Application of Southern California Gas Company for authority to update its gas revenue requirement and base rates effective on January 1, 2012. (U904G)

Application 10-12-___
Exhibit No.: (SCG-04)

PREPARED DIRECT TESTIMONY OF
JAMES D. MANSDORFER
SOUTHERN CALIFORNIA GAS COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

DECEMBER 2010

SCG Doc #249841

TABLE OF CONTENTS

PREPARED DIRECT TESTIMONY OF
JAMES D. MANSDORFER
SOUTHERN CALIFORNIA GAS COMPANY
(UNDERGROUND STORAGE)

I. INTRODUCTION

A. Purpose of Testimony

The purpose of this testimony is to demonstrate that Southern California Gas Company's (SoCalGas, SCG, or Company) Storage Operations Test Year (TY) 2012 operation and maintenance (O&M) expense and capital requirements for the underground storage system represent the necessary funding to maintain the integrity of the storage system to ensure a safe, reliable supply of natural gas throughout the SoCalGas service territory. This testimony forecasts $28,859,000 for Test Year 2012 (TY 2012) O&M expenses and $30,596,000 in capital expenditures. Unless otherwise noted, all costs are in 2009 dollars.

Table JDM -1

Summary of TY 2012 Change

(Thousands of $2009)

Functional Area: SOCALGAS UNDERGROUND STORAGE				
Description	**2009 Adjusted-Recorded**	**TY 2012 Estimated**	**Change**	**Testimony Reference**
Total Non-Shared	26,595	28,859	2,264	**Section II**
Total Shared Services (Book Expense)	0	0	0	N/A
Total O&M	**26,595**	**28,859**	**2,264**	
Total Capital	**33,617**	**30,596**	**(3,021)**	**Section IV**

The TY 2012 estimate of $28,859,000 for underground storage O&M expense reflects an emphasis on improving organizational performance and minimizing expenses where possible. It should be noted that pursuant to CPUC Decision 01-06-081, issued June 28, 2001, the costs exhibited in TY 2012 do not

include costs associated with the operation and maintenance of the Montebello underground storage field or any costs associated with salvage operations. This decision states that all costs associated with the Montebello underground storage field operation be removed from rates as of August 29, 2001, which has been done. Also, as of April 2009, the East Whittier storage field was removed from rate base, and so costs associated with maintaining this field are also excluded from this case. This case also does not include any costs associated with SoCalGas' Native Gas program as provided in CPUC Decision 06-06-065.

The baseline cost level used to forecast 2012 non-labor O&M costs is the 2005 to 2009 five-year average. Identifiable new incremental costs that are expected to be incurred were added to the five-year average to arrive at the TY 2012 requirement. The increase from the five-year average to the TY 2012 forecast is $1,154,000. As discussed later, this increase is principally due to new regulations that will impact the storage fields.

The five-year average cost was used as a basis for projections because storage non-labor O&M costs can fluctuate significantly from year to year. Over the 2005 to 2009 period, non-labor costs varied from a high of $15.3 million to a low of $14.1 million. One of the significant cost drivers for storage is the amount of gas throughput for the storage fields. This throughput volume is dependent on the weather and the national gas markets; the Storage Operations department has no control over these two elements. Over the same five-year period, the volume cycled through the storage fields (injection volume plus withdrawal volume) varied from a high of 228 billion cubic feet (Bcf) to a low of 178 Bcf.

Higher throughput causes more wear on the compressors and more use of consumables such as engine oil, glycol, etc. The weather also has a direct impact on overall maintenance cost because of the rugged terrain in which the storage fields are located. Years with heavy rainfall can cause significant costs for cleaning up landslides and maintaining drainage systems, as well as vegetation management. Another reason for the fluctuation in cost from year to year is that, unlike other departments in SoCalGas where there are thousands of miles of pipe or millions of meters and so repair costs tend to average out from year to year,

Storage has relatively few wells and compressors, but when a well or compressor needs repair it can be costly. The problems with SoCalGas' aging wells and compressors are partially dependent on throughput, but they are also subject to random failure occurrence that can vary from year to year and therefore costs vary from year to year. This means that a single event among relatively few facilities can have a significant impact on expense history. It is for this reason that a historical averaging methodology is considered appropriate for forecasting future non-labor costs.

For labor O&M costs 2009 was used as a base, with identifiable incremental requirements added to get to TY 2012 expected costs. Labor costs do not fluctuate like non-labor costs and, historically, Storage Operations has added employees mainly as necessary to manage ever-increasing monitoring and reporting for the many regulatory agencies with jurisdiction over the storage fields. Over the five-year period from 2005 through 2009, four positions were added, while total labor costs increased by approximately $800,000. Six positions are projected to be added between 2009 and 2012. Four of these additional positions are driven by new regulations, one is to maintain the new dehydration plant at the Playa del Rey storage field that will go into service in 2010, and the other is a staff position that will work with field employees to implement technology to lower ongoing costs.

Most historic increases in costs for SoCalGas Storage Operations (Storage) have been driven by new regulations from various agencies regarding environmental requirements. For the 2009 to 2012 time period there are also new costs related to overhead electrical line construction and maintenance regulations, and wildfire preparations associated with these electrical facilities.

Storage has successfully offset significant increases in O&M costs with cost savings achieved through improved organizational performance and applied technology. Over the five-year period 2005 through 2009 used to establish the base non-labor costs for TY 2012, Storage has increased the capacity of its storage fields available for customers to use by 12 Bcf (and anticipates adding 1 more Bcf by the end of 2012 in addition to the Honor Rancho expansion approved

in D. 10-04-034) while holding non-labor costs level (on an average basis) over the 2005 to 2009 period. Over this five-year period, labor costs increased by only a small amount, primarily driven by the need for increased permitting and reporting to regulatory agencies for O&M activities.

This testimony only addresses "Non-Shared Service" activities. SoCalGas does not operate underground storage facilities in the SDG&E service territory, and thus there are no shared services costs related to underground storage O&M.

The capital requirement for Storage in TY 2012 is forecast to be $3,021,000 less than the 2009 recorded capital expenditure. Capital expenditures for 2009 for Storage were higher than normal, primarily because of the cost associated with installing a new gas dehydration plant at Playa del Rey; the capital budget for TY 2012 represents a return to normal capital investment in storage infrastructure. The driving philosophy behind SoCalGas' capital expenditure plan for Storage Operations is to provide safe, reliable delivery of natural gas to customers at the lowest reasonable cost. These investments also enhance the efficiency and responsiveness of operations, and ensure compliance with all applicable regulatory and environmental regulations.

Overall, Storage Capital spending in TY 2012 is expected to be approximately 9% less than in base year 2009, although providing for upgrades and replacements necessary for safe and efficient storage operations that are in full regulatory compliance.

This testimony describes the anticipated changes in operations, discusses why these changes are necessary, and indicates the resulting change in expenditure requirements.

B. Overview of Operations

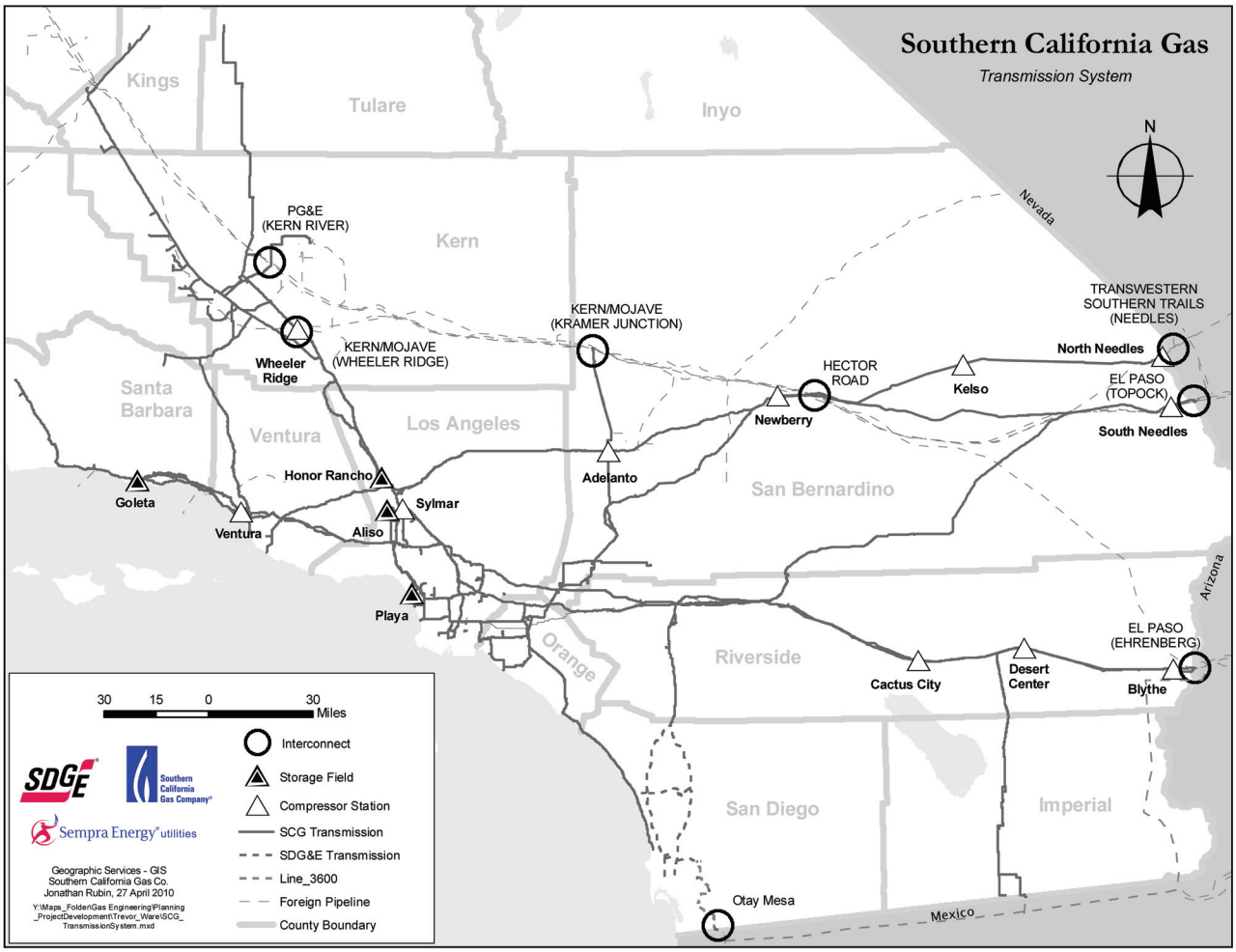
The capacity of a storage field is measured in 'billion cubic feet', or Bcf. SoCalGas operates four underground storage fields with a working inventory capacity of approximately 134 Bcf. These fields are Aliso Canyon (86 Bcf), La Goleta (21.5 Bcf), Honor Rancho (24.1 Bcf), and Playa del Rey (2.4 Bcf). These fields are depleted oil or gas fields which are now used as storage locations, gas being pumped into the field during seasonal periods when gas consumption is

typically low, usually summer months, and withdrawn when gas consumption is seasonally high, usually winter months. At the beginning of the traditional withdrawal season, the combined storage capacity of the four storage fields is enough to completely supply all of SoCalGas' customers for approximately six weeks.

Gas storage fields can only be established in areas of unique geological characteristics and proximity to markets. Furthermore, by their nature, gas storage fields occupy large land areas and require considerable industrial equipment such as compressors, regulators, and monitoring equipment. Because of these requirements, all of SoCalGas' gas storage fields were at one time producing gas or oil fields. The unique geology of these former producing fields makes them suitable for gas storage in the SoCalGas system.

A diagram/map of SoCalGas' gas transmission system, including the storage fields, is shown below.

Figure JDM-1



These storage facilities are an integrated part of the energy infrastructure required to provide southern California businesses and residents with safe, reliable, and cost-effective energy services. The SoCalGas Storage department is responsible for the design, operations, and maintenance of the storage fields, and plans the necessary capital investments to continue providing valued storage services to SoCalGas customers. The key objectives for storage are safety, reliability, value, and compliance with regulations. As discussed later in my testimony, capital investments are made to ensure the continued integrity of the storage fields necessary to provide safe, reliable, and cost-effective operations. These investments also enhance the efficiency and responsiveness of operations

and ensure compliance with all applicable regulatory and environmental regulations.

C. Summary of Requirements

Table JDM 2
O&M Non-Shared Services
Testimony Section II
(Thousands of $2009)

SOCALGAS UNDERGROUND STORAGE			
Categories of Management	2009 Adjusted-Recorded	TY 2012 Estimated	Change
A. Underground Storage	26,595	28,859	2,264
Total	26,595	28,859	2,264

Table JDM 3
O&M Shared Services
Testimony Section III
(Thousands of $2009)

SOCALGAS UNDERGROUND STORAGE			
Categories of Management	2009 Adjusted-Recorded	TY 2012 Estimated	Change
A. Underground Storage	0	0	0
Total	0	0	0

Note: There are no Shared Services expenses for Underground Storage.

Table JDM 4
Capital - Testimony Section IV
(Thousands of $2009)

Category Description	2009 Recorded	2010 Estimated	2011 Estimated	2012 Estimated
1. ..BC 4X1 – Gas Transmission – Storage – Compressor Stations	$7,489	$4,430	$6,851	$6,851
2. ..BC 4X2 – Gas Transmission – Storage - Wells	$5,651	$11,055	$7,616	$7,616
3. ..BC 4X3 – Gas Transmission – Storage - Pipelines	$4,303	$4,222	$3,493	$3,493
4. ..BC 4X4 - Gas Transmission – Storage - Purification	$10,015	$2,031	$4,191	$4,191
5. ..BC 4X9 – Gas Transmission – Storage – Aux Equipment	$6,159	$5,923	$9,454	$8,445
Total Capital:	**$33,617**	**$27,660**	**$31,605**	**$30,596**

II. NONSHARED SERVICES

A. Introduction

The use of the underground storage fields is a key component of the SoCalGas transmission pipeline and underground storage system. The transmission and underground storage system is made up of interconnecting high-pressure pipelines, compressor stations, and underground storage fields, designed to receive natural gas from interstate pipelines and various local offshore and onshore production sources. The system then delivers the natural gas either to customers or to storage fields depending on demand. Minimum changes in supply and demand are met by increasing or "pulling" on the inventory in the transmission pipelines. This process is known as packing and drafting and is an efficient way to deal with minor changes in load. As the system load variations increase, the system is balanced by injecting natural gas into the storage fields when supply exceeds customer demand and withdrawing natural gas from storage when customer demand exceeds supply.

SoCalGas uses storage to meet customers' seasonal, as well as daily, balancing requirements. To satisfy these needs, the individual storage facilities operate as the system demand dictates. This fluctuating demand may translate to Storage Operations performing its necessary functions during any hour of the day, and on any day of the week, as defined by the SoCalGas Gas Operations department. To meet these operational demands, storage facilities are staffed with rotating operating crews to support 24-hour-per-day, 7-day-per-week operations.

Storage Operations has responsibility for the operation, maintenance, and engineering specific to the use of the underground storage facilities. The Storage department consists of approximately 150 employees and is organized with both operational and support groups to provide for cost-effective delivery of services essential to maintaining the integrity of the gas delivery infrastructure.

Table JDM 4
O&M Non-Shared Services
(Thousands of $2009)

SOCALGAS UNDERGROUND STORAGE			
Categories of Management	2009 Adjusted-Recorded	TY 2012 Estimated	Change
A. Underground Storage	26,595	28,859	2,264
Total	26,595	28,859	2,264

B. Storage Operations Department Cost Center Management

Each storage field and support department within Storage Operations plans, tracks, and manages its activities and expenses independently. The company's cost center hierarchy within SAP provides the system and tools enabling the department managers and supervisors to manage their areas of responsibility. From an organizational perspective, however, all expenses and costs are ultimately rolled up and consolidated at the Storage Operations Director level. The finite annual budget allocation for Storage Operations must be managed at this level to ensure that the highest priority activities are addressed appropriately while maintaining regulatory compliance and a safe and efficient operation. All of the managers in Storage work as a team to manage expenses to meet the Storage department budget while providing safe and reliable service to

customers. It is for this reason that, in my testimony, all expenses are combined into a single Storage Operations work group or category. This methodology accurately reflects the manner in which expenses are managed.

C. Storage Operations Activities

While each storage field has its own unique operating circumstances and characteristics, there are general and basic activities performed at each field on a regular basis. In the same manner, the various functions for management, supervision, and technical support - whether local at a field or in a central staff-type office - perform activities that fall within general work-function categories. These functions represent the ongoing daily activities that make up the bulk of historical expenses shown in my testimony. In general, the activities that drive the historical and ongoing O&M costs associated with the underground storage operations can be summarized as follows:

Operation Supervision and Engineering

These activities cover the supervision and engineering costs associated with the operation of the underground storage fields. Costs for reservoir engineering studies necessary to ensure the integrity of the storage system, and in connection with the operation of the underground storage wells, are also charged to this activity.

Wells, Lines, and Compressor Stations:

These costs include salaries and expenses associated with operating storage wells (such as the costs to turn wells on and off, testing, and running pressure surveys); wellheads and cellars including well service contractors to perform subsurface leakage surveys; underground storage injection, withdrawal, and other field lines; and the costs associated with patrolling the lines, lubricating valves, and cleaning the lines and drips. The costs associated with injecting corrosion inhibitors, changing pressure charts, and maintaining alarms and gauges are also covered in this activity as well as operating the underground storage compressor stations. For example, these costs include those associated with starting and monitoring engines, lubricating, checking pressures, cleaning, etc.

Equipment Operation and Maintenance:

These costs include salaries and expenses for maintenance work performed at compressor stations at the underground storage fields. For compressor stations, the work ranges from the repair of an oil leak to a major overhaul of a compressor engine. Other maintenance categories include: work on measuring and regulating equipment; and work on equipment used for purifying, dehydrating, and conditioning natural gas, and the wastewater disposal systems.

Structural Improvements, Rents, Royalties:

This activity includes salaries and expenses for maintenance work performed on compressor station structures at underground storage facilities along with rental costs for property used in connection with underground storage. Royalty payments associated with gas wells and gas land acreage located at underground storage properties is also included.

Maps and Records:

These activities are associated with maintaining maps and land records related to storage operations. Typical types of work performed include: surveys and documentation of wells, pipelines, topography, roads, rights-of-way, various infrastructure and easements boundary verification, and creation and maintenance of maps related to underground zones/rights.

Compressor Station Fuel and Power, Gas Losses:

This area includes costs for fuel and power used to operate storage reservoirs and compressor stations. The cost of natural gas and power used as fuel to operate the compressors and other equipment necessary to operate the storage fields is adjusted out and excluded from this testimony because these costs are included in the Biennial Cost Allocation Proceeding (BCAP). In the same manner, all recorded gas loss quantities associated with field operation activities

are similarly excluded from this general rate case due to cost recovery in the BCAP. All other power costs, including the cost of electricity used in office buildings, etc., are included in historical data and forecasts in my testimony.

Other Storage Expenses:

This area includes miscellaneous underground storage operating costs not included in the categories above such as well safety and technical training costs for underground storage personnel and emission credit costs. These emission credit costs consist primarily of the cost to purchase RECLAIM credits. The South Coast Air Quality Management District (SCAQMD) RECLAIM program requires facilities with stationary combustion sources to reduce NOx emissions and/or acquire emission credits to meet pre-determined emission limits.

D. Challenges and Opportunities

The cost-effective delivery of storage service requires coordinated effort from the top to the bottom of the Storage organization. Examples are the installation of exhaust catalysts and new combustion technology that help to control the amount of emission credits needed and the associated costs; computerized engine controls provide for quicker and smoother warm-up periods for the engines, reducing the wear and tear normal to that process; new drilling technology is being utilized to reduce the cost of maintaining and expanding storage capacity.

A significant factor that has enabled the addition of substantial storage capacity while holding the line on costs is the continued implementation of electronic monitoring and control systems. These systems monitor pressures, temperatures, vibrations, tank levels, and other variables at the compressors, dehydration plants, tank farms, and wells. These systems free up operating personnel to perform tasks other than take manual readings while enabling real-time monitoring to detect problems before they become serious. Storage has implemented use of a computer system known as PI that collects data from thousands of inputs, trends the data, produces reports on operating performance,

and provides notifications when trends fall outside established limits, thereby allowing for more efficient management of the impacted processes.

Environmental compliance is a key area of focus in Storage Operations. Ever-changing and complex environmental rules require an increasing number of individuals and labor hours to fully comply with air, hazardous materials, water, and natural resource regulations. In the area of air quality, the SCAQMD designates three storage fields (Aliso Canyon, Honor Rancho, and Playa del Rey) as Regional Clean Air Initiative Market (RECLAIM) facilities. The La Goleta storage facility, located within the Santa Barbara County Air Pollution Control District (SBAPCD), is not a RECLAIM facility. The goal of RECLAIM is to reduce stationary NOx emissions from large sources to achieve the Federal Clean Air Act air quality standards for the region through the use of an emissions credit trading market. Under RECLAIM, a facility's reported annual emissions must be equal to or below the total quantity of emission credits held. Because many of the turbines and compressors at SoCalGas storage fields were installed decades ago, they produce higher unit emissions compared to new equipment. As a result, SoCalGas has been replacing equipment and installing emissions control devices, where feasible, and acquiring NOx RECLAIM Trading Credits to meet compliance targets.

All four storage fields are classified as Title V facilities under the Clean Air Act, which imposes very stringent monitoring and reporting requirements. As an example, any malfunction of any piece of equipment at these storage fields under permit from the air district must be self reported.

Each storage facility has its own unique set of natural resource issues, including accommodations due to wetlands, oak tree groves, migratory species of fowl, and Monarch Butterflies. An example of increased costs Storage Operations is experiencing to protect natural resources is the new requirement to involve a professional biologist whenever catch basins at Aliso Canyon are cleaned out. These catch basins are required by the Spill Prevention, Control, and Countermeasure Plan, and are located in each natural drainage location in the field. They are designed to catch any oil that could be released from a pipeline or

tank leak. Because they are natural drainages, they fill up with silt and must be cleaned out with excavation equipment at least once each year. Recently, a protected species of newt was found to live in the catch basins, and so now an outside biologist must be brought in to capture the newts in each catch basin prior to the excavation equipment working, and then release the newts back into the catch basins after the excavation work is completed. These type of activities are important to maintain a healthy environment, but do complicate the management and cost to operate the storage fields.

At each storage field, modifications are continually being made to routine maintenance, operations, and recordkeeping requirements to preserve the environment and comply with an ever-increasing and changing set of regulatory requirements.

E. Incremental Funding Requirements

Table JDM 4
O&M Non-Shared Services
Testimony Section II
(Thousands of $2009)

SOCALGAS UNDERGROUND STORAGE			
A. Underground Storage	**2009 Adjusted-Recorded**	**TY 2012 Estimated**	**Change**
1. Underground Storage	26,595	28,859	2,264
Total	26,595	28,859	2,264

Greenhouse Gas Regulations: State and federal Greenhouse Gas (GHG) regulations that will take effect in 2012 will require enhanced fugitive leak detection, monitoring, and repair practices as well as additional reporting and record-keeping requirements. Fugitive emissions are unintended gas leaks from various industrial pressurized equipment such as compressors, valves, pressure-relief systems, and wellhead manifolds. These new regulations will require modifications to existing procedures leading to increases in the frequency of leak detection surveys, enhanced monitoring, and leak repair requirements. These procedural enhancements will generate additional work scheduling and tracking requirements, along with an increased volume of data to be collected, analyzed,

reported and stored. These activities will apply additional workload on the current Storage workforce to meet the new compliance requirements. To address this increased workload we are planning to hire four Project Specialists to manage the GHG mandated surveying, monitoring and reporting activities. These activities will be subject to the two-way balancing account treatment, NERBA. GHG policy and NERBA details are addressed in the Environmental Services direct testimony of Ms. Lisa Gomez.

The change from 2009 recorded expenses to 2012 estimated expenses is $304,000 and is attributable to the addition of four Storage Operations Project Specialists to provide support in complying with these GHG regulations.

SCAQMD Rule 317: Clean-Air Act Non Attainment Fees. Federal law mandates air districts that fail to meet the federal Clean Air Act's ozone standard by 2010 to levy mitigation fees on facilities that emit NOx and VOC. It is virtually certain that the SCAQMD area will not meet the ozone standard. Major stationary sources with NOx and/or VOC emissions greater than a predetermined baseline level will be assessed a mitigation fee for each ton in excess of the threshold. SoCalGas Storage Operations has three storage facilities within the SCAQMD (Aliso Canyon, Honor Rancho, and Playa del Rey) that qualify under both the NOx and VOC provisions of Rule 317. Further details of this issue are addressed in the Environmental Services testimony of Ms. Lisa Gomez.

The change from 2005-2009 average recorded expenses to 2012 estimated expenses of $754,000 is attributable to the fees associated with the Clean Air Act. Fee calculation amounts are detailed in my workpapers.

CPUC General Order 95 (G.O. 95): Overhead Electrical Line Construction. This regulation defines safe practices for constructing and maintaining systems of utility poles and overhead wiring. SoCalGas owns over 500 poles and associated wire and transformers that are used only for its own operations. Because these systems do not provide electric service to customers, prior to 2009 they did not fall under General Order regulations for electric utilities. However, under changes to General Order 95 "Rules for Overhead Electric Line Construction" regulations that were adopted by the CPUC in D 09-

08-029 on August 20, 2009, these SoCalGas systems are now required to be constructed and maintained in compliance with G.O. 95 requirements. Compliance with these regulations requires enhanced inspection, maintenance, and follow-up repairs.

The change from 2005-2009 average recorded expenses to 2012 estimated expenses is $120,000, attributable to G.O. 95 compliance activities in the field, including work on overhead wiring, vegetation management, and pole testing.

Due to the frequency and severity of wildfires in recent years, SoCalGas has adopted new procedures designed to prevent wildfires associated with the electric distribution system at the storage fields. These new procedures will require the overhead electrical system to be de-energized under certain dry, high-wind conditions until the wind event subsides. Prior to re-energizing the electrical system, it must be inspected by qualified personnel. Furthermore, certain infrastructure is required to maintain constant compliance with AQMD rules and regulations at the facility during the shutdowns, and that infrastructure requires maintenance.

The change from 2005-2009 average recorded expenses to 2012 estimated expenses is $75,000 attributable to the increased costs of electrical system maintenance and contractor inspection costs associated with wildfire prevention.

Engineering analysis of electrical systems throughout the storage fields is required to ensure compliance with G.O. 95 and the safe and reliable operation of the system. Typical evaluation/analysis includes protective device coordination studies, power factor evaluation, and voltage-drop calculations. Examples of other documentation needed are a switching schedule/procedure, as-built circuit maps, and schematic diagrams

The change from 2005-2009 average recorded expenses to 2012 estimated expenses is $50,000 attributable to the increased costs of electrical system evaluation and documentation.

La Goleta Programmatic Vegetation Management Permit Requirements. Santa Barbara County is in the process of developing a programmatic permit for management of vegetation at the La Goleta storage field.

La Goleta is located along the beach within the Coastal Zone, and has numerous sensitive habitats, including some designated as ESAs (Environmentally Sensitive Areas). The new requirements will include more involvement of biologists, time-of-year limitations, and increased monitoring and reporting to County agencies.

The change from 2005-2009 average recorded expenses to 2012 estimated expenses is $50,000 attributable to the increased costs to comply with permitting requirements at the La Goleta storage field.

Santa Barbara Area Pollution Control District (SBAPCD) Rule 333 - Changes to Air Quality Regulations. Revisions to this rule have imposed increased requirements for emissions testing and catalyst installations for stationary internal combustion engines. The revised regulations prohibit pre-testing and tuning-up of the engines prior to the official emissions test, and impose a requirement that, if an engine fails the quarterly test, it will be subject to monthly tests. The compressor engines at La Goleta are over 80 years old (they were moved from a line compressor station to La Goleta in 1941) and Storage has retrofitted these engines with modern control systems, but the engines were not designed to meet current emissions standards or to work with modern control systems, so the probability of failing a test is high. Part of the increase in forecasted costs is to cover more frequent testing and part is for more frequent change-out of the catalysts to reduce the probability of failing emission tests.

The change from 2005-2009 average recorded expenses to 2012 estimated expenses is $100,000 attributable to compliance work associated with SBCAPCD Rule 333.

Operation Support for New Playa del Rey Dehydration Plant

The dehydration plant is a substantial addition to the Playa del Rey storage facility that has been under construction for several years and will go into service in 2010. One additional employee will be required to operate and maintain the complex instrumentation and controls in the plant. The change from 2009 recorded expenses to TY 2012 estimated expenses is $80,000 attributable to labor

and non labor expenses to fund an additional technician to operate and maintain the Playa del Rey dehydration system.

Storage Operations Staff Support

Storage Operations finds itself having to operate with some very old data management applications. Recent upgrades to these applications have been made to meet updated management requirements and take advantage of newer enterprise-wide systems. To support this an additional project manager is required to coordinate the ongoing Storage Operations activities with the integration of these newly developed enterprise-wide business solutions. This person would evaluate the new applications to determine how Storage Operations could most effectively leverage new technology and procedures. Additionally, this person would evaluate current organizational practices and procedures to determine if modifications are necessary to more-readily integrate the new business solutions opportunities.

The change from 2009 recorded expenses to TY 2012 estimated expenses is $95,000 attributable to labor and non labor expenses to fund an additional project manager to integrate Storage Operations with new business solutions.

III. SHARED SERVICES

There are no Shared Services activities in the Storage organization.

IV. CAPITAL

A. Introduction

The capital costs described in this section cover the capital expenditures estimated for SoCalGas' Storage operations. The driving philosophy behind SoCalGas' capital expenditure plan is to provide safe, reliable delivery of natural gas to customers at the lowest reasonable cost. These investments also enhance the efficiency and responsiveness of operations, and ensure compliance with all applicable regulatory and environmental regulations.

Upward pressures on capital costs are much the same as have been discussed for O&M expenses. Examples include Budget Category 419 where there are costs for work in the Storage fields to meet new General Order 95

"Rules for Overhead Electric Line Construction", the regulations related to electric pole replacements. Also, in Budget Category 411, nearly $1 million is estimated for catalysts to be retrofitted to compressor engines to meet the requirements of AQMD Rule 1110.2.

Overall, Storage Operations capital spending in TY 2012 is expected to be approximately 9% less than in base year 2009 while still providing for upgrades and replacements necessary for safe and efficient storage operations that are in full regulatory compliance.

Table JDM -4
Capital Expenditures
(Thousands of 2009 dollars)

Category Description	2009 Recorded	2010 Estimated	2011 Estimated	2012 Estimated
1. ..BC 4X1 – Gas Transmission – Storage – Compressor Stations	7,489	4,430	6,851	6,851
2. ..BC 4X2 – Gas Transmission – Storage - Wells	5,651	11,055	7,616	7,616
3. ..BC 4X3 – Gas Transmission – Storage - Pipelines	4,303	4,222	3,493	3,493
4. ..BC 4X4 - Gas Transmission – Storage - Purification	10,015	2,031	4,191	4,191
5. ..BC 4X9 – Gas Transmission – Storage – Aux Equipment	6,159	5,923	9,454	8,445
Total Capital:	**$33,617**	**$27,660**	**$31,605**	**$30,596**

B. Capital Requirement Detail

1. Budget Codes: 401, 411, 421, 431

Table JDM - 5
Capital Expenditures
(Thousands of 2009 dollars)

Description	2009 Adjusted Recorded	2010 Estimated	2011 Estimated	TY 2012 Estimated
BC 4X1 – Gas Transmission – Storage – Compressor Stations	7,489	4,430	6,851	6,851

This Budget Category presents necessary capital maintenance, replacements, and upgrades at the various storage field compressor stations to ensure safety, maintain or improve reliability, and to meet the required capacities of the main compressor units. These units raise the pressure of natural gas for injection into the underground storage reservoirs. Examples of the type of equipment that would be included in this area are natural gas turbine engines, high-pressure industrial gas compressors, compressed air system equipment, fire suppression systems, scrubbers, and instruments to measure gas pressure, temperature, humidity, and contaminant content.

The forecast for 2010 is based on the capital budget amount for fifteen specific projects. Two projects warranting stand-alone workpapers (accompanying this testimony) are:

Honor Rancho – Overhaul Main Unit #5 $1.6 million (total in 2010-2011)

The overhaul of HR Main unit #5 serves to extend the life and reliability of the main unit compressor by performing a 10-year overhaul of the engine and compressor. Each main unit injects approximately 50 MMcf/d gas into Honor Rancho Storage Field (20% of total injection rate). Unplanned down-time due to equipment failure could have substantial impact on the field's ability to effectively serve customers.

Aliso Canyon Turbine-Driven Compressors (TDC) $4.2 million (total in 2010 through 2012)

The Aliso Canyon TDC project is required due to a delay in the issuance of the Aliso Canyon Turbine Replacement Certificate of Public Convenience and Necessity (CPCN), as compared to the previously anticipated issuance date. This deferral necessitates additional capital expenditures in order to keep the TDC's reliable and in service until replacement. These significant projects result from the replacement delay of at least 1 year due to the EIR requirement in the CPCN proceeding.

Two other noteworthy projects in this Budget Category are for catalyst installations on main compressor units. One is at the Aliso Canyon storage field,

budgeted at $446,000 to comply with Rule 1110.2. A similar installation is also planned for the Honor Rancho facility costing $503,000. Both projects are scheduled in 2010.

The forecasts for years 2011 and 2012 are the average five years of recorded costs in this Budget Category during years 2005-2009.

2. Budget Codes: 402, 412, 422

Table JDM - 6
Capital Expenditures
(Thousands of 2009 dollars)

Description	2009 Adjusted Recorded	2010 Estimated	2011 Estimated	TY 2012 Estimated
BC 4X2 – Gas Transmission – Storage - Wells	5,651	11,055	$7,616	7,616

This Budget Code includes costs associated with replacing failed components on existing wells and drilling replacement wells for the injection and withdrawal of natural gas from underground storage facilities, including wells used for observation. This includes hiring well workover contractors (major maintenance of wells), and drilling contractors and purchasing materials such as tubing, casing, and valves. SoCalGas has storage wells in service that are up to 80 years old. Some portions of SoCalGas' storage reservoirs contain unconsolidated sand that can flow out with the gas at high velocity, causing erosion. The combined effect of corrosion, erosion, and the effects of wide variation in temperature and pressure on elastomer seals and cement, all take their toll on storage wells over many years. In many cases it is more cost-effective to replace the deliverability of a worn out well by drilling a new well rather than costly repairs of an old well.

The forecast for 2010 is based on the capital budget for this Budget Category which consists of eight specific projects. Three of these projects warrant separate workpapers. They are:

Leaking Wellhead Equipment Replacements $1.1 million (2010)

Typically, three to four storage wells will require leaking wellhead equipment replacements and upgrades in a given calendar year. These wellhead replacements or upgrades are required on the existing 300+ aging wells throughout the storage fields. In the leaking condition, the wells pose a safety and environmental risk and have to be removed from service and thus will reduce the deliverability of the field until the wellhead equipment replacement/upgrade is performed.

Two Well Replacements per year $7.0 million (each year)

The scope of this project is to replace two storage wells per year through at least the next seven years. Wells require replacement for a number of reasons, but replacements are primarily driven by factors associated with age or time in service, the continued integrity of the geological formation, and numerous other factors that adversely affect operating costs.

Expended Tubing Replacement $901,000 (2010)

Typically, three to four storage wells will require expended well production tubing replacements in a given calendar year. These tubing replacements are required on the existing 300+ aging wells throughout the storage fields. The cost of the expended well tubing replacement projects include the new tubing, all of the services involved to secure the well while the tubing is removed, and the equipment and well services required for the well tubing removal and reinstallation operations.

The forecasts for years 2011 and 2012 are based on the five-year average recorded costs in years 2005 through 2009 with the exception that costs pertaining to "Cushion Gas" in 2005 and 2006 were removed from trended amounts due to the fact they were handled in a separate CPUC proceeding.

3. Budget Codes: 403, 413, 423, 433

Table JDM - 7
Capital Expenditures
(Thousands of 2009 dollars)

Description	2009 Adjusted Recorded	2010 Estimated	2011 Estimated	TY 2012 Estimated
BC 4X3 – Gas Transmission – Storage - Pipelines	4,303	4,222	3,493	3,493

SoCalGas is required to perform necessary pipeline maintenance, replacements, relocations, and upgrades at the various storage fields to ensure safety, maintain or improve reliability, and to meet the required capacities of the various piping systems. This section forecasts costs associated with natural gas pipelines used wholly or predominantly for conveying natural gas from transmission or field lines to underground storage injection wells, and from the underground storage withdrawal wells to the point where the natural gas enters the transmission or distribution system. Included are the costs associated with pipe, valves, fittings, and related cathodic protection equipment for these lines. The forecasts for 2011 and 2012 are the result of averaging recorded costs in years 2005-2009 to which is added new costs for Pipeline Integrity work in the storage fields and a project to build a necessary pipeline span support bridge. Specific large projects included in the estimates are:

Aliso Canyon Valve Replacement Program $898,000 (per year)

Many valves (block, well site, safety, etc.) in the Storage Field are leaking and new ones cost less than or equal to the cost of repair. This project will replace approximately 5% of the larger field valves every year (e.g. replace valves approximately every 20 years). This project will continue in each year after the GRC cycle.

Honor Rancho High Pressure Production Pipeline $2.7 million (total in 2009-2010)

This project replaces an existing pipeline at Honor Rancho that has been de-rated due to corrosion.

Aliso Canyon FF38 Span Bridge $1.2 million (per year in 2011 and 2012)

This project will relocate an existing pipe rack out of an area with an active landslide and soil erosion that is threatening several existing pipe supports. The loss of this pipe rack would result in loss of approximately 635 MMcf/d of withdrawal capability, and the impact on injection capability would also be substantial.

4. Budget Codes: 404, 414, 424, 434

Table JDM - 8
Capital Expenditures
(Thousands of 2009 dollars)

Description	2009 Adjusted Recorded	2010 Estimated	2011 Estimated	TY 2012 Estimated
BC 4X4 - Gas Transmission – Storage - Purification	10,015	2,031	4,191	4,191

This Budget Category shows forecasts for costs associated with equipment used primarily for the removal of impurities from, or the conditioning of, natural gas withdrawn from underground storage fields. Some examples of the type of equipment included in this area are dehydrators, coolers, scrubbers, boilers, pumps, valves, piping, power supply, controls, and instrumentation.

The forecast for 2010 is based on the capital budget for this Budget Category, which consists of six specific projects ranging in cost from $101,000 to $897,000. Specific large projects included in the estimates are:

Playa del Rey Dehydration Unit $897,000 (2010)

This project began construction in 2009 and will be completed in 2010. It provides the necessary process system to reduce the water content of the gas withdrawn from the PDR storage field to necessary levels. This project consists of the installation of a tri-ethylene glycol (TEG) dehydration system for the removal of water from natural gas. The main equipment consists of two 6 ft diameter x 30 ft tall contactor vessels, one 5 MMBTU and one 2 MMBTU hot oil

heaters, a glycol regeneration skid for removing the water from the glycol, and various pumps, filters, etc.

The forecasts for years 2011 and 2012 are five-year averages of costs in this Budget Category that were incurred in recorded years 2005 through 2009.

5. Budget Codes: 409, 419, 429, 439

Table JDM - 9
Capital Expenditures
(Thousands of 2009 dollars)

Description	2009 Adjusted Recorded	2010 Estimated	2011 Estimated	TY 2012 Estimated
BC 4X9 – Gas Transmission – Storage – Aux Equipment	6,159	5,923	9,454	8,445

This budget code includes work on various types of field equipment not captured in other budget codes such as instrumentation, measurement, controls, electrical, drainage, infrastructure, transportation, safety, and communications systems.

The forecast for 2012 is based on the capital budget for this Budget Category, which includes funds for twenty-five projects that range in cost from $51,000 to $3.6 million. The forecast for years 2011 and 2012 is based on the five-year average of recorded costs in years 2005-2009 to which is added, in 2011 and 2012, the cost of compliance with new General Order 95 requirements including extensive modification to the power supply grid in the storage fields for fire prevention purposes. Planned expenditures are $1.8 million in both 2011 and 2012. Also added to the average in 2011 is the cost of upgrading three Motor Control Centers (MCCs) in the Aliso Canyon Storage field, whose failure could result in substantial loss of injection/withdrawal capacity. These units are decades old and are additive because such costs do not appear in historic spending. The cost of the MCC upgrades is $1 million in 2011 only.

V. CONCLUSION

The forecasts of the O&M expenses and planned capital expenditures represented in this testimony are appropriate and prudently derived and should be adopted by the Commission. In this testimony, the requirements were presented to meet SoCalGas' goals to maintaining safety and reliability of the gas storage infrastructure for both O&M expenses and capital expenditures. The O&M and capital expenditures discussed in this testimony are required to ensure public safety, to cost-effectively meet customer needs, and to meet mandated regulatory requirements. These forecasts reflect sound judgment and represent the significant impact that federal, state, and local legislation and regulations will have on SoCalGas' storage fields.

This concludes my prepared direct testimony.

VI. WITNESS QUALIFICATIONS

I am employed by Southern California Gas Company ("SoCalGas") as the Storage Engineering Manager. I am responsible for reservoir engineering and drilling and well workover operations at all of SoCalGas' gas storage fields, as well as the decommissioning operations at the Montebello and East Whittier storage fields.

I graduated with a B.S. in Civil Engineering from Purdue University in 1979, and an M.S. in Petroleum Engineering from USC in 1985. I am a Registered Petroleum Engineer in the State of California. I was employed by SoCalGas beginning in 1981, starting as a Drilling Engineer. I have since been assigned to a number of positions in Transmission and Storage, including Storage Field Engineer, District Pipeline Supervisor, Project Superintendent, Pipeline Superintendent, Drilling Manager, and Pipeline Operations Manager. I have previously testified before this Commission.