

## **5.0 NATURAL GAS SUPPLY**

### **5.1 GAS SUPPLY**

The project will be fueled with pipeline-quality natural gas delivered by Pacific Gas and Electric (PG&E). Gas supplies will be acquired from gas providers in supply regions accessible through the PG&E gas transmission system. Over the life of the project, it is expected that a variety of different suppliers will contract to provide the gas commodity to the PG&E system for transport to the project site. Gas will be procured at market prices.

### **5.2 GAS PIPELINE INTERCONNECTION**

Natural gas will be delivered to the Marsh Landing Generating Station (MLGS) by PG&E, via a new 12-inch interconnection line which will be constructed to carry natural gas from Line 400 (adjacent to the Gateway Generating Station site) to the MLGS site, as shown on Figures 2.3-1a and 2.5-1a. A new metering station will be provided on the northern portion of the MLGS site, as shown on Figure 2.5-1c.

The approximately 2,100-foot-long gas pipeline will terminate at the new gas compressor station to be installed as part of the MLGS. The pipeline will also be provided with isolation valves and vent valves to allow the pipeline and associated equipment to be depressurized for maintenance or repair.

### **5.3 NATURAL GAS REQUIREMENTS**

Nominal full load fuel consumption will be 8,866 million British Thermal Units per hour (MMBtu/Hr), higher heating value (HHV). Total annual fuel consumption will be 23,244,500 million Btu (HHV) based on a 50 percent dispatch for the two Flex Plant 10 (FP10) units and 10 percent dispatch for the two Simple Cycle units. Fuel consumed during start-ups and shutdowns is expected to be 322,400 MMBtu (HHV) based on a total of 193 annual start-up/shutdown event for each of the two FP10 combined-cycle units and 100 annual start-up/shutdown events for each of the two 5000F Simple Cycle units.

The natural gas will be delivered to the site and be routed from the gas metering station area to the gas compression enclosure, where it will pass through compressors to reach the required operational pressure of approximately 600 pounds per square inch gauge. Three gas compressors, 3,200 horsepower each, will operate when the gas pressure falls below the required operational pressure. The gas compressor enclosure is located to the northwest of the new generating units.

The natural gas will be further conditioned on site. The fuel gas compression scope will include inlet scrubbers, finfan gas coolers, and discharge coalescing filters. A final fuel filter will be installed at each combustion turbine.

Gas quality received from PG&E from the CCPP receipt point is summarized in Table 5-1.

### **5.4 PIPELINE CONSTRUCTION**

The natural gas pipeline connection will be completed in time to support the summer 2011 startup and commissioning activities of the Simple Cycle units. Construction of the pipeline is considered in the overall construction schedule presented in Chapter 2.0. The pipeline workforce will consist of laborers, welders, equipment operators, supervisory personnel, and construction management personnel.

The new pipeline will be an approximately 12-inch-diameter all welded steel pipe installed and tested in accordance with American National Standards Institute B31.1 Power Piping Code. The final pipe size will be determined during detailed design. The underground portion of the pipeline will be coated with a

fusion-bonded epoxy coating to protect the pipe from exterior corrosion. The total length of the onsite natural gas pipeline will be approximately 2,100 feet. Approximately 700 feet of the pipeline will cross PG&E's Gateway Generating Station site, 700 feet will run through the CCPP, and 700 feet will be constructed through the MLGS site to the gas compressor station.

Construction staffing requirements for installation of the gas line are included in Table 2.7-2. Equipment required for installation of the gas line is included in Table 2.7-3. Equipment laydown will occur within the project construction laydown areas.

| <b>Table 5-1<br/>Natural Gas Analysis</b>   |                          |
|---|--------------------------|
| <b>Constituent</b>  | <b>Percent by Volume</b> |
| Methane   | 95.60                    |
| Ethane  | 2.27                     |
| Propane   | 0.10                     |
| n-Butane  | 0.01                     |
| i-Butane  | 0.01                     |
| n-Pentane   | 0                        |
| i-Pentane   | 0                        |
| Hexane+   | 0                        |
| Oxygen  | 0                        |
| Nitrogen  | 1.30                     |
| Carbon dioxide  | 0.71                     |
| <b>Total</b>  | 100.00                   |
| Sulfur (grains per 100 scf)   | 1.0/0.40 <sup>2</sup>    |
| Higher Heating Value<br>(Btu per ft <sup>3</sup> .) <sup>1</sup>  | 990 to 1,050             |
| Source: Gas composition from PG&E.  |                          |
| <sup>1</sup> Heating value for the fuel gas shall be between 990 and 1,050 Btu/ft <sup>3</sup> and will normally range from 1,000 to 1,030 Btu/ft <sup>3</sup> .<br>Btu = British thermal units, scf = standard cubic feet.   |                          |
| <sup>2</sup> Based on PG&E data: 1.0 is the short term maximum (up to 24 hours or daily) and 0.4 gr/100 scf is the long term (quarterly or annual average). <a href="http://www.pge.com/pipeline/operations/sulfur/sulfur_info.shtml">http://www.pge.com/pipeline/operations/sulfur/sulfur_info.shtml</a> |                          |