Memorandum of Understanding-Gas Transmission Construction
Between
OM&C, E&P - DCS Business Unit and
CGT - Generation, Transmission & Supply Business Unit
1999

Preface: The following agreement details communication, coordination, authority and responsibility for the construction of California Gas Transmission (CGT) pipeline and station facilities by the Title 300 workforce of Distribution Customer Services (DCS). This agreement reflects collaboration between both business units and ensures our continued focus on professional project management as well as improvements in safety, efficiency and cost reduction.

This agreement contains specific measures of performance for both business units. These performance measures are intended to increase mutual accountability while at the same time providing objective feedback on progress toward goals.

1.0 Workload Planning: Workload planning is a key element of PG&E's ability to efficiently manage it's construction resources. Therefore, CGT and DCS agree to the following:

1.1 Annual Forecast & Workload Leveling: CGT will submit an annual forecast of DCS Title 300 resource needs no later than November 15th of the previous year. The annual forecast shall detail manhours forecasted for each DCS Division by month. DCS will analyze its overall workload leveling needs and provide feedback to CGT. When practical, CGT will alter work schedules to facilitate DCS workload leveling needs. A final annual forecast will then be submitted after CGT's capital budget is authorized. Copies of the forecast will be sent to the OM&C Manager for each DCS Area and the Gas Distribution and Technical Services Manager. CGT will track actual versus forecasted man-hours in each DCS Area in order to provide feedback on it's ability to accurately forecast manpower needs on an annual basis.

1.2 Monthly Forecast: CGT will submit a monthly DCS resource forecast to each DCS Area's Title 300 Distribution Superintendent and the Gas Distribution and Technical Services Manager no later than the 7th day of each month. The forecast will show all jobs forecast to be in construction in the current and following 3 months. The format of the report shall be DCS Area, DCS Division, Job Description, and forecasted manhours per month. CGT will attend monthly DCS prioritization and resource allocation meetings on an as-needed basis.

Both CGT and OM&C share accountability for the successful scheduling of jobs and associated resources. CGT is responsible for providing accurate workload

forecasts so that OM&C can make decisions about resource levels. OM&C is then responsible for adhering to the construction schedules established by the CGT Project Manager. However, CGT Project Managers may adjust construction schedules to facilitate DCS manpower scheduling needs when doing so is consistent with overall project needs. In the event that OM&C determines that it has insufficient manpower to complete forecasted work within schedule the OM&C Title 300 Distribution Superintendent shall notify the CGT Project Manager. Notification should be made with sufficient lead-time to allow for contracting of the work.

1.3 SAP Work Management: CGT is currently not included in the implementation schedule for DCS's Work Management system. Each DCS Area Title 300 Distribution Superintendent will be responsible for scheduling and managing resources once the job is in construction.

1.4 Engineering Lead-Time: Maintaining adequate lead-time between job assignment (receipt of work assignment letter, authorized job copies and construction drawings) and the start of construction is a key factor in OM&C's ability to efficiently plan and execute construction activities. As such, CGT's goal for lead-time will be:

- GPRP - 100% of jobs with 4 weeks lead time or better
- Service Reliability - 100% of jobs with 4 weeks lead time or better
- WRO - 80% of jobs with 4 weeks lead time or better
- New Business - 60% of jobs with 4 weeks lead time or better
- Contracted Work 90% of jobs with 8 weeks lead time or better
- Emergency - Lead time not applicable

CGT will measure lead-time as the number of calendar days between distribution of the job package (and associated construction drawings) to the DCS workgroup and the actual construction start date. CGT will maintain a lead-time report (see Attachment 1 for sample report) and submit it to each OM&C Manager quarterly.

2.0 OM&C Construction Review: Obtaining OM&C input on job design, schedule and costs during estimate development often results in improved estimates. CGT estimators and project managers are encouraged to contact OM&C Title 300 Distribution Supervisors for their input. CGT may request a formal written construction review (see Attachment 2) once the scope, schedule and cost for a job have been fully developed. OM&C shall complete Construction Reviews within 10 working days of receiving a job package from CGT. While concurrence on job costs is not required, both OM&C and CGT are encouraged to have sufficient dialogue to fully understand differences of opinion.

3.0 CGT Work Assignment: When assigning work to OM&C, CGT will submit a CGT Work Assignment (see Attachment 3) to the appropriate DCS Area Title 300 Distribution Superintendent. The scope, schedule and costs for work are defined by the CGT Work Assignment, not the associated job estimate. The goal of the work assignment is to formally authorize DCS to expend CGT funds and manage the construction of assigned work. At a minimum, the work assignment will detail: the date of work assignment, the financial funding for OM&C's portion of the assigned work (broken down by labor mandays, standard rate labor $, material, contract and other items to be initiated and controlled by OM&C), the earliest date construction can start, the required completion date, whether any permits are still pending, the status of any long lead time material, the order to be charged to, and the name and phone number of the project manager. In particular, the CGT project manager is responsible for addressing the impact that any missing/late permits may have on the assigned work schedule. The DCS Area Title 300 Distribution Superintendent shall acknowledge receipt of the work assignment by signing and returning the form to the CGT project manager. Work assignments and acceptances may also be transmitted via an e-mail message in which case signatures are not required.

3.1 CGT Project Manager Authority: When necessary, CGT Project Managers have the authority to assign preliminary work to OM&C in advance of final job estimate authorization. However, such assignments must still be made by issuing a CGT Work Assignment. CGT Project Managers are accountable for following CGT and corporate guidelines for such actions. OM&C is not responsible for verifying the Project Managers compliance with these requirements.

4.0 Job progress, status & cost reporting requirements: CGT will utilize OM&C's Construction Management Program (CMP) software to view updates on job progress, status and costs. OM&C shall update CMP weekly to reflect job progress. Details of how CMP is to be utilized for CGT work are provided in Attachment 4. OM&C may elect not to use CMP for small jobs, partial assignments where OM&C's involvement is minimal, or work on CGT standing orders. When this is the case the T-300 Distribution Supervisor shall contact the CGT Project Manager to agree on other means of providing progress information.

5.0 Change Orders: OM&C will utilize Change Orders (see Attachment 5 or use DCS Field Change Order) to formally record and communicate potential deviations in a job's scope, schedule or cost (as originally specified in the CGT Work Assignment). Change Orders shall be submitted to the CGT Project Manager by e-mail. The CGT Project Manager shall respond to the Change Order within 5 working days. If CGT fails to respond within 5 working days, OM&C shall not proceed with portions of the work that deviate from the assigned scope, schedule or cost.

6.0 Overrun Notification: OM&C shall immediately notify the CGT Project Manager of forecasted cost overruns via the Change Order process described above. A work

assignment is considered to be overrun when total costs exceed total funds assigned in the most current CGT Work Assignment by even $1. Overrun Notifications should be made as early as possible during construction and shall be submitted directly to the CGT Project Manager. Minimum requirements for the forecasted overrun notification include: date of notification, order number, forecasted vs. assigned costs (broken down by labor, material, etc.), and a summary of the reasons for the anticipated overrun.

6.1 CGT Project Manager Authority: When notified of a potential, pending or actual overrun, the CGT Project Manager has the authority to:

a) Require OM&C to stop construction.

b) Modify the scope or schedule of the work via a revised CGT Work Assignment.

c) Release additional funds to OM&C via a revised CGT Work Assignment.

7.0 As-builts and Job Close-out: OM&C responsibility for the as-builts and job close-out process are shown in Attachment 6 and 7 respectively. As-builts shall be submitted to CGT within 30 calendar days of the completion of construction. After reviewing for completeness, CGT will forward one copy of the as-builts to Division mapping. The remaining OM&C job close-out process shall be completed within 30 calendar days of the construction complete date. In addition, OM&C shall be responsible for forwarding the appropriate information to the Division E&P Mapping group the day after facilities become operational.

8.0 Post Construction Critique: OM&C and CGT will conduct a minimum of 20 job critiques per year in order to focus on areas for mutual improvement. The number of critiques per DCS Area will be roughly proportional to the number of CGT jobs worked in the Area. CGT Project Managers will be responsible for initiating and facilitating the critiques. In addition to randomly selected jobs, either CGT or OM&C may request Post Construction Critiques on individual jobs. Critiques shall address the quality of engineering and project planning; variances in scope, schedule and cost; quality, safety issues, best practices learned, and shall identify any corrective actions recommended for future work. Written critique reports shall be distributed to the CGT Construction & Project Management Superintendent and the OM&C Title 300 Distribution Superintendent.

9.0 Measuring Financial Performance: Measures of financial performance are a key tool in PG&E's efforts to minimize and control costs. As such, OM&C and CGT agree to use the following measures:

9.1 Actual vs. Assigned Costs: Funds assigned to OM&C by the CGT Work Assignment shall be one basis by which OM&C financial performance is measured. OM&C's goal is to not exceed assigned funds. CGT shall submit quarterly reports of financial performance to the OM&C Area Managers (see Attachment 8 for sample report).

9.2 Unit Costs: Unit cost analysis shall also be used to gauge performance on jobs where an appreciable amount of footage has been installed. Actual vs. estimated mandays/foot and $/foot data will be developed by CGT and shared with OM&C Title 300 Distribution Superintendents and OM&C Area Managers (see Attachment 9 for sample report).

10. PCC Charges: Attachment 10 shows the uniform requirements that OM&C uses to determine what costs may not be charged to jobs. Exceptions to the rules shown in Attachment 10 require the prior approval of the CGT Project Manager. Inappropriate charges made to CGT jobs shall be corrected via the Journal Entry process.

11. Contracting CGT Work: OM&C agrees to continue to administer construction contracts for gas transmission work. DCS and CGT agree to abide by existing Company/Union agreements pertaining to the contracting of construction work. DCS agrees to obtain CGT input for any union negotiations or agreements that impact or alter the companies ability to contract gas transmission construction and/or inspection work.

12. Work Procedures Issues:

12.1 Tie-in Procedures: A written sequence of operations shall be prepared for any tie-in work on CGT facilities. The sequence of operations shall either be incorporated directly in the Clearance Procedure or referenced to as an attachment to the Clearance. Attachment 11 contains the minimum requirements for these written procedures.

12.2 Deviations from Design: OM&C shall obtain prior authorization from the CGT Project Engineer for all deviations from job design. Deviations from existing Gas Standards and Specifications (GS&S) require a written variance from the standard's responsible engineer.

12.3 Excavating near Transmission Facilities: OM&C shall continue to utilize Underground Service Alert (USA) prior to excavating, boring or augering near gas transmission facilities. In addition the OM&C crew foremen (gas or electric crews) shall make prior phone notification to the appropriate CGT Gas Control Center. The OM&C foreman shall also notify the Division Gas Operating Supervisor or CGT District Foreman that is responsible for the facility (see Attachment 12). If the line is damaged during construction

work or if the line is found in a damaged or deteriorated condition, the OM&C foreman shall immediately inform CGT's Gas Control Center. In addition, whenever OM&C crews work over pipelines maintained by CGT Districts (see Attachment 12 for a list of CGT maintained pipelines) the following shall be performed:

a) The line will be located and marked by CGT District personnel.
b) CGT District personnel will personally communicate to the Title 300 foreman the location, size, operating pressure and approximate depth. Field markings of these items will also be made if practical.
c) An agreement will be made between the Title 300 foreman and the CGT field person on when the line will be exposed.
d) The CGT field person will be present when the work is conducted to expose the line.
e) Prior to backfilling, the Title 300 foreman will notify the CGT District Foreman of the backfilling schedule. The CGT District Foreman will determine if a pre-backfilling inspection is needed.

Standby requirements for CGT facilities maintained by Division personnel vary and should be clarified when contacting the Division Gas Operating Supervisor.

12.4 Environmental: OM&C Title 300 crews that encounter production fluids or pipeline liquids shall immediately notify the appropriate CGT District Foreman or Division Gas Operating Supervisor (see Attachment 13 for Key Contact List).

13. Work Quality: Work quality is of high importance to both OM&C and CGT. CGT will periodically inspect ongoing and completed construction work for quality. Concerns with quality will be shared directly with OM&C's job foreman and/or Title 300 Distribution Supervisor. Concerns of a serious or repetitive nature will be discussed with the Title 300 Distribution Superintendent.

14. Safety: It is important to ensure that safety issues are addressed in a proper and timely manner. Safety issues concerning existing CGT facilities shall be communicated directly to the appropriate CGT District Foreman or Local Gas Transmission Superintendent. Safety concerns involving new CGT facility construction projects shall be communicated directly to the CGT Project Manager or CGT Construction & Project Management Superintendent.

15. Emergency Repair Preparedness: It is important that PG&E maintain it's gas transmission emergency repair capability. CGT will work with OM&C to determine the appropriate types and quantities of equipment, vehicles and specialized tools that shall be held by OM&C for system-wide needs. Once the list is created, OM&C shall perform an annual review to ensure that the specified items are still readily available

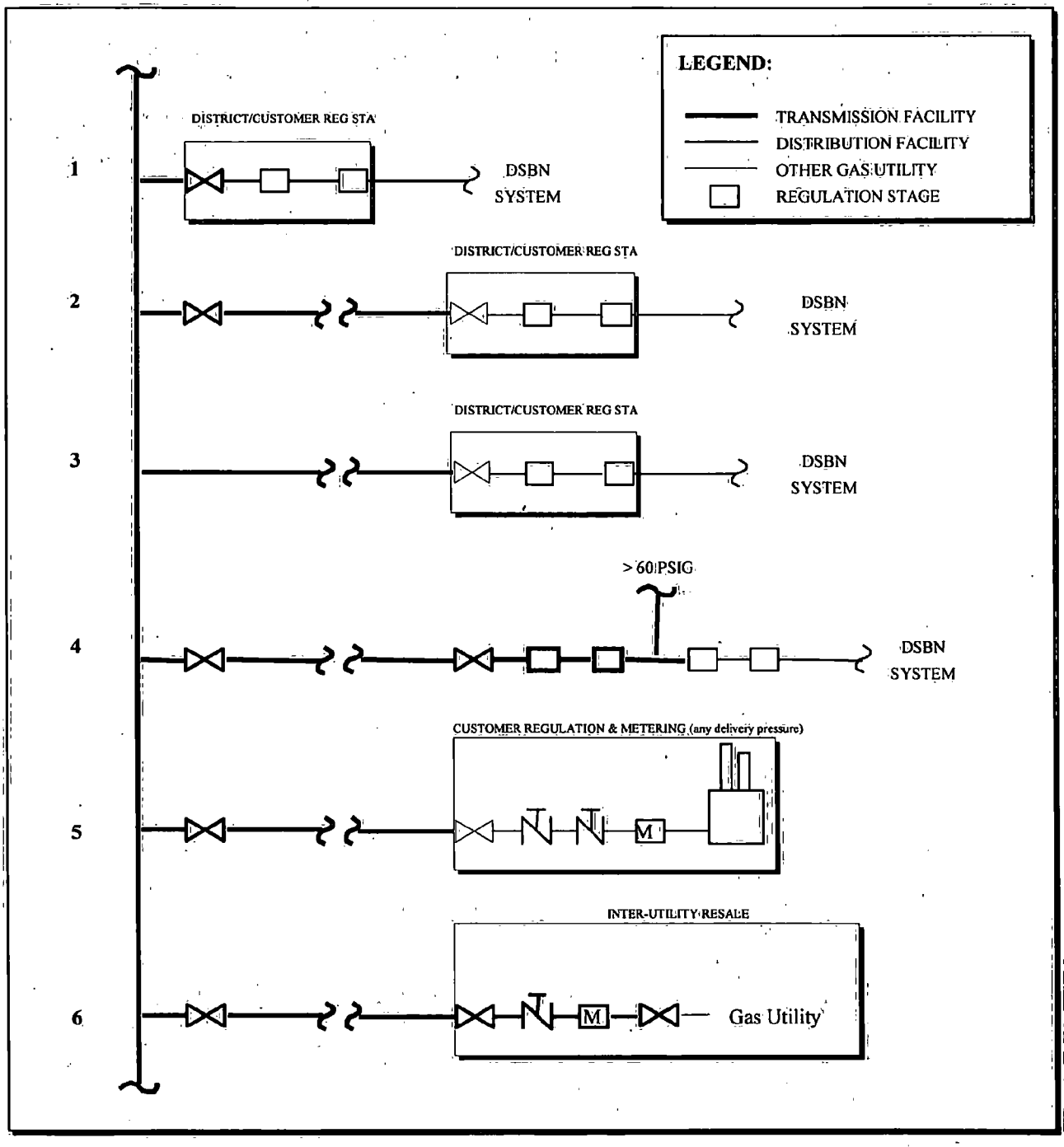
for emergency repair needs. Budgeting and funding for specialized items used solely for gas transmission work (e.g. Test Heads) will be the responsibility of CGT. Such items shall be properly recorded as transmission assets.

Effective Date: This agreement is effective _____, 1999. It will be updated as deemed necessary by the signing parties. The following parties are in agreement as stated above:

_____
Shan Bhatacharya
Vice President
Engineering & Planning
Distribution Customer Services

_____
Jeff Butler
Vice President
Operations, Maintenance & Construction
Distribution Customer Services

_____
Bill Mazotti
Vice President
Gas & Electric Transmission
Generation, Transmission & Supply


LEGEND:
TRANSMISSION FACILITY
DISTRIBUTION FACILITY
OTHER GAS UTILITY
REGULATION STAGE
1
DISTRICT/CUSTOMER REG STA
DSBN SYSTEM
2
DISTRICT/CUSTOMER REG STA
DSBN SYSTEM
3
DISTRICT/CUSTOMER REG STA
DSBN SYSTEM
4
> 60 PSIG
DSBN SYSTEM
5
CUSTOMER REGULATION & METERING (any delivery pressure)
M
6
INTER-UTILITY RESALE
M
Gas Utility

Notes To Attachment 1:

1) CGT will own the transmission tap and tap valve immediately off the main transmission line, and DCS will own the regulator station that regulates down to 60 psig or less. In this case the tap valve and fire valve are the same valve, so CGT will own that first valve.

2) CGT will own the tap valve immediately off the main transmission line, and the feeder main (or transmission tap line) that leads to a district regulator station. In this case, the distance between the tap valve and regulator station is significant enough that a customer or other tap could potentially come off of this line, and therefore should be classified as a transmission line (so that potential industrial customers are eligible for the transmission rate). DCS will own the regulator station that regulates down to 60 psig or less, including the fire valve immediately before the station and any primary regulation that may exist.

3) This case is the same as #2 above, except for some reason, there is no tap valve. Again, the distance between the main line tap and regulator station is significant enough that a customer or other tap could potentially come off of this line, and therefore should be classified as a transmission line (so that potential industrial customers are eligible for the transmission rate). DCS will own the regulator station that regulates down to 60 psig or less, including the fire valve immediately before the station and any primary regulation that may exist.

4) This case is the same as #2 above, except there are multiple regulator stations. The first station is owned by CGT since it regulates to above 60 psig. There is also enough distance between the first regulation and second for another transmission line to tap off. Therefore, CGT will own up to the fire valve (or upstream pit wall if no fire valve) of the second station which regulates to 60 psig or less.

5) CGT owns up to the upstream shut-off valve at the customer regulation and meter set. DCS owns all facilities from the upstream shut-off valve to the meter, regardless of metering pressure. This includes all PG&E power plants and power plants previously owned by PG&E.

6) Other gas utilities outside of PG&E's service territory (i.e. SoCal Gas) are the direct customer of CGT. CGT will own the facilities up to (and including) the metering. Gas utilities located within PG&E's service territory (i.e. The City of Coalinga and the City of Palo Alto) will be the customer of DCS. The Sacramento Municipal Utility District (SMUD) is one exception to this rule. Since SMUD is a co-owner in portions of PG&E's transmission system the SMUD meter will be owned by CGT.