



Matthew Levy  
Principal Negotiator  
Labor Relations

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**15-18-ESC**

September 11, 2015

Joshua Sperry, Senior Union Representative  
Engineers and Scientists of California, Local 20  
IFPTE (AFL-CIO & CLC)  
810 Clay Street  
Oakland, CA 94607

Dear Mr. Sperry:

The Company and Union have concluded negotiations for newly represented employees in the Gas Instrumentation, Controls and Electrical Engineering and Station Engineering (also called Plant Engineering) departments. The agreed upon contract language and job descriptions are included as attachments to this agreement.

**1. Implementation Date**

All these employees will be included in the general ESC-PG&E contract as of the implementation date of October 1, 2015.

**2. Classification Groups**

All Classifications will be part of one Classification Group in the Contract, to be called "Gas Station Engineering." The following Lines of Progression will make up the group:

- a. Gas Project Engineer
- b. Control Systems Engineer
- c. Power Systems Engineer (Gas)

See Attachment 4 for placement of incumbents into these classifications.

Any incumbent Senior Consulting or Principal Engineer who does not have a PE License will be "grandfathered" in their present classification and will not be required to obtain the PE License.

**3. Seniority**

Seniority shall be determined per Title 13<sup>1</sup> using each employee's date of hire at PG&E.

**4. STIP and Automatic Advancement**

1. STIP target participation rate will remain at current rates: 10% for Associate, Journey, Senior, and Senior Consulting level positions, and 15% for Principal level classifications. Future hires' STIP target will be 10% for all classifications except Principal, which is 15%.
2. Employees in all groups meeting the qualifications for a higher classification filled by Automatic Advancement shall be advanced immediately upon implementation.

**5. Incumbent in Emergency Response Team**

Paul Hawthorne will continue to participate in the Emergency Response Team until December 31, 2015, after which time he will be removed from this duty.

**6. Recognition Clause**

The parties agree to modify Title 3 of the Contract to reflect the inclusion of these groups by referring to the NLRB case numbers as shown below:

**TITLE 3. RECOGNITION**

**3.1 RECOGNITION**

For the purpose of collective bargaining with respect to rates of pay, wages, hours of employment, and other conditions of employment, the Company recognizes the Union, certified by the National Labor Relations Board in Case 20-RC-1502, May 21, 1952, 20-RC-17430, September 10, 1998, Case No 20-RC-17980, October 19, 2004, Case 31-RC-8684 , April 1, 2008 Case 20-RD-2460, Case 20-RD-2452, Case 20-RD-2451, Case 20-RC-18326 (February 2, 2011), Case 20-RC-18355 (June 20, 2011), Case 20-RC-62482 (Oct 11, 2011), Case 32-RC-124501, Case 32-RC-125912 and for each other group for which recognition was granted pursuant to the majority authorization provisions of the Neutrality Agreement in effect from November 19, 2005 to December 31, 2008, as the exclusive representative of employees in the classifications which are enumerated in Exhibit A, which is attached hereto and made a part hereof. (Amended ~~4/4/09~~, 10/1/15)

**7. Exhibit A, Exhibit D and Appendix 1**

All classifications will be added to Exhibit A as shown in Attachment 2. Pre-bid codes will be established for all positions. Classification-specific working conditions will be added to Exhibit D and job descriptions will be added to Appendix 1.


**8. Performance Standards**

The language included in Attachment 1.E is intended to match the "performance standards" language of other monthly classification groups. The Union and Company agree that this language is superseded by LOA 14-08 and would not go into effect, unless the pilot program in 14-08 is not extended and the parties revert to the previous method of negotiating changes to performance standards.

If you agree, please so indicate in the space provided below and return one executed copy of this letter to the Company.

Very truly yours,

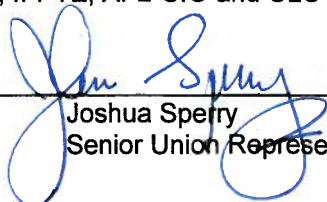
PACIFIC GAS & ELECTRIC COMPANY

By:   
Matthew Levy  
Principal Negotiator

The Union is in agreement.

ENGINEERS AND SCIENTISTS OF CALIFORNIA  
LOCAL 20, IFPTE, AFL-CIO and CLC

9/16, 2015

By:   
Joshua Sperry  
Senior Union Representative

**GAS STATION ENGINEERING**  
**(Gas Project Engineer, Control Systems Engineer, Power Systems Engineer (Gas))**

**A. Advancement**

**Advancement from Associate to Journey as follows:** Gas Engineering Associates who meet the requirements for advancement to Journey and are performing satisfactorily in their current classification shall advance to Journey upon reaching 3 years experience.

**Advancement from Journey to Senior as follows:** Gas Engineering Journeys who meet the requirements for advancement to Senior and are performing satisfactorily in their current classification may advance to Senior upon reaching 8 years of either Company or external experience or any combination thereof, provided that the Company determines that an operational need exists for an additional Senior Engineer in that Line of Progression.

If, when an operational need exists, more than one Journey is qualified to advance as set forth above, the Company shall select the employee whose ability and personal qualifications make him/her most qualified for the job. If ability and personal qualifications are substantially equal, Seniority shall prevail.

**B. Associate-Journey-Senior Engineer Vacancies**

When vacancies occur at the level of Associate, Journey or Senior Engineer, a selection board comprised of two management and two union appointed employees will interview all interested and qualified employees, using jointly-developed job qualifications and interview questions. The selection board shall evaluate the candidates against the selection criteria to determine who is most qualified.

Only ESC represented titles will be considered for alternate vacancies for Associate, Journey, or Senior Engineer. If the selection board determines that the interested ESC parties are not qualified for the position, additional candidates from within and outside the unit may be considered. For the remaining vacancies in these classifications, the Company may add candidates for consideration. In either case, applicants must meet minimum qualifications in order to be considered by the selection board.

**C. Senior Consulting and Principal Engineers**

When vacancies occur at the level of Senior Consulting Engineer, the selection panel will first consider qualified Senior Engineers within the Line of Progression. If no Senior Engineers apply, or the panel rejects all Senior Engineer applicants, the panel may consider other candidates.

When vacancies occur at the level of Principal Engineer, the selection panel will first consider qualified Senior Consulting Engineers within the Line of Progression. If no Senior Consulting Engineers apply, or the panel rejects all Senior Consulting Engineer applicants, the panel may consider other candidates.

**D. Senior Advising Engineer**

When considering candidates for Senior Consulting Engineer vacancies, the selection committee may elect to fill a Senior Advising Engineer position if the best qualified candidate does not possess an active California Professional Engineer registration. The duties and pay range will be the same for Senior Advising and Senior Consulting Engineers. If the Company elects to fill vacancies, the Company shall determine if creating a Senior Advising Engineer position is appropriate and will notify the selection committee.

**E. Promotional Consideration**

Additionally, an eligible employee may request special consideration for promotion no more than once per calendar year, when an operational need does not exist. The question of whether such a special promotion is appropriate shall be considered by the selection board with tie breaking decisions allotted to PG&E.

**F. Performance Standards**

Employees shall continue to be covered by the current performance appraisal/development process. The performance appraisal form may be modified by Company from time to time, but significant and or

substantive changes to the standards used must first be bargained with the Union.

#### **G. Professional Membership and Training**

The company shall pay for basic national membership and one local chapter membership in the appropriate professional association for each employee.

Reimbursement of professional registration (PE) license fees shall be as follows: Company shall reimburse employees for the first PE exam, but not for second and later exams. Company shall reimburse PE registration renewal fees. PE review courses shall be attended on the employee's time; reimbursement of tuition will continue to be covered.

Based on the employee's approved developmental plan, Company shall reimburse for reasonable costs incurred attending conferences or training specific to the employee's discipline, such as vendor training. Employees will not be paid for additional time beyond normal work hours to attend training or conferences; however, the time spent traveling to or from training may be considered as time worked under the provisions of Title 7 Hours as provided in this letter agreement. Programs reimbursed by the Tuition Refund program are not eligible for Additional Time Worked compensation.

Company shall meet with the union annually to discuss the training opportunities, developmental plans, and the distribution of the program among the employees.

#### **H. Additional Time Worked**

Exempt employees will be eligible for compensation at the straight-time rate of pay for work beyond normal work schedules, subject to the conditions contained below:

1. Employee receives prior authorization from a supervisor, manager or director within the department to work beyond normal daily work schedule or on a non-workday to meet critical work requirements, including time worked by telecommuting or remote access or on Regular Days Off associated with Alternative Work Schedules.
2. Employee works at least two hours beyond the normal daily work schedule, or works on a non-workday. On normal workdays, only the time beyond the initial two hours beyond the normal work schedule will be compensated. On non-workdays, all time worked will be compensated.
3. Employee is not eligible for any other type of special incentive to offset additional time worked.

#### **I. Stamping of Documents and Drawings**

1. Senior Consulting Level and Principal Level Engineers are required to have a current California PE license. Their job duties include signing and stamping and acting as the engineer in "responsible charge" for engineering drawings, specifications, reports, or documents that are to be released for construction.
2. The PE license is not required for Journey and Senior Engineers.
3. Journey or Senior Engineer with a PE license may be required to stamp their own documents/drawings and act as the engineer in "responsible charge" of a project.
4. In recognizing the critical safety importance of engineering drawings and documents for gas facilities, the Company and Union agree to discuss the subject of quality control and design review processes for drawings and documents in an ad-hoc committee. The committee will commence within two months of implementation and conclude within one year of commencing.
5. Any engineer who stamps documents must meet all the following criteria:
  - a. hold a current and valid California PE license in the applicable field of engineering,
  - b. be fully competent and proficient by education and experience in the field or fields of professional engineering relevant to the project,
  - c. possess sufficient knowledge of the project to make, or review and approve, the engineering decisions for the project, and

- d. be capable of answering questions asked by other similarly licensed, competent and proficient engineers so as to leave little question as to the engineer's technical knowledge of the engineering performed.

**J. Work Jurisdiction**

1. Facilities Engineers may perform the duties of these classifications in emergencies, and for repair and restoration of existing equipment, including replacement of components, if qualified per the job description, but replacement of systems and new equipment installation projects are the jurisdiction of these classifications.
2. Control Systems Engineers may be assigned any work within the job description of Power Systems Engineer which they are qualified to perform and vice-versa.

**K. Out-of-State Employees**

1. There are currently two employees, both Principal Project Engineers, headquartered out of state in Houston, Texas.
2. PG&E will provide an office space near their residence for each out-of-state employee which will be considered their headquarters. PG&E will not relocate this office beyond 50 miles from the current HQ location without agreement of the employee. PG&E will also provide an office space for their use at the appropriate PG&E facility in California.
3. Out-of-state employees will be reimbursed for required travel expenses, including lodging and meals. Travel time except for travel from Texas to California and back outside regular work hours will be considered work time and reimbursed under the additional time worked policy.
4. The Company will not require an out-of-state employee to travel to PG&E territory more than two times in any calendar month unless business needs require additional visits to California.
5. The Company will meet and confer with the Union prior to hiring any additional out-of-state employees in these classifications.

2015 Salary Ranges

	Min	Max	STIP %
<b>GAS ENGINEERING</b>	<b>Monthly Rates</b>		
Gas Project (Plant) Engineer, Associate (51785378)	6,283	8,264	10%
Gas Project (Plant) Engineer (51785384)	7,408	10,095	10%
Gas Project (Plant) Engineer, Senior (51785389)	9,177	11,788	10%
Gas Project (Plant) Engineer, Senior Consulting (51785393)	10,372	12,743	10%
Gas Project (Plant) Engineer, Senior Advising (51785394)	10,372	12,743	10%
Gas Project (Plant) Engineer, Principal (51785395)	10,962	13,475	15%
Control Systems Engineer, Associate (51785471)	6,283	8,264	10%
Control Systems Engineer (51785655)	7,408	10,095	10%
Control Systems Engineer, Senior (51785656)	9,177	11,788	10%
Control Systems Engineer, Senior Consulting (51785657)	10,372	12,743	10%
Control Systems Engineer, Senior Advising (51785658)	10,372	12,743	10%
Control Systems Engineer, Principal (51785659)	10,962	13,475	15%
Power Systems Engineer (Gas), Associate (51785396)	6,283	8,264	10%
Power Systems Engineer (Gas) (51785397)	7,408	10,095	10%
Power Systems Engineer (Gas), Senior (51785398)	9,177	11,788	10%
Power Systems Engineer (Gas), Senior Consulting (51785399)	10,372	12,743	10%
Power Systems Engineer (Gas), Senior Advising (51785400)	10,372	12,743	10%
Power Systems Engineer (Gas), Principal (51785463)	10,962	13,475	15%

**Job Descriptions**

<b>GAS PROJECT (PLANT) ENGINEER, Associate (51785378)</b>	
<b>Summary</b>	<p>This is an entry-level Engineer job that works under the general technical direction of more experienced engineers. This job is responsible for providing technical engineering support for Gas Transmission Stations for routine projects, including, but not limited to: providing technical data; applying engineering principles to investigate, analyze, and propose solutions to technical issues; assisting project managers, construction personnel, and other business partners to assess project needs, develop and document project scope, supports development of cost estimates, identify material procurement needs, oversee or conduct engineering design review, review engineering documents, and provide guidance to the project team. "Gas Transmission Stations" are defined as compressor stations, terminals, storage stations (up to but not including the wellhead valves), and metering and regulation stations. For stations where the Transmission system interconnects with the Distribution system, this classification may perform the duties below at the direction of management. This position is also responsible for Valve Automation projects. The responsibility level of this position increases with experience.</p>
<b>Job Duties</b>	<p>Initial assignments from the tasks below will require direction and supervision; with experience, the independence and responsibility will expand and the need for supervision will decrease.</p> <ol style="list-style-type: none"> <li>1. Assists with or conducts project walk-downs and works with project team, including both internal and external clients, to establish scope of work, schedule, and cost commitments. Gathers technical information from field data and project team.</li> <li>2. Supports development of cost estimates.</li> <li>3. Provide engineering review and input on designs, design reviews, perform calculations, and develop engineering and construction documents.</li> <li>4. Develops, evaluates, and recommends alternative project proposals.</li> <li>5. Support Facility Engineering in investigation, troubleshooting, research, and resolution of equipment or system issues.</li> <li>6. Responsible for participating in FAT (factory acceptance testing) or supplier inspections for equipment on projects.</li> <li>7. Investigates resources required to complete engineering and project-related tasks</li> <li>8. Establishes engineering schedule.</li> <li>9. Review designs and provide technical guidance for code compliance.</li> <li>10. Manage and control design scope and meet the design schedule.</li> <li>11. Obtain key engineering disciplines resources required to complete the design, with support from the PM, if needed.</li> <li>12. Functions as "Lead Engineer" when appropriate and in this role oversees and directs the engineering team.</li> <li>13. Continuously identify opportunities to improve the engineering work product including the design, constructability, operability and maintainability of gas transmission facilities.</li> <li>14. Performs engineering for commissioning procedures and participates in on-site commissioning activities for assigned projects.</li> <li>15. Prepares project forecast for engineering, tracks progress, updates as needed, and provides periodic updates.</li> <li>16. Provides guidance to design and contractor team members, and reviews design and technical documents. Coordinating with other lines of business ensures designs and technical documents meet appropriate criteria, quality, and job scope.</li> <li>17. Recommends revisions to existing drawings for routine projects.</li> <li>18. Specifies long-lead time material for assigned projects.</li> </ol>

	<ol style="list-style-type: none"> <li>19. Under direction, reviews and approves project material procurement list, vendor drawings, equipment specification updates, and engineering material requests.</li> <li>20. Lead or participates in periodic design review meetings.</li> <li>21. Coordinates project activities with other disciplines for routine projects.</li> <li>22. Under direction, provides construction support and evaluates and makes recommendations to resolve field construction problems.</li> <li>23. Participates in PHA (Process Hazard Analysis) &amp; PSSR (Pre Startup Safety Review).</li> <li>24. Supports process improvement initiatives and other special projects.</li> <li>25. Supports Maintenance &amp; Operations Group once facility has been commissioned</li> <li>26. Prepares written technical documents such as design criteria, specifications, operations and maintenance instructions, commissioning procedures, strength test pressure report, and various technical reports or evaluations.</li> <li>27. Oversees completion and recording of all engineering record documents.</li> </ol>
<b>Scope</b>	Resolves problems of limited scope. Assignments typically require standard solutions. Assignments are regularly reviewed.
<b>Interaction</b>	External contacts typically require coordinating with contractors and providing information to third parties. Internal contacts are with clients and project team members and typically include discussing and reporting progress, exchanging and coordinating information, managing meetings and providing scope documents.
<b>Job Qualifications</b>	
<b>Education</b>	A 4-year BS Degree in Engineering from an accredited curriculum in the US or the equivalent from outside the US.
<b>Licenses / Certifications</b>	Current and active EIT Certification or California PE license desired.
<b>Experience</b>	1-2 years' experience in engineering desired.
<b>Knowledge / Abilities</b>	<ol style="list-style-type: none"> <li>1. Able to apply basic engineering principles and theory.</li> <li>2. Prioritizes, plans, and recommends solutions for routine projects.</li> <li>3. Effectively communicates both written and orally.</li> <li>4. Approaches and plans work in an organized manner to meet project commitments.</li> <li>5. Demonstrates good judgment when making decisions and recommendations.</li> <li>6. Frequently shows initiative and takes action proactively.</li> </ol>

<b>GAS PROJECT (PLANT) ENGINEER (51785384)</b>	
<b>Summary</b>	This is a journey-level engineer job that requires mastery of the Associate level engineer skills and duties and is responsible for performing or leading the engineering and design of more complex projects. Uses independent judgment in applying engineering principles, working with minimal supervision. Works with engineers, project managers, construction personnel, and other business partners in assessing project needs. Responsibilities beyond those of associate Project engineer include, but are not limited to, the following: Develop technical studies and reports, provide guidance to contractors and outside vendors, select and manage engineering contractors in the design of gas transmission station facilities. The responsibility level of this position increases with experience.
<b>Job Duties</b>	May perform functions of Associate level Engineer and in addition: <ol style="list-style-type: none"> <li>1. Mentor other less experienced engineers.</li> </ol>



	<ol style="list-style-type: none"> <li>2. Assist in development of design standards and new processes, procedures and tools.</li> <li>3. Provides technical expertise and performs engineering analyses, studies, and develops conceptual and detail designs.</li> <li>4. Presents findings to internal organizations, contractors and outside vendors.</li> <li>5. Conducts walk-downs and design review meetings.</li> <li>6. Solicits, prepares, and evaluates contracts and proposals from engineering consultants. Reviews consultant contracts for technical compliance and reviews the work of consultant and contract engineers.</li> <li>7. Interprets and applies applicable codes and regulations.</li> <li>8. Participates in the development of clearance procedures.</li> <li>9. Assists in root cause analysis.</li> <li>10. Approves reports, new drawings, and revisions to existing drawings for projects.</li> <li>11. Evaluate innovative and practical design solutions for the project with a focus on cost reductions, safety and reliability.</li> <li>12. Performs engineering for commissioning procedures and participates in on-site commissioning activities for more advanced facilities.</li> <li>13. With appropriate training, may lead low complexity PHA's and PSSR's for assigned projects.</li> </ol>
<b>Scope</b>	Resolves problems of moderate scope. Assignments typically require standard solutions. Under general direction, independently plans work to meet assigned objectives; progress is reviewed periodically for technical accuracy and adequacy in process and upon completion.
<b>Interaction</b>	External contacts are primarily coordinating with contractors and vendors. Internal contacts are with clients and project team members. May guide the work of less experienced team members. Exchanges information with others outside the team. May partner to solve problems or explore alternative solutions.
<b>Job Qualifications</b>	
<b>Education</b>	A 4-year BS Degree in Engineering from an accredited curriculum in the US or the equivalent from outside the US.
<b>Licenses / Certifications</b>	Current and active California PE license desired.
<b>Experience</b>	Mastery of the Associate level Engineer job duties or equivalent and demonstrated knowledge and ability to perform the basic duties of the Journey Level Engineer. Meets specific technical requirements gained through a minimum of three (3) years of cumulative and relevant experience in engineering and design.
<b>Knowledge / Abilities</b>	<p>Demonstrates knowledge and abilities required for the Associate level engineer and also:</p> <ol style="list-style-type: none"> <li>1. Capable of coordinating with project team, and has basic understanding of the roles and responsibilities of project managers.</li> <li>2. Able to work with limited supervision and guidance to meet project commitments.</li> <li>3. Able to work with internal and external customers and suppliers.</li> <li>4. Able to understand and implement the technical requirements of interfacing engineering disciplines.</li> <li>5. Demonstrates informed judgment when making decisions and recommendations.</li> <li>6. Uses judgment in applying engineering principles and techniques to determine cost effective and practical solutions.</li> <li>7. Ability to manage and complete several projects concurrently, depending on scope and complexity.</li> <li>8. Interprets applicable codes, industry standards and regulations and educates others.</li> <li>9. Can provide thorough analysis of issues and justification of</li> </ol>

	<p>recommendations.</p> <p>10. Takes ownership of problems and their solutions.</p> <p>11. Able to understand and implement the technical requirements of interfacing engineering disciplines.</p>
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<b>GAS PROJECT (PLANT) ENGINEER, Senior (51785389)</b>	
<b>Summary</b>	This is a senior-level engineer job that requires mastery of the journey engineer job duties and is responsible for leading engineering and design of complex projects. Applies extensive knowledge of concepts, principles, and practices to resolve complex problems with only general direction. Provides leadership, coaching, technical direction, knowledge transfer and assistance to technical employees and teams. Additional responsibilities beyond the Project engineer include, but are not limited to, the following: Deliver presentations, lead team meetings, interpret industry practices and codes.
<b>Job Duties:</b>	<p>May perform functions of Associate and Journey level Engineers and in addition:</p> <ol style="list-style-type: none"> <li>1. Manage large complex projects and perform engineering analyses, studies, and develop conceptual designs.</li> <li>2. Lead, coach, direct, and assist technical employees and teams on technical issues.</li> <li>3. May act as an engineering mentor.</li> <li>4. Assist in finalizing contract project specification and technical evaluation of contract project bids.</li> <li>5. Provide support to other departments in land, permitting, and legal issues.</li> <li>6. Assist in business case/justifications for presentation to upper management.</li> </ol>
<b>Scope</b>	Resolves problems of complex scope. Assignments may provide an opportunity for creative or non-standard approaches. Under general direction, independently plans work to meet assigned general objectives. Work may be reviewed upon completion; solution may provide an opportunity for creative/non-standard approaches.
<b>Interaction</b>	External contacts are with contractors, vendors and local public agencies with ministerial authority. Internal contacts are with clients, project team members, and company management and leadership. May provide technical direction to less experienced team members. Exchanges information and solves problems with others outside the team.
<b>Job Qualifications:</b>	
<b>Education</b>	A 4-year BS Degree in Engineering from an accredited curriculum in the US or the equivalent from outside the US.
<b>Licenses / Certifications</b>	Current and active California PE license desired.
<b>Experience</b>	Mastery of the Associate and Journey level Engineer job duties and demonstrated knowledge and ability to perform the basic duties of the Senior level Engineer. Meets specific technical requirements gained through a minimum of eight (8) years of cumulative experience in engineering and design.
<b>Knowledge / Abilities</b>	<p>Demonstrate knowledge and abilities required for the Associate and Journey level Engineer and also:</p> <ol style="list-style-type: none"> <li>1. Demonstrate ability to handle multiple large scale and complex projects without supervision.</li> <li>2. Demonstrate good presentation skills including knowledge transfer presentations.</li> <li>3. Ability to serve as the leader for an engineering team including outside contractors.</li> <li>4. Complete assignments of broad scope and complexity.</li> <li>5. Ability to integrate information from a variety of sources.</li> <li>6. Ability to lead process improvement initiatives.</li> </ol>

<b>GAS PROJECT (PLANT) ENGINEER, Senior Consulting (51785393)</b>	
<b>Summary</b>	This is a senior consulting-level engineer job that requires mastery of the senior engineer duties. The Senior Consulting Engineer leads complex engineering projects, is a recognized expert within their area of responsibility, and applies extensive knowledge of concepts, principles, and practices to resolve complex problems with only general direction. Provides technical leadership and coaching. Researches and identifies practical solutions to highly complex problems. Identifies opportunities and brings in ideas to help improve company performance. Additional responsibilities beyond the senior Project Engineer include, but are not limited to, the following: develops programs in a multifunctional business process, and provides high-level advice and expertise to various PG&E lines of business. This position is responsible for the design of Gas Transmission compressor stations or similarly highly complex facilities.
<b>Job Duties</b>	May perform the functions of Associate, Journey and Senior level Engineer and in addition: <ol style="list-style-type: none"> <li>1. Manage large highly complex projects and perform engineering analyses, studies, and develop conceptual designs.</li> <li>2. Develop innovative solutions to solve challenging technical issues.</li> <li>3. Acts as a lead in root cause analysis and makes recommendations to address local and system-wide problems.</li> <li>4. Acts as a company witness, liaison, and/or information provider to outside parties.</li> <li>5. Develops technical policies, procedures, and contributes to the development of standards, specifications, construction documents, and guidelines.</li> <li>6. Represents PG&amp;E at external industry associations, committees, trade organizations and other inter-utility groups.</li> <li>7. Acts as an engineering mentor and role model.</li> <li>8. Openly share and apply expertise within PG&amp;E</li> <li>9. Assist in business case/justifications for presentation to upper management</li> </ol>
<b>Scope</b>	Resolves problems of very complex scope. Serves as a key technical resource within area of specialization. Regularly expected to apply creativity or new approaches to assignments that may be unique. May lead others on technically complex projects. Customarily and regularly uses discretion and independent judgment in fulfilling these job functions.
<b>Interaction</b>	Externally, establishes and maintains good relations with counterparts and higher level representatives in third party organizations, e.g., governmental, regulatory, business partner or community entities, using skilled negotiation, tact and diplomacy. Internal contacts include project team members, company management across various departments. Serves as the most senior level technical expert on the team. Often is a technical coach for others.
<b>Job Qualifications</b>	
<b>Education</b>	A 4-year BS Degree in Engineering from an accredited curriculum in the US or the equivalent from outside the US.
<b>Licenses / Certifications</b>	Current California PE license required.
<b>Experience</b>	Mastery of the Associate, Journey, and Senior level engineer job duties and demonstrated knowledge and ability to perform the basic duties of the Senior Consulting Level Engineer. Meets specific technical requirements gained through a minimum of thirteen (13) years of cumulative experience in engineering and design.
<b>Knowledge / Abilities</b>	Demonstrates knowledge and abilities required for the Associate, Journey and Senior level Engineer and also: <ol style="list-style-type: none"> <li>1. Able to handle multiple large and complex projects without supervision and</li> </ol>

	<p>serve as team leader.</p> <ol style="list-style-type: none"> <li>2. Provide leadership, direction, and assistance to engineers and designers. Coach and develop engineers.</li> <li>3. Successfully negotiate cost effective solutions beneficial to our customers and PG&amp;E.</li> <li>4. Complete complex assignments with few or no precedents or standards.</li> <li>5. Apply extensive knowledge of concepts, principles and practices in a specific field or area of expertise to resolve complex problems.</li> </ol>
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<b>GAS PROJECT (PLANT) ENGINEER, PRINCIPAL (51785395)</b>	
<b>Summary</b>	This category is for the engineer that has acquired extensive knowledge in a specific discipline or area of expertise that has the recognition for such knowledge both inside PG&E and by the industry in general. This engineer provides technical input to industry organizations; works independently and provides analysis techniques to develop creative solutions.
<b>Job Duties</b>	<p>May perform the functions of Associate, Journey, Senior, and Senior Consulting Engineer and in addition:</p> <ol style="list-style-type: none"> <li>1. Lead large highly complex (multi-discipline, multi-group) projects and performs technical analyses, studies, and develops conceptual solutions.</li> <li>2. Provide internal consulting for PG&amp;E in areas of expertise.</li> <li>3. Provide consulting to management in an area which is strategically important to PG&amp;E's business and which is best served with in-house expertise.</li> <li>4. Makes significant contribution in the formation of PG&amp;E strategy on key technical issues.</li> <li>5. Routinely called upon by management and others in the industry to provide advice or leadership on issues that are of strategic importance to PG&amp;E.</li> <li>6. Identifies and implements opportunities to improve company performance (safety, finances, quality, and operations).</li> </ol>
<b>Scope</b>	Resolves issues of very complex scope. Serves as a key technical resource within area of specialization. Regularly expected to apply creativity or new approaches to assignments that may be unique. May lead others on technically complex projects. Customarily and regularly uses discretion and independent judgment in fulfilling these job functions.
<b>Interaction</b>	Externally, establishes and maintains good relations with counterparts in other groups within the Company and higher level representatives in third party organizations, e.g., governmental, regulatory, business partner or community entities, using skilled negotiation, tact and diplomacy. Internal contacts include project team members, company management across various departments. Serves as the most senior level technical expert on the team. Often is a technical coach for others. May participate in professional affiliations (e.g. ASCE, ASME, AGA) to keep abreast of new industry trends, developments and procedures. May represent the company on industry association committees.
<b>Job Qualifications</b>	
<b>Education</b>	A 4-year BS Degree in Engineering from an accredited curriculum in the US or the equivalent as defined in ANSI standards.
<b>Licenses / Certifications</b>	Current California PE license required.
<b>Experience</b>	Mastery of the Associate, Journey, Senior, and Senior Consulting level engineer job duties and demonstrated knowledge and ability to perform the basic duties of the Principal Level Engineer. Meets specific technical requirements gained through a minimum of fifteen (15) years of cumulative experience in engineering and design.
<b>Knowledge /</b>	Demonstrates knowledge and abilities required for the Associate, Journey, Senior

<b>Abilities</b>	<p>and Senior Consulting level Engineer and also:</p> <ol style="list-style-type: none"> <li>1. Able to handle multiple large and complex projects without supervision and serve as team leader.</li> <li>2. Provide leadership, direction, and assistance to engineers and designers. Coach and develop engineers.</li> <li>3. Successfully negotiate cost effective solutions beneficial to our customers and PG&amp;E.</li> <li>4. Complete complex assignments with few or no precedents or standards.</li> <li>5. Apply extensive knowledge of concepts, principles and practices in a specific field or area of expertise to resolve complex problems.</li> <li>6. Demonstrates expert level Project Engineering &amp; Design knowledge and expertise.</li> </ol>
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<b>Factor</b>	<b>Control Systems Engineer, Associate (51785471)</b>
<b>Summary</b>	<p>This is an entry-level engineering position that works under the general technical direction of more experienced engineers. This position trains in all job duties and requires a high level of training, direction, and review of work. This position is responsible for providing controls engineering for routine projects, maintenance, and operation support including, but not limited to: RTU and PLC programming, HMI programming, field support of maintenance and construction personnel and commissioning.</p>
<b>Job Duties</b>	<ol style="list-style-type: none"> <li>1. Provide engineering review and input on designs, design reviews, calculations, perform calculations and develop engineering and construction documents.</li> <li>2. Provide "hands on" technical support and advice to maintenance, construction and operations personnel.</li> <li>3. Assist and collaborate with the field personnel in investigation, troubleshooting, research, and resolution of equipment or system issues.</li> <li>4. Participate in FAT (factory acceptance testing) for equipment on projects.</li> <li>5. Ensure all work incorporates industry best practices with an emphasis on safety and compliance while ensuring a reliable and cost effective end results.</li> <li>6. Review designs and provide technical guidance for code compliance.</li> <li>7. On routine projects, manage and control design scope and meet the design schedule.</li> <li>8. Work collaboratively with other work groups and departments to achieve desired results.</li> <li>9. Continuously identify opportunities to improve the way work is designed and constructed.</li> <li>10. Perform on-site commissioning activities for assigned projects.</li> <li>11. With assistance, program PLCs, RTUs and HMIs.</li> <li>12. Develop and execute functional checkout procedures.</li> <li>13. Perform commissioning on basic facilities.</li> <li>14. Troubleshoot basic equipment malfunctions.</li> <li>15. Develop control circuit diagrams.</li> <li>16. Participate in job walk-downs.</li> <li>17. Participates in PHA (Process Hazard Analysis) &amp; PSSR (Pre Startup Safety Review).</li> </ol>
<b>Scope</b>	<p>Resolves problems of limited scope. Assignments typically require standard solutions. Assignments are regularly reviewed.</p>
<b>Interaction</b>	<p>External contacts typically require coordinating with contractors and providing information to third parties. Internal contacts include SCADA specialists, GC M&amp;C, gas project engineering, project management, and maintenance and operations personnel.</p>
<b>Knowledge/ Abilities</b>	<ol style="list-style-type: none"> <li>1. Able to apply basic engineering principles and theory.</li> <li>2. Basic knowledge of binary and hexadecimal numbers.</li> <li>3. Basic knowledge of control systems including PID control.</li> </ol>

Factor	Control Systems Engineer, Associate (51785471)
	<ol style="list-style-type: none"> <li>4. Basic knowledge of electricity and electronics.</li> <li>5. Basic knowledge of codes and standards (API, IEEE, NEC, NFPA, ISA, AGA).</li> <li>6. Able to read and understand P&amp;IDs.</li> <li>7. Basic knowledge of hazardous areas and protection techniques for installing equipment in these areas.</li> </ol>
<b>Job Qualifications</b>	
<b>Education</b>	A 4-year BS degree in Electrical Engineering or Mechanical Engineering from an accredited curriculum in the US or the equivalent from outside the US. Candidates with a BS degree from other engineering disciplines may be considered with one year of controls experience.
<b>Licenses / Certifications</b>	Current and active California EIT certificate desired.
<b>Experience</b>	1-2 years of experience in engineering is desired.

Factor	Control Systems Engineer, Journey (51785655)
<b>Summary</b>	This is a journey-level engineering position. This position is responsible for providing controls engineering for routine projects, maintenance, and operation support including, but not limited to: RTU and PLC programming, HMI programming, field support of maintenance and construction personnel and commissioning, create design criteria, create sketches, and review drawings. This position works independently on routine assignments.
<b>Job Duties</b>	<p>May perform all the functions of Associate Control Systems Engineer and in addition:</p> <ol style="list-style-type: none"> <li>1. Mentor lower level engineers.</li> <li>2. Assist in development of design standards and new tools.</li> <li>3. Provide technical guidance for various codes interpretation and compliance.</li> <li>4. Support department code compliance initiatives and Gas Standards.</li> <li>5. Review the work of contract engineers.</li> <li>6. Evaluate innovative and practical design solutions for the project with a focus on cost reductions, safety and reliability.</li> <li>7. Program PLCs, RTUs and HMIs.</li> <li>8. May act as a project engineer on controls-related projects.</li> <li>9. Support maintenance and operations personnel with controls equipment.</li> <li>10. Perform commissioning on more advanced facilities.</li> <li>11. Participate in and provide feedback during job walk-downs.</li> <li>12. Develop criteria and requirements for and witness FAT (factory acceptance tests) and bench testing.</li> <li>13. Develop and provide engineering review and input on engineering designs, design reviews, perform complex calculations and engineering and construction documents (design criteria, control philosophy, specifications, construction drawings, O&amp;MI, operating diagrams, P&amp;IDs, startup procedures, etc.).</li> <li>14. With appropriate training, may lead low complexity PHA's and PSSR's for assigned projects.</li> </ol>
<b>Scope</b>	Resolves problems of moderate scope and complexity. Assignments typically require standard solutions. Under general direction, independently plans work to meet assigned objectives; progress is reviewed periodically for technical accuracy and adequacy in process and upon completion.
<b>Interaction</b>	External contacts typically require coordinating with contractors and providing information to third parties. Internal contacts include SCADA specialists, GC M&C, gas project engineering, project management, and maintenance and operations personnel.
<b>Knowledge/</b>	<ol style="list-style-type: none"> <li>1. Takes ownership of problems and their solutions.</li> </ol>

Factor	<b>Control Systems Engineer, Journey (51785655)</b>
<b>Abilities</b>	<ol style="list-style-type: none"> <li>2. Knowledge of valve types (ball, plug, globe, gate, butterfly) and their characteristics and applications.</li> <li>3. Knowledge of sensor types and their characteristics and applications.</li> <li>4. Knowledge of control systems including PID control.</li> <li>5. Knowledge of electricity and electronics.</li> <li>6. Knowledge of codes and standards (API, IEEE, NEC, NFPA, ISA, AGA).</li> <li>7. Knowledge of communication technologies including hardware architectures, addressing schemes, protocols and security considerations.</li> <li>8. Knowledge of IEC 61131-3 programming languages (ladder, function block diagram, structured text) and the ability to program PLCs, RTUs and HMIs.</li> <li>9. Knowledge of regulating and PLS stations and their auxiliary systems and controls.</li> <li>10. Knowledge of hazardous areas and protection techniques for installing equipment in these areas.</li> </ol>
<b>Job Qualifications</b>	
<b>Education</b>	A 4-year BS degree in Electrical Engineering or Mechanical Engineering from an accredited curriculum in the US or the equivalent from outside the US. Candidates with a BS degree from other engineering disciplines may be considered with three years of controls experience.
<b>Licenses / Certifications</b>	Current and active California PE license desired.
<b>Experience</b>	Mastery of the associate level engineer job duties or equivalent and demonstrated knowledge and ability to perform the basic duties of the journey level engineer. Meets specific technical requirements gained through a minimum of three years of cumulative experience in engineering and design.

Factor	<b>Control Systems Engineer, Senior (51785656)</b>
<b>Summary</b>	This is a senior-level engineering position. This position works with a high degree of independence on all but the most complex projects and is responsible for providing controls engineering for complex projects, maintenance, and operation support including, but not limited to: RTU and PLC programming, HMI programming, field support of maintenance and construction personnel and commissioning.
<b>Job Duties</b>	<p>May perform all the functions of Associate and Journey Control Systems Engineer and in addition:</p> <ol style="list-style-type: none"> <li>1. Coach, direct, and assist technical employees and teams. Occasionally act as team leader.</li> <li>2. Performs root cause analysis and makes recommendations to address local and system-wide implications under emergencies.</li> <li>3. Review and comment on new design standards.</li> <li>4. Identify and resolve standards deficiencies and recommend standards upgrades.</li> </ol>
<b>Scope</b>	Resolves problems of complex scope. Assignments may provide an opportunity for creative or non-standard approaches. Under general direction, independently plans work to meet assigned general objectives. Work may be reviewed upon completion; solution may provide an opportunity for creative/non-standard approaches.
<b>Interaction</b>	External contacts typically require coordinating with contractors and providing information to third parties. Internal contacts include SCADA specialists, GC M&C, gas project engineering, project management, and maintenance and operations personnel.
<b>Knowledge/ Abilities</b>	<ol style="list-style-type: none"> <li>1. Takes ownership of problems and their solutions.</li> <li>2. Knowledge of valve types (ball, plug, globe, gate, butterfly) and their characteristics and applications.</li> <li>3. Knowledge of sensor types and their characteristics and applications.</li> </ol>

Factor	<b>Control Systems Engineer, Senior (51785656)</b>
	<ol style="list-style-type: none"> <li>4. Able to perform commissioning on more advanced facilities.</li> <li>5. Expert knowledge of control systems including PID control.</li> <li>6. Knowledge of electricity and electronics.</li> <li>7. Knowledge of codes and standards (API, IEEE, NEC, NFPA, ISA, AGA).</li> <li>8. Expert knowledge of communication technologies including hardware architectures, addressing schemes, protocols and security considerations</li> <li>9. Expert knowledge of IEC 61131-3 programming languages (ladder, function block diagram, structured text) and the ability to program PLCs, RTUs and HMIs.</li> <li>10. Advanced knowledge of hazardous areas and protection techniques for installing equipment in these areas.</li> <li>11. Knowledge of computer networking and security including topologies, protocol and equipment.</li> <li>12. Expert knowledge of regulating and PLS stations and their auxiliary systems and controls.</li> <li>13. Knowledge of compressor stations and their auxiliary systems and controls.</li> <li>14. Knowledge of UL 508 industrial control panel design.</li> </ol>
<b>Job Qualifications</b>	
<b>Education</b>	A 4-year BS degree in Electrical Engineering or Mechanical Engineering from an accredited curriculum in the US or the equivalent from outside the US. Candidates with a BS degree from other engineering disciplines may be considered with eight years of controls experience.
<b>Licenses / Certifications</b>	Current and active California PE license desired.
<b>Experience</b>	Mastery of the journey level engineer job duties or equivalent and demonstrated knowledge and ability to perform the basic duties of the senior level engineer. Meets specific technical requirements gained through a minimum of eight years of cumulative experience in engineering and design.

Factor	<b>Control Systems Engineer, Senior Consulting (51785657)</b>
<b>Summary</b>	This is a senior consulting-level engineering position. This position is responsible for providing controls engineering for highly complex projects, maintenance, and operation support including, but not limited to: RTU and PLC programming, HMI programming, field support of maintenance and construction personnel and commissioning. This position is responsible to understand computer networking and cybersecurity requirements for the gas controls systems and to ensure designs and equipment are in compliance. Provide technical leadership and coaching.
<b>Job Duties</b>	<p>May perform all the functions of Associate, Journey, and Senior Control Systems Engineer and in addition:</p> <ol style="list-style-type: none"> <li>1. Represent PG&amp;E at external industry associations, committees, trade organizations and other inter-utility groups.</li> <li>2. Develop innovative solutions to solve challenging technical issues.</li> <li>3. Act as team leader.</li> <li>4. Performs complex root cause analysis and makes recommendations to address local and system-wide implications under emergencies.</li> <li>5. Lead creation of new design standards.</li> <li>6. Review design and programming of SCADA equipment to ensure compliance with current cybersecurity standards and practices.</li> </ol>
<b>Scope</b>	Resolves problems of complex scope. Serves as a key technical resource within gas electrical system. Regularly expected to apply creativity or new approaches to assignments that may be unique. May receive technical guidance from Principal engineers. May lead others on technically complex projects. Under general direction of



Factor	<b>Control Systems Engineer, Senior Consulting (51785657)</b>
	supervisor, plans work to meet general objectives. Work may be reviewed upon completion; solution often provides an opportunity for creative/non-standard approaches.
<b>Interaction</b>	External contacts typically require coordinating with contractors and providing information to third parties. Internal contacts include SCADA specialists, GC M&C, gas project engineering, project management, and maintenance and operations personnel. May represent the company on committees. Often is a technical coach for others.
<b>Knowledge/ Abilities</b>	<ol style="list-style-type: none"> <li>1. Takes ownership of problems and their solutions.</li> <li>2. Expert knowledge of valve types (ball, plug, globe, gate, butterfly) and their characteristics and applications.</li> <li>3. Expert knowledge of sensor types and their characteristics and applications.</li> <li>4. Able to perform commissioning on more advanced facilities.</li> <li>5. Expert knowledge of control systems including PID control.</li> <li>6. Knowledge of electricity and electronics.</li> <li>7. Expert knowledge of codes and standards (API, IEEE, NEC, NFPA, ISA, AGA).</li> <li>8. Expert knowledge of communication technologies including hardware architectures, addressing schemes, protocols and security considerations</li> <li>9. Expert knowledge of IEC 61131-3 programming languages (ladder, function block diagram, structured text) and the ability to program PLCs, RTUs and HMIs.</li> <li>10. Expert knowledge of hazardous areas and protection techniques for installing equipment in these areas.</li> <li>11. Expert knowledge of computer networking and security including topologies, protocol and equipment.</li> <li>12. Expert knowledge of regulating and PLS stations and their auxiliary systems and controls.</li> <li>13. Expert knowledge of compressor stations and their auxiliary systems and controls.</li> <li>14. Knowledge of cyber security standards and the recommended or mandated practices.</li> </ol>
<b>Job Qualifications</b>	
<b>Education</b>	A 4-year BS degree in Electrical Engineering or Mechanical Engineering from an accredited curriculum in the US or the equivalent from outside the US. Candidates with a BS degree from other engineering disciplines may be considered with thirteen years of controls experience.
<b>Licenses / Certifications</b>	Current and active California PE license in Electrical Engineering or Controls Systems Engineering required for Sr. Consulting Engineer.
<b>Experience</b>	Mastery of the senior level engineer job duties or equivalent and demonstrated knowledge and ability to perform the basic duties of the senior consulting level engineer. Meets specific technical requirements gained through a minimum of thirteen years of cumulative experience in engineering and design.

Factor	<b>Control Systems Engineer, Principal (51785659)</b>
<b>Summary</b>	This is a principal-level engineering position. This position is responsible for providing controls engineering for the most complex projects, maintenance, and operation support including, but not limited to: RTU and PLC programming, HMI programming, field support of maintenance and construction personnel and commissioning. Individual is a recognized industry expert both within and outside PG&E.
<b>Job Duties</b>	May perform all the functions of Associate, Journey, Senior and Senior Consulting Control Systems Engineer and in addition: <ol style="list-style-type: none"> <li>1. Lead large highly complex (multi-discipline, multi-group) projects and performs technical analyses, studies, and develops conceptual solutions.</li> <li>2. Provide high level system review for projects and corporate initiatives which may</li> </ol>

Factor	<b>Control Systems Engineer, Principal (51785659)</b>
	<p>span across multiple organization and business units in the PG&amp;E corporate enterprise.</p> <ol style="list-style-type: none"> <li>3. Provide long term vision for applying existing and emerging technology to accomplish safe, reliable and affordable engineering design for construction and maintenance.</li> <li>4. Collaborate with industry to develop technology and products which would benefit PG&amp;E while adhering to national and international standards such as ISA and IEC for multi-vendor support.</li> </ol>
<b>Scope</b>	<p>Resolves problems of complex scope. Serves as a key technical resource within gas electrical system. Regularly expected to apply creativity or new approaches to assignments that may be unique. Leads others on technically complex projects. Under general direction of supervisor, plans work to meet general objectives. Work may be reviewed upon completion; solution often provides an opportunity for creative/non-standard approaches.</p>
<b>Interaction</b>	<p>External contacts typically require coordinating with contractors and providing information to third parties. Internal contacts include SCADA specialists, GC M&amp;C, gas project engineering, project management, and maintenance and operations personnel. Participates in professional affiliations to keep abreast of new industry trends, developments and procedures. May represent the company on committees. Often is a technical coach for others.</p>
<b>Knowledge/ Abilities</b>	<ol style="list-style-type: none"> <li>1. Takes ownership of problems and their solutions.</li> <li>2. Expert knowledge of valve types (ball, plug, globe, gate, butterfly) and their characteristics and applications.</li> <li>3. Expert knowledge of sensor types and their characteristics and applications.</li> <li>4. Able to perform commissioning on more advanced facilities.</li> <li>5. Expert knowledge of control systems including PID control.</li> <li>6. Knowledge of electricity and electronics.</li> <li>7. Expert knowledge of codes and standards (API, IEEE, NEC, NFPA, ISA, AGA).</li> <li>8. Expert knowledge of communication technologies including hardware architectures, addressing schemes, protocols and security considerations in simple and complex DCS systems at facilities.</li> <li>9. Expert knowledge of IEC 61131-3 programming languages (ladder, function block diagram, structured text) and the ability to program PLCs, RTUs and HMIs.</li> <li>10. Knowledge of hazardous areas and protection techniques for installing equipment in these areas.</li> <li>11. Expert knowledge of computer networking and security including topologies, protocol and equipment used in wide area SCADA networks.</li> <li>12. Expert knowledge of regulating and PLS stations and their auxiliary systems and controls.</li> <li>13. Expert knowledge of compressor stations, underground storage facilities, and major pipeline terminals and their auxiliary systems and controls.</li> <li>14. Expert knowledge of cyber security standards and the recommended or mandated practices and the ability to implement these procedures.</li> </ol>
<b>Job Qualifications</b>	
<b>Education</b>	<p>A 4-year BS degree in Electrical Engineering or Mechanical Engineering from an accredited curriculum in the US or the equivalent from outside the US. Candidates with a BS degree from other engineering disciplines may be considered with extensive controls experience. MS degree desired.</p>
<b>Licenses / Certifications</b>	<p>Current and active California PE license in Electrical Engineering or Controls Systems Engineering required.</p>
<b>Experience</b>	<p>Mastery of the senior consulting level engineer job duties or equivalent and demonstrated knowledge and ability to perform the basic duties of the journey level engineer. Meets specific technical requirements gained through a minimum of fifteen years of cumulative experience in engineering and design.</p>

<b>Factor</b>	<b>Associate Power Systems Engineer (Gas) (51785396)</b>
<b>Summary</b>	<p>This is an entry- level power systems engineer job that works under the general technical direction of more experienced engineers. This position trains in all job duties in its respective discipline and requires a high level of training, direction and review of work. This job is responsible for providing electrical technical engineering for routine projects and maintenance/operation support for gas transmission facilities, including compressor stations, underground storage facilities, pressure limiting and metering stations, etc. including but not limited to: create design criteria, review drawing, issuing protection requirements for station electrical equipment and review electrical clearances.</p>
<b>Job Duties</b>	<ol style="list-style-type: none"> <li>1. Develop and provide engineering review and input on designs, design reviews, calculations, perform calculations and develop engineering and construction documents.</li> <li>2. Provide "hands on" technical support and advice to maintenance, construction and operations personnel.</li> <li>3. Ensure all engineering products incorporate industry best practices with an emphasis on safety and compliance with AGA, NEC, NFPA, OSHA and other applicable safety codes and regulations while ensuring a reliable and cost effective end result.</li> <li>4. Work closely with project managers or act as project engineer to ensure that the designs will meet project electrical requirements.</li> <li>5. Participate and assist others in root cause analysis of problem, scope of work development, engineering analysis of alternatives, preparation of Design Criteria, cost estimate, overseeing preparation of design drawings and engineering documents, calculations, specifications, commissioning procedures</li> <li>6. Assist and collaborate with the field personnel in investigation, troubleshooting, research, and resolution of equipment or system issues.</li> <li>7. Create sketch and review grounding grid drawing and BOM based on the grounding analysis or criteria.</li> <li>8. Review hazardous area classification drawing.</li> <li>9. Participate in job walk-downs.</li> <li>10. Participates in PHA (Process Hazard Analysis) &amp; PSSR (Pre Startup Safety Review).</li> <li>11. Participates in FAT (factory acceptance testing) for equipment on projects.</li>   <li>12. Determine/Review the electrical equipment hazardous classification.</li> <li>13. Conduct short circuit studies, load flow analysis and arc flash analysis.</li> <li>14. Conduct coordination studies.</li> <li>15. Conduct electrical load analysis to             <ol style="list-style-type: none"> <li>a. Size ATS, switchboard/switchgear, generator, battery, UPS, cables, breakers, transformer, fuse, capacitor bank for power factor correction, etc.</li> <li>b. Provide protection relay or breaker trip unit settings.</li> </ol> </li> <li>16. Update and maintain records, such as Easypower data base, transformer, Low /Medium Voltage switchboard/switchgear, generator, uninterruptable power supply 'UPS', battery, generator, etc.</li> <li>17. The engineer at this level is also assigned to provide normal and emergency maintenance and operation support. The engineer may perform, but not limited to, the following tasks:             <ol style="list-style-type: none"> <li>a. Investigate questionable electrical operations</li> <li>b. Review electrical clearance request and provide specific electrical isolation points</li> <li>c. Provide engineering assistance to technicians, operators for routine maintenance and operation work</li> </ol> </li> </ol>
<b>Scope</b>	<p>Resolves problems of limited scope. Assignments typically require standard solutions. Assignments are regularly reviewed.</p>
<b>Interaction</b>	<p>Will work with internal engineering, operations, construction and maintenance</p>

Factor	<b>Associate Power Systems Engineer (Gas) (51785396)</b>
<b>Knowledge/ Abilities</b>	<p>organizations to implement various aspects of the above job requirements.</p> <ol style="list-style-type: none"> <li>1. Able to apply basic engineering principles and theory</li> <li>2. Basic understanding of symmetrical component theory and ability to perform fault calculations and load flow analysis.</li> <li>3. Basic knowledge of control circuitry</li> <li>4. Effectively communicates both written and orally</li> <li>5. Approaches and plans work in an organized manner to meet project commitments</li> <li>6. Able to read and understand Operating, Single line, Three lines and Schematic diagrams</li> <li>7. Assess and recommend solutions for routine projects.</li> <li>8. Basic knowledge of electrical codes &amp; standards such as IEEE, NEC, NFPA, etc.</li> <li>9. Basic knowledge of electrical installation in hazardous area requirement.</li> <li>10. Basic knowledge of hazardous area classification standards API, AGA, IEC, etc.</li> </ol>
<b>Job Qualifications</b>	
<b>Education</b>	A 4-year BS Degree in Electrical Engineering or a related technical discipline from an accredited curriculum in the US or the equivalent from outside the US.
<b>Licenses / Certifications</b>	Current and active California EIT Certificate desired.
<b>Experience</b>	1-2 years' experience in engineering desired.

Factor	<b>Journey Power Systems Engineer (Gas) (51785397)</b>
<b>Summary</b>	<p>This is a journey- level power systems engineer job that requires minimum technical assistant of more experienced engineers. This position requires a moderate level of training, direction and review of work from more senior engineers. This job is responsible for providing electrical technical engineering for routine projects and maintenance/operation support for gas transmission facilities, including compressor stations, underground storage facilities, pressure limiting and metering stations, etc. including but not limited to: create design criteria, review drawing, issuing protection requirements for station electrical equipment and review electrical clearances.</p>
<b>Job Duties</b>	<p>May perform all the functions of Associate Power Systems Engineer and in addition:</p> <ol style="list-style-type: none"> <li>1. Perform basic grounding analysis.</li> <li>2. Handle special and complex projects, such as automatic transfer scheme to tie one or two emergency/standby generator to the utility feed, medium/low voltage switchgear protection design, motor starter/variable speed drive 'VFD' design, harmonics analysis, paralleling switchgear scheme, generator excitation and governor controller determination.</li> <li>3. Participate in development of design standards and new tools.</li> <li>4. Evaluate innovative and practical design solutions for the project with a focus on cost reductions, safety and reliability.</li> <li>5. Provide technical guidance for various codes interpretation and compliance.</li> <li>6. Support department code compliance initiatives and development of Gas Standards.</li> <li>7. With appropriate training, may lead low complexity PHA's and PSSR's for assigned projects.</li> </ol>
<b>Scope</b>	<p>Resolves problems of moderate scope and complexity. Assignments typically require standard solutions. Under general direction, independently plans work to meet assigned objectives; progress is reviewed periodically for technical accuracy and adequacy in process and upon completion.</p>

<b>Factor</b>	<b>Journey Power Systems Engineer (Gas) (51785397)</b>
<b>Interaction</b>	To implement various aspects of the above job requirements, will work with internal engineering, operations, station construction and maintenance organizations with various levels of personnel to obtain cooperation, persuade, exchange and/or provide information. May attend meetings representing the group to meet job duties. External contacts limited primarily to obtaining and providing information to vendors, manufacturers and consultants on moderately routine issues.
<b>Knowledge/ Abilities</b>	<ol style="list-style-type: none"> <li>1. Takes ownership of problems and their solutions</li> <li>2. Knowledge of symmetrical component theory and ability to perform fault calculations and load flow analysis</li> <li>3. Knowledge of electromagnetic interference 'EMI' between power line and gas pipeline</li> <li>4. Knowledge of EMI, touch and step potential mitigation procedure</li> <li>5. Knowledge of Easypower software or equivalent</li> <li>6. Knowledge of Arc flash standards and requirement</li> <li>7. Knowledge of control circuitry</li> <li>8. Effectively communicates both written and orally</li> <li>9. Approaches and plans work in an organized manner to meet project commitments</li> <li>10. Able to read and understand Operating, Single line, Three lines and Schematic diagrams</li> <li>11. Assess and recommend solutions for routine projects.</li> <li>12. Knowledge of electrical codes &amp; standards such as IEEE, NEC, NFPA, etc.</li> <li>13. Knowledge of electrical installation in hazardous area requirement.</li> <li>14. Knowledge of hazardous area classification standards API, AGA, IEC, etc.</li> </ol>
<b>Job Qualifications</b>	
<b>Education</b>	A 4-year BS Degree in Electrical Engineering or a related technical discipline from an accredited curriculum in the US or the equivalent from outside the US.
<b>Licenses / Certifications</b>	Current and active California Electrical PE license desired.
<b>Experience</b>	Mastery of the associate power systems engineer job duties in respective discipline and demonstrated knowledge and ability to perform the basic duties of the Journey Power Systems Engineer. Meets specific technical requirements gained through a minimum of three years of cumulative experience in the field of electrical distribution system.

<b>Factor</b>	<b>Senior Power Systems Engineer (Gas) (51785398)</b>
<b>Summary</b>	This is a senior- level power systems engineer job that requires mastery of the journey engineer job duties and is responsible for complex electrical system design. This position requires a low level of training, direction and review of work from more senior engineers. This job is responsible for providing electrical technical engineering for routine projects and maintenance/operation support for gas transmission facilities, including compressor stations, underground storage facilities, pressure limiting and metering stations, etc. including but not limited to: create design criteria, review drawing, issuing protection requirements for station electrical equipment and review electrical clearances.
<b>Job Duties</b>	<p>May perform all the functions of Associate and Journey Power Systems Engineer and in addition:</p> <ol style="list-style-type: none"> <li>1. Mentor lower level engineers.</li> <li>2. Perform complex grounding analysis.</li> <li>3. Coach, direct, and assist technical employees and teams. May act as team leader</li> <li>4. Performs root cause analysis and makes recommendations to address local and system-wide implications under emergencies.</li> <li>5. Review and comment on new design standards.</li> </ol>

Factor	<b>Senior Power Systems Engineer (Gas) (51785398)</b>
	6. Identify and resolve standards deficiencies and recommend standards upgrades.
<b>Scope</b>	Resolves problems of complex scope. Assignments may provide an opportunity for creative or non-standard approaches. Under general direction, independently plans work to meet assigned general objectives. Work may be reviewed upon completion; solution may provide an opportunity for creative/non-standard approaches.
<b>Interaction</b>	To implement various aspects of the above job requirements, will work with all levels of personnel to obtain cooperation, persuade, exchange and/or provide information. Lead and/or attend meetings representing the group to perform job duties. External contacts limited primarily to obtaining, exchanging and providing information to manufacturers and consultants. May participate in professional affiliations (i.e. CEATI, IEEE) to keep abreast of new industry trends, developments and procedures. May represent the company on committees.
<b>Knowledge/ Abilities</b>	<ol style="list-style-type: none"> <li>1. Takes ownership of problems and their solutions</li> <li>2. Ability to calculate relay settings for all station automatics schemes, transformer bank protection, bus protection, generator protection, and motor protection.</li> <li>3. Able to work with moderate supervision and guidance to meet project commitments, both independently and/or as a member of a team</li> <li>4. Knowledge of CDEGS grounding software or equivalent</li> <li>5. Able to understand and implement the technical requirements of interfacing engineering disciplines</li> <li>6. Demonstrates informed judgment when making decisions and recommendations</li> <li>7. Uses independent judgment in applying engineering principles and techniques to determine cost effective and practical solutions</li> <li>8. Ability to manage and complete numerous non-conflicting projects concurrently</li> <li>9. Interprets applicable codes, industry standards and regulations and educates others</li> <li>10. Can provide thorough analysis of issues and justification of recommendations</li> <li>11. Takes ownership of problems and their solutions</li> </ol>
<b>Job Qualifications</b>	
<b>Education</b>	A 4-year BS Degree in Electrical Engineering or a related technical discipline from an accredited curriculum in the US or the equivalent from outside the US.
<b>Licenses / Certifications</b>	Current and active California Electrical PE license desired.
<b>Experience</b>	Mastery of the associate and journey power systems engineer job duties in respective discipline and demonstrated knowledge and ability to perform the basic duties of the Senior Power Systems Engineer. Meets specific technical requirements gained through a minimum of eight years of cumulative experience in the field of electrical distribution system.

Factor	<b>Senior Consulting Power Systems Engineer (Gas) (51785399)</b>
<b>Summary</b>	This is a senior consulting- level power systems engineer job that requires mastery of the senior engineer job duties. This job is responsible for providing electrical technical engineering for routine and complex projects and maintenance/operation support for gas transmission facilities, including compressor stations, underground storage facilities, pressure limiting and metering stations, etc. including but not limited to: create design criteria, review drawing, issuing protection requirements for station electrical equipment and review electrical clearances. Provide technical leadership and coaching.
<b>Job Duties</b>	<p>May perform all the functions of Associate, Journey and Senior Power Systems Engineer and in addition:</p> <ol style="list-style-type: none"> <li>1. Mentor lower level engineers.</li> <li>2. Perform highly complex grounding interference analysis.</li> </ol>

Factor	<b>Senior Consulting Power Systems Engineer (Gas) (51785399)</b>
	<ol style="list-style-type: none"> <li>3. Represent PG&amp;E at external industry associations, committees, trade organizations and other inter-utility groups</li> <li>4. Develop innovative solutions to solve challenging technical issues</li> <li>5. Act as team leader</li> <li>6. Perform complex root cause analysis and makes recommendations to address local and system-wide implications under emergencies</li> <li>7. Lead creation of new design standards</li> </ol>
<b>Scope</b>	Resolves problems of complex scope. Serves as a key technical resource within gas electrical system. Regularly expected to apply creativity or new approaches to assignments that may be unique. May receive technical guidance from Principal engineers. May lead others on technically complex projects. Under general direction of supervisor, plans work to meet general objectives. Work may be reviewed upon completion; solution often provides an opportunity for creative/non-standard approaches.
<b>Interaction</b>	Internal contacts include project team members, managers and directors across various departments. Serves as the most senior technical expert on the team. External contacts limited primarily to obtaining, exchanging and providing information to manufacturers and consultants on non-routine issues. Participates in professional affiliations (i.e. CEATI, IEEE) to keep abreast of new industry trends, developments and procedures. May represent the company on committees. Often is a technical coach for others.
<b>Knowledge/ Abilities</b>	<ol style="list-style-type: none"> <li>1. Demonstrate expert knowledge and abilities in electrical distribution system</li> <li>2. Able to handle multiple large and complex projects without little or no supervision and serve as team leader</li> <li>3. Experience of CDEGS grounding software or equivalent</li> <li>4. Demonstrate excellent presentation skills including knowledge transfer presentations. And Provide leadership, direction, and assistance to engineers.</li> <li>5. Coach and develop other lower level engineers routinely.</li> </ol>
<b>Job Qualifications</b>	
<b>Education</b>	A 4-year BS Degree in Electrical Engineering or a related technical discipline from an accredited curriculum in the US or the equivalent from outside the US.
<b>Licenses / Certifications</b>	Current and active California Electrical PE license required for Sr. Consulting Engineer.
<b>Experience</b>	Mastery of the associate, journey and senior power systems engineer job duties in respective discipline and demonstrated knowledge and ability to perform the basic duties of the Senior Consulting Power Systems Engineer. Meets specific technical requirements gained through a minimum of thirteen years of cumulative experience in the field of electrical distribution system.

Factor	<b>Principal Power Systems Engineer (Gas) (51785463)</b>
<b>Summary</b>	This is a principal- level power systems engineer job that requires mastery of the senior consulting engineer job duties This job is responsible for providing electrical technical engineering for routine and complex projects and maintenance/operation support for gas transmission facilities, including compressor stations, underground storage facilities, pressure limiting and metering stations, etc. including but not limited to: create design criteria, review drawing, issuing protection requirements for station electrical equipment and review electrical clearances. Provide technical leadership and coaching.
<b>Job Duties</b>	<p>May perform all the functions of Associate, Journey, Senior and Senior Consulting Power Systems Engineer and in addition:</p> <ol style="list-style-type: none"> <li>1. Lead large highly complex (multi-discipline, multi-group) projects and performs technical analyses, studies, and develops conceptual solutions.</li> <li>2. Mentor lower level engineers.</li> <li>3. Perform highly complex grounding interference analysis.</li> <li>4. Provide high level system review for projects and corporate initiatives which may</li> </ol>

<b>Factor</b>	<b>Principal Power Systems Engineer (Gas) (51785463)</b>
	<p>span across multiple organization and business units in the PG&amp;E corporate enterprise.</p> <ol style="list-style-type: none"> <li>5. Provide long term vision for applying existing and emerging technology to accomplish safe, reliable and affordable engineering design for construction and maintenance.</li> <li>6. Collaborate with industry to develop technology and products which would benefit PG&amp;E while adhering to national and international standards such as ISA and IEC for multi-vendor support.</li> </ol>
<b>Scope</b>	<p>Resolves problems of complex scope. Serves as a key technical resource within gas electrical system. Regularly expected to apply creativity or new approaches to assignments that may be unique. Leads others on technically complex projects. Under general direction of supervisor, plans work to meet general objectives. Work may be reviewed upon completion; solution often provides an opportunity for creative/non-standard approaches.</p>
<b>Interaction</b>	<p>Internal contacts include project team members, managers and directors across various departments. Serves as the most senior technical expert on the team. External contacts limited primarily to obtaining, exchanging and providing information to manufacturers and consultants on non-routine issues. Participates in professional affiliations (i.e. CEATI, IEEE) to keep abreast of new industry trends, developments and procedures. May represent the company on committees. Often is a technical coach for others.</p>
<b>Knowledge/ Abilities</b>	<ol style="list-style-type: none"> <li>1. Demonstrate expert knowledge and abilities in electrical distribution system</li> <li>2. Able to handle multiple large and complex projects without little or no supervision and serve as team leader</li> <li>3. Experience of CDEGS grounding software or equivalent</li> <li>4. Demonstrate excellent presentation skills including knowledge transfer presentations. And Provide leadership, direction, and assistance to engineers.</li> <li>5. Coach and develop other lower level engineers routinely.</li> </ol>
<b>Job Qualifications</b>	
<b>Education</b>	<p>A 4-year BS Degree in Electrical Engineering or a related technical discipline from an accredited curriculum in the US or the equivalent from outside the US.</p>
<b>Licenses / Certifications</b>	<p>Current and active California Electrical PE license required.</p>
<b>Experience</b>	<p>Mastery of the associate, journey and senior power systems engineer job duties in respective discipline and demonstrated knowledge and ability to perform the basic duties of the Principal Power Systems Engineer. Meets specific technical requirements gained through a minimum of fifteen years of cumulative experience in the field of electrical distribution system.</p>



**Incumbents with Classifications**

<b>Name</b>	<b>Old Classification</b>	<b>New Classification</b>
Anderson, Suzanne	Gas Engineer, Senior	Control Systems Engineer, Senior
Baldwin, Timothy	Engineer	Gas Project (Plant) Engineer
Bernedo Martinez, Alejandro	Gas Engineer, Senior	Gas Project (Plant) Engineer, Senior
Bestor, Ted	Gas Engineer, Principal	Gas Project (Plant) Engineer, Principal
Bhatt, Tushar	Gas Engineer, Senior	Gas Project (Plant) Engineer, Senior
Blanco, Jordan	Engineer	Control Systems Engineer, Journey
Bringas, Edwin	Engineer, Associate	Control Systems Engineer, Associate
Burniston, John	Gas Engineer, Principal	Gas Project (Plant) Engineer, Principal
Chan, Christopher	Gas Engineer	Gas Project (Plant) Engineer
Chhit, Stephen	Gas Engineer	Gas Project (Plant) Engineer
Chow, William	Gas Engineer	Gas Project (Plant) Engineer
Conroy, Timothy	Engineer, Senior	Gas Project (Plant) Engineer, Senior
Gavrielides, Gavrilinos	Gas Engineer, Senior	Control Systems Engineer, Senior
Gerlach, Grant	Gas Engineer, Senior	Gas Project (Plant) Engineer, Senior
Kaupanger, Kristofer	Gas Engineer, Senior	Control Systems Engineer, Senior
Lucero, Gilbert	Gas Engineer, Senior	Gas Project (Plant) Engineer, Senior
Ly, Ben	Engineer, Associate	Gas Project (Plant) Engineer, Associate
Malsen, Khaled	Gas Engineer, Expert	Senior Consulting Power Systems Engineer (Gas)
Min, Kyung Chan	Gas Engineer	Gas Project (Plant) Engineer
Morales, Andrea	Engineer, Associate	Associate Power Systems Engineer (Gas)
Onwurah, Ike	Gas Engineer, Senior	Gas Project (Plant) Engineer, Senior
Paulino, George	Engineer	Control Systems Engineer, Journey
Rakin, Daniel	Gas Engineer	Gas Project (Plant) Engineer
Ramanathan, Shyam	Consulting Gas Engineer, Senior	Control Systems Engineer, Senior Consulting
Rustia, Glenn	Engineer	Journey Power Systems Engineer (Gas)
Sison, Alethea	Gas Engineer	Gas Project (Plant) Engineer
Tran, Hien	Gas Engineer	Gas Project (Plant) Engineer
Tungol, Endralin	Gas Engineer, Senior	Control Systems Engineer, Senior
Whitbey, Gerald	Engineer	Journey Power Systems Engineer (Gas)
Zhao, Fang Lin	Gas Engineer	Gas Project (Plant) Engineer

