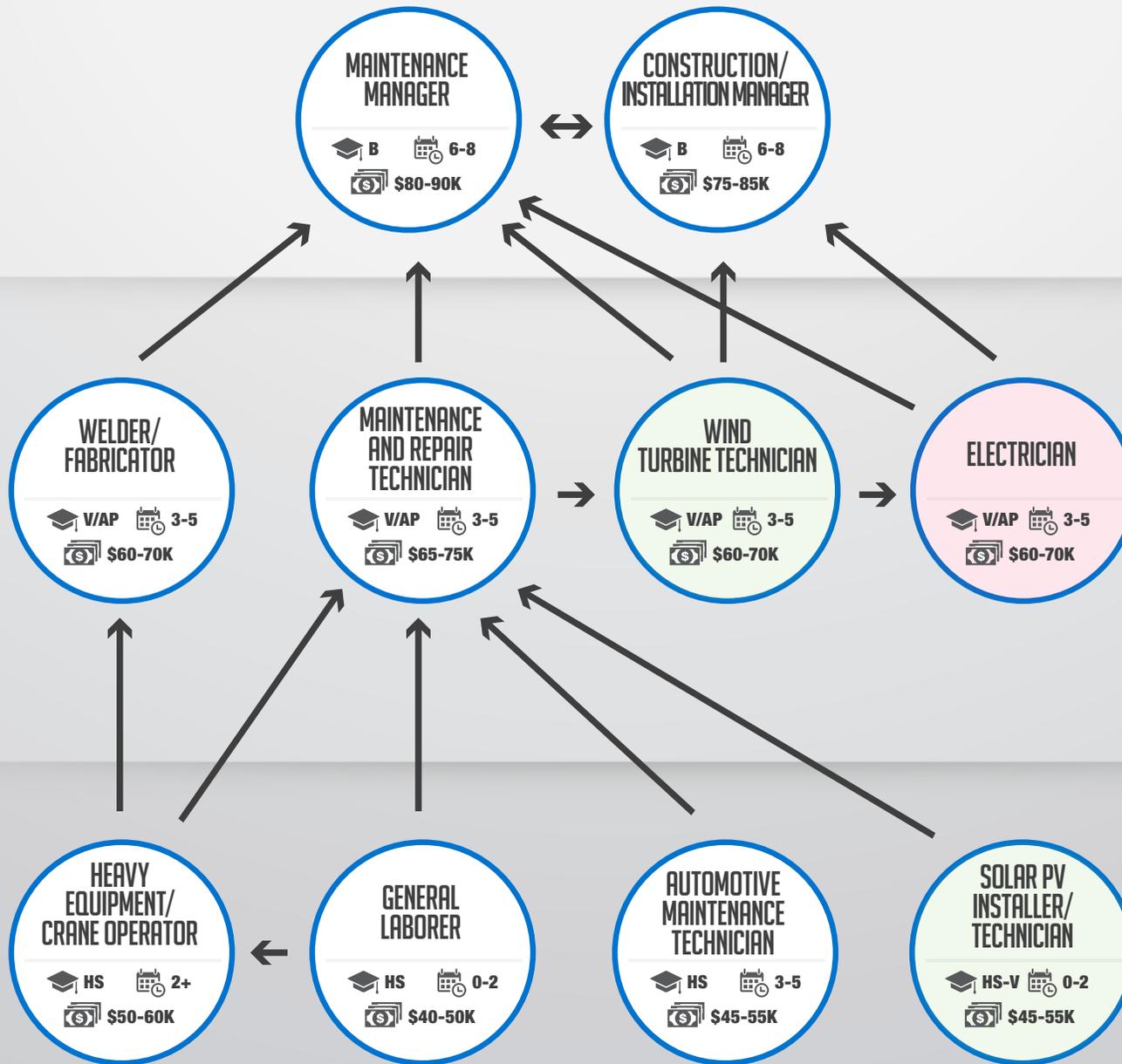
- Installation and Maintenance
- Administration and Management
- Customer Service and Sales



INSTALLATION AND MAINTENANCE (FLEET AND FACILITY)

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree
- (#)** Years of Experience

SENIOR-LEVEL



MID-LEVEL

ENTRY-LEVEL



INSTALLATION AND MAINTENANCE (FLEET AND FACILITY)

GENERAL LABORER [ENTRY-LEVEL]

Work Conditions



Education: **HS** Work Experience: **0-2** Salary: **\$40k - \$50k**

Manually move stock, materials, and supplies. Engage in basic construction tasks. Perform basic cleaning and maintenance.

Skills & Knowledge:

1. Physical strength and dexterity
2. Equipment operation
3. Teamwork
4. Oral communication
5. Attention to detail

Cross-Family Pathways:

→ Heavy Equipment/Crane Operator

HEAVY EQUIPMENT/Crane OPERATOR [ENTRY-LEVEL]

Work Conditions



Education: **HS** Work Experience: **2+** Salary: **\$50k - \$60k** CDL, NCCER or NCCO certification

Safely operate heavy construction and maintenance equipment such as line and aerial lift trucks, cranes, bulldozers, and digger derricks. Use equipment under direction of Construction/Maintenance Manager to assist in installation, alteration, addition, and repair of electrical systems and facilities.

Skills & Knowledge:

1. Heavy equipment and vehicle operation
2. Physical dexterity
3. Oral and written communication
4. Teamwork
5. Safety processes and procedures

Cross-Family Pathways:

→ Heavy Equipment/Crane Operator
↑ Substation Mechanic + +

AUTOMOTIVE MAINTENANCE TECHNICIAN [ENTRY-LEVEL]

Work Conditions



Education: **HS** Work Experience: **3-5** Salary: **\$45k - \$55k** CDL, Automotive Service Excellence (ASE)

Maintain and repair line and aerial lift trucks, cranes, bulldozers and other similar vehicles. Inspect, clean, adjust, remove or install automotive parts including work on all hydraulic systems and component parts. Perform road tests on vehicles, as directed. Observe all safety rules and practices.

Skills & Knowledge:

1. Mechanical/hydraulic knowledge
2. Troubleshooting
3. Physical dexterity
4. Heavy equipment and vehicle operation
5. Teamwork

Cross-Family Pathways:

↑ Substation Mechanic +

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree

- H** Heights
- ET** Extreme Temperatures
- O** Outdoors
- T** Travel
- SW** Shift Work/Odd Hours/On-Call

- Vertical Pathway
- Lateral Pathway
- Additional Work Experience
- Additional Education

- (#)** Years of Experience
- Licensure or Certification

- Transmission and Distribution
- Plant Operations
- Engineering and Systems Design

- Installation and Maintenance
- Administration and Management
- Customer Service and Sales



INSTALLATION AND MAINTENANCE (FLEET AND FACILITY)

SOLAR PV INSTALLER/TECHNICIAN [ENTRY-LEVEL]

Work Conditions



Education: **HS-V** Work Experience: **0-2** Salary: **\$45k - \$55k** Electrician certification

Install, monitor, diagnose, optimize and repair photovoltaic systems. Design and prepare system layouts based on specific site characteristics. Drive to multiple sites to install, inspect, evaluate, test, clean, calibrate, and maintain solar module systems, mounting hardware, inverters, and related equipment. The work may entail electrical troubleshooting, diagnostics and repair.

Skills & Knowledge:
1. Customer service
2. Photovoltaic/electrical knowledge
3. Oral and written communication
4. Computer skills
5. Physical strength and dexterity

Cross-Family Pathways:
↑ Electric Transmission & Distribution Technician +
↑ Solar Design Engineer +

MAINTENANCE AND REPAIR TECHNICIAN [MID-LEVEL]

Work Conditions



Education: **V/AP** Work Experience: **3-5** Salary: **\$65k - \$75k**

Ensure machines, equipment, and buildings remain in good condition and proper working order. Inspect motors, belts, fluid levels, filters and other mechanical elements. Take apart machines and repair/replace parts using hand or power tools. Use large machines like hoists and cranes. Use repair manuals to determine and fix problems. Keep track of work.

Skills & Knowledge:
1. Physical strength and dexterity
2. Teamwork
3. Oral communication
4. Equipment operation
5. Attention to detail

Cross-Family Pathways:
→ Substation Mechanic

WELDER/FABRICATOR [MID-LEVEL]

Work Conditions



Education: **V/AP** Work Experience: **3-5** Salary: **\$60k - \$70k** Welding Certification (e.g. AWS)

Use hand welding or flame-cutting equipment to join metal segments in connection with maintenance, repair, installation, and removal of mechanical equipment/structures. Lay out, position, and secure parts prior to assembly. Monitor the fitting, burning, and welding processes to avoid overheating and warping, shrinking, distortion, and expansion of material.

Skills & Knowledge:
1. Welding skills and equipment
2. Physical dexterity
3. Attention to detail
4. Organization skills
5. Troubleshooting

Cross-Family Pathways:
→ Welder/Fabricator
→ Pipefitter/Pipelayer/Fuser

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree

- H** Heights
- ET** Extreme Temperatures
- O** Outdoors
- T** Travel
- SW** Shift Work/Odd Hours/On-Call

- Vertical Pathway
- Lateral Pathway
- Additional Work Experience
- Additional Education

- Years of Experience
- Licensure or Certification

- Transmission and Distribution
- Plant Operations
- Engineering and Systems Design

- Installation and Maintenance
- Administration and Management
- Customer Service and Sales



INSTALLATION AND MAINTENANCE (FLEET AND FACILITY)

WIND TURBINE TECHNICIAN [MID-LEVEL]

Work Conditions



Education: **V/AP** Work Experience: **3-5** Salary: **\$60k - \$70k**

Installation, maintenance, troubleshooting, and repairs on wind turbines and other associated equipment. Must understand the mechanics, including both electrical and maintenance of hydraulics, of all wind turbine components. Replaces mechanical and electrical components, understands schematics and uses appropriate diagnostic tools.

Skills & Knowledge:
1. Mechanical/hydraulic knowledge
2. Safety procedures
3. Physical dexterity and endurance
4. Troubleshooting
5. Effective verbal communication

Cross-Family Pathways:
→ Lineworker
→ Generation Technician
↑ Wind Energy Engineer **B**

ELECTRICIAN [MID-LEVEL]

Work Conditions



Education: **V/AP** Work Experience: **3-5** Salary: **\$60k - \$70k** Licensed Electrician

Install, maintain and repair electrical wiring, equipment and fixtures for energy facilities (e.g. batteries, meters, protective grounds, etc.). Ensure that work complies with electrical and building codes. May hold a wide variety of jobs depending on where they work and whether they work for a small or large contractor/company.

Skills & Knowledge:
1. Electrical systems and components
2. Good oral and written communication
3. Troubleshooting
4. Problem solving
5. Attention to detail

Cross-Family Pathways:
→ Electric Transmission & Distribution Technician
→ Relay Technician
→ Instrumentation and Control Technician
→ Generation Technician

CONSTRUCTION/INSTALLATION MANAGER [SENIOR-LEVEL]

Work Conditions



Education: **B** (*Construction Management or related field*) Work Experience: **6-8** Salary: **\$75k - \$85k** Project Management Professional (PMP)

Responsible for providing oversight to the management of construction activities for various plant and (electric and gas) transmission/distribution projects including: verifying contract and technical requirements are being met by contractors, coordinating all on site activities; assuring that materials are available when needed to complete work; and assuring that safe work practices are being utilized. Provides direction to construction crews and other responsible personnel as required to complete projects safely, on time, on budget and as required by contract documents.

Skills & Knowledge:
1. Project management
2. Budgeting and scheduling
3. Contract management
4. Occupational Health and Safety
5. Excellent oral and written communication

Cross-Family Pathways:
→ Senior Manager
→ Project Manager

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree

- H** Heights
- ET** Extreme Temperatures
- O** Outdoors
- T** Travel
- SW** Shift Work/Odd Hours/On-Call

- Vertical Pathway
- Lateral Pathway
- +** Additional Work Experience
- +** Additional Education

- (#)** Years of Experience
- Licensure or Certification

- Transmission and Distribution
- Plant Operations
- Engineering and Systems Design

- Installation and Maintenance
- Administration and Management
- Customer Service and Sales



INSTALLATION AND MAINTENANCE (FLEET AND FACILITY)

MAINTENANCE MANAGER [SENIOR-LEVEL]

Work Conditions



Education: **B** (Engineering, Construction Management, or related field) Work Experience: **6-8** Salary: **\$80k - \$90k** Project Management Professional (PMP)

Determine schedules and work activities of maintenance team members. Discuss with team members how well they are doing on the job and provide feedback, as necessary. Check work areas and examine tools and equipment to see if there are any unsafe conditions. Communicate effectively with others including team members, bosses, and management.

Skills & Knowledge:

1. Resource management
2. Maintenance and repair expertise
3. Leadership/supervisory skills
4. Project management
5. Excellent oral and written communication

Cross-Family Pathways:

- ➔ Senior Manager
- ➔ Plant Manager/Supervisor
- ➔ Project Manager

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree

- H** Heights
- ET** Extreme Temperatures
- O** Outdoors
- T** Travel
- SW** Shift Work/Odd Hours/On-Call

- Vertical Pathway
- Lateral Pathway
- Additional Work Experience
- Additional Education

- (#)** Years of Experience
- Licensure or Certification

- Transmission and Distribution
- Plant Operations
- Engineering and Systems Design

- Installation and Maintenance
- Administration and Management
- Customer Service and Sales



ADMINISTRATION AND MANAGEMENT

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree
- (#)** Years of Experience

SENIOR-LEVEL

GENERAL OPERATIONS MANAGER

B/M **9+**

\$100K+

HEALTH AND SAFETY MANAGER

B **5+**

\$80-90K

PROJECT MANAGER

B **6-8**

\$80-90K

REGULATORY AFFAIRS MANAGER ANALYST

B **5+**

\$85-95K

MID-LEVEL

QUALITY ASSURANCE

B **3-5**

\$70-80K

BUSINESS/ FINANCIAL ANALYST

B **3-5**

\$70-80K

BUYER

B **2+**

\$70-80K

SECURITY OFFICER

HS **2+**

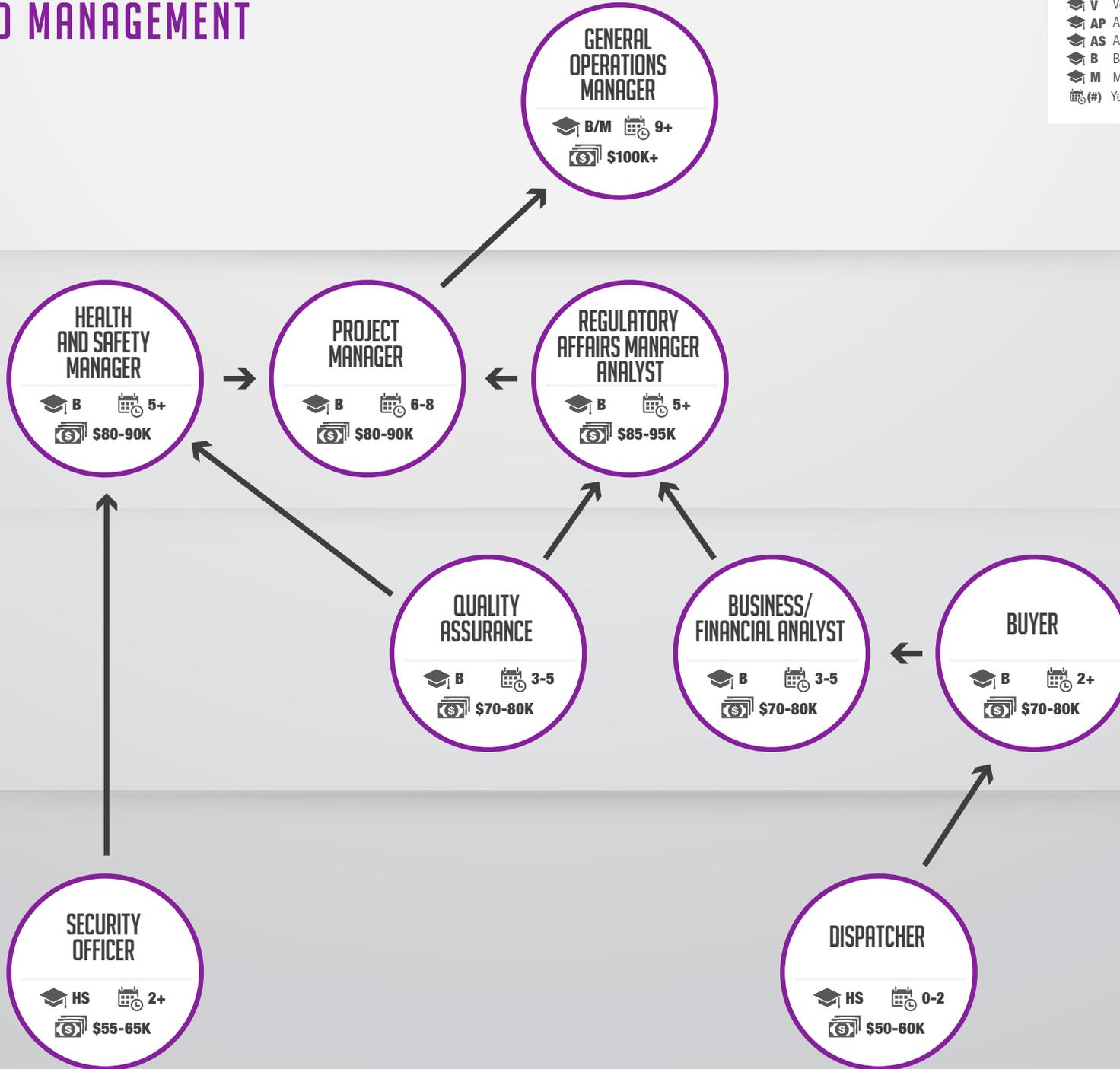
\$55-65K

DISPATCHER

HS **0-2**

\$50-60K

ENTRY-LEVEL





ADMINISTRATION AND MANAGEMENT

NOTE: Following are only a few of the administrative occupations present within the energy industry. Positions in accounting, human resources, marketing, and other areas play essential roles in the industry and offer excellent opportunities to individuals with these skill sets.

DISPATCHER [ENTRY-LEVEL]

Work Conditions



Education: **HS** Work Experience: **0-2** Salary: **\$50k - \$60k**

Dispatch electric/gas services and transmission/distribution personnel, receive customer trouble and service tickets or calls, call employees for emergency work or notification purposes, coordinate field response, and monitor the overall distribution grid as well as employee locations/statuses.

Skills & Knowledge:

1. Computer skills
2. Effective oral and written communication
3. Customer service
4. Data entry
5. Multi-tasking

Cross-Family Pathways:

→ Assistant Operator

SECURITY OFFICER [ENTRY-LEVEL]

Work Conditions

Education: **HS** Work Experience: **2+** Salary: **\$55k - \$65k** First Aid/CPR, Firearm license

Patrol, inspect, and monitor property to protect against fire, theft, vandalism, terrorism, and illegal activity. Protects company investments, enforces laws on the property, deters criminal activity and other problems. Utilize radio and telephone communications to call for assistance from police, fire or emergency medical services as the situation dictates. Write comprehensive reports outlining observations and activities during assigned shift.

Skills & Knowledge:

1. Surveillance and systems monitoring
2. Security operations
3. Effective oral and written communication
4. Judgement and decision making
5. Law enforcement or criminal justice knowledge

BUYER [MID-LEVEL]

Education: **B** (*Business Administration or related field*) Work Experience: **2+** Salary: **\$70k - \$80k** Certified Professional in Supply Management

Act as an agent for the company to source and procure materials, equipment and services necessary for operation. Prepare and initiate requests for proposals and analyzes price quotations from suppliers. Prioritize requisitions to ensure equipment, material and services are obtained in a timely fashion with an emphasis on quality, cost and availability. Work with internal customers to review material and service requirements for projects and develop a procurement strategy to meet those needs. Negotiate and prepares contracts.

Skills & Knowledge:

1. Procurement and purchasing
2. Contract management
3. Negotiation skills
4. Excellent oral and written communication
5. Enterprise Resource Planning

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree

- H** Heights
- ET** Extreme Temperatures
- O** Outdoors
- T** Travel
- SW** Shift Work/Odd Hours/On-Call

- Vertical Pathway
- Lateral Pathway
- Additional Work Experience
- Additional Education

- (#)** Years of Experience
- Licensure or Certification

- Transmission and Distribution
- Plant Operations
- Engineering and Systems Design

- Installation and Maintenance
- Administration and Management
- Customer Service and Sales



ADMINISTRATION AND MANAGEMENT

BUSINESS/FINANCIAL ANALYST [MID-LEVEL]



Education: **B** (*Business Administration, Finance, or related field*)

Work Experience: **3-5**

Salary: **\$70k - \$80k**

Gather financial documentation for energy projects and develops and initiates pricing strategies to recover all revenue requirements. Develop terms and conditions for all rates, including bundled gas and electric rates, unbundled electric delivery service rates, transition charges and related tariffs.

Skills & Knowledge:

1. Accounting and budgeting
2. Data analysis and assessment
3. Analytic and critical thinking
4. Strategic thinking and planning
5. Computer skills

Cross-Family Pathways:

→ Market Analyst

QUALITY ASSURANCE [MID-LEVEL]

Education: **B** (*Engineering or related field*)

Work Experience: **3-5**

Salary: **\$70k - \$80k**

Perform quality assurance (QA) audits and quality control (QC) tests and inspections on all work. Adhere to all safety and quality policies. Conduct routine and non-routine analyses of materials, processes, equipment and components. Write technical reports or documentation such as testing protocols, and trend analyses. Monitor operations and equipment to ensure conformance to specifications and make process adjustments.

Skills & Knowledge:

1. Critical thinking
2. Judgement and decision making
3. Effective oral and written communication
4. High attention to detail
5. Statistics and data analysis

HEALTH AND SAFETY MANAGER [MID-LEVEL]

Work Conditions



Education: **B** (*Occupational Safety and Health Technology or related field*)

Work Experience: **5+**

Salary: **\$80k - \$90k**

Certified Safety Professional, First Aid/CPR

Responsible for designing and overseeing programs that help ensure a safe working environment. Additionally, responsible for assisting with analyzing, troubleshooting, and resolving potential problems with plant and site operations relating to health and safety. The Health & Safety Manager must be able to effectively work in a team environment.

Skills & Knowledge:

1. Occupational health and safety knowledge
2. Legal compliance
3. Effective oral and written communication
4. Teamwork/collaboration
5. Inspection and investigation

Cross-Family Pathways:

→ Environmental/Compliance Engineer

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree

- H** Heights
- ET** Extreme Temperatures
- O** Outdoors
- T** Travel
- SW** Shift Work/Odd Hours/On-Call

- Vertical Pathway
- Lateral Pathway
- Additional Work Experience
- Additional Education

- (#)** Years of Experience
- Licensure or Certification

- Transmission and Distribution
- Plant Operations
- Engineering and Systems Design

- Installation and Maintenance
- Administration and Management
- Customer Service and Sales



ADMINISTRATION AND MANAGEMENT

REGULATORY AFFAIRS MANAGER/ANALYST [MID-LEVEL]

Education: **B** (*Engineering, Business Administration, or related field*) Work Experience: **5+** Salary: **\$85k - \$95k**

Responsible for the oversight and management of compliance systems. First point of contact for all regulatory and quality related deliverables, assisting in preparing for third party and government audits. Responsible for the collection, review, and reporting of key performance indicator data associated with their work in these areas.

Skills & Knowledge:

1. Regulatory affairs knowledge
2. Excellent oral and written communication
3. Relationship-building
4. Process improvement
5. High attention to detail

PROJECT MANAGER [MID-LEVEL]



Education: **B** (*Business Administration or related*) Work Experience: **6-8** Salary: **\$80k - \$90k** Project Management Professional (PMP)

In coordination with field leadership, coordinates activities of the project to ensure project progresses on schedule and within prescribed budget. Review project proposals or plans to fully understand the scope of the work and contract to determine time frame, funding limitations, procedures for accomplishing project, staffing requirements, and allotment of available resources to various phases of project. Manage project staffing and resources in keeping with project plan/contract.

Skills & Knowledge:

1. Project management
2. Budgeting and scheduling
3. Computer skills
4. Effective oral and written communication
5. Teamwork/collaboration

Cross-Family Pathways:

- Construction/Installation Manager
- Senior Manager

GENERAL OPERATIONS MANAGER [SENIOR-LEVEL]

Education: **B-M** (*Business Administration, Engineering, or related field*) Work Experience: **9+** Salary: **\$100k+**

Responsible for managing a single unit, different sectors, or multiple units of an energy company or organization. Plan, direct and coordinate the work of the organization; administer and coordinate the development and execution of the capital improvement projects budget; participate in the development of master plans for organizing and financing capital improvement projects.

Skills & Knowledge:

1. Operations management
2. Strategic planning
3. Financial management and budgeting
4. Leadership and supervisory skills
5. Excellent oral and written communication

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree

- H** Heights
- ET** Extreme Temperatures
- O** Outdoors
- T** Travel
- SW** Shift Work/Odd Hours/On-Call

- Vertical Pathway
- Lateral Pathway
- Additional Work Experience
- Additional Education

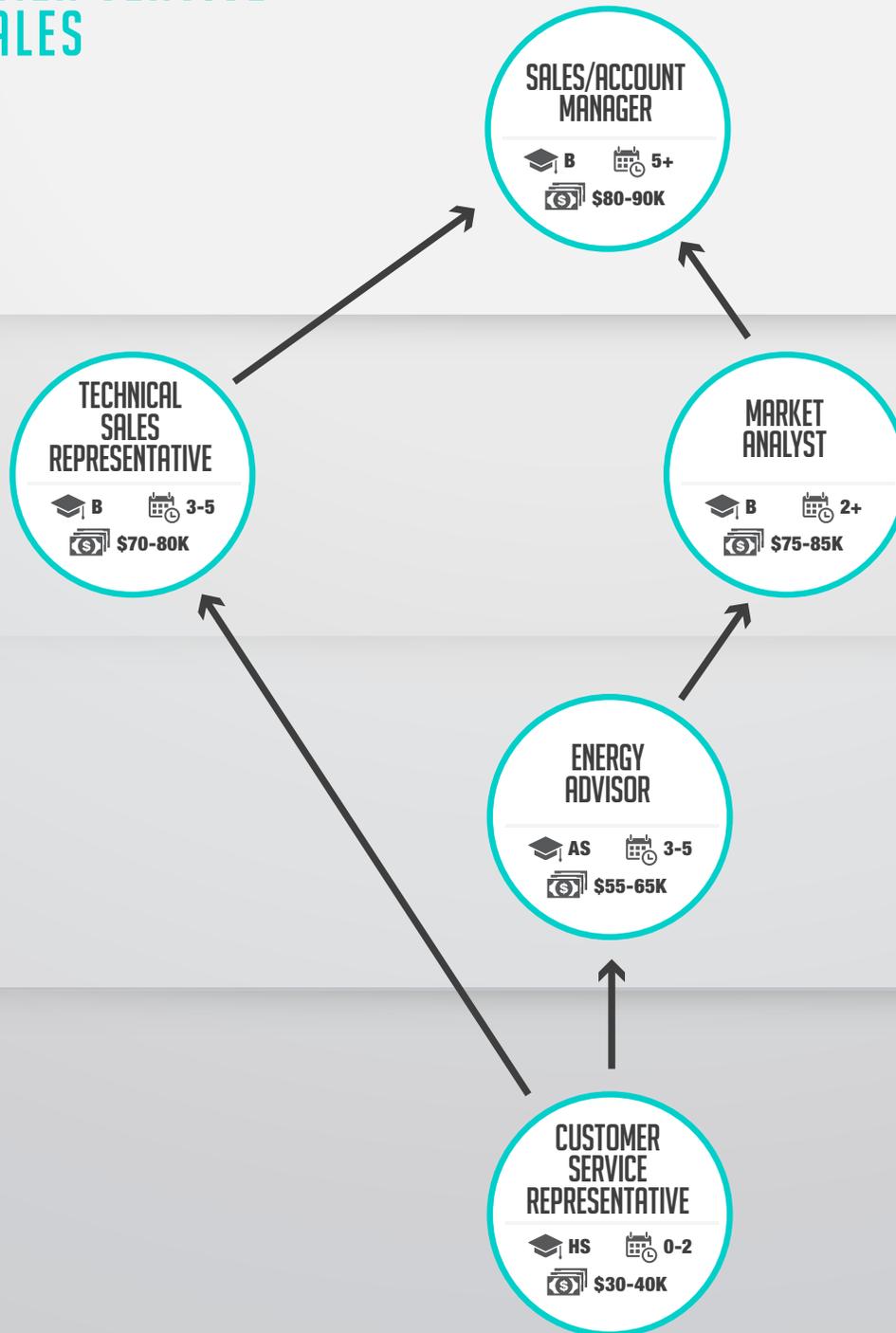
- (#)** Years of Experience
- Licensure or Certification

- Transmission and Distribution
- Plant Operations
- Engineering and Systems Design

- Installation and Maintenance
- Administration and Management
- Customer Service and Sales



CUSTOMER SERVICE AND SALES



- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree
- (#)** Years of Experience

SENIOR-LEVEL

MID-LEVEL

ENTRY-LEVEL



CUSTOMER SERVICE AND SALES

CUSTOMER SERVICE REPRESENTATIVE [ENTRY-LEVEL]

Work Conditions



Education: **HS** Work Experience: **0-2** Salary: **\$30k - \$40k**

Communicate directly with customers and respond to a variety of customer needs and requests, taking resources, constraints, and organizational values into account when seeking resolution. Must coordinate with other company employees (especially Dispatchers) to find relevant information and take necessary action.

Skills & Knowledge:

1. Customer service and contact
2. Computer skills
3. Effective oral and written communication
4. Problem solving
5. Multi-tasking

Cross-Family Pathways:

→ Dispatcher

ENERGY ADVISOR [MID-LEVEL]

Education: **AS** Work Experience: **3-5** Salary: **\$55k - \$65k**

Responsible for providing expert advice and coordination services directly to homeowners, landlords, building owners and other utility customers including recommending specific modifications to electric and/or gas systems; inform prospective customers of services and energy-saving measures. May combine office and field work.

Skills & Knowledge:

1. Energy efficiency and conservation knowledge
2. Effective oral and written communication
3. Teamwork/collaboration
4. Computer skills
5. Customer service

TECHNICAL SALES REPRESENTATIVE [MID-LEVEL]



Education: **B** (*Engineering, Business Administration, or related field*) Work Experience: **3-5** Salary: **\$70k - \$80k**

Develop and foster relationships with current and future retail, commercial, and industrial customers. Sell products, services, and resources in alignment with company's growth plan and strategic goals. Develop strategies to increase sales and distribution. Provide technical expertise and consulting as needed.

Skills & Knowledge:

1. Strong sales and negotiation skills
2. Client management
3. Technical knowledge and support
4. Multi-tasking
5. Effective oral/written communication

Cross-Family Pathways:

→ Buyer

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree

- H** Heights
- ET** Extreme Temperatures
- O** Outdoors
- T** Travel
- SW** Shift Work/Odd Hours/On-Call

- Vertical Pathway
- Lateral Pathway
- Additional Work Experience
- Additional Education

- (#)** Years of Experience
- Licensure or Certification

- Transmission and Distribution
- Plant Operations
- Engineering and Systems Design

- Installation and Maintenance
- Administration and Management
- Customer Service and Sales



CUSTOMER SERVICE AND SALES

MARKET ANALYST [MID-LEVEL]



Education: **B** (*Business Administration, Economics, or Engineering*)

Work Experience: **2+**

Salary: **\$75k - \$85k**

Perform energy market data analysis in support of energy market activities such as gas trading, trade capture operations, fuel cost hedging, outages/scheduled maintenance, fuel forecasting, and demand forecasting. Monitor market data to be aware of changing market conditions. Perform after-the-fact review and variance analysis to identify additional market, cost saving, and forecasting improvement opportunities. Assist in preparing clear, audience-appropriate written explanations of forecast components, market conditions, operational issues and variance analysis.

Skills & Knowledge:

1. Market analysis and forecasting
2. Market research
3. Data analysis
4. Problem solving
5. Effective oral/written communication

Cross-Family Pathways:

➔ Business/Financial Analyst

SALES/ACCOUNT MANAGER [SENIOR-LEVEL]

Work Conditions



Education: **B** (*Business Administration or related field*)

Work Experience: **5+**

Salary: **\$80k - \$90k**

Serve as a liaison to key commercial accounts and strategic stakeholders providing recommendations and coordinating all energy-related service. Establish and maintain personalized external and internal relationships to support account issues, provide technical assistance and ensure that customer needs are met.

Skills & Knowledge:

1. Strong sales and negotiation skills
2. Account management
3. Technical knowledge and support
4. Strong relationship-building
5. Excellent oral/written communication

Cross-Family Pathways:

↑ General Operations Manager +

- HS** High School Diploma/HSED
- V** Vocational Training
- AP** Apprenticeship
- AS** Associate Degree
- B** Bachelor's Degree
- M** Master's Degree

- H** Heights
- ET** Extreme Temperatures
- O** Outdoors
- T** Travel
- SW** Shift Work/Odd Hours/On-Call

- Vertical Pathway
- Lateral Pathway
- Additional Work Experience
- Additional Education

- Years of Experience
- Licensure or Certification

- Transmission and Distribution
- Plant Operations
- Engineering and Systems Design

- Installation and Maintenance
- Administration and Management
- Customer Service and Sales