



Engineers & Appraisers

**ANALYSIS OF THE ECONOMIC AND LEVEL OF SERVICE  
IMPACTS RESULTING FROM THE ANNEXATION BY  
SACRAMENTO MUNICIPAL UTILITY DISTRICT  
OF PACIFIC GAS AND ELECTRIC COMPANY'S  
SERVICE TERRITORIES IN THE  
CITIES OF WEST SACRAMENTO, DAVIS,  
WOODLAND, AND UNINCORPORATED AREAS  
OF YOLO COUNTY**

**Prepared for:  
Sacramento County  
Local Agency Formation Commission  
(LAFCo)**

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**March 29, 2006**

March 29, 2006

Mr. Peter Brundage  
Sacramento Local Agency Formation Commission  
1112 I Street, Suite 100  
Sacramento, CA 95814-2836

**RE: Economic and Level of Service Impacts Resulting from the Annexation by  
SMUD of PG&E's Service Territories Analysis Report**

Dear Mr. Brundage:

Per your request, please find enclosed our report of the Economic and Level of Service Impacts Resulting from the Annexation by the Sacramento Municipal Utility District (SMUD) of Pacific Gas and Electric Company's (PG&E) Service Territories in the Cities of West Sacramento, Davis, Woodland, and unincorporated areas of Yolo County.

This report sets forth our analysis and opinions relating to SMUD's annexation and condemnation of PG&E's property in the area proposed for annexation.

If you have any questions, please do not hesitate to call.

Very truly yours,

Glenn C. Walker

GCW/dl

Enclosures

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## Introduction

GES Engineers & Appraisers (GES) has been retained by the Sacramento County Local Agency Formation Commission (LAFCo) to prepare an analysis of the economic and level of service impacts resulting from the annexation of the Cities of West Sacramento, Davis, Woodland, and portions of unincorporated Yolo County (Annexation Area) into the Sacramento Municipal Utility District (SMUD).

The purpose of this report is to provide the LAFCo with an analysis of whether the expansion by SMUD into the Annexation Area is consistent with certain factors set forth in the Cortese-Knox-Hertzberg Government Reorganization Act of 2000 (CKH Act) addressing the cost and adequacy of services provided by government agencies.

These factors can be addressed by answering two primary questions which are:

1. What is the difference in the expected cost of service to the existing SMUD customers and those in the Annexation Area that would result from approval by LAFCo?
2. What is the difference in the expected level of service to both groups of customers that would result from the approval by LAFCo?

## Economic Impacts of Annexation

The economic consequences of SMUD's expansion into Yolo County and condemnation of PG&E's electric property in the Annexation Area could produce a wide range of economic consequences for both SMUD's existing customers and those it proposes to annex.

The magnitude of the economic consequences will determine whether SMUD's annexation is in the public interest and should be approved by the LAFCo. SMUD's Board of Directors has already passed resolutions and taken steps to mitigate some of those economic consequences and impacts on existing customers, the local communities, and the customers in the Annexation Area.

SMUD's mitigation measures include a surcharge for the Annexation Area to mitigate any rate impact on existing SMUD customers. SMUD intends to make payments to the local communities to replace the revenues that would have otherwise been provided by PG&E in the form of franchise fees and property taxes, and includes these costs in the rates charged to the annexation customers. Finally, SMUD has mitigated the impact to the annexation customers by establishing a discount of at least 2% to the PG&E electric rates at the time of annexation.

## Executive Summary

The total economic impacts of the annexation are best measured as the difference between the expected PG&E rates for providing electric service in the Annexation Area as compared to the rates SMUD will charge for equal or better service over a reasonable forecast period. The higher the PG&E rates are relative to SMUD's cost of serving the Annexation Area, the greater the benefits of annexation and vice versa.

The economic impacts are dependent upon several variables that include the forecast of PG&E rates, SMUD's power supply and operating costs in the Annexation Area, and the acquisition cost SMUD will incur to purchase and separate PG&E's electric system. SMUD and PG&E agree, or have similar forecasts of some of these variables. However, with respect to others, there are significant differences which result in different estimates of the economic impacts associated with the annexation.

Since it is impossible to know the exact economic impact of the annexation, four scenarios were selected to establish a range of the most likely economic impacts of SMUD's annexation. These four scenarios were selected as representing the most probable differences between the PG&E rates and SMUD's cost of service in the Annexation Area. The results of the four scenarios are shown in the following table and indicate a range of economic benefits from \$165 to \$380 million.

Estimated Acquisition Cost	Present Value of Economic Impact Over 20 Years	
	Adjusted PG&E Rate Forecast	SMUD's PG&E Rate Forecast
\$163 million (Assuming No Stranded Facilities) (purchase price and start-up)	\$190 million	\$380 million
\$188 million (Assuming Stranded Facilities) (purchase price and start-up)	\$165 million	\$360 million

The low end of this range represents the benefits that are created by a small difference between the PG&E rates and SMUD's cost of service, and are considered to be the most achievable. The high end of the range represents a larger difference between the PG&E rates and SMUD's cost of service resulting in greater economic benefits. These greater economic benefits are also considered achievable as SMUD's rates have historically been below those charged by PG&E and supportive of the larger difference. Therefore, it is reasonable to assume that the economic benefits associated with the annexation will fall within this range.



### Level of Service

SMUD is proposing to provide service to all existing PG&E customers and any new customers in the Annexation Area. The exceptions would be existing customers in the Annexation Area that have chosen to take energy service from a provider other than PG&E via a direct access contract.

The annexation proposed by SMUD is expected to provide the same level of service to customers in the Annexation Area as currently enjoyed by its existing customers. These services will be based on the cost of serving the Annexation Area customers and providing service at least equal to that provided by PG&E.

The proposed October 2008 schedule for accomplishing the annexation is reasonable as the majority of the infrastructure necessary to serve these customers will be condemned from PG&E. The infrastructure that SMUD must construct to interconnect its existing system with the Annexation Area is primarily comprised of a 115 kilovolt (kV) transmission line and a new substation. Construction of these new facilities and additional improvements to the system are expected to be funded at the same time as the acquisition of the property purchased from PG&E and financed using a combination of commercial paper and tax-exempt debt.

Our review of the information presented by SMUD indicates that it is reasonable to assume that it will be able to accomplish the annexation and provide service and reliability at least equal to that provided by PG&E.

## 1.0 Purpose of Analysis and Report

GES Engineers & Appraisers (GES) has been retained by the Sacramento County Local Agency Formation Commission (LAFCo) to prepare an analysis of the economic and level of service impacts resulting from the annexation of the Cities of West Sacramento, Davis, Woodland, and portions of unincorporated Yolo County (Annexation Area) into the Sacramento Municipal Utility District (SMUD).<sup>1</sup>

GES Engineers & Appraisers is a firm that provides valuation, consulting and engineering services to clients throughout the United States. The firm's two primary services are 1) the valuation of public utility infrastructure, energy projects, and complex industrial properties, and 2) consultation services to government entities for regulatory matters, tax agreements, energy management, and policy issues. The staff of GES includes professional engineers and appraisers with experience in a wide range of energy and regulatory matters.

The purpose of this report is to provide the LAFCo with an analysis of whether the expansion by SMUD into the Annexation Area is consistent with certain factors set forth in the Cortese-Knox-Hertzberg Government Reorganization Act of 2000 (CKH Act) addressing the cost and adequacy of services provided by government agencies.

The CKH Act identifies a list of factors for the LAFCo to consider in reviewing a proposal for annexation.<sup>2</sup> These factors are intended to address orderly development and coordination of local government agencies so as to advantageously provide for the present and future needs of the County and its communities.<sup>3</sup> The factors that this report addresses include the following:

- The need for organized community services; the present cost and adequacy of governmental services and controls in the area; probable future needs for those services and controls; probable effect of the proposed incorporation, formation, annexation, or exclusion and or alternative courses of action on the cost and adequacy of services and controls in the area and adjacent areas.

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<sup>1</sup> SMUD generates, transmits, and distributes electric power to an approximately 900 square mile service area. SMUD is the nation's sixth largest community-owned electric utility, with annual revenues of over \$1.2 billion serving a population of greater than 1.2 million people. As of March 2005, SMUD had approximately 560,000 customers and employed approximately 2,400 people, half of which were part of SMUD's service system. SMUD is governed by a seven-member Board of Directors elected by ward. The Board determines policy, performs oversight, and sets rates, rules, and regulations for the SMUD service territory.

<sup>2</sup> California Government Code § 56668.

<sup>3</sup> California Government Code § 56425.

- The effect of the proposed action and of alternative actions, on adjacent areas, on mutual social and economic interests, and on the local governmental structure of the county.
- The ability of the newly formed or receiving entity to provide the services which are the subject of the application to the area, including the sufficiency of revenues for those services following the proposed boundary change.
- In the case of district annexation, whether the proposed annexation will be for the interest of landowners or present or future inhabitants within the district and within the territory proposed to be annexed to the district.

The factors identified above that LAFCo must consider are addressed by answering two primary questions relating to the annexation, which are:

1. What is the difference in the expected cost of service to the existing SMUD customers and those in the Annexation Area that would result from approval by LAFCo?
2. What is the difference in the expected level of service to both groups of customers that would result from the approval by LAFCo?

This report will analyze these factors and provide our recommendations as they relate to these questions for the LAFCo to consider with respect to the SMUD annexation.

## **1.1 Scope of Review**

The research and analysis into the economic and level of service impacts associated with the annexation are based upon documents provided to the LAFCo by SMUD and Pacific Gas and Electric Company (PG&E),<sup>4</sup> and interviews of their respective representatives by GES. The primary documents reviewed in connection with this report are summarized below.

- Application for Annexation Sacramento Municipal Utility District (SMUD), July 29, 2005
- PG&E September 16, 2005 filing to LAFCo including:

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<sup>4</sup> PG&E is currently one of the largest combined natural gas and electric utilities in the United States. PG&E generates, transmits, and distributes electric power to a 70,000 square mile service area. The PG&E service area encompasses all of northern California, with the exception of local publicly-owned utilities. As of December 31, 2004, PG&E's annual electric revenues were approximately \$10 billion and reported to serve a population of 15 million people. PG&E is regulated by the California Public Utilities Commission (CPUC) which is located in San Francisco. Rates established for services provided by PG&E are set through a regulatory process governed by the CPUC based on cost of service pricing.

- PG&E's Response to Sacramento County LAFCo Regarding SMUD's Proposed Annexation Within Yolo County, Volume 1, September 16, 2005 prepared by Global Energy Decisions and Black & Veatch
- Fair Market Value as of January 1, 2008 – PG&E Yolo County Electric Properties SMUD Proposes to Condemn, September 2005 prepared by Black & Veatch
- Fair Market Value as of January 1, 2008 – PG&E Yolo County Electric Properties SMUD Proposes to Condemn – APPENDICES, September 2005 prepared by Black & Veatch
- Evaluation of SMUD's Additional Power Cost Requirements to Serve the Yolo Annexation Load, Volume III, September 15, 2005 prepared by Global Energy Decisions
- SMUD September 2005 letter Regarding SMUD Annexation – update Regarding Natural Gas Price Issues and CEC Staff Report Revised Reference Case in support of the 2005 National Gas Market Assessment
- Ann Trowbridge (Downey Brand Attorneys, LP) letter to LAFCo Regarding SMUD Annexation Application, December 2, 2005
- PG&E January 6, 2006 letter to LAFCo including:
  - Aggregated inventory by equipment class and additional equipment included in the field but not included in C-EDSA database
  - Description of additional information and follow-up to items discussed or included in letter from LAFCo
- PG&E February 1, 2006 letter to LAFCo from David E. Rubin including:
  - Appendix 1 – Cost tables
  - Appendix 2 – Assumptions and Methodology
  - Appendix 3 – Response to SMUD's December 2, 2005 letter
- SMUD Increase in Annexation Benefits and letter, February 15, 2006
- SMUD February 24, 2006 Annexation Application and letter SMUD Review of the PG&E Inventory and Valuation Data Regarding the SMUD Annexation Application
- PG&E February 28, 2006 filing to LAFCo including:
  - PG&E's Response to Sacramento County LAFCo Regarding SMUD's Proposed Annexation Within Yolo County, Volume 1, February 2006
  - Fair Market Value as of January 1, 2008 – PG&E Yolo County Electric Properties SMUD Proposes to Condemn, February 2006 prepared by Black & Veatch

- Fair Market Value as of January 1, 2008 – PG&E Yolo County Electric Properties SMUD Proposes to Condemn – APPENDICES, February 2006 prepared by Black & Veatch
- Volume III (Revised) – Evaluation of SMUD’s Additional Power Cost Requirements to Serve the Yolo Annexation Load, February 27, 2006 prepared by Global Energy Decisions
- SMUD March 1, 2006 Response Regarding Legal Authority for Valuation Methodology and letter, Ann Trowbridge (Downey Brand Attorneys, LLP)
- SMUD March 2, 2006 Response Regarding Folsom Annexation and letter
- PG&E March 8, 2006 Response to SMUD’s 2/24/06 Review of the PG&E Inventory and Valuation Data
- SMUD March 15, 2006 Review of Electric System Reliability and Stranded Facilities Regarding the SMUD Annexation Application
- SMUD March 15, 2006 letter Regarding PG&E’s comments on LAFCo DEIR
- SMUD March 15, 2006 letter Regarding PG&E rate estimates
- SMUD March 15, 2006 letter transmitting:
  - PG&E Power Flow Study
  - PG&E Preliminary Power Flow Study Report
- PG&E March 15, 2006 letter including
  - Attachment 1 – Forecasted revenue requirements
  - Attachment 2 – Assumptions
  - Attachment 3 - Proforma
- Davis Wright Tremaine, LLP “Assessment of PG&E and SMUD Proposals Regarding Valuation Methodologies Applicable to the Condemnation of Public Utility Facilities”
- California Public Utilities Commission Documents
- Selected PG&E Circuit Maps
- PG&E C-EDSA data
- California Energy Commission 2005 Integrated Energy Policy Report, November 2005

It was beyond the scope of this report for GES to perform an independent inventory of the property, or estimate of fair market value. Therefore, the analyses and conclusions presented in this report are based upon the information provided to the LAFCo and GES by SMUD and PG&E which form the basis of our opinion. GES does not represent that the inventory of property, methods of analysis, and conclusions drawn

from information presented by SMUD and PG&E would be the same as that employed by GES had it been retained to perform an independent analysis.

## **1.2 Proposed Annexation**

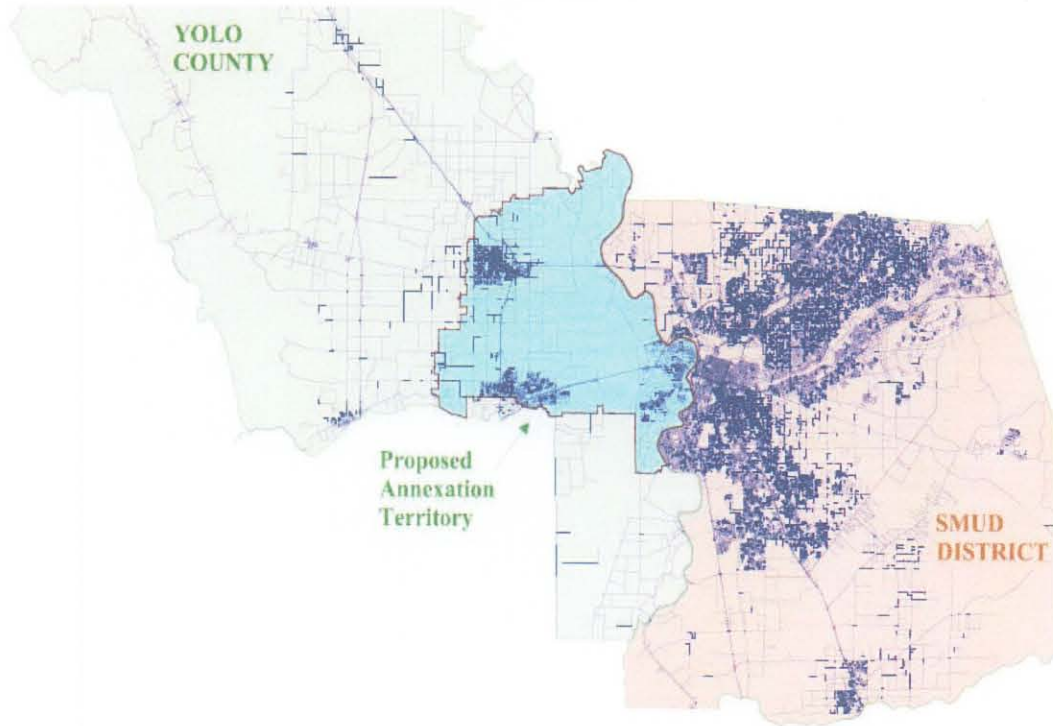
In February 2003, the Cities of West Sacramento, Davis, Woodland, and portions of unincorporated Yolo County formally requested that SMUD consider annexing these cities and adjacent portions of Yolo County into SMUD's service territory. At the time of this request, electric service to this area was being provided by PG&E. The reasons for requesting SMUD to annex this area were that the cities in Yolo County anticipated the potential for lower rates, the ability to participate in decision making on energy related issues at the local level, and the potential to improve reliability and customer service compared to PG&E. The request for annexation was based largely on information contained in a September 2002 study prepared by Navigant Consulting, Inc. for the City of Davis.<sup>5</sup>

The Annexation Area is shown in Figure 1.

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<sup>5</sup> Application for Annexation SMUD, July 29, 2005, pg. 2.

**FIGURE 1**  
**MAP OF ANNEXATION AREA<sup>6</sup>**



In April 2003, the SMUD Board of Directors adopted an annexation policy that sets the criteria that must be met for SMUD to consider annexation of any area beyond its current boundary. It was established that SMUD would only consider annexing territory into its electric service area if all of the following criteria are met:<sup>7</sup>

- The area proposed for annexation must be a relatively dense, urban area.
- The potential Annexation Area must be a growing area.
- The area must lie within approximately 30 miles driving distance from SMUD customer service facilities.
- The local jurisdictions seeking annexation must take the initiative by formally requesting that SMUD's Board of Directors consider annexation.
- The local jurisdictions agree to share in the cost of a study to assess the feasibility of annexation.

<sup>6</sup> Source: [http://www.smud.org/annexation/pdfs/lafco/Attmt%20C\\_Maps/Boundary\\_Vicinity.pdf](http://www.smud.org/annexation/pdfs/lafco/Attmt%20C_Maps/Boundary_Vicinity.pdf).

<sup>7</sup> Application for Annexation SMUD, July 29, 2005, pg. 2.

## Section 1 Overview

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The SMUD Board of Directors and Yolo County jointly authorized an independent analysis of the feasibility of annexation. The study contract was awarded to a team headed by R. W. Beck, Inc. (Beck) in March 2004.<sup>8</sup> The Beck report was completed in January 2005 and concluded that annexation was technically and financially viable and promised economic benefits to both SMUD's existing customers and those in the proposed Annexation Area.<sup>9</sup>

After this study was released, the West Sacramento, Woodland, and Davis City Councils and the Yolo County Board of Supervisors held a series of public meetings to discuss the findings of the Beck report. In March and April 2005, the City Councils and the Yolo County Board of Supervisors unanimously voted to formally seek annexation by SMUD. On April 5, 2005, the Cities of West Sacramento, Davis, and Woodland and the County of Yolo passed a joint resolution requesting annexation by SMUD.<sup>10</sup>

The SMUD staff validated and augmented the Beck report in May 2005 and released its own analysis which confirmed that the annexation was both technically and financially feasible. In addition, in May 2005, Dr. Sanjay Varshney, the Dean of the College of Business Administration at California State University, Sacramento provided the SMUD Board of Directors with the results of his independent consulting review of the methodology and assumptions used both in the Beck report and the SMUD staff analysis. Dr. Varshney concluded "both the Yolo and SMUD customers are likely to benefit from the annexation since the benefits are achievable."<sup>11</sup>

The SMUD Board of Directors voted on May 19, 2005 to submit an annexation application to the LAFCo based on the Beck report, the SMUD staff analysis, the Dr. Varshney findings, public hearings, and other public input. On July 29, 2005, SMUD submitted an application to the LAFCo seeking approval of the Annexation Area into SMUD's electric territory and sought approval by the LAFCo of the annexation.<sup>12</sup>

On August 22, 2005, the LAFCo made a request by letter to the California Public Utilities Commission<sup>13</sup> (CPUC) for a determination of whether the annexation will

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<sup>8</sup> R. W. Beck, Inc. was the project manager and lead consultant responsible for the economic analysis, conclusions, and final report. Stone & Webster Management Consultants and Lucy Company provided the inventory of property and communication plan. The report prepared by this group is referred to collectively as the Beck report for ease of presentation.

<sup>9</sup> Application for Annexation SMUD, July 29, 2005, pg. 3.

<sup>10</sup> Ibid, pg. 10.

<sup>11</sup> Ibid, pgs. 10-11.

<sup>12</sup> Ibid, pg. 11.

<sup>13</sup> The California Public Utilities Commission (CPUC) regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies. The CPUC is



## Section 1 Overview

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substantially impair PG&E's ability to provide adequate service at reasonable rates within the remainder of its service territory. In a resolution issued November 18, 2005, the CPUC found that the proposal by SMUD to expand into the Annexation Area "will not substantially impair PG&E's ability to provide adequate service at reasonable rates within the remainder of its service territory".<sup>14</sup>

On September 16, 2005, PG&E submitted its response to the LAFCo regarding SMUD's proposed annexation within Yolo County. PG&E's response was a collaborative effort between Black & Veatch (B&V), Global Energy Advisors (Global), and PG&E. B&V is an engineering firm with vast experience in the electric and gas industries. Global is an energy consulting firm specializing in power procurement and management.<sup>15</sup> This response calculated PG&E's estimates of the probable cost to SMUD of condemning PG&E's electric facilities within the Annexation Area and the power supply cost to serve the area's load and negative economic impacts of the annexation. PG&E identified in this response that SMUD's consultants had "significantly understated these costs and rates that SMUD will incur to serve the Annexation Area."

In addition to its September 16, 2005 filing, PG&E supplemented this information to account for subsequent changes to the boundaries of the proposed Annexation Area in a letter dated January 6, 2006, as well as addressing other follow-up items discussed at meetings between LAFCo and PG&E.

On February 1, 2006, PG&E provided a letter following up on requests made by LAFCo relating to the original costs of the property in the Annexation Area and provided additional support for its responses to a letter submitted to LAFCo on December 2, 2005 by SMUD regarding methods of valuation. In the February 1, 2006 letter to LAFCo, PG&E argued that the appropriate method of valuing the electric property within the Annexation Area should be the Replacement Cost New Less Depreciation (RCNLD) and provided its support for this position.

On February 15 and 24, 2006, SMUD submitted additional responses to PG&E's documents filed with LAFCo on September 16, 2005 as well as its review of documents made available to it by PG&E and the LAFCo on the week of January 30, 2006. These documents included access to PG&E's databases and circuit maps.

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responsible for ensuring that customers have safe, reliable utility service at reasonable rates, protecting against fraud, and promoting the health of California's economy.

<sup>14</sup> Public Utilities Commission of the State of California *Energy Division Resolution E-3952* dated November 18, 2005 at CPUC website: [www.cpuc.ca.gov/Published/Comment\\_resolution/50457.htm](http://www.cpuc.ca.gov/Published/Comment_resolution/50457.htm).

<sup>15</sup> PG&E September 16, 2005 filing to LAFCo, pg. 1.

On February 28, 2006, PG&E provided updates to its responses to the LAFCo regarding SMUD's proposed annexation within Yolo County. These updated documents included modifications to the reports provided by B&V to account for the changes in the annexation boundaries and changes to Global's power supply forecasts to account for the most recent California Energy Commission<sup>16</sup> (CEC) natural gas price forecasts. PG&E submitted additional documentation to the LAFCo on March 8, 2006, formally responding to SMUD's February 15 and 24, 2006 submissions to LAFCo regarding PG&E's power supply costs and estimated annexation benefits.

On March 15, 2006, both parties filed additional support for the PG&E retail rates in the Annexation Area. These documents set forth the breakdown of each component comprising PG&E's rates over the 20-year forecast period.

For this report, GES has made a review of the documents referenced above along with additional documents submitted by the parties. Based on this information, the following sections provide our analyses and conclusions of the economic and level of service impacts of SMUD's proposed annexation.

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<sup>16</sup> The California Energy Commission (CEC) is the state's primary energy policy and planning agency. Created by the Legislature in 1974 and located in Sacramento, the CEC has five major responsibilities: (1) forecasting future energy needs and keeping historical energy data; (2) licensing thermal power plants 50 megawatts or larger; (3) promoting energy efficiency through appliance and building standards; (4) developing energy technologies and supporting renewable energy; and (5) planning for and directing state response to energy emergency.

## **2.0 Introduction**

The economic consequences of SMUD's expansion into Yolo County and condemnation of PG&E's electric property in the Annexation Area could produce a wide range of economic consequences for both SMUD's existing customers and those it proposes to annex. The range of economic consequences that could result from this annexation include:

- an increase or decrease in the rates for existing SMUD customers;
- an increase or decrease in the rates for customers in the Annexation Area from PG&E rates;
- a reduction in local franchise fees and property taxes due to SMUD's not-for-profit structure; and
- a reduction in state and federal income taxes due to SMUD's not-for-profit structure.

The magnitude of the economic consequences identified above will determine whether SMUD's annexation is in the public interest and should be approved by the LAFCo. SMUD's Board of Directors has already passed resolutions and taken steps to mitigate some of those economic consequences and impacts on existing customers, the local communities, and the customers in the Annexation Area.

SMUD's mitigation measures include a surcharge for the Annexation Area to mitigate any rate impact on existing SMUD customers. SMUD intends to make payments to the local communities to replace the revenues that would have otherwise been provided by PG&E in the form of franchise fees and property taxes, and includes these costs in the rates charged to the annexation customers. Finally, SMUD has mitigated the impact to the annexation customers by establishing a discount of at least 2% to the PG&E electric rates at the time of annexation.

The range of economic impacts associated with the annexation is best measured as the difference between the expected PG&E rates for providing electric service in the Annexation Area as compared to the rates SMUD will charge for equal or better service over a reasonable forecast period. The higher the PG&E rates are relative to SMUD's cost of serving the Annexation Area, the greater the benefits of annexation and vice versa.

There are several variables that will determine the magnitude of these economic impacts which include:

- rate forecasts for SMUD and PG&E;

## Section 2

### Economic Impacts of Annexation

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- cost of acquiring PG&E's facilities, severance costs, start-up costs, litigation costs, and the associated debt service costs;
- power supply costs including energy, capacity, ancillary services, and renewable energy for the Annexation Area;
- pass-through costs, to be recovered through non-bypassable charges, primarily related to the above market energy contracts entered into by the Department of Water Resources (DWR) on behalf of the investor-owned utilities during the 2000-2001 energy crisis and PG&E's bankruptcy related costs;
- operational efficiencies and economies of scale associated with the annexation; and
- mitigation for impact to the Cities of West Sacramento, Davis, Woodland, and Yolo County associated with the loss of franchise fees and property taxes.

The Application submitted by SMUD for the annexation indicates there will be significant savings over the long-run to the electric customers in the Annexation Area. The Application indicates that these savings will be modest in the early years due to exit fees and the levelized cost<sup>17</sup> recovery of debt service costs, and relatively high power supply costs caused by the current price of natural gas. However, over the long-run these costs are mitigated through the equity the customers build in the system.<sup>18</sup>

In general, there are several areas of cost savings that SMUD is expected to provide to customers in the Annexation Area as compared with PG&E when considering the variables identified above. Some of these savings include:

- SMUD is a not-for-profit entity with no shareholder equity requirements, and therefore has a lower cost of capital when compared to PG&E;
- the ability to use tax-exempt debt for future capital additions;
- avoidance of certain income taxes; and
- synergies created by annexing this territory into SMUD's existing operation in the Sacramento area.

The following sections are a summary of how these factors will impact SMUD's rates for providing service in the Annexation Area when compared to PG&E's rates, and the economic impacts associated with the annexation.

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<sup>17</sup> Levelized costs represent the present value of the total cost of building and operating a generating plant over its economic life, converted to equal annual payments.

<sup>18</sup> Application for Annexation SMUD, July 29, 2005, pgs. 4-6.

## **2.1 Comparison of SMUD and PG&E Rate Structures**

In order to understand how the economic impacts of the annexation relate to the rates that either SMUD or PG&E will charge customers, first it is important to understand the economic and regulatory environment in which PG&E operates and how SMUD typically is able to operate at a lower cost for equivalent service.<sup>19</sup> The cost of providing electric service to customers, either by SMUD or PG&E, is a function of the following services that comprise the cost of a retail kilowatt-hour. These include the following:

- cost of power supply;
- transmission of electricity from the source of production to the local distribution system;
- distributing this to customers; and
- administering and billing the customer for providing these services.

In offering or performing each of these services, SMUD and PG&E each have a certain cost of service that it must charge customers in the Annexation Area which is a function of past and future capital and operating expenditures.

### **PG&E Rate Structure**

The mechanism used to determine the rates charged by PG&E for each of these services is typically referred to as “cost of service” pricing and is administered by the CPUC. The CPUC establishes rates that are intended to provide the following:

- recovery of prudently invested capital;
- a chance to earn a fair return on invested capital; and
- recovery of reasonable operating expenses.

### **SMUD Rate Structure**

SMUD’s rates are established in a similar manner except that they are not regulated by the CPUC, but instead are administered by the SMUD Board of Directors using a public process.

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<sup>19</sup> The average rates SMUD charges its existing customers are estimated to be on average 9.28¢/kWh in 2008 compared to PG&E’s estimate of its rates for the Annexation Area of 13.04¢/kWh. This difference results in SMUD providing equivalent service for approximately 30% less than PG&E.

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The principles behind cost of service pricing are provided below to familiarize the reader with how regulation impacts the cost of a retail kilowatt-hour provided by either SMUD or PG&E.

#### *2.1.1 Prudently Invested Capital - PG&E*

The investment by PG&E in property to serve customers is referred to as its rate base. Rate base is typically comprised of the original cost of investment less the amount of that investment that has been recaptured through depreciation,<sup>20</sup> plus allowances for additional capital requirements of PG&E and reductions for customer advances, deferral of expenses, and contributions made to the system and not funded by PG&E. Examples of additions to rate base include the investment necessary to construct property not yet in rate base and maintain an inventory of material and supplies. Reductions to rate base include accrued depreciation, contributions to the system in the form of property, and deferred federal income taxes. The following is a summary of typical cost components that comprise the rate base of a utility like PG&E.

General computation of rate base:

Total original cost of utility plant in service
- Accumulated depreciation and amortization
+ Property held for future utility use
+ Materials & supplies
+ Working capital
- Customer advances for construction
- Contributions in aid of construction (CIAC)
+ Accumulated amortization of CIAC
- Deferred income taxes
<hr/>
Rate Base

In general, the original cost of investment less accumulated depreciation or “net book value” of PG&E represents the amount of money invested on behalf of the customer in property plant and equipment. This original investment can be considered a loan PG&E makes to the ratepayer for the property that PG&E has constructed on their behalf. Accumulated depreciation in the context of regulation represents the principle amount of this loan that has been paid back to PG&E by the ratepayer with the net book value representing the outstanding principle on the property PG&E is entitled to receive through rates from its customers.<sup>21</sup> The net book value of PG&E’s property represents the regulatory value of this property and is the amount on which customers pay a fair return.

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<sup>20</sup> The Original Cost Less Depreciation of a utility is often referred to as its net book value.

<sup>21</sup> In the event of a sale, net book value also represents the amount of the sale price that ratepayers are entitled to receive in the form of rate base reduction.

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The adjustments to the net book value identified above are intended to reflect customer advances, CIAC, and deferral of income taxes that are sources of capital to PG&E but have no cost, or represent income without a corresponding expense and, therefore, are excluded from rate base.

**2.1.2 Fair Return on Invested Capital – PG&E versus SMUD**

The rate base of a utility, which is primarily comprised of net book value, represents the amount of investment on which a utility like PG&E earns a return. This return is based on the amount and cost of each type of capital used to fund the investment in this property.<sup>22</sup> In electric utilities, the investment in property is typically funded using 50% debt and 50% equity, both of which must receive a return that is comparable to investments of similar risk.

The return on invested capital is typically an area of significant savings for not-for-profit utilities, like SMUD, as compared to for-profit utilities. This savings is demonstrated using the following example.

**TABLE 1**  
**PG&E CAPITAL STRUCTURE**  
**AND COST OF CAPITAL**  
**AS OF 12/31/04**

A	B	C	D
Type of Capital	% of Capital	Cost of Capital	Weighted Average Cost of Capital (B x C)
Equity	49.00 %	11.22 %	5.50 %
Preferred	2.80 %	6.76 %	0.19 %
Debt	48.20 %	5.90 %	2.84 %
			<b>8.53 %</b>

**ESTIMATE OF SMUD'S COST OF BORROWING**

	Taxable	Tax Exempt
Debt	100.00 %	5.00 %

Sources: Application for Annexation SMUD, July 29, 2005; Pacific Gas and Electric Company SEC Form 10-K filing for year ended 12/31/04, Exhibit 13.

<sup>22</sup> This concept is similar to the cost of money used to purchase a house with some portion of the purchase price being contributed as equity (typically 20%) and some portion being funded with debt or a mortgage (typically 80%).

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The cost of capital in Table 1 is the annual difference in expected return on or interest rate from capital invested in the utility system that PG&E and SMUD must seek from customers. The annual required return on \$100 million of invested capital for each entity is calculated in Table 2.

**TABLE 2**  
**ANNUAL REQUIRED RETURN ON INVESTED CAPITAL**  
**ASSUMING AN INVESTMENT OF \$100 MILLION**  
**AT VARIOUS COSTS OF CAPITAL**

A	B	C
	Cost of Capital	Annual Return (B x \$100 million) (\$ in millions)
PG&E's Required Return on Capital	8.53%	\$8.53
SMUD's Cost of Taxable Debt	6.25%	\$6.25
SMUD's Cost of Tax Exempt Debt	5.00%	\$5.00

Table 2 above illustrates that not-for-profit entities, like SMUD, have a required return that is approximately 40% below a for-profit entity like PG&E. This lower cost of capital is one of the primary benefits associated with not-for-profit ownership of utility infrastructure.

### **2.1.3 Operation and Maintenance Expenses**

The operation and maintenance expenses of PG&E's system typically are reimbursed at cost along with a reimbursement for payment of state and federal taxes. SMUD typically is exempt from these taxes, and as such does not have a comparable item of expense that is reimbursed through the rates it charges customers.

The expenses associated with providing electric services include the following:

- power supply;
- direct and indirect labor associated with its employees;
- operating expenses such as truck leases, equipment purchases, office supplies, etc.;



- billing, customer support, and administrative support;
- non-bypassable charges associated with previous investments on behalf of the customer; and
- income, franchise and property taxes.<sup>23</sup>

This reimbursement of prudently incurred operation and maintenance expenses, when combined with the return on and of invested capital, will result in the utility being justly compensated for the service it provides to customers.

The understanding of how PG&E currently operates and charges customers for electric service is an important element of understanding the validity of the economic impacts associated with the annexation and in considering the range of fair market value estimates provided to the LAFCo by SMUD and PG&E. The analysis and conclusion relative to the cost of service and fair market value estimates developed by each party is discussed below, along with a reconciliation of those items that represents a probable range of economic impacts.

## **2.2 Overview of Economic Analyses Performed for the Annexation Area**

In analyzing the economic benefits of the annexation, SMUD and its consultants have prepared an analysis of the cost SMUD will incur to serve customers in the Annexation Area as compared to the expected cost of PG&E serving the same customers. SMUD's analysis was based on the cost of service pricing principle discussed above, with the economic impact being the difference between the amounts charged to customers using the SMUD and PG&E's rates. PG&E has provided a similar forecast using SMUD's model, but presents its own retail rate forecast and estimate of SMUD's cost of service in the Annexation Area. In these economic analyses, SMUD and PG&E both used the period 2008 to 2027 as the 20-year period to determine the economic impacts associated with the annexation.

In its February 15, 2006 filing, SMUD forecast the economic benefits to exceed \$400 million. PG&E provided its own forecast of the economic losses that it projects will occur as a result of the annexation. In its February 28, 2006 filing, PG&E estimated that the economic impacts could range from a positive \$7 million to an economic loss of \$495 million. On March 15, 2006, PG&E revised the \$495 million loss to a loss of \$370 million based on an update to its retail rate forecast in the Annexation Area.

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<sup>23</sup> SMUD has agreed to make franchise fees and property tax payments, even though it is exempt from these taxes.

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The estimated economic impacts that will result from the annexation presented in this report are based on the submissions by SMUD and PG&E as referenced previously. The filings to LAFCo by both parties are voluminous and include discussions and analyses by SMUD and PG&E relating to their respective forecast of the economic impacts associated with SMUD's annexation.

The filings to LAFCo by SMUD and PG&E were reviewed and used to develop our estimate of the economic impacts of the annexation. The areas of review and analysis include the following:

- **Customers and Expected Sales:** SMUD and PG&E have each identified the rate class and number of customers in the Annexation Area along with the associated electric usage by these customers.
- **PG&E Composite Rates for the Annexation Area:** SMUD and PG&E have each provided 20-year forecasts of the PG&E rates for the customers in the proposed Annexation Area. This assumption forms the basis of any savings available under SMUD annexation or the amount of benefit PG&E believes the customers in this territory enjoy from its service.
- **SMUD's Cost of Acquisition:** The cost SMUD will incur in acquiring the electric system in the Annexation Area from PG&E is another variable that is required to estimate the economic impacts of this annexation. The cost of acquisition includes both the purchase of PG&E's system and the costs associated with system start-up, upgrades, stranded costs, severance, financing, and litigation.
- **Power Supply Costs:** The costs associated with procuring wholesale electrical energy on behalf of the customers in the Annexation Area is another component of the economic analysis. The customers in the Annexation Area are currently provided service by PG&E utilizing its generation and supply resources. Several of these resources will no longer be available to customers in the Annexation Area if SMUD is successful and SMUD will be responsible for procuring a power supply on their behalf. The cost of this future power supply as it compares to that of PG&E will have an impact on the rates SMUD must charge customers in the Annexation Area.
- **Operation and Maintenance Expenses:** The cost of operating the electric and distribution system in the Annexation Area is also an item that will impact the rates SMUD charges.

In some instances, SMUD and PG&E agree on the assumptions or have forecasts that are similar. The primary area of dispute between the parties relates to PG&E's future retail rates in the Annexation Area and the estimate of acquisition costs SMUD will incur to purchase and separate PG&E's property.

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The following section is a summary of the assumptions that are used to analyze the economic impacts of the annexation by SMUD and PG&E and our analysis and opinion as to the reasonableness of each, and the range of estimated economic impacts.

**2.2.1 Customers and Expected Electric Sales**

The customers and their expected electrical usage in the Annexation Area is a function of the boundaries and the number and type of customer within these boundaries. The number and type of customer within these boundaries will impact the economic analysis as it determines the amount of capital investment necessary to service customers, the relationship between average and peak usage, the annual electrical consumption, and the operational and administrative costs necessary to serve these customers.

In its July 29, 2005 Application, SMUD estimated that in 2008 there would be 80,227 customers in the Annexation Area with a total energy requirement (including loss) of 1,382,000 megawatt-hours (MWh). PG&E used this same figure in its September 2005 filing.<sup>24</sup>

In its February 15, 2006 filing, SMUD used the same number of customers and energy requirements. However, PG&E has modified its assumptions relative to customers and energy requirements due to changes in the boundaries of the Annexation Area. Table 3 is a comparison of the estimated number of customers and energy usage in SMUD and PG&E's most recent filings for 2008 through 2027.

**TABLE 3**  
**SUMMARY OF CUSTOMERS AND ENERGY USAGE**  
**WITHIN THE ANNEXATION AREA**  
**IN 2008 AND 2027**

	2008			2027		
	SMUD	PG&E	% Difference	SMUD	PG&E	% Difference
Customers	80,227	81,421	1.5%	107,767	109,371	1.5%
Energy Requirements	1,382,340	1,390,993	0.6%	1,995,754	2,008,250	0.6%

Sources: SMUD February 15, 2006 filing to LAFCo, Attachment 1; PG&E March 15, 2006 filing to LAFCo, Attachment 3.

<sup>24</sup> Application for Annexation SMUD July 29, 2005 Attachment L; PG&E September 16, 2005 filing to LAFCo, Volume II, Proforma.

Table 3 indicates that PG&E assumes 1.5% more customers than SMUD and 0.6% more energy requirements. The difference in these estimates is not considered to be meaningful and therefore both are considered a reasonable estimate of the customers and energy requirements over the 20-year forecast period starting in 2008.

### ***2.2.2 PG&E Retail Rates for the Annexation Area***

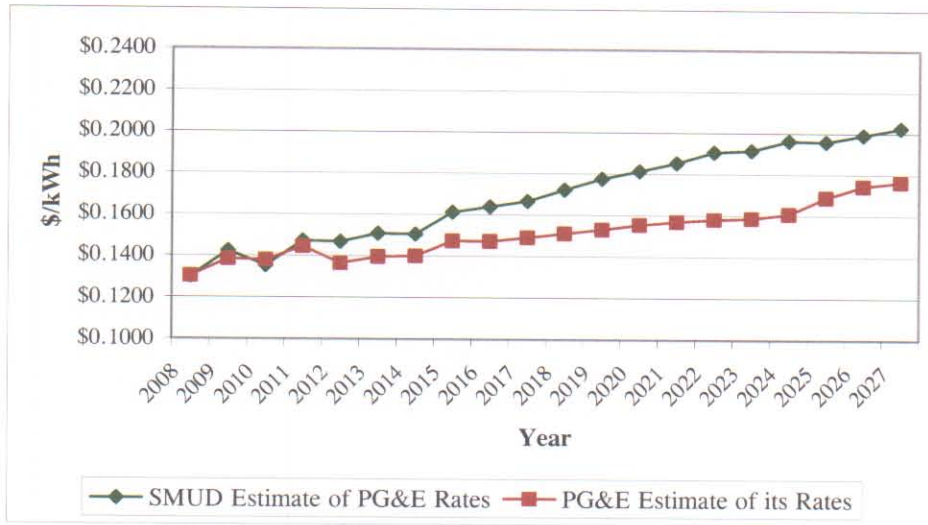
The PG&E system rates applicable to the annexation customers are based on the cost of service principle discussed above. These rates are established in proceedings before the CPUC and reflect the cost of providing electric service to all of PG&E's electric customers in the State of California by rate class. In general, these rates include the return on and of invested capital, the cost of power supply, and operation and maintenance costs incurred by PG&E to provide these services.

In its July 29, 2005 Application, SMUD estimated the PG&E rates based on the then current cost to customers established by the CPUC, and estimated how these rates would change over the forecast period.

In its September 2005 filing, PG&E provided its own rate forecasts to serve the customers in the Annexation Area based on the expected natural gas prices and cost of service estimates known at that time. Subsequent to those filings, SMUD and PG&E have revised their estimate of PG&E's rates.

The most recent PG&E rate forecasts prepared by SMUD and PG&E are shown in Figure 2. The forecasts in Figure 2 illustrate that for the period 2008 through 2011, SMUD and PG&E have similar estimates of the rates PG&E will charge in the Annexation Area. However, between 2011 and 2027, the rate forecasts diverge and result in a difference of up to approximately 20% in several years of the forecast.

**FIGURE 2  
COMPARISON OF SMUD AND PG&E RETAIL RATE FORECASTS  
IN THE ANNEXATION AREA**



Sources: SMUD February 15, 2006 filing to LAFCo, Attachment 1; PG&E March 15, 2006 filing to LAFCo, Attachment 3.

The rates shown in Figure 2 include the expected cost for PG&E to provide distribution, transmission, and power supply services, and recover non-bypassable charges from customers in the Annexation Area. The rate estimates provided by PG&E on March 15, 2006 for the Annexation Area are approximately 2% below the rates it estimates system-wide.

In estimating the economic impacts of the annexation, the difference between the PG&E rates and SMUD's cost to serve the customers in the Annexation Area represent the economic impacts of the annexation. SMUD and PG&E have both provided estimates of PG&E rates in the Annexation Area for the period 2008 through 2027. The reasonableness of these forecasts has been reviewed relative to PG&E's current rates, future capital requirements, and cost of providing service to electric customers.

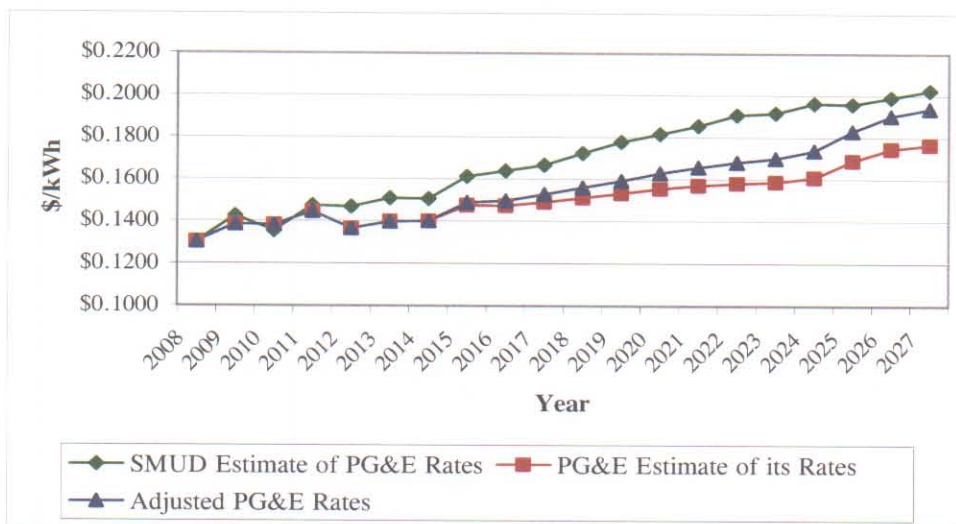
A review of the details that comprise the rate forecasts provided by PG&E demonstrates that for the years 2015 through 2027, the component of rates associated with the distribution expenses were escalated at a rate of less than 1% per year. This rate of escalation understates the costs PG&E is likely to incur providing distribution services and falls below the escalation rate it used for the transmission component of rates. Therefore, the distribution component of PG&E's rate forecast for 2015 through 2027 was adjusted to reflect the rate of inflation PG&E applied to its transmission

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component of rates. The rates that result from this adjustment are considered a more reasonable estimate of PG&E's rates.

Figure 3 presents the original PG&E rates, adjusted PG&E rates, and SMUD's forecast of these rates.

**FIGURE 3**  
**COMPARISON OF SMUD AND PG&E FORECASTS**  
**WITH THE ADJUSTED FORECAST**  
**FOR THE PG&E RETAIL RATES**  
**IN THE ANNEXATION AREA**



Sources: SMUD February 15, 2006 filing to LAFCo, Attachment 1; PG&E March 15, 2006 filing to LAFCo, Attachment 3.

The forecasts of PG&E rates in Figure 3 illustrates how SMUD's estimate of PG&E rates and the adjusted PG&E rates still differ, but begin to converge by the end of the period. This difference primarily relates to power supply and reliability service cost estimates used by SMUD and PG&E in the forecast of these rates. SMUD's estimate of these rates assumes that PG&E will incur greater costs associated with these components, while PG&E assumes that it will be able to avoid or mitigate these future increases in power supply and reliability service costs and consequently have lower rates.

Since the SMUD and the adjusted PG&E forecasts both appear reasonable, the economic impacts were analyzed under two different scenarios. The first scenario assumes that PG&E is able to mitigate future power supply and reliability service cost increases by utilizing its hydroelectric and nuclear resources and implementing demand-

side management. The second scenario assumes that PG&E rate increases are at the level forecast by SMUD, and PG&E's power supply and reliability service costs are higher than in PG&E's forecast. These two scenarios will establish the range of possible PG&E rates which are then compared to SMUD's cost of service to measure the economic impacts of the annexation.

### ***2.2.3 Cost of Acquisition***

The cost SMUD will incur to acquire the existing electrical system in the Annexation Area from PG&E through a condemnation is another variable required in estimating SMUD's cost of service to customers in the Annexation Area. The cost of acquisition includes the purchase of PG&E's system in the Annexation Area and the cost associated with system start-up costs, upgrades, stranded costs, severance, financing costs, and litigation costs.

In its July 29, 2005 Application, SMUD estimated a fair market value of \$84 million for the system plus other costs at \$53 million, for a total acquisition cost of \$137 million in 2008.

On September 16, 2005, subsequent to SMUD making its Application, PG&E filed a response to SMUD's Application setting forth comments relative to its opinion of the acquisition costs for the system and its own estimate of severance. This submission was followed by additional submittals that set forth PG&E's opinion relative to the estimated acquisition costs of its system and associated severance and stranded costs. PG&E estimated the fair market value of the system at \$516.70 million and the severance costs at \$50.6 million.

The total difference between SMUD and PG&E's estimate of acquisition cost is summarized in Table 4.

**TABLE 4  
COMPARISON OF SMUD AND PG&E ACQUISITION COSTS  
FOR THE ANNEXATION AREA  
AS OF 12/31/04**

	SMUD (\$ in millions)	PG&E (\$ in millions)
Estimated Fair Market Value	\$84.00	\$516.70
Severance, Start-up and Stranded Costs	<u>\$53.00</u>	<u>\$50.60</u>
Total:	\$137.00	\$567.30

Sources: Application for Annexation SMUD, July 29, 2005; PG&E February 28, 2006 filing to LAFCo, pg. 27.

#### Discussion of Fair Market Value

In annexing portions of Yolo County, SMUD proposes to condemn those portions of PG&E's property within the Annexation Area. The price SMUD must pay PG&E for this property is defined as its fair market value. The definition of fair market value in this context is as follows:

"the highest price on the date of valuation that would be agreed to by a seller, being willing to sell but under no particular or urgent necessity for so doing, nor obliged to sell, and a buyer, being ready, willing, and able to buy but under no particular necessity for so doing, each dealing with the other with full knowledge of all the uses and purposes for which the property is reasonably adaptable and available."<sup>25</sup>

Most valuation experts and authoritative sources agree that there are three generally accepted approaches to estimating the fair market value of a property. These are: 1) the cost approach; 2) the sales comparison approach; and 3) the income capitalization approach. The applicability of each approach varies with the nature and purpose of the valuation assignment. After each approach has been considered, the appraiser reconciles to a single value, or range of value, that most accurately reflects the property's fair market value as of the valuation date.

An estimate of fair market value for the electric systems being acquired by SMUD from PG&E in the Annexation Area was presented by both parties. The discussion of the property's fair market value is found in Appendix C to this report, as the documents are voluminous and required a review of methodology, assumptions, and analyses

<sup>25</sup> California Government Code § 126.320(a).



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presented by SMUD and PG&E. A summary of the fair market value estimates as presented by SMUD and PG&E, and a reconciliation of these estimates is presented below.

The fair market value set forth by SMUD is \$84 million<sup>26</sup> whereas PG&E estimates it to be \$516.7 million<sup>27</sup>, resulting in a difference of approximately 515%. This difference in fair market value estimates is the result of several factors that include the property inventory, the unit costs applied to this inventory, the calculation of depreciation, and the number of methods used to estimate the fair market value.

To determine the fair market value, SMUD used the cost and income capitalization approaches. In its February 24, 2006 filing, SMUD updated its original analysis and provided information on electric utility system transactions. SMUD's value estimates range from \$84 to \$130 million. SMUD's Application used a value estimate of \$84 million which was below the \$110 million estimate used by SMUD staff in its report.

PG&E utilized the cost approach to determine the value of the property being acquired by SMUD and estimated a value of \$516.7 million. PG&E's value estimate included additional components for the change in value from 2004 to the 2008 acquisition date, going-concern value, and adjustments for current assets and liabilities.

A review of the methodology, assumptions, and analyses presented by SMUD and PG&E result in a range of value from \$79 to \$154 million for the electric property in the Annexation Area and is presented in Appendix C. The lower and upper ends of the range are established using the Original Cost Less Depreciation<sup>28</sup> (OCLD) and Replacement Cost New Less Depreciation<sup>29</sup> (RCNLD) estimates. The income capitalization and sales comparison approaches determine how the final value estimate relates to this range based upon the property's earning potential.

The income capitalization and sales comparison approaches both indicate that the fair market value is at the lower end of the range and is best represented by the fair market value of \$110 million used by SMUD staff in its report. Therefore, \$110 million is considered a reasonable estimate of fair market value for the property SMUD is proposing to condemn in the Annexation Area.

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<sup>26</sup> Application for Annexation SMUD, July 29, 2005.

<sup>27</sup> PG&E February 28, 2006 filing to LAFCo, Volume II, pg. 1.

<sup>28</sup> The OCLD is typically defined as the original cost of the property when it was first placed into service less the accrued depreciation. The OCLD value is an estimate of the property's "net book value" and is generally equivalent to the rate base value of the property. The OCLD, or the net book value, typically establishes the lower end of value for rate regulated property.

<sup>29</sup> The RCNLD is defined as the cost of constructing a Replacement Cost New (RCN) of the property at current prices with the same or closely related material less accumulated depreciation. The RCNLD value typically establishes the upper end of value.

### Severance and Stranded Investment

In addition to the costs SMUD will incur in acquiring the existing facilities owned by PG&E in the Annexation Area, there are also costs associated with severing that system from PG&E's existing system, building facilities to interconnect the Annexation Area to the SMUD system, and compensating PG&E for certain properties that are no longer economically viable due to SMUD's annexation. As indicated in Table 4, SMUD estimates these to be approximately \$53 million. PG&E's estimate of \$50.6 million includes stranded investments and severance costs but not start-up or other costs.

The SMUD estimate of severance and start-up costs includes the following components:<sup>30</sup>

- \$2.3 million in severance to PG&E's distribution system;
- \$39.7 in interconnection and start-up costs;
- \$10 million in litigation fees; and
- \$1 million in debt issuance costs.

SMUD and PG&E have similar estimates of severance costs for the distribution system. SMUD estimated that severance would be approximately 1% of the system's RCN, or \$2.3 million. PG&E estimated this severance to be \$2.5 million. Therefore, with respect to severance costs for the distribution system, SMUD and PG&E appear to be in agreement with an estimate of approximately \$2.5 million.<sup>31</sup>

In addition to the stranded distribution costs, PG&E estimated that SMUD's annexation will change the flow of power in the region and require a \$14.2 million upgrade of the Rio Oso Substation.

PG&E also estimates stranded costs associated with six transmission lines, or segments of those lines, totaling 61.59 miles with an RCNLD of \$22.84 million, and a 42 MVA transformer that will no longer be needed at the Brighton Substation with an RCNLD of \$8.48 million. The total estimate of stranded investments and severance costs associated with these transmission lines and substation is estimated at approximately \$50 million.<sup>32</sup>

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<sup>30</sup> Application for Annexation SMUD, July 29, 2005, Attachment F, App. G.

<sup>31</sup> PG&E February 28, 2006 filing to LAFCo, pg. 43.

<sup>32</sup> Ibid, pgs. 43-44.

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PG&E's claims of stranded investments and severance costs associated with the 115 kV lines and substation upgrades are based on its analysis of power flow in the region. The use of power flow studies to analyze the impact on the electric system for changes like those SMUD is proposing typically requires a certain set of assumptions relative to both sources of supply and demand in order to determine how the electric flow will change within the system. The new power flows will then be a function of how these existing and future supply and demand relationships change the system.

In a review of PG&E's power flow analysis, it does not appear to account for SMUD's interconnection to the Western Area Power Administration (WAPA) which would impact the results of the analysis. In addition, since the annexation customers will be served by a different mix of supply sources, it is difficult to predict with any degree of certainty how these supply sources will impact the regional transmission system.

SMUD's annexation of PG&E's property and construction of new interconnections will most likely impact power flows in the region. However, there is no evidence that these power flows will impact the ability of PG&E to recapture the investment in their transmission facilities through the rates it charges customers or what portion will be used by PG&E to serve existing and future customers.

It is unknown at this time, the extent of system upgrades or stranded facilities that will result from the annexation. To account for these uncertainties, the economic impacts were analyzed under two scenarios.

The first scenario assumes that there are no system impacts or stranded facilities as a result of the annexation. The second scenario assumes that the annexation results in the six transmission lines and the 42 MVA transformer at the Brighton Substation becoming stranded. The cost estimate used by PG&E for these facilities appears high, therefore, an estimate of \$25 million was used to measure the impact of this potential stranding of facilities.<sup>33</sup>

#### ***2.2.4 Power Supply***

The power supply cost includes energy, capacity, ancillary services, and renewable energy supply for the Annexation Area. The power supply cost will be borne by the customers in the Annexation Area based upon costs incurred by SMUD to procure these services on their behalf.

In its July 29, 2005 Application, SMUD indicated that it would procure the power supply for the Annexation Area by a combination of long-term purchase power contracts and new natural gas-fired generation. The power supply costs in these filings

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<sup>33</sup> This was based on 50% of the PG&E estimate.

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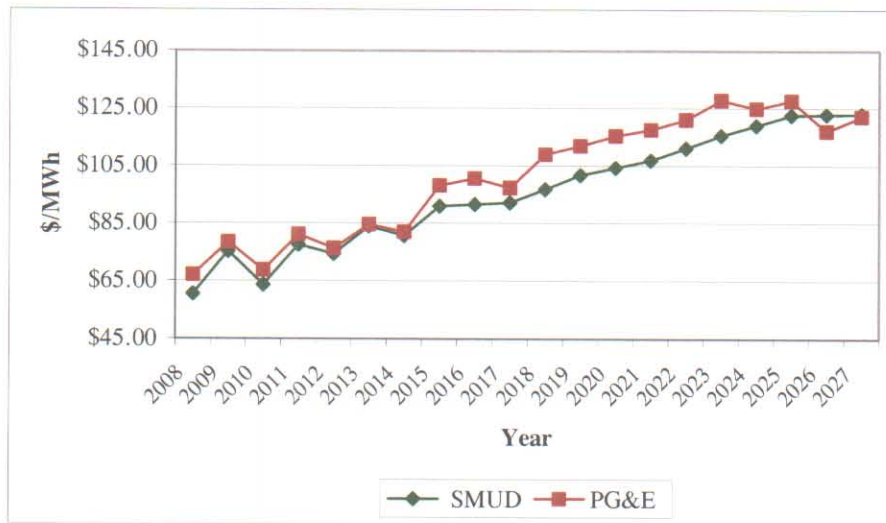
were based upon generation data in CPUC Rulemaking 04-04-026 <sup>34</sup>(filed April 22, 2004) and natural gas prices for northern California from the Beck Report.

In its February 15, 2006 filing, SMUD updated its power supply cost to reflect a CEC December 2005 gas price forecast.

In its September 2005 filing, PG&E criticized the use of the Beck gas forecast and used a forecast that demonstrated how more recent 2005 natural gas forecasts prepared by the CEC were higher than the forecast used by SMUD. In addition, PG&E criticized the manner in which SMUD estimated the cost of procuring generating resources for customers in the Annexation Area.

In the most recent filings made to the LAFCo, SMUD and PG&E have used the same CEC December 2005 gas price forecast to estimate the future cost of power supply which results in similar price forecasts. The SMUD and PG&E power supply forecasts are shown in Figure 4.

**FIGURE 4**  
**COMPARISON OF SMUD AND PG&E FORECASTS**  
**OF POWER SUPPLY COSTS**  
**IN THE ANNEXATION AREA**



Sources: SMUD February 15, 2006 filing to LAFCo, Attachment 1; PG&E March 15, 2006 filing to LAFCo, Attachment 3.

The difference in power supply cost estimates over the 20-year period is approximately 5% and is considered a reasonable difference for independent power supply cost

<sup>34</sup> Application for Annexation SMUD, July 29, 2005, Appendix F, pg. 43.

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forecasts. The difference in these forecasts is primarily due to the method of estimating the capital costs associated with new generating resources and the cost of the resources in the marketplace.

In procuring its power supply, it is reasonable to assume that SMUD will be able to use a variety of methods to meet its resource needs that include building units, contracting for resources, and/or using demand-side management to defer the need for resources. PG&E's forecast of SMUD's power supply costs do not appear to account for SMUD's ability to use all of these methods and assumes that SMUD will only be able to build new units. This assumption leads to a higher estimate for the cost of generation supply than would be expected in the marketplace. Therefore, SMUD's estimate of power supply costs has been used to estimate the economic impacts of the annexation.

#### ***2.2.5 Operation and Maintenance Expenses***

In analyzing the economic impacts of the annexation, the operation and maintenance expenses associated with the electric system in the Annexation Area have been reviewed. These expenses include the following:

- operation and maintenance (O&M) and administrative and general (A&G) expenses;
- franchise fees and property taxes; and
- non-bypassable charges.

#### **Operation and Maintenance and Administrative and General**

In its July 29, 2005 Application, SMUD prepared an analysis of the costs associated with operation of the system in the Annexation Area. This study demonstrated that it will be incrementally less expensive to operate the electric system in the Annexation Area than SMUD's current electric system. This is primarily due to the additional economies of scale that SMUD will enjoy with the increased service territory and additional contributions to fixed costs provided by the electric customers in the Annexation Area.

In its February 28, 2006 filing, PG&E reviewed the cost SMUD had proposed for operating the electric distribution and transmission system in the Annexation Area and concluded that "it is reasonable to assume that, on an incremental basis, the operation and maintenance costs to serve the Annexation Area would be somewhat lower than the SMUD average system wide O&M rate per kW today."<sup>35</sup> Therefore, there appears to

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<sup>35</sup> PG&E February 28, 2006 filing to LAFCo, Volume 1, pg. 46.

## Section 2

### Economic Impacts of Annexation

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be no dispute relative to SMUD's estimate of O&M and A&G expenses for the electric system within the Annexation Area.

#### **Franchise Fees and Property Taxes**

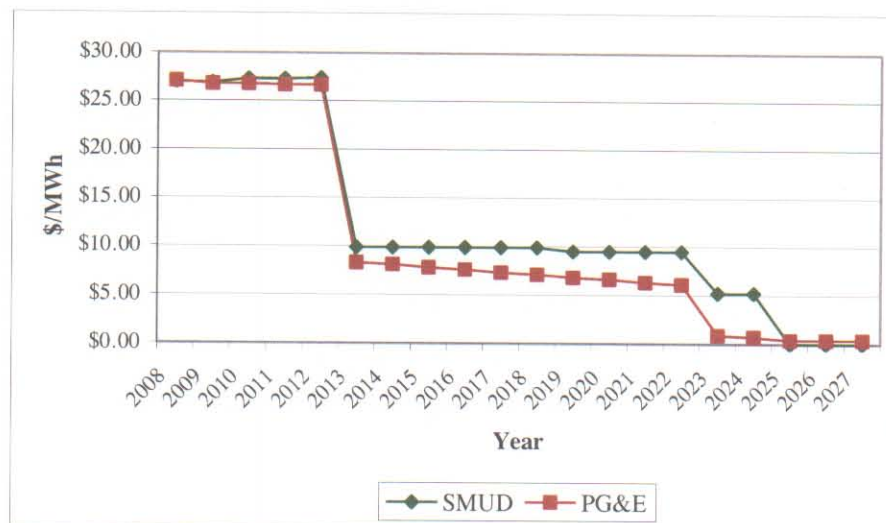
The franchise fees and property tax payments SMUD anticipates making in the Annexation Area are intended to include franchise fees and property tax payments. SMUD staff included an in lieu of franchise fee estimate to approximate the payment being made by PG&E. The franchise fees in California go directly to the cities in the Annexation Area and to Yolo County for the unincorporated areas. The cities outside the Annexation Area would be unaffected. SMUD staff has estimated the franchise fees are equal to approximately 1.5% of retail revenue in its economic analysis.

SMUD has also incorporated a payment in lieu of property taxes for the Annexation Area since SMUD does not typically pay property taxes. These taxes also are used to support local services. In its analysis, SMUD staff utilized a property tax payment in lieu of approximately \$1.41 million in 2008.

PG&E has provided its own forecast of the franchise fees and property taxes SMUD will incur associated with the property in the Annexation Area.

The SMUD and PG&E franchise fees and property tax forecasts are shown in Figure 5.

**FIGURE 5  
COMPARISON OF SMUD AND PG&E FORECASTS  
OF FRANCHISE FEES AND PROPERTY TAX COSTS  
IN THE ANNEXATION AREA**



Sources: SMUD February 15, 2006 filing to LAFCo, Attachment 1; PG&E March 15, 2006 filing to LAFCo, Attachment 3.

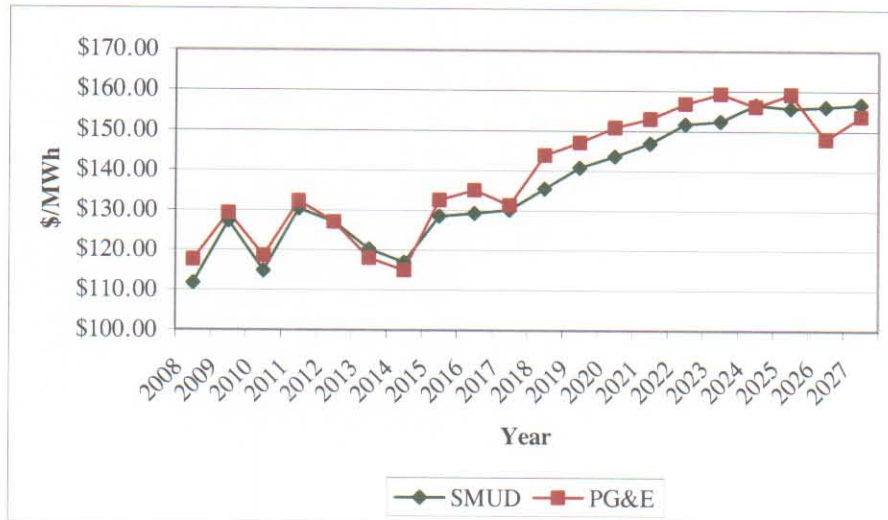
Figure 5 illustrates that PG&E has forecast a lower payment than SMUD for the franchise fee and property tax component. Therefore, SMUD's estimate has been used in the economic impact analysis.

### Non-bypassable Charges

The customers in the Annexation Area also will have to pay certain non-bypassable charges that include expenses or charges that were incurred by PG&E on behalf of the electric customers in the Annexation Area. These charges cannot be eliminated or avoided by the customers leaving PG&E's service territory or taking electric service from SMUD. PG&E's current and future rates include a number of non-bypassable charges designed to recover the costs of stranded generation, nuclear decommissioning, and in certain instances, rate reduction bonds. In addition, PG&E had incurred certain costs associated with the California energy crisis related to purchased power costs incurred by the California DWR and costs associated with the PG&E bankruptcy.

Non-bypassable charges apply to existing customers within the Annexation Area that currently are contained in PG&E rates. The SMUD and PG&E forecasts of non-bypassable charges are shown in Figure 6.

**FIGURE 6  
COMPARISON OF SMUD AND PG&E FORECASTS  
OF NON-BYPASSABLE CHARGES  
IN THE ANNEXATION AREA**



Sources: SMUD February 15, 2006 filing to LAFCo, Attachment 1; PG&E March 15, 2006 filing to LAFCo, Attachment 3.

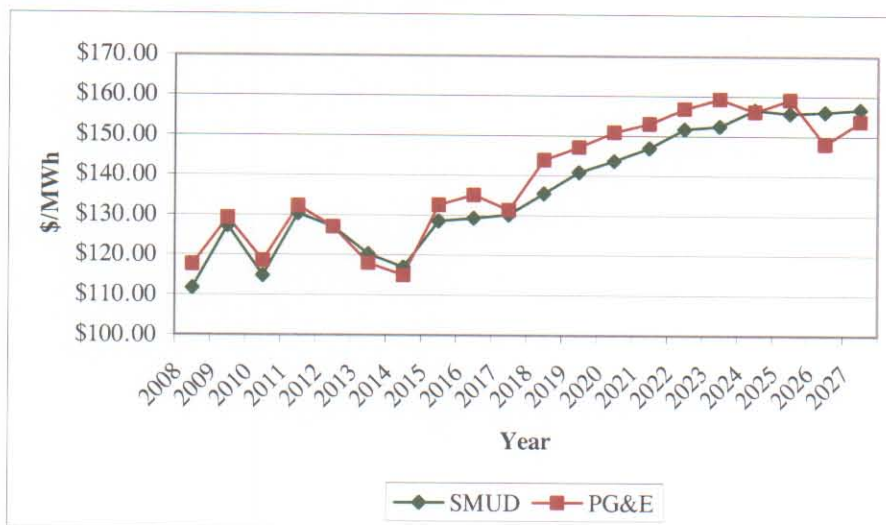
Figure 6 illustrates that PG&E has forecast lower non-bypassable charges than SMUD. Therefore, SMUD’s estimate has been used in the economic impact analysis.

### 2.2.6 Comparison of Total Cost of Service

The rates SMUD will charge customers in the Annexation Area include the components of costs previously discussed plus the debt service on the capital necessary to purchase, upgrade, and operate the system which includes the power supply costs, operation and maintenance, franchise fees, property taxes, and non-bypassable charges. The SMUD and PG&E forecasts of these expenses (before debt service) over the forecast period are shown in Figure 7.



**FIGURE 7  
COMPARISON OF SMUD AND PG&E FORECASTS  
OF TOTAL NON-DEBT COSTS OF SERVICE  
IN THE ANNEXATION AREA**



Sources: SMUD February 15, 2006 filing to LAFCo, Attachment 1; PG&E March 15, 2006 filing to LAFCo, Attachment 3.

Figure 7 illustrates that SMUD and PG&E have similar estimates of the dollars per megawatt-hour cost SMUD will incur to supply power and operate the electric system in the Annexation Area prior to inclusion of debt service. Therefore, SMUD’s cost of serving customers in the Annexation Area has been used in the economic impact analysis.

### 2.3 Economic Impact Analysis

In its July 29, 2005 Application and again in its February 2006 filing, SMUD has set forth a proforma calculating the economic impacts associated with the annexation. This proforma analyzes the net present value of the difference between PG&E’s expected retail rates compared with the cost of providing electric service in the Annexation Area by SMUD between 2008 and 2027. In providing its responses to the LAFCo, PG&E used this same proforma but set forth its own inputs and assumptions. This same proforma was used to estimate the economic impacts of SMUD’s annexation in this report.

## Section 2

### Economic Impacts of Annexation

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Since it is impossible to know the exact economic impact of the annexation, a range of most likely economic impacts was developed, based on reasonable estimates of the variables that are necessary to estimate these economic impacts.

The economic impacts are dependent upon several variables that include the forecast of PG&E rates, SMUD's power supply and operating costs in the Annexation Area, and the acquisition cost SMUD will incur to purchase and separate PG&E's electric system. SMUD and PG&E agree, or have similar forecasts of some of these variables. However, with respect to others, there are significant differences which result in different estimates of the economic impacts associated with the annexation.

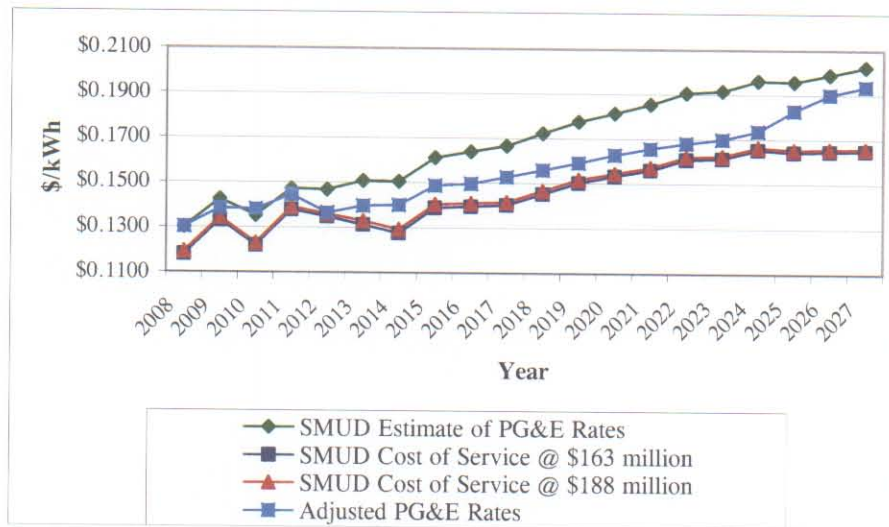
In developing this range of economic impacts, the most probable scenarios associated with SMUD's annexation have been selected from the almost infinite number of possible scenarios that may occur. The four scenarios selected as being most probable are described as follows:

- The future PG&E rates will reflect the estimate presented by PG&E, and adjusted for the distribution expenses at the escalation rate, discussed above. SMUD's cost of service will reflect its forecast of power supply and operating costs and an acquisition price of \$163 million.
- The future PG&E rates will reflect the estimate presented by SMUD. SMUD's cost of service will reflect its forecast of power supply and operating costs and an acquisition price of \$163 million.
- The future PG&E rates will reflect the estimate presented by PG&E, and adjusted for the distribution expenses at the escalation rate, discussed above. SMUD's cost of service will reflect its forecast of power supply and operating costs and an acquisition price of \$188 million.
- The future PG&E rates will reflect the estimate presented by SMUD. SMUD's cost of service will reflect its forecast of power supply and operating costs and an acquisition price of \$188 million.

**Section 2**  
**Economic Impacts of Annexation**

Figure 8 illustrates the relationship between the forecast of PG&E's rates in the Annexation Area and SMUD's cost of service under each of the scenarios. The difference between the PG&E rates and SMUD's cost of service will reflect the economic impacts of the annexation.

**FIGURE 8**  
**COMPARISON OF PG&E RETAIL RATES**  
**WITH SMUD TOTAL COST OF SERVICE**  
**IN THE ANNEXATION AREA**



**Section 2**  
**Economic Impacts of Annexation**

The economic benefits associated with the four scenarios over the 20-year forecast period are summarized in Table 5 and range from \$165 to \$380 million.

**TABLE 5**  
**RANGE OF ECONOMIC IMPACTS**  
**ASSOCIATED WITH SMUD'S ANNEXATION**

Estimated Acquisition Cost	Present Value of Economic Impact Over 20 Years	
	Adjusted PG&E Rate Forecast	SMUD's PG&E Rate Forecast
\$163 million (Assuming No Stranded Facilities) (purchase price and start-up)	\$190 million	\$380 million
\$188 million (Assuming Stranded Facilities) (purchase price and start-up)	\$165 million	\$360 million

The range of economic benefits shown in Table 5 is dependent on the PG&E rates and SMUD's cost of service over the forecast period. The low end of this range represents the benefits that are created by a small difference between the PG&E rates and SMUD's cost of service, and are considered to be the most achievable. The high end of the range represents a larger difference between the PG&E rates and SMUD's cost of service resulting in greater economic benefits. These greater economic benefits are also considered achievable as SMUD's rates have historically been below those charged by PG&E and supportive of the larger difference. Therefore, it is reasonable to assume that the economic benefits associated with the annexation will fall within this range.

### **3.0 Introduction**

The CKH Act requires that annexation applications include a plan for providing service in the Annexation Area. The plan for service must include: (1) a description of the services to be extended to the annexed area, (2) the level and range of those services, (3) an indication of when those services may be extended feasibly, (4) an indication of any improvements or upgrades that will be undertaken if the annexation is completed, and (5) information with respect to how those services will be financed.<sup>36</sup>

### **3.1 Services To Be Provided**

SMUD is proposing to provide service to all existing PG&E customers and any new customers in the Annexation Area. The exceptions would be existing customers in the Annexation Area that have chosen to take energy service from an energy service provider other than PG&E via a direct access contract.

SMUD electric service and rates are designed to accommodate the energy usage needs of five general categories of customers. These include:

- residential;
- small commercial;
- agricultural;
- medium-large commercial; and
- industrial and lighting (street, traffic, and outdoor).

In addition to retail energy sales, SMUD will implement a variety of load management, conservation, renewable/green power, and public programs in the Annexation Area.

The rates SMUD charges customers in the Annexation Area will be different from those currently charged to existing customers due to the inclusion of a surcharge that is required to assure that existing SMUD customers do not subsidize those customers in the Annexation Area.

### **3.2 Reliability of Service under SMUD Ownership**

SMUD is proposing to provide at least the same level of service as PG&E in the proposed Annexation Area.

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<sup>36</sup> CKH Act/California Government Code § 56653.

The reliability of an electric system is typically measured by the number of outages and the corresponding duration of those outages. The utility industry relies primarily on three measures to determine system reliability. These include:<sup>37</sup>

- System Average Interruption Duration Index (SAIDI)

SAIDI is defined as the total minutes of sustained customer interruption divided by the total number of customers, expressed in minutes per year. It may be expressed in smaller time periods (month or quarter) or smaller portions of the system (region or circuit) upon request. It characterizes the average length of time customers were without power during the time period.

- System Average Interruption Frequency Index (SAIFI)

SAIFI is defined as the total number of sustained customer interruptions divided by the total number of customers, expressed in interruptions per customer per year. It may be expressed in smaller time periods (month or quarter) or smaller portions of the system (region or circuit) upon request. It characterizes the average number of sustained power interruptions for each customer during the time period.

- Momentary Average Interruption Frequency Index (MAIFI)

MAIFI is defined as the total number of momentary customer interruptions divided by the total number of customers, expressed as momentary interruptions per customer per year. It may be expressed in smaller time periods (month or quarter) or smaller portions of the system (region or circuit) upon request. It characterizes the average number of momentary power interruptions for each customer during the time period.

In its July 29, 2005 Application, SMUD provided an analysis comparing its average reliability to PG&E's for various periods of time.<sup>38</sup> SMUD relied upon the SAIDI and SAIFI reliability criteria in determining the reliability of its system relative to PG&E's and used this information to predict reliability for the Annexation Area.

SMUD's goal for 2005 was to have its SAIDI in the range of 80.4 to 94 minutes of average outage time per customer. The goal for the SAIFI is 1.16 to 1.33 outages per customer for 2005. According to the documents filed with the LAFCo, SMUD is within that range.

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<sup>37</sup> CPUC Decision 96-09-045, September 9, 1996, Appendix A.

<sup>38</sup> Application for Annexation SMUD, July 29, 2005, Appendix K.

### Section 3 Level of Service

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PG&E responded to SMUD's claims in both its September 2005 and February 2006 responses to the LAFCo. In these documents, PG&E criticized SMUD for comparing the indices for SMUD's Sacramento system with those of PG&E or other utilities. According to PG&E, "comparisons of reliability statistics among utilities are notoriously misleading."<sup>39</sup> This is due to a number of factors including differences in geography, major event definitions, step restoration, the systems used to do the calculations, and what is recorded in the outages. PG&E cites that PG&E and SMUD have dramatically different service territories with PG&E serving approximately 5.3 million customers over 71,000 square miles. SMUD's service territory is a relatively urban and suburban environment providing service to 533,000 customers in 900 square miles. PG&E criticized SMUD for comparing the proposed Annexation Area with PG&E's Sacramento Division which has dramatically fewer customers per mile compared to SMUD.

According to PG&E, the density in its Sacramento Division is 66 customers per square mile compared to SMUD's 615 customers per square mile. The difference in customers per square mile makes the comparison meaningless. PG&E instead advocates utilizing data from its Mission Division which serves 376 customers in a 700 square mile area. The Mission Division encompasses portions of Alameda, Contra Costa, San Joaquin, Santa Clara, and Stanislaus Counties in a primarily urban and suburban area.<sup>40</sup>

According to the information presented by PG&E, customers located within the Annexation Area experience substantially better reliability than the average PG&E customer. PG&E criticizes SMUD's proposed reliability and ability to serve customers in the Annexation Area for two reasons. First, PG&E claims that SMUD's plans to serve these customers from its existing facilities located in Sacramento will result in reduced response time. Second, PG&E criticized SMUD's smaller size of operation which will result in fewer options and less flexibility in case of widespread outages in the Annexation Area.

PG&E indicates that it has three service centers in the area to draw on, along with the ability to draw on service employees throughout its system and, therefore, it advocates that it can respond more quickly than SMUD, as SMUD is choosing not to acquire these facilities. In its February 28, 2006 filing, PG&E set forth SAIDI and SAIFI indexes that it claims are more representative of its service in densely populated areas.

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<sup>39</sup> PG&E February 28, 2006 filing to LAFCo, pg. 49.

<sup>40</sup> Ibid, pg. 48.

**Section 3**  
**Level of Service**

Table 6 is PG&E's estimate of reliability using the SAIDI and SAIFI indexes for various sections of its system.

**TABLE 6**  
**PG&E'S ESTIMATE OF RELIABILITY**  
**COMPARED TO SMUD'S ORIGINAL PROPOSAL<sup>41</sup>**

Area	Customer Density (customers/sq. mile)	2000-2004 Average SAIDI (minutes/customers)	2000-2004 Average SAIFI (interruptions/ customer)
PG&E - System	75	238.7	1.466
PG&E - Mission Division	537	87.2	1.069
PG&E - Sacramento Division	66	219	1.335
PG&E - Annexation Area	331	139.5	0.937
SMUD - System	615	89	1.31

Source: PG&E February 28, 2006 filing, pg. 50.

In its March 15, 2006 filing, SMUD responded to the comparison made by PG&E by identifying that SAIDI and SAIFI indexes used by SMUD and PG&E are calculated using different methods. The difference is in the definition of an outage which SMUD defines as a sustained outage lasting one minute or longer. PG&E's definition is an outage lasting five minutes or longer and is based upon criteria established by the CPUC.<sup>42</sup>

In its March 15, 2006 filing, SMUD recalculated both the SAIDI and SAIFI indices for its region relative to the areas presented by PG&E based on the CPUC less stringent criteria and excluding major events. The results of SMUD's recalculated indices as compared to PG&E's Sacramento Division and Mission Division industries are provided in Table 7.

<sup>41</sup> Ibid, pg. 50

<sup>42</sup> SMUD Review of Electric System Reliability and Stranded Facilities Regarding the SMUD Annexation Application, March 15, 2006.



**TABLE 7  
SMUD AND PG&E SAIDI AND SAIFI INDEXES  
USING CPUC METHOD<sup>43</sup>**

Area	2000-2004 Average SAIDI (minutes/customers)	2000-2004 Average SAIFI (interruptions/ customer)
PG&E - Mission Division	78.9	0.995
PG&E - Sacramento Division	186.2	1.218
SMUD - System	57.83	0.892

A review of the information in Tables 6 and 7 related to SMUD and PG&E's reliability indicates that in general, SMUD has comparable or better reliability than PG&E. This information is supportive of SMUD's claim that electric customers in the Annexation Area will receive service at least equal to that provided by PG&E.

PG&E's claim that the location of service centers impacts reliability is inconsistent with SMUD's outage response plan. PG&E appears to imply that outage response will come only from SMUD's service center. This is not SMUD's plan. Instead, troubleshooters will be located throughout the service territory.<sup>44</sup>

Troubleshooters will be the first to respond to outages and diagnose the problem. If the troubleshooter cannot solve the problem, additional support will be dispatched from SMUD's service centers. In many instances, the troubleshooters in the Annexation Area will solve the problem with no reason to dispatch additional crews. This method of outage response is typical and is not expected to impact reliability.

In the event that a dispatch was required from SMUD's service center, there does not appear to be significant differences between the distance and travel time from SMUD's service center to the Annexation Area and other regions of SMUD's system. To illustrate the relative proximity of the various regions of SMUD's service territory, a map of the Annexation Area and other portions of SMUD's service territory is included in Appendix A.

In addition, SMUD has prepared a summary of travel times between its service center and various regions in the existing and proposed area. The travel times are summarized in Table 8.

<sup>43</sup> Ibid, Section F.

<sup>44</sup> Ibid, Section B.

**TABLE 8**  
**TRAVEL TIME BETWEEN SMUD CORPORATE YARD**  
**TO JOB SITES IN SACRAMENTO AND YOLO COUNTY**

Yolo County Locations	Minutes	Sacramento County Locations	Minutes
Woodland County Road 98 & Highway 16	32	Clay, CA	37
Davis - CR 30 & CR 96	29	14984 Guadalupe Dr. Rancho Murieta, CA	32
West Sacramento - Gregory Ave & Jefferson Blvd	12	6237 Fountain Square Dr. Citrus Heights	20
1350 Halyard Dr West Sacramento City Hall	8	Herald, CA	29
23 Russell Blvd Davis City Hall	20	50 Natomas St Folsom City Hall	23
300 1st St Woodland City Hall	27	Galt, CA	26

With respect to massive or catastrophic outages, SMUD is proposing to use mutual assistance agreements with neighboring utilities for system restoration. Use of mutual assistance agreements are typical utility practice and common in the industry.

### 3.3 Schedule of Service

In its July 29, 2005 Application, SMUD anticipates providing electric service to the Annexation Area within approximately 24 months of filing of the Certificate of Completion by LAFCo. This schedule would result in the annexation occurring in approximately October 2008.<sup>45</sup>

The plan for meeting its goal of October 2008 includes acquiring the PG&E facilities and construction of new transmission lines and substations to serve customers in the Annexation Area. SMUD anticipates that acquisition, construction, and commissioning activities will be completed prior to SMUD commencing service in the Annexation Area.<sup>46</sup> A review of the proposed schedule for providing service in the Annexation Area appears to be reasonable and achievable based on the current timeline. Since

<sup>45</sup> Application for Annexation SMUD, July 29, 2005, pg. 33.

<sup>46</sup> Ibid, pg. 33.

SMUD will be acquiring the majority of the property it needs to serve the customers in the Annexation Area from PG&E, the orderly transition from PG&E to SMUD and should be relatively efficient given SMUD's experience of operating similar electric facilities.

### **3.4 Indication of Improvements and Upgrades That Will Be Undertaken in Conjunction with the Annexation**

SMUD anticipates acquiring the majority of the property required to serve electric customers in the Annexation Area by condemning the property of PG&E. This property includes the transmission, substation, and distribution property that currently serves this area. A general map of this area has been provided as Figure 1. The property SMUD is proposing to condemn is currently sufficient to allow PG&E to provide service to the existing electric customers and is expected to perform the same function under SMUD ownership.

According to its July 29, 2005 Application, SMUD also anticipates the construction of a new 115 kV transmission line from the existing PG&E transmission line north of Woodland to the Alverta Substation owned by SMUD. This transmission line will range between 15 and 18 miles, depending on the exact route selected to construct this interconnection. SMUD also anticipates the reconstruction of 2.5 miles of existing SMUD 115 kV transmission line in order to add additional transmission lines into the service area. This line would be constructed from PG&E's existing transmission line located on Power Inn Road to SMUD's existing Hedge Substation. In addition to these two major projects, SMUD has identified additional system upgrades that will allow it to maintain and/or improve system reliability in the Annexation Area.

The ownership of the electric system in the Annexation Area will require SMUD to replace and expand the infrastructure for existing and future customers. SMUD has indicated that in the first five years that it owns the system, it expects to invest \$28 million for system upgrades and expansions. SMUD currently provides service to customers in the Sacramento area and has demonstrated that it can maintain and expand the electric utility system to meet the requirements of its customers.

### **3.5 Financing**

The acquisition of the existing facilities and construction of new facilities will require SMUD to obtain financing for the purchase and/or construction of these facilities. According to its July 29, 2005 Application, SMUD will use its best efforts to use new long-term, fixed rate, tax-exempt system revenue bonds with a level debt service

structure for the Annexation Area where possible.<sup>47</sup> In addition, portions of the initial capital outlays that require the use of taxable debt are anticipated to be financed with commercial paper supported by a letter of credit from the customers in the Annexation Area. SMUD indicates in its Application that its debt service coverage will be in accordance with senior bond indenture, coverage requirements, and the SMUD Board of Directors' goal for building equity. In paying down the debt associated with the purchase and/or construction of facilities for the Annexation Area, SMUD's intent is to retire the commercial paper issued on behalf of the customers in the Annexation Area first to minimize the interest expense and revenue required for coverage associated with this type of financing. The financing structure proposed by SMUD appears to be reasonable and consistent with how SMUD currently finances capital projects. Therefore, after review of the financing options available to SMUD, the proposed structure appears reasonable.

### **3.6 Conclusions**

The annexation proposed by SMUD is expected to provide the same level of service to customers in the Annexation Area as currently enjoyed by its existing customers. These services will be based on the cost of serving the Annexation Area customers and providing service at least equal to that provided by PG&E.

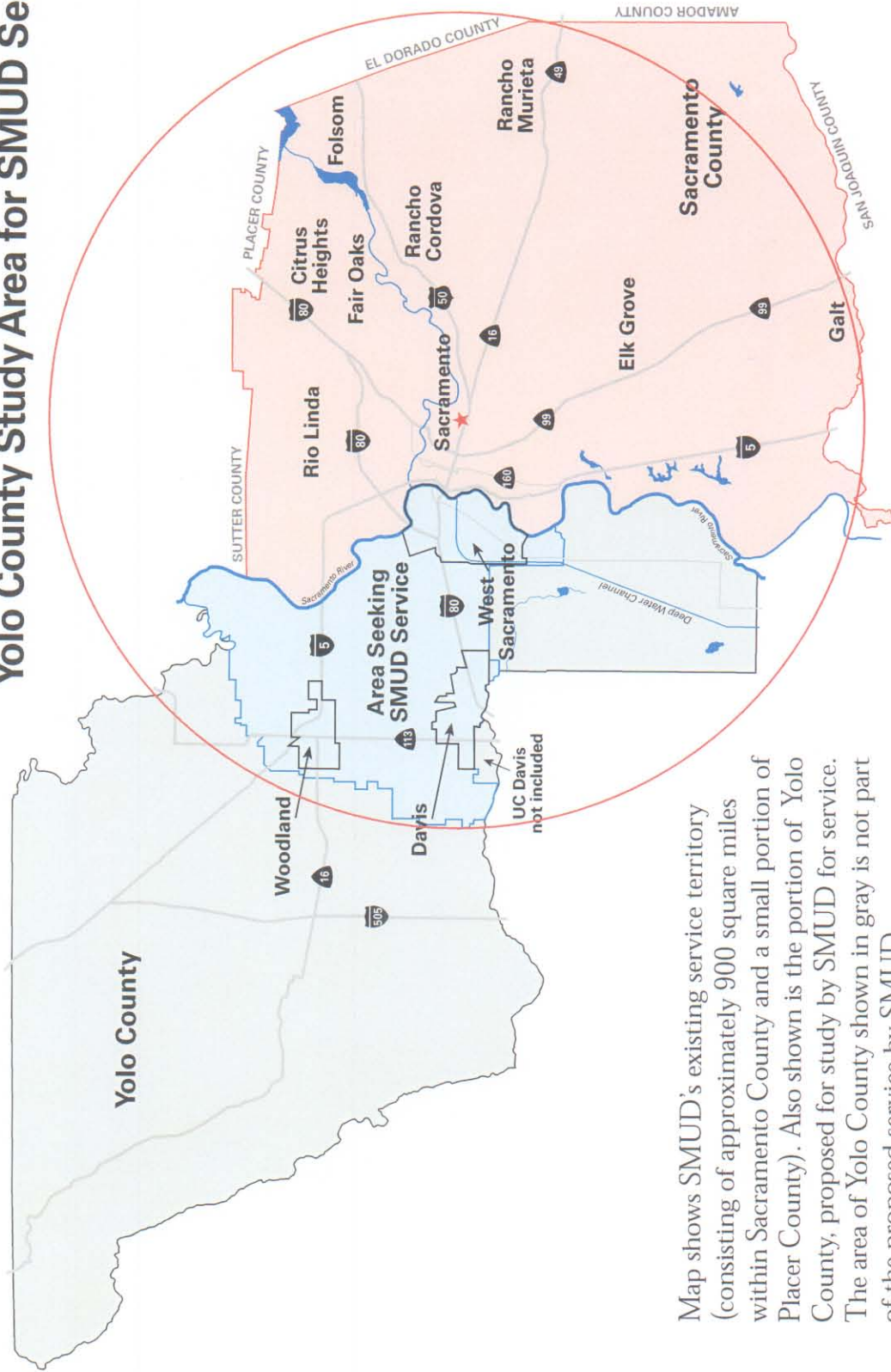
The proposed October 2008 schedule for accomplishing the annexation is reasonable as the majority of the infrastructure necessary to serve these customers will be condemned from PG&E. The infrastructure that SMUD must construct to interconnect its existing system with the Annexation Area is primarily comprised of a 115 kV transmission line and a new substation. Construction of these new facilities and additional improvements to the system are expected to be funded at the same time as the acquisition of the property purchased from PG&E and financed using a combination of commercial paper and tax-exempt debt.

Our review of the information presented by SMUD indicates that it is reasonable to assume that it will be able to accomplish the annexation and provide service and reliability at least equal to those provided by PG&E.

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<sup>47</sup> Ibid, pg. 43.

# SMUD Service Territory and Yolo County Study Area for SMUD Service



Map shows SMUD's existing service territory (consisting of approximately 900 square miles within Sacramento County and a small portion of Placer County). Also shown is the portion of Yolo County, proposed for study by SMUD for service. The area of Yolo County shown in gray is not part of the proposed service by SMUD.



**SMUD**

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## Appendix B

### Terms and Conditions of the Annexation

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On July 14, 2005, the SMUD Board of Directors elected the following terms and conditions<sup>1</sup> of the annexation as identified in the SMUD Resolution No. 05-05-08.

1. Existing SMUD customers shall be held harmless as a result of the annexation of the Cities of West Sacramento, Davis, and Woodland and contiguous unincorporated areas of Yolo County into SMUD's electric service area.
2. Annexation shall not adversely affect the quality or level of service and reliability to existing SMUD customers.
3. SMUD ratepayers in the annexed territory shall pay through their rates and a surcharge an amount sufficient to recover the costs of annexation, including costs associated with the acquisition of the PG&E facilities, increased power supply costs and non-bypassable charges assessed to departing load by the California Public Utilities Commission or California law. The recovery of annexation costs shall be consistent with the following principles:
  - a. SMUD shall recover the first \$90 million of acquisition costs of PG&E's facilities over the long-term through SMUD rates charged to SMUD customers in the annexed territory (Yolo Customers). This amount constitutes the Base Amount.
  - b. Acquisition costs in excess of the Base Amount shall be included in the Surcharge Amount. Payment of this portion of the Surcharge Amount shall represent the Yolo Customers' equity contribution to the SMUD system.
  - c. Following the Yolo territory election addressing annexation, SMUD will acquire energy resources to serve the Yolo Annexation Customers and to the extent reasonable and prudent will fix the cost of all or a portion of the energy resources. In fixing the cost of the energy resources, if the forward price of natural gas is more than \$1 per MMBtu above the natural gas price assumed in the April 2005 SMUD Staff Assessment and Recommendation (SMUD Staff Assessment), the Surcharge Amount shall be increased to include the impact of natural gas prices (in excess of the assumed price plus \$1 per MMBtu) on the estimated economic benefits of the annexation.
  - d. The Surcharge Amount described in paragraphs 3.b and 3.c above shall be collected from the Yolo Annexation Customers during the Surcharge Period. The Surcharge Period shall continue until the Surcharge Amount is fully paid. While the term of the Surcharge Period is not fixed, it is expected

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<sup>1</sup> Application for Annexation of the Cities of West Sacramento, Davis and Woodland, and Unincorporated Areas of Yolo County and Related Sphere of Influence Amendment, Sacramento Municipal Utility District July 29, 2005, pgs. 21-23.

**Appendix B**  
**Terms and Conditions of the Annexation**

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to last between 5 and 10 years (based upon the assumptions in the SMUD Assessment).

e. During the Surcharge Period, the Surcharge Amount shall be reduced each year by the revenue collected from the Yolo Annexation Customers which is in excess of the revenue that would have been generated by SMUD tariffs plus any non-bypassable charges and amounts necessary to defray the reasonably calculated costs or impacts to the Cities of West Sacramento, Davis and Woodland and Yolo County (Yolo Jurisdictions) associated with the provision of electric service by SMUD.

f. During the Surcharge Period, the initial tariff rates for the Yolo Annexation Customers shall be 2% or more below the then effective PG&E tariff rates. The initial tariff rates shall be set to contribute to coverage of SMUD's fixed costs to recover the Surcharge Amount (over the Surcharge Period), non-bypassable charges and amounts necessary to defray the reasonably calculated costs and impacts to the Yolo Jurisdictions associated with the provision of electric service by SMUD.

g. At the end of the Surcharge Period, the Yolo Annexation Customers shall be placed on the then applicable SMUD tariff rates for similarly situated customers. In addition to the SMUD tariff rates, the Yolo Customers shall continue to pay any ongoing non-bypassable charges and amounts necessary to defray the reasonably calculated costs or impacts to the Yolo Jurisdictions associated with the provision of electric service by SMUD.

4. A mechanism to defray the reasonably calculated costs and impacts to the Cities of West Sacramento, Davis and Woodland, and the County of Yolo, associated with the provision of electric service by SMUD, shall be implemented pursuant to agreement between SMUD and the local jurisdictions and/or in accordance with conditions or mitigation imposed by LAFCo. If implemented by agreement, the mechanism shall remain in place for an initial term to be mutually agreed upon by parties. Within one year of expiration of the initial term, SMUD and the Cities of West Sacramento, Davis and Woodland, and the County of Yolo, may agree to continue the mechanism for another specified term.
5. To the extent any such mechanism is subject to the approval of voters in the territory to be annexed, and the voters do not approve the mechanism, SMUD shall not be obligated to proceed with the annexation unless each of the Cities of West Sacramento, Davis and Woodland, and the County of Yolo, confirm that they still desire to be annexed into SMUD's electric service territory.

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**Appendix B**  
**Terms and Conditions of the Annexation**

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6. Pursuant to an agreement between SMUD and the Cities of West Sacramento, Davis and Woodland, and Yolo County, protests and votes cast in any elections that may be required under Government Code Sections 56129 and 57075 shall be counted throughout the territory to be annexed rather than on a jurisdiction-by-jurisdiction basis.
7. To the extent practicable, SMUD shall offer to hire qualified PG&E employees displaced as a direct result of the annexation to fill the SMUD positions created to effect the annexation.
8. The annexation effective date shall occur nine months after the date of any election under Government Code Sections 56129 and 57075 in which a majority votes in favor of SMUD's annexation of the Cities of West Sacramento, Davis, and Woodland and contiguous areas of Yolo County.
9. At the time the annexation becomes effective, or as soon as possible thereafter, SMUD shall modify its ward boundaries, consistent with Public Utilities Code Section 11857.1.
10. During annexation proceedings, SMUD may propose or negotiate with LAFCo any other terms and conditions reasonably necessary to effect the annexation.



## **1.0 Introduction**

In annexing portions of Yolo County, SMUD proposes to condemn those portions of PG&E's property within the Annexation Area. The price SMUD must pay PG&E for this property is defined as its fair market value. The definition of fair market value in this context is as follows:

“the highest price on the date of valuation that would be agreed to by a seller, being willing to sell but under no particular or urgent necessity for so doing, nor obliged to sell, and a buyer, being ready, willing, and able to buy but under no particular necessity for so doing, each dealing with the other with full knowledge of all the uses and purposes for which the property is reasonably adaptable and available.”<sup>1</sup>

Most valuation experts and authoritative sources agree that there are three generally accepted approaches to estimating the fair market value of a property. These are: 1) the cost approach; 2) the sales comparison approach; and 3) the income capitalization approach. The applicability of each approach varies with the nature and purpose of the valuation assignment. After each approach has been considered, the appraiser reconciles to a single value, or range of value, that most accurately reflects the property's market value as of the valuation date. Neither SMUD nor PG&E used all three approaches in estimating the fair market value of the electric property in the Annexation Area.

The fair market value set forth by SMUD is \$84 million<sup>2</sup> whereas PG&E estimates it to be \$516.7 million<sup>3</sup>, resulting in a difference of approximately 515%. This difference in fair market value estimates is the result of several factors that include the property inventory, the unit costs applied to this inventory, the calculation of depreciation, and the number of methods used to estimate the fair market value.

To determine the fair market value, SMUD used the cost and income capitalization approaches which were based upon a report by R. W. Beck, Inc.<sup>4</sup> (Beck) and a report prepared by SMUD staff and will be referenced to collectively as SMUD's estimate of fair market value. In its February 24, 2006 filing to LAFCo, SMUD staff updated this analysis and provided information on electric utility system transactions.

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<sup>1</sup> California Government Code § 126.320(a).

<sup>2</sup> Application for Annexation SMUD, July 29, 2005.

<sup>3</sup> PG&E February 28, 2006 filing to LAFCo, Volume II, pg. 1.

<sup>4</sup> R. W. Beck, Inc. was the project manager and lead consultant responsible for the economic analysis, conclusions, and final report. Stone & Webster Management Consultants and Lucy Company provided the inventory of property and communication plan. The report prepared by this group is referred to collectively as the Beck report for ease of presentation.

In its July 29, 2005 Application to LAFCo, SMUD estimated a range of \$84 million to \$130 million and used an estimate of \$84 million for the electric property in its economic analysis. The \$84 million estimate was below that selected by SMUD staff in its report that used an estimate of \$110 million and represented the mid-point of the range.

On September 16, 2005, subsequent to SMUD making its Application to LAFCo, PG&E filed a response to SMUD's Application setting forth comments relative to SMUD's estimate of fair market value and its own estimate. In developing its opinion of fair market value, PG&E utilized both PG&E staff and the firm of Black & Veatch<sup>5</sup> (B&V) which will be referenced collectively as the PG&E estimate of fair market value. PG&E utilized the cost approach to determine the value of the property being acquired by SMUD. Additional submittals by PG&E have been made to the LAFCo to address boundary changes and issues raised by SMUD. Collectively, these submissions set forth PG&E's opinion relative to the estimated fair market value of its property in the Annexation Area. PG&E estimates that the value of the system is \$516.7 million which includes an additional component for the change in this value from 2004 to the actual acquisition date of 2008, going-concern value, and adjustments for current assets and liabilities.

The following sections describe the methods employed by SMUD and PG&E in estimating the fair market value of the property in the Annexation Area, along with our review and critique of these methods and analyses. A reconciled range of fair market value is provided at the end of this appendix based on this review and our experience in estimating the fair market value of electric utility property like that in the Annexation Area.

## **2.0 Analysis of SMUD and PG&E's Cost Approach to Value**

In developing the fair market value of electric utility property, the cost approach is a widely accepted methodology, especially for components of property that have no discrete income potential, such as a portion of an electric transmission system. However, the use of the cost approach to estimate the value of an electric system with the size and characteristics of the Annexation Area must account for the limitations on earnings imposed by regulation as a form of external obsolescence which is typically measured by analyzing the property's economic potential.

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<sup>5</sup> Black & Veatch is an engineering firm with vast experience in the electric and gas industries.

## Appendix C Fair Market Value

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There are two indicators of value that are typically used to value electric utility property using the cost approach. These include the Original Cost Less Depreciation (OCLD) and the Replacement Cost New Less Depreciation (RCNLD).<sup>6</sup> The OCLD is typically defined as the original cost of the property when it was first placed into service less the accrued depreciation. The OCLD value is an estimate of the property's "net book value" and is generally equivalent to the rate base value of the property. The OCLD, or the net book value, typically establishes the lower end of value for rate regulated property like the electric system in the Annexation Area.

The RCNLD is defined as the cost of constructing a Replacement Cost New (RCN) of the property at current prices with the same or closely related material less accumulated depreciation. The RCNLD value typically establishes the upper end of value.

The cost approach methodologies used by SMUD and PG&E to estimate the value of the property in the Annexation Area are similar, however, the inputs and assumptions used vary considerably along with the conclusions reached by each party. The following is a summary of the inputs and assumptions used by SMUD and PG&E that are addressed in this appendix and include:

- inventory of the property to be acquired;
- replacement cost new;
- depreciation applied to the RCN;
- PG&E's inclusion of going-concern value; and
- consideration of additional elements of the cost approach.

The following sections will address each of these items.

### **2.1 Inventory of Property to Be Acquired**

As of December 31, 2004, there was a definitive amount of property within the proposed Annexation Area which comprised the electric transmission and distribution system owned by PG&E that SMUD is proposing to acquire through condemnation. In developing the cost approach, both SMUD and PG&E created an inventory of this property to establish the property's RCN as of the December 31, 2004 valuation date.

The inventory of property can be compiled from visual inspection in the field, records maintained by the owner of the property, or a combination of the two methods. There

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<sup>6</sup> The Reproduction Cost New Less Depreciation could also be utilized for property such as the subject, however, replacement or reproduction cost for electric transmission and distribution property are estimated to be similar in this instance.

## Appendix C Fair Market Value

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are limitations to both methods of creating a property inventory. The field inspection is dependent on the accuracy of the persons conducting the inspection and their ability to locate the property, which is particularly difficult for subsurface components. Property inventories developed from company records are dependent on the accuracy of the records used to compile the inventory.

SMUD and PG&E have similar quantity estimates for several of the system components, but there are significant differences with respect to the overhead and underground circuit miles. The following is a summary of the approaches used by SMUD and PG&E in developing their inventories, and our analysis of each approach.

SMUD developed a field inventory of the electric property in the Annexation Area without access to PG&E databases or circuit maps. Instead, SMUD collected data on street maps as the basis of creating an inventory of the property. The maps developed by SMUD were used to extrapolate certain lengths of low voltage networks and number of poles in the Annexation Area. This field inventory resulted in an estimate of 480 miles of overhead lines in the Annexation Area and 11,815 utility poles and represents a density of 25 poles per circuit mile.<sup>7</sup>

In developing its overhead conductor estimates, PG&E used its databases (adjusted by certain factors) and circuit maps along with field verification to develop an inventory. The data that formed the basis of PG&E's estimate include the following;<sup>8</sup>

- PG&E's Geographical Information System (GIS). This system was used to identify distribution circuits and plat maps associated with the proposed condemnation area.
- Centralized Electric Distribution System Assets (C-EDSA). This database contains detailed information on PG&E's distribution circuits and equipment such as feeders, conductor, transformers, services, and miscellaneous line equipment. PG&E's Mapping Department is responsible for updating this database each time a plant is added or removed. PG&E's Electric Planning Department is the principal user of the C-EDSA database, using it for source data to model distribution circuits for necessary upgrades and additions.
- PG&E's Pole Asset Management Pole inventory database. This database contains detailed information regarding PG&E's poles and is primarily used to manage PG&E's "Test and Treat Program." This database tests the reasonableness of the number of poles in the area obtained from the C-EDSA database.

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<sup>7</sup> SMUD February 24, 2006 filing to LAFCo, pg. 17.

<sup>8</sup> PG&E February 28, 2006 filing to LAFCo, Volume II, pg. 41.

## Appendix C Fair Market Value

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- PG&E's customer records system. This database was used to determine the number of customers in the Annexation Area.

The data identified above, along with a partial field inventory, form the basis of PG&E's property inventory. As a result, PG&E estimates 584 circuit miles in the Annexation Area and 19,744 poles, including street light poles, resulting in a density of 33 poles per circuit mile.<sup>9</sup>

In developing an inventory of property like that in the Annexation Area, it is not unusual for differences of 5% to 10% to exist between data sources or inventories. These differences result from the volume of property in the area which makes it difficult to field inventory, and the accuracy with which the database and circuit maps have been maintained by the utility. The inventory of overhead circuits for the Annexation Area differs by approximately 25% and is attributed to the methods employed by SMUD and PG&E in creating an inventory of this property.

The inventory of property maintained by PG&E and shown on its circuit maps should result in a reasonable estimate of the property in the Annexation Area. However, PG&E's C-EDSA database does not include the length of unfused tap lines installed prior to 2003 in its inventory of circuit miles. The exclusion of these unfused tap lines requires the use of a factor to account for this property in the development of an inventory. PG&E estimates this factor at 1.43 and claims that it is the same value used "in reports and data requests to agencies such as the California Public Utilities Commission (CPUC) and Securities and Exchange Commission (SEC)."<sup>10</sup>

The use of a factor to estimate the length of circuit miles makes it difficult to state with any degree of certainty how accurate the PG&E inventory is for the Annexation Area. There is little doubt that the C-EDSA database should be adjusted by some factor, as SMUD's field inventory demonstrates, there are approximately 480 circuit miles of overhead circuits in the Annexation Area compared to the 436 circuit miles reported in the C-EDSA database. Therefore, SMUD's field inventory would suggest an adjustment of 1.10 times for overhead conductor lengths.

To confirm the length of circuit miles in the C-EDSA database, PG&E selected two random samples to compare the lengths in the database versus the lengths on its circuit maps. These samples showed that, on average, the C-EDSA database, adjusted by a factor of 1.43, was close to the lengths on the circuit maps.

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<sup>9</sup> Ibid, pg. 106, Table 9.4.2.4.

<sup>10</sup> PG&E March 8, 2006 filing to LAFCo, pg. 9.

Table C-1 is a summary of the lengths in the C-EDSA database, the PG&E circuit maps, and the factor by which the circuit maps vary from the database, as set forth in PG&E's report.

**TABLE C-1**  
**COMPARISON OF LENGTHS OF OVERHEAD CIRCUITS**  
**IN THE C-EDSA DATABASE COMPARED**  
**TO LENGTHS ON CIRCUIT MAPS**

Map No.	C-EDSA Database (feet)	Measured on Circuit Map (feet)	Factor (C/B)
J-17-14	14,925	20,850	1.40
J-17-15	17,677	20,332	1.15
J-18-13	470	690	1.47
J-18-14	3,547	1,476	0.42
K-18	39,935	68,093	1.71
K-18-01	4,685	2,847	0.61
K-18-06	0	2,229	0.00
K-19	42,930	41,403	0.96
K-21	2,725	20,515	7.53
L-18-16	0	1,704	0.00
M-19-14	7,885	12,296	1.56
M-18-13	2,635	10,236	3.88
N-21	0	13,640	0.00
L-23-24	12,685	13,658	1.08
J-18-02	6,797	5,553	0.82
J-17-06	2,370	4,839	2.04

Sources: C-EDSA database and PG&E February 28, 2006 filing to LAFCo, Table 9.4.1.4 Detailed Comparison of 9 Representative Field Inventories and Table 9.4.1.2 Detailed Comparison of 8 Random Field Inventories.

Table C-1 illustrates that the lengths in the database differ from the lengths shown on any given circuit map, and that there appears to be no consistent relationship between the two sources. Therefore, the lengths in the C-EDSA database do provide a starting point, however the use of a consistent 1.43 factor may not be appropriate for the Annexation Area.

The length of underground circuit miles inventoried by both parties varies by approximately 36% and is the result of similar inventory issues as previously discussed. With respect to the underground inventory, PG&E used a factor of 1.18 times the

lengths in the C-EDSA database.<sup>11</sup> Table C-2 illustrates this same relationship for underground circuits.

**TABLE C-2**  
**COMPARISON OF LENGTHS OF UNDERGROUND CIRCUITS**  
**IN THE C-EDSA DATABASE COMPARABLE**  
**TO LENGTHS ON CIRCUIT MAPS**

Map No.	C-EDSA Database (feet)	Measured on Circuit Map (feet)	Factor (C/B)
J-17-14	390	0	0.00
J-17-15	2,645	2,968	1.12
J-18-13	17,350	15,198	0.88
J-18-14	15,471	18,372	1.19
K-18	1,600	0	0.00
K-19	190	90	0.47
L-18-16	7,105	14,500	2.04
M-19-14	2,048	2,271	1.11
M-18-13	2,783	2,473	0.89
L-23-24	120	362	3.02
L-22-10	9,916	14,330	1.45
J-18-02	4,000	3,364	0.84
J-17-06	16,992	21,966	1.29

Sources: C-EDSA database and PG&E February 28, 2006 filing to LAFCo, Table 9.4.1.4 Detailed Comparison of 9 Representative Field Inventories and Table 9.4.1.2 Detailed Comparison of 8 Random Field Inventories.

In order to reconcile the difference in circuit lengths, it would be necessary to measure the circuits on approximately 266 circuit maps that serve approximately 70,000 customers in the Annexation Area. A complete review of all of the PG&E circuit maps has not been undertaken as part of this review. Instead, the aggregate RCN estimates presented by SMUD and PG&E for the various quantities of property, along with the sales comparison and income capitalization approaches to value have been used to account for differences in certain property components.

The actual property inventory for the Annexation Area most likely will range somewhere between the estimates of SMUD and PG&E and have some impact on the RCN and RCNLD. However, the earning potential of this property will limit how much a willing purchaser would pay for the property relative to the value estimated

<sup>11</sup> Ibid, pg. 5.

## Appendix C Fair Market Value

using the cost approach. Therefore, differences in the estimate of RCN and RCNLD are not expected to influence the selection of final value estimate presented in this report due to use of the sales comparison and income capitalization approaches to measure the earning potential of the property.

### 2.2 Replacement Cost New (RCN)

The RCN of the electric property in the Annexation Area is calculated by inventorying the property and applying the appropriate unit costs. The inventory of this property developed by SMUD and PG&E is discussed in the previous section.

The following section is a summary of how the quantity of property and unit costs of the electric property in the Annexation Area are used by the parties to calculate the RCN. The property components have been grouped together for comparison by type of property. These categories include transmission plant, substation property, distribution rights-of-way, overhead electric (including poles), underground, line transformers, services and meters, and switches that comprise the system.

#### 2.2.1 Transmission Plant

There are approximately 75 miles of transmission lines and associated rights-of-way within the Annexation Area. The transmission lines that comprise the property SMUD is proposing to annex consist of primarily 115 kilovolt (kV) transmission lines erected on a variety of wood, steel tower, and steel lattice structures. Table C-3 is a summary of the quantity and RCN of the transmission plant.

**TABLE C-3  
COMPARISON OF TRANSMISSION PLANT  
QUANTITY AND RCN FOR ANNEXATION AREA  
ESTIMATED BY SMUD AND PG&E  
AS OF 12/31/04**

Transmission Item	Quantity in Circuit Miles		Unit Cost		RCN (\$ in millions)	
	SMUD	PG&E	SMUD	PG&E	SMUD	PG&E
Rights-of-Way	N/A	N/A	N/A	N/A	\$7.42	\$7.50
Transmission Lines	73	76	419,726	449,825	\$30.64	\$34.00
				<b>Total:</b>	<b>\$38.06</b>	<b>\$41.50</b>
				<b>Reconciled ROW:</b>	<b>\$7.50</b>	
				<b>Reconciled Transmission Lines:</b>	<b>\$32.32</b>	

Sources: SMUD February 24, 2006 filing to LAFCo, pgs. 27-28; PG&E February 28, 2006 filing to LAFCo, Volume II, pg. 106, Table 9.4.2.4.



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SMUD estimated a value of \$7.42 million for rights-of-way compared to PG&E's estimate of \$7.5 million. Therefore, there is little dispute over the value of these rights-of-way and a value of \$7.5 million is considered reasonable.

SMUD estimated the aggregate cost new of the transmission lines in the Annexation Area at \$30.64 million compared to PG&E's estimate of \$34 million. Both estimates are considered reasonable and establish a range of \$30.64 to \$34 million for this property. Therefore, the mid-point, or \$32.32 million, is considered a reasonable estimate of the RCN.

### 2.2.2 Substations

There are five substations in the Annexation Area that SMUD is proposing to condemn. These substations, along with the size in megavoltamperes (MVA), unit costs, and estimates used by SMUD and PG&E, are provided in Table C-4.

**TABLE C-4  
COMPARISON OF SUBSTATIONS  
QUANTITY AND RCN FOR ANNEXATION AREA  
ESTIMATED BY SMUD AND PG&E  
AS OF 12/31/04**

Substations	Quantity in MVA		Unit Cost (\$/MVA)		RCN (\$ in millions)	
	SMUD	PG&E	SMUD	PG&E	SMUD	PG&E
West Sacramento	90	105	\$54,444	\$137,333	\$4.90	\$14.42
Deepwater	16	16	\$112,500	\$210,000	\$1.80	\$3.36
Davis	120	135	\$45,000	\$65,407	\$5.40	\$8.83
Woodland	135	120	\$32,593	\$74,833	\$4.40	\$8.98
Plainfields	<u>12</u>	<u>10</u>	<u>\$83,333</u>	<u>\$105,000</u>	<u>\$1.00</u>	<u>\$1.05</u>
<b>Total:</b>	<b>373</b>	<b>386</b>	<b>\$46,917</b>	<b>\$94,922</b>	<b>\$17.50</b>	<b>\$36.64</b>
<b>Reconciled:</b>					<b>\$27.00</b>	

Sources: SMUD February 24, 2006 filing to LAFCo, Exhibit 1, pg. 2 of 40; PG&E February 28, 2006 filing to LAFCo, Volume II, pg. 106, Table 9.4.2.4.

SMUD and PG&E have a 3% difference in the total MVA capacity of the substations which is attributed to SMUD using the rated capacity of the substations and PG&E using the nameplate capacity. The use of either measure is appropriate and the difference is not considered meaningful.

The SMUD estimate of RCN for these substations is \$17.5 million, or \$47,000 per MVA of substation capacity. The PG&E estimate is \$36.6 million, or approximately \$95,000 per MVA of substation capacity. PG&E's estimate of RCN is almost twice that presented by SMUD. This range is considered significant and greater than one would expect for this type of property. A review of substation costs from the Beck report indicates an RCN for these substations of \$23.15 million, or approximately \$62,000 per MVA. Therefore, it is reasonable that the RCN for the substations is somewhere closer to the mid-point of the range and \$27 million was selected as a reasonable estimate.

### ***2.2.3 Distribution Rights-of-Way***

The distribution rights-of-way associated with the electric system represent an interest in land required to cross the property of private land owners. These rights-of-way are granted so that customers in the area can receive electric service via either underground or aboveground facilities.

Distribution system rights-of-way are quite different from those granted for the transmission lines. Typically, the property located within transmission rights-of-way is quite imposing on the local area and serves a broader group of customers. The impact to property values and quality of life these larger transmission lines impose is significantly greater than that of the distribution system property. Consequently, distribution rights-of-way are replaced more easily than transmission rights-of-way and have lower fair market values.

PG&E identified 2,031 rights-of-way associated with its distribution system in its January 26, 2006 filing to LAFCo and estimates the value of these rights-of-way at \$14.2 million. The PG&E unit cost per distribution easement is intended to include the cost of researching owner information, cost of negotiating with property owners, survey work, and compensating the property owners.

SMUD reviewed the distribution rights-of-way associated with the Annexation Area provided by PG&E and identified that certain rights-of-way were either one-time permits, gas facilities, or transmission rights-of-way. SMUD concluded from its review that there were 1,635 rights-of-way in the Annexation Area with a cost of \$0.9 million, or \$550 per easement. The cost per easement SMUD estimated distinguished between the easements that were either granted for no consideration or one dollar worth of consideration, and those that PG&E paid more than one dollar to acquire. The cost estimates developed by SMUD intended to account for the cost of granting and documenting easements and, where necessary, compensating the owner of the underlying property.

Table C-5 illustrates the quantity and value of the rights-of-way both SMUD and PG&E indicate are necessary to operate the distribution system.

**TABLE C-5**  
**COMPARISON OF DISTRIBUTION RIGHTS-OF-WAY**  
**QUANTITY AND COSTS FOR ANNEXATION AREA**  
**ESTIMATED BY SMUD AND PG&E**  
**AS OF 12/31/04**

	Quantity	Cost/Right-of-way (rounded)	RCN (\$ in millions)
SMUD	1,635	\$550	\$0.90
PG&E	2,031	\$7,000	\$14.22
<b>Reconciled:</b>			<b>\$0.90</b>

Sources: SMUD February 24, 2006 filing to LAFCo, pg. 27; PG&E February 28, 2006 filing to LAFCo, Volume II, pg. 106, Table 9.4.2.4.

The difference between the SMUD and PG&E RCN estimates is attributed to the per right-of-way estimate and number of rights-of-way. The cost of acquiring a distribution right-of-way is generally quite low which is supported by SMUD's review of the rights-of-way documents that indicate approximately 97% of the easements were granted for one dollar.<sup>12</sup> The granting of a right-of-way for one dollar or less is consistent with typical purchases for distribution rights-of-way and SMUD's estimate.

PG&E claims that certain railroad crossings and construction permits should be considered in the value of the rights-of-way and that SMUD's costs do not account for those permits. These costs are typically a function of obtaining permits for the construction of the whole system and would fall within the engineering costs that are included in the unit costs of each component. Therefore, SMUD's estimate of the distribution rights-of-way costs is considered to reflect the cost for the distribution rights-of-way.

#### **2.2.4 Overhead Circuits**

The overhead primary and secondary system that SMUD is seeking to acquire includes the poles, wires, and miscellaneous apparatus associated with this system. A discussion of the inventory differences has been presented previously and is not repeated in this section. Table C-6 shows the lengths and RCN for the overhead circuits.

<sup>12</sup> SMUD February 24, 2006 filing to LAFCo, pg. 25.

**TABLE C-6  
COMPARISON OF OVERHEAD FACILITIES RCN  
FOR ANNEXATION AREA  
ESTIMATED BY SMUD AND PG&E  
12 OF 12/31/04**

Overhead Distribution	Quantity in Miles		Unit Cost		RCN (\$ in millions)	
	SMUD	PG&E	SMUD	PG&E	SMUD	PG&E
12 kV Overhead & Poles	480	584	\$77,125	\$73,767	\$37.02	\$43.08
Secondary Lines	55	135	\$20,000	\$10,889	\$1.10	\$1.47
Capacitors	187	210	\$7,433	\$16,000	\$1.39	\$3.36
Fuses	N/A	1,016	N/A	\$4,000	N/A	\$4.06
Regulators & Booster	N/A	N/A	N/A	N/A	\$0.20	\$0.22
				<b>Total:</b>	<b>\$39.71</b>	<b>\$52.19</b>

**Reconciled: \$46.00**

Sources: SMUD February 24, 2006 filing to LAFCo, Exhibit 1 and pgs. 15-16; PG&E February 28, 2006 filing to LAFCo, Volume II, pg. 106, Table 9.4.2.4.

SMUD's estimate of RCN for the overhead facilities is approximately 25% below the cost estimate by PG&E. A review of the database and the maps provided by PG&E indicates that there are differences in the quantity of property used by SMUD and PG&E to estimate the RCN for the Annexation Area. A reconciliation of these differences would require a complete inventory from circuit maps and field verification which has not been undertaken in this assignment. However, for the purposes of this analysis, the mid-point of the RCN estimates by SMUD and PG&E has been used for these facilities, or \$46 million, and is considered a reasonable estimate of RCN.

### ***2.2.5 Underground Electric Distribution (12 kV and Secondary)***

The underground electric system SMUD is seeking to acquire in the Annexation Area includes the underground distribution lines and conduit, underground junction boxes that are used either for switching or transformer storage, and miscellaneous equipment. Table C-7 is a summary of the underground facilities, unit costs, and RCN estimates presented by both SMUD and PG&E.

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**TABLE C-7**  
**COMPARISON OF UNDERGROUND FACILITIES AND RCN**  
**FOR ANNEXATION AREA**  
**ESTIMATED BY SMUD AND PG&E**  
**12 OF 12/31/04**

Underground Distribution	Quantity in Miles		Unit Cost		RCN (\$ in millions)	
	SMUD	PG&E	SMUD	PG&E	SMUD	PG&E
12 kV Underground	259	353	\$270,656	\$522,238	\$70.10	\$184.35
Secondary	125	240	\$109,200	\$21,125	\$13.65	\$5.07
Capacitors	N/A	7	N/A	\$30,000	N/A	\$0.21
Fuses	N/A	186	N/A	\$26,505	N/A	\$4.93
Interrupter	N/A	6	N/A	\$75,000	N/A	\$0.45
J Box	N/A	359	N/A	\$5,989	N/A	\$2.15
Risers	669	N/A	\$747	N/A	\$0.50	N/A
				<b>Total:</b>	<b>\$84.25</b>	<b>\$197.16</b>

**Reconciled:                    \$84.00**

Sources: SMUD February 24, 2006 filing to LAFCo, Exhibit 1; PG&E February 28, 2006 filing to LAFCo, Volume II, pg. 106, Table 9.4.2.4.

Both SMUD and PG&E RCN estimates for underground facilities are based on the cost of installing the facilities under brownfield conditions. The use of brownfield costs as opposed to the costs actually incurred by PG&E under greenfield conditions when it installed this property results in RCN estimates presented by both SMUD and PG&E that are substantially higher than the greenfield estimates in the Beck report. The cost of brownfield construction accounts for the road opening and repaving that is incurred to replace the facility as of the valuation date compared to the cost of greenfield construction which assumes that construction of the property occurs with construction of the road or development. The greenfield costs for this type of construction would be approximately \$130,000 to \$150,000 per mile.

SMUD estimates that underground construction in the Annexation Area will result in a unit cost of approximately \$270,000 per mile while PG&E estimates almost twice this amount at \$522,000 per mile.

A review of both the inventory and unit costs indicate that the RCN presented by SMUD more closely reflects the cost to install underground facilities in the Annexation Area. In concluding that SMUD's estimate for underground facilities was reasonable, several factors were considered which included the unit costs, the type of construction, and quantity of property. The unit cost estimate used by PG&E for 12 kV primary

underground facilities is almost twice the estimate used by SMUD and is considered to be excessive for this type of construction. With respect to quantity, SMUD estimated 94 fewer miles than PG&E, which, using SMUD's estimated cost per mile of 12 kV primary, would result in an underestimate of approximately \$25 million. However, had SMUD adopted a greenfield approach and PG&E's quantity, the RCN would be approximately \$20 million below SMUD's current estimate of RCN for this component. Therefore, SMUD's underground cost estimates are used in estimating the RCN.

### 2.2.6 Line Transformers

The transformers in the Annexation Area range in size from 5 kilovolt-amperes (kVa) single-phase pole-mounted transformers to 3,000 kVa 3-phase pad-mounted transformers arranged in various configurations and located throughout the Annexation Area. Table C-8 is a comparison of the total unit count, total MVA, and estimated cost new for the transformers in the Annexation Area.

**TABLE C-8**  
**COMPARISON OF LINE TRANSFORMERS**  
**QUANTITY AND RCN FOR ANNEXATION AREA**  
**ESTIMATED BY SMUD & PG&E**  
**AS OF 12/31/04**

	Quantity of Transformers	kVa	\$/kVa	RCN (\$ in millions)
SMUD	7,395	555,940	\$32.22	\$17.91
PG&E	9,233	733,919	\$44.58	\$32.72
<b>Reconciled:</b>				<b>\$32.72</b>

Sources: SMUD February 24, 2006 filing to LAFCo, pgs. 21-22; PG&E February 28, 2006 filing to LAFCo, Volume II, pg. 106, Table 9.4.2.4.

The difference between the RCN estimates in Table C-8 is a result of both quantity and unit cost differences. The transformer summary above indicates that PG&E's total kVa and RCN is higher than that estimated by SMUD.

The transformer count by PG&E was based on its C-EDSA database and confirmed by its estimate of loads in the Annexation Area. A review of the quantity of transformers indicates that PG&E's estimated kVa for the system is considered reasonable based on PG&E's estimated system peak of approximately 321,000 kVa.<sup>13</sup>

<sup>13</sup> Ibid, pg. 18.

In addition to the quantity of transformers, SMUD and PG&E also have differences in unit costs that result in different RCN estimates. Table C-9 is a summary of selected pad-mounted transformers and the cost estimates by SMUD, Beck, and PG&E.

**TABLE C-9**  
**SUMMARY OF SIZE AND UNIT COSTS**  
**OF PAD-MOUNTED TRANSFORMERS**

Item	SMUD[1]	R.W. Beck[2]	PG&E[2]
Single-phase 50 kVa	\$2,183	\$1,850	\$3,175
Single-phase 75 kVa	\$2,603	\$2,454	\$3,719
Single-phase 100 kVa	\$2,892	\$2,870	\$4,158
<b>3-phase 75 kVa</b>	<b>\$5,855</b>	<b>\$3,780</b>	<b>\$7,134</b>
3-phase 150 kVa	\$6,870	\$7,186	\$7,271
<b>3-phase 300 kVa</b>	<b>\$8,480</b>	<b>\$8,930</b>	<b>\$7,884</b>
3-phase 500 kVa	\$11,157	\$10,844	\$15,900
3-phase 750 kVa	\$13,054	\$15,126	\$16,080
3-phase 1,000 kVa	\$17,451	\$16,294	\$16,489
3-phase 1,500 kVa	\$23,439	\$24,818	\$32,404

[1] SMUD February 24, 2006 filing to LAFCo, Exhibit 1, cost table.

[2] PG&E February 28, 2006 filing to LAFCo, Volume II, Appendices.

The comparison of line transformers and associated unit costs in Table C-9 provides a summary of the price estimates used by the various parties. The unit cost of 3-phase pad-mounted 75 kVa transformer units shows that PG&E's unit costs are approximately 90% higher than Beck's estimates for these units. A similar comparison for 300 kVa units indicates a more narrow range with PG&E estimating the lowest unit price.

A review of the unit prices in Table C-9 with prices published in R.S. Means (an industry recognized cost manual) indicates that PG&E has the most consistent unit prices for transformers. Therefore, PG&E's transformer quantities and unit costs are used in estimating the RCN.

### **2.2.7 Services and Meters**

The service to customer premises includes both aboveground and underground service drops and meter installations. The quantity and cost of these installations is summarized in Table C-10.

**TABLE C-10  
COMPARISON OF SERVICES AND METERS  
QUANTITY AND RCN FOR ANNEXATION AREA  
ESTIMATED BY SMUD AND PG&E  
AS OF 12/31/04**

	Quantity		RCN (\$ in millions)	
	SMUD	PG&E	SMUD	PG&E
Services	68,462.0	70,181.0	\$38.80	\$37.61
Meters	70,000.0	71,104.0	\$5.03	\$7.50
		<b>Total</b>	<b>\$43.83</b>	<b>\$45.11</b>

**Reconciled:                    \$45.00**

Sources: SMUD February 24, 2006 filing to LAFCo, Exhibit 1; PG&E February 28, 2006 filing to LAFCo, Volume II, pg. 106, Table 9.4.2.4.

The difference in estimates of services and meters is less than 3%. Therefore, a figure of \$45 million for services and meters is considered reasonable and used to estimate the RCN.

### **2.2.8 Switches and Reclosures**

Switches and reclosures allow the system operators to isolate portions of the system to allow for repairs or upgrades to the system. Table C-11 is a summary of the switches and costs for each.



**TABLE C-11  
COMPARISON OF SWITCHES AND RECLOSURES  
QUANTITY AND RCN FOR THE ANNEXATION AREA  
ESTIMATED BY SMUD AND PG&E  
AS OF 12/31/04**

	Quantity	Average Unit Cost	RCN (\$ in millions)
SMUD	1,010	\$6,096	\$6.16
PG&E	1,057	\$18,524	\$19.58
<b>Reconciled:</b>			<b>\$13.00</b>

Sources: SMUD February 24, 2006 filing to LAFCo, Exhibit 1; PG&E February 28, 2006 filing to LAFCo, Volume II, pg. 106, Table 9.4.2.4.

The average unit cost estimates presented by PG&E are approximately three times more than those used by SMUD. A review of unit costs used by SMUD for each of the switches, in its February 24, 2006 filing to LAFCo, indicates that several of the switches have reasonable unit estimates while SMUD has appeared to underestimate the price of more complex switches. Therefore, the mid-point of this range is used to estimate the RCN to account for the higher cost of these more complex switches.

### **2.2.9 Summary of RCN**

The RCN for the various property components estimated by SMUD and PG&E, along with our reconciled RCN are included in Table C-12.

**TABLE C-12**  
**SUMMARY OF RCN**  
**(\$ in millions)**

		SMUD	PG&E	Reconciled
<b>Transmission</b>				
2.2.1	Rights-of-way	\$7.42	\$7.50	\$7.50
	Transmission Lines	<u>\$30.64</u>	<u>\$34.00</u>	<u>\$32.30</u>
	<b>Subtotal</b>	<b>\$38.06</b>	<b>\$41.50</b>	<b>\$39.80</b>
2.2.2	Substations	\$17.50	\$36.64	\$27.00
<b>Distribution</b>				
2.2.3	Rights-of-way	\$0.90	\$14.22	\$0.90
2.2.4	12 kV Overhead & Poles/Secondary Lines/Capacitors/Fuses	\$39.71	\$52.19	\$46.00
2.2.5	12 kV Underground/Secondary/ Capacitors/Fuses/Interrupter/J Box	\$84.25	\$197.16	\$84.00
2.2.6	Line Transformers	\$17.91	\$32.72	\$32.72
2.2.7	Services and Meters	\$43.83	\$45.11	\$45.00
2.2.8	Switches and Reclosures	\$6.16	\$19.58	\$13.00
	Street Lights	<u>\$1.83</u>	<u>\$1.83</u>	<u>\$1.83</u>
	<b>Subtotal</b>	<b>\$194.59</b>	<b>\$362.81</b>	<b>\$223.45</b>
	<b>Total</b>	<b>\$250.15</b>	<b>\$440.95</b>	<b>\$290.25</b>
<b>RCN per customer @ 70,000 customers</b>		<b>\$3,574</b>	<b>\$6,299</b>	<b>\$4,146</b>

The RCN totals for the system and per customer have been summarized in Table C-12. The reconciled \$4,146 per customer estimate is considered reasonable and consistent with the density of customers in the Annexation Area.

A second method that could have been used to establish an RCN for some or all of the property in the Annexation Area is referred to as cost index trending. This method uses the original cost incurred to construct the property and adjusts the cost to the date of value using industry accepted trending tables. This method of estimating RCN has not been performed by SMUD or PG&E for any of the property in the Annexation Area.<sup>14</sup>

<sup>14</sup> PG&E indicated that it only maintains original cost information for Yolo County and selected property in the Annexation Area.

### **2.3 Appraisal Depreciation and Obsolescence**

In the cost approach, depreciation is the difference between the RCN and the property's market value as of the valuation date. The causes and types of depreciation are found in three basic categories: 1) physical deterioration, 2) functional obsolescence, and 3) external obsolescence. Physical deterioration and functional obsolescence are intrinsic to the property and are a function of a property's design, construction, age, maintenance and performance compared with similar improvements in the marketplace. External obsolescence is a loss in value caused by factors outside a property. This form of obsolescence is typically incurable, and in the case of rate regulated property is a function of earning limits on the property.

The following sections describe how SMUD and PG&E applied depreciation to the electric transmission and distribution property in the Annexation Area.

In developing the accumulated depreciation associated with the transmission and distribution property, SMUD utilized a straight line method of depreciation. SMUD's calculation of straight line depreciation was based on the estimated age of the facility and the depreciation factors associated with this age of property using average service lives, survivor curves, and net salvage rates reported by PG&E in its FERC Form 1 filing<sup>15</sup> which is an annual report to the Federal Energy Regulatory Commission (FERC). The accumulated depreciation was then subtracted from the RCN value to determine the RCNLD.

PG&E measured depreciation based primarily on what it refers to as statistical approaches.<sup>16</sup> PG&E utilized survivor curves and average service lives similar to those employed by SMUD. These types of curves and service lives assign retirement patterns and life characteristics to the facility being valued. However, instead of using straight line depreciation like that employed by SMUD, PG&E relied on present worth depreciation. Present worth depreciation is a method of distributing the value of accumulated depreciation over the property's service life so that it more closely relates to the utilization of the property. PG&E sets forth its explanation of present worth depreciation as follows:

“The value of utility property relates to the capability of that property to generate cash and to support the financing required to fund acquisition (including construction) of that property over its remaining life. In order to recognize the value and distribute value equitably between the buyer and seller, depreciation must recognize this value contribution and

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<sup>15</sup> Application for Annexation SMUD, July 29, 2005, Appendix E, pg. 2-2.

<sup>16</sup> PG&E February 28, 2006 filing to LAFCo, Volume II, pgs. 50-51.

financing requirement. To do so we must recognize in depreciation a present worth factor. Properly developed, present worth depreciation results in a value for property equal to the indebtedness associated with the property. Very simply, properly applied, use of present worth depreciation produces a result whereby the value of an asset at any point during its life is equal to the outstanding debt associated with securing the asset.”<sup>17</sup>

The effect of using a straight line method of depreciation results in SMUD estimating accumulated depreciation associated with the system of approximately 47%. PG&E’s present worth method of depreciation results in accumulated depreciation of approximately 21%.<sup>18</sup>

The estimation of depreciation associated with an electric system like that SMUD is seeking to acquire in the Annexation Area relies on both statistical approaches to estimating depreciation and professional judgment associated with the application of those statistical approaches. In developing its depreciation, SMUD has used straight line depreciation which is the approach typically employed to estimate depreciation for electric utility property. While present worth depreciation is used for certain purposes in the State of California, it is not considered to be a widely adopted method of calculating depreciation to electric utility property.<sup>19</sup>

In arriving at our estimate of the most reasonable depreciation, an inspection of the property was conducted and the accrued depreciation PG&E reports for its entire transmission and distribution system in its December 31, 2004 FERC Form 1 was reviewed. An inspection of the property in the Annexation Area indicated that this property was of older vintage and appeared to suffer from more than 21% accumulated depreciation. This visual inspection is supported by PG&E system-wide accumulated depreciation for transmission and distribution property of approximately 40%. Therefore, SMUD’s depreciation estimate of 47% is considered reasonable for the electric property in the Annexation Area.

## **2.4 Going-Concern Value**

In developing the value of the subject property, B&V added an incremental value for going-concern which is intended to reflect the incremental value associated with a business concern which is distinct from the value of its tangible property. PG&E has

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<sup>17</sup> Ibid, pg. 51.

<sup>18</sup> SMUD February 24, 2006 filing to LAFCo, pg. 32; PG&E February 28, 2006 filing to LAFCo, Volume II, pg. 117.

<sup>19</sup> An interview with B&V indicated that outside of California, they were aware of only one other situation where present worth depreciation had been utilized.

estimated the going-concern value at 25% of the property's RCN based upon its opinion of the incremental going-concern component present in the system SMUD is seeking to acquire.<sup>20</sup>

PG&E argues that:

“the courts have long recognized the incremental value attributable to acquiring a going concern. In fact, the price paid by Turlock Irrigation District for certain PG&E facilities included an allowance of 10 percent of RCNLD for going concern value and Turlock also agreed to a service area agreement as part of the transaction. We believe that an allowance of 10 percent of RCNLD is wholly inadequate to compensate PG&E for the cost incurred in developing its business in Yolo County, plus the present value in PCS and fiber, the potential value in connection with BPL, and other uses. We therefore use a conservative going concern value allowance of 25 percent of RCN for the purpose of this report.”<sup>21</sup>

Typically when valuing the component of going-concern, either the income capitalization or sales comparison approach is used to establish the value of the enterprise which must be greater than the RCNLD for going-concern value to be present. The RCNLD developed in the cost approach is then typically subtracted to estimate the incremental value associated with going-concern. The B&V report, prepared for PG&E, did not develop that approach here; instead it added the 25% to the value of the RCNLD based upon its opinion with no support that the income potential of the property was capable of supporting this incremental value.

Since the incremental value estimate provided by PG&E is not supported by any market-based analysis that indicates a willing buyer would pay more for the property than RCNLD, it is difficult to find that this premium would be paid. Therefore, while going-concern may be present in some instances, there is no support that it is present in this case.

## **2.5 Reconciliation of 2004 to 2008**

The analysis developed by SMUD in its Application assumes that the additions to the property will be offset by additional depreciation associated with the property currently being valued as of December 31, 2004 and, therefore, SMUD makes no separate consideration for additional property added to the system. The assumption that these

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<sup>20</sup> PG&E February 28, 2006 filing to LAFCo, Volume II, pg. 63.

<sup>21</sup> Ibid (The term PCS stands for “digital cellular service” and BPL stands for “broadband over powerline”).

## Appendix C Fair Market Value

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additions would be offset by additional depreciation is reasonable. However, it is also reasonable to assume that SMUD will have to pay for additional property to serve these customers over this period that exceeds accumulated depreciation.

PG&E has identified that additional assets will be constructed between 2004 and the time at which SMUD takes over PG&E's property in the Annexation Area, as continued operation of the distribution system by PG&E will necessitate these additions. PG&E estimates that these additions will exceed additional accumulated depreciation and retirements between 2004 and 2008, and increase the value of the property by approximately \$37.4 million.

PG&E calculates this difference in the RCNLD between 2004 and 2008 as follows:<sup>22</sup>

### RCNLD of Existing System: (\$ in millions)

	12/31/04	1/1/08	Difference Represents Additional Depreciation
RCNLD:	\$345.88	\$338.81	\$7.07

In estimating the change in value between 2004 and 2008, PG&E estimates the RCNLD will decline by \$7.07 million which is then subtracted from the estimate of \$44.49 million for additions to the property between 2004 and 2008. In order for these assumptions to be correct, the additions to the system would have to average approximately \$11.25 million per year. The reasonableness of this assumption was analyzed by comparing the annual property additions between 2001 and 2004 in the PG&E report for the past four-year period. This review indicated that the average investment over the past four years was approximately \$3 million per year.

Therefore, SMUD's assumption that additions will equal depreciation and retirement is considered reasonable and no adjustments to the RCNLD figure is made for abnormally high expenditures. If the relationship between capital additions and depreciation changes, SMUD has indicated that it will compensate PG&E for this property if it can demonstrate that its construction was prudent.

## 2.6 Other Assets and Liabilities

PG&E also has identified certain current assets and liabilities that SMUD should compensate it for as part of acquiring its property. The assets include the accounts

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<sup>22</sup> PG&E February 28, 2006 filing to LAFCo, pg. 57.

receivable, unbilled revenues, and construction work in progress. PG&E identifies that combined, these have a value of \$20.8 million.

PG&E also has identified liabilities associated with the transfer that SMUD will incur if it acquires the facility. PG&E has identified these liabilities to have a value of \$11.3 million.

The net effect of the assets and liabilities is a positive \$9.5 million that SMUD will receive in accounts receivable and unbilled revenues. The current assets and potential liabilities PG&E has identified are common for this type of transaction and are not considered to impact the fair market value of the electric property in the Annexation Area.

In the event SMUD has to pay PG&E for these assets, it will recover this amount from the customers in the Annexation Area based on services previously provided by PG&E. Therefore, no adjustment to the acquisition price is made for these current assets and potential liabilities.

## **2.7 Reproduction Cost New Less Depreciation (RCNLD)**

The following table is a summary of the estimated RCNLD of the property SMUD is proposing to acquire. For purposes of this analysis, the assumption has been made that additions to the property will be offset by retirements and additional accrued depreciation and that the current assets equal the current liabilities. Therefore, if these assumptions, as of the taking date, are not consistent then SMUD has acknowledged that it may have to compensate PG&E for these items at that time. However, for the purpose of our analysis it is reasonable to use the values presented below.

The RCNLD for the various property components estimated by SMUD and PG&E, along with our reconciled RCNLD is shown in Table C-13.

**Appendix C**  
**Fair Market Value**

**TABLE C-13**  
**SUMMARY OF RCNLD**  
**(\$ in millions)**

		SMUD	PG&E	Reconciled
	<b>Transmission</b>			
2.2.1	Rights-of-way	\$7.42	\$7.50	\$7.50
	Transmission Lines	<u>\$30.64</u>	<u>\$34.00</u>	<u>\$32.30</u>
	<b>Subtotal</b>	<b>\$38.06</b>	<b>\$41.50</b>	<b>\$39.80</b>
2.2.2	<b>Substations</b>	<b>\$17.50</b>	<b>\$36.64</b>	<b>\$27.00</b>
	<b>Distribution</b>			
2.2.3	Rights-of-way	\$0.90	\$14.22	\$0.90
2.2.4	12 kV Overhead & Poles/Secondary Lines/Capacitors/Fuses	\$39.71	\$52.19	\$46.00
2.2.5	12 kV Underground/Secondary/ Capacitors/Fuses/Interrupter/J Box	\$84.25	\$197.16	\$84.00
2.2.6	Line Transformers	\$17.91	\$32.72	\$32.72
2.2.7	Services and Meters	\$43.83	\$45.11	\$45.00
2.2.8	Switches and Reclosures	\$6.16	\$19.58	\$13.00
	Street Lights	<u>\$1.83</u>	<u>\$1.83</u>	<u>\$1.83</u>
	<b>Subtotal</b>	<b>\$194.59</b>	<b>\$362.81</b>	<b>\$223.45</b>
	<b>Total</b>	<b>\$250.15</b>	<b>\$440.95</b>	<b>\$290.25</b>
	<i>less</i> Depreciation	\$117.57	\$95.07	\$136.42
	RCNLD	\$132.58	\$345.88	\$153.83
	<i>plus</i> Going-Concern	N/A	\$123.87 [1]	\$0.00
	<i>plus</i> Additions	N/A	\$37.42 [2]	\$0.00
	<i>plus</i> Current Assets	N/A	\$9.53 [3]	\$0.00
	<b>RCNLD</b>	<b>\$132.58</b>	<b>\$516.70</b>	<b>\$153.83</b>
	<b>(rounded)</b>	<b>\$133</b>	<b>\$517</b>	<b>\$154</b>

Note: Reconciled value is depreciated at 47%.

Sources: SMUD February 24, 2006 filing to LAFCo; PG&E February 2006 filing to LAFCo, Volume II, pgs. 36, 63 and 68.

[1] PG&E Going-Concern value calculated at 25% of RCN as of January 1, 2008 (\$495.48 x 25% = \$123.87), pg. 63.

[2] PG&E Additions are calculated from Total Capital Additions through December 31, 2007, or \$44.9 million less Accumulated Depreciation of \$7.07 million, or \$37.42 million, pgs. 56-57.

[3] PG&E Current Assets calculated as Other Assets less Liabilities as of January 1, 2008 (\$20.83 - \$11.30 = \$9.53), pg. 68.



### **3.0 Original Cost Less Depreciation (OLCD)**

The OCLD estimate of value is a technique that is used to estimate the value of the property when it was placed into service and is used as a proxy for the “net book value of the property.” The net book value of electric utility property represents the amount upon which investor-owned utilities, such as PG&E, are entitled to earn as a return.

In its July 29, 2005 Application to LAFCo, SMUD set forth its estimate of establishing an OCLD for the property it was seeking to acquire in the Annexation Area. This estimate of OCLD was based on taking the RCN and trending it back to the year of installation using the Handy-Whitman Cost Index.<sup>23</sup> The OCLD estimate for the Annexation Area that SMUD set forth was \$84 million based on the RCN figures set forth by SMUD staff.

PG&E provided its own estimate of OCLD, in a letter to the LAFCo dated February 1, 2006, of \$129 million as of December 31, 2004 using a technique similar to that of SMUD. However, PG&E used its estimate of RCN as the starting point for this calculation.

In arriving at a value estimate for the property in the Annexation Area, OCLD, as calculated in the manner presented by SMUD and PG&E, is used as a proxy for the actual net book value. In this context, it is another method of estimating value and in the absence of the actual net book, serves as a reasonable proxy of the property’s net book and earnings potential in the marketplace. Therefore, the final value estimate for the property SMUD is seeking to acquire in the Annexation Area should take into consideration this figure in the absence of the actual net book value.

### **4.0 Sales Comparison Approach to Value**

The sales comparison approach to value is a process whereby the fair market value of the subject property is based upon the comparison of prices that have been paid for similar properties or comparison to offers and listings of similar properties. The sales comparison approach is most applicable in an active market where the prices paid serve as accurate indicators of the most probable selling price of the subject property as of the valuation date.

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<sup>23</sup> The Handy-Whitman Cost Index (HWI) is a widely recognized publication that tracks the annual change in the construction cost of various electric, gas, and water improvements for six regions of the country. The HWI has been published since 1914 and is used by owners, appraisers, and regulatory bodies for measuring the change in construction costs over time, and is considered to provide reliable indications of cost when applied to the original construction costs.

#### **4.1 Trends in the Sale of Electric Systems**

Electric system transactions have occurred throughout the country. While electric systems may not sell with the regularity of more common real estate or personal property, there still exists a significant number of transactions that can be used to develop units of comparison.

The ability to identify transactions is the first step in developing the sales comparison approach. However, it is rare to find a sale or transaction that is exactly identical to the subject property.<sup>24</sup> The lack of exactly comparable sales requires that the characteristics that influenced the motivation of buyers and sellers be reflected in the selection of sales for comparison to the subject, and that the units of comparison used to estimate the value of the subject account for differences between the sales and the subject.

The following is a summary of the characteristics that were considered in selecting comparable sales for comparison to the subject.

- Size of system (customers, assets, revenue, etc.)
- The location or region of the country in which the sale was located
- Motivation of buyers and sellers
- Expectations of future cash flows (profitability)
- Did the transaction involve other businesses
- Age of assets being acquired
- Physical condition and economic characteristics

Units of comparison considered in this approach typically include:

- **Sale Price / Customer**

This unit of comparison is a good indicator of value for systems that have similar mixes of commercial, industrial, and residential customers, capital structure, and profitability, but is of limited use when comparing companies with different mixes of each.

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<sup>24</sup> Except in cases where the subject itself has been sold in the recent past, or as part of a transaction where the price has been agreed upon by the buyer and seller.

- **Sale Price / Net Book**

The sale price to net book ratio measures the relationship of a system's sale price to one of the primary factors used by state commissions to establish the system's cost of service or revenue requirement.

- **Sale Price / EBITDA**

The sale price to EBITDA (earnings before income taxes, depreciation and amortization) ratio is also an indicator of the system's cash flow potential like the sale price to gross revenue ratio. However, this ratio allows for comparison of systems that have different levels of expense as it measures the system's cash flow that would be available to satisfy debt and equity capital in a transaction and is not influenced by past financing or depreciation expenses.

## 4.2 Sales Analysis

In its original Application to the LAFCo, SMUD did not set forth any information relating to sales transactions. However, in its February 24, 2006 filing, SMUD developed a summary of transactions located in California and the western United States which have transferred since 1988. Table C-14 illustrates these sales.

**TABLE C-14**  
**ELECTRIC UTILITY SALES TRANSACTIONS**  
**FROM SMUD'S FEBRUARY 24, 2006 FILING**

Year	State	Seller	Purchaser	RCNLD Sales Price	OCLD	Sales Price (RCNLD/OCLD)
1988	CA	CP National	Lassen MUD	\$19,900,000	\$14,256,187	1.40
1994	ID	Pacific Power & Light	Washington Water & Power	\$29,935,247	\$23,791,631	1.26
1998	MT	Pacific Power & Light	Flathead Electric Coop	\$111,000,000	\$103,000,000	1.08
1999	CA	Pacific Power & Light	Nor-Cal Electric Authority	\$184,091,795	\$138,166,826	1.33
2002	HI	Citizens Communications	Kauai Island Utility Coop	\$215,000,000	\$181,400,000	1.19
2003	CA	PG&E	Turlock Irrigation District	\$15,111,825	\$8,700,000	1.74

These sales show a ratio of sale price to OCLD between 1.08 and 1.74 times. SMUD estimated a net book value of \$65 million for PG&E's property in the proposed Annexation Area based upon PG&E's filing with the California State Board of

## Appendix C Fair Market Value

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Equalization. Assuming a \$65 million net book value, the value estimate using the sales above would range from a low of \$70.2 million to a high of \$113 million.

PG&E has not developed a value estimate using the sales comparison approach, but instead cited two recent Florida arbitration decisions relating to the condemnation of electric utility property. PG&E points out that neither of the arbitration panels thought it necessary to discuss OCLD or net book value.

The points brought up by PG&E in reference to the arbitrations are worthy of consideration. However, it is our opinion that these documents do not demonstrate market value but rather settlements between the parties.

A review of the sales information presented by SMUD and PG&E indicates that the most probable range of sale prices for the property SMUD is seeking to acquire is between 1.08 and 1.8 times the property's net book. This range is consistent with our experience and supported by transactions in the marketplace. In applying this range of multiples, it is important to use the actual net book value of PG&E's property which SMUD has estimated at \$65 million,<sup>25</sup> or as close a proxy as can be estimated from actual company records.

In its filing with the CPUC, PG&E used an estimate of \$78 million for its book value in the Annexation Area and the amount ratepayers would receive from the sale of the property.<sup>26</sup>

Therefore, assuming that the actual net book value for the Annexation Area is between \$65 and \$78 million, the range of value established by the sales comparison approach is shown in Table C-15.

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<sup>25</sup> SMUD's estimate is consistent with research conducted on behalf of the LAFCo by Economic Planning Services (EPS) that indicates the California State Board of Equalization uses an estimate of approximately \$61 million for PG&E's net book value in the Annexation Area.

<sup>26</sup> This assumption indicates that ratepayers would receive only \$78 million, even if the price ultimately paid was \$516.7 million.

**TABLE C-15**  
**SUMMARY OF VALUES USING**  
**SALES COMPARISON APPROACH AND**  
**VARIOUS RANGES OF NET BOOK VALUE**  
**AS OF 12/31/04**  
**(\$ in millions)**

	<b>Low Ratio</b> <b>1.08</b>	<b>High Ratio</b> <b>1.80</b>
SMUD's Estimate of Net Book @ \$65 million	\$70	\$117
PG&E's Estimate of Net Book @ \$78 million	\$84	\$140

The estimated value in the table above establishes a range of between \$70 and \$140 million for the property in the Annexation Area. The mid-point of this range is \$105 million and is considered a reasonable estimate for the subject using the sales comparison approach.

### **5.0 Income Capitalization Approach to Value**

The income capitalization approach derives a value estimate based on the total present-worth of all anticipated future benefits that arise from ownership of the property. The income capitalization approach is considered to be, in the appropriate circumstances, the best means of estimating the value of an income producing property. Implicit in this approach is consideration of the amount and probability of receiving future income from operation of the property.

The basic concept behind the income capitalization approach may be represented by the following formula:

$$Value (V) = \frac{Income (I)}{Rate (R)}$$

The Value (V) is a direct function of the future Income (I) and an inverse function of the comparative risk of the investment which is reflected by the cost of capital or capitalization Rate (R). This basic formula can be used to estimate the value of any given property by capitalizing the anticipated future cash flows by the perceived risk associated with receiving the cash flow as compared with other investments available in the market.

## Appendix C Fair Market Value

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The elements of the income capitalization approach that impact value are the reliability of the anticipated future cash flows and the cost of capital associated with the particular investment.

Methods used to capitalize future income include the “Direct” and “Yield” capitalization approaches. Each of the approaches is premised on the relationship described above, between value, income, and perceived risk. The approaches are each defined as follows:

- **Direct capitalization** is a method used to convert an estimate of a single year’s income expectancy into an indication of value in one direct step – either by dividing the income estimate by an appropriate income rate or by multiplying the income estimate by an appropriate income factor.<sup>27</sup>
- **Yield capitalization** is a method used to convert future benefits into present value by discounting each future benefit at an appropriate yield rate or by developing an overall rate that explicitly reflects the investment’s income pattern, value change, and yield rate. The procedure used to convert periodic income and reversion into present value is called discounting; the required yield rate of return is called the discount rate. The yield capitalization technique is typically developed using a discounted cash flow analysis, in which a discount rate is used to calculate the present value of anticipated future cash flows.<sup>28</sup>

In its July 29, 2005 filing to LAFCo, SMUD set forth various income capitalization approaches to value the electric property in the Annexation Area and included the use of both a direct capitalization approach and a yield capitalization approach, or discounted cash flow (DCF) method. The result of the direct capitalization approach in the SMUD Application was \$60 million and the DCF method was \$79 million.

PG&E has not presented an income capitalization approach for LAFCo’s consideration in its filings.

The income capitalization approach used by SMUD to value the system should, in theory, arrive at the net book value of the property since the income that PG&E is allowed to earn is predicated upon earning a fair return on this amount of invested capital.

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<sup>27</sup> *The Appraisal of Real Estate*, 12<sup>th</sup> ed. (Chicago: Appraisal Institute, 2001), pgs. 529-530.

<sup>28</sup> *Ibid*, pgs. 549-550.

However, in developing retail rates for PG&E, the CPUC establishes a system-wide retail rate that may result in more or less revenue per customer generated in a particular area compared to the system average. In the case of the Annexation Area, the income capitalization approach developed by SMUD was based upon system averages as opposed to information specific to Yolo County. Since that time, PG&E has sought and received rate increases and currently has higher distribution revenue than that originally used in the analysis by SMUD.

Therefore, while the income capitalization approach developed by SMUD in its Application is supportive of the final value estimate, this analysis would need to be updated in order to provide a more accurate indication of value.

### 6.0 Range of Fair Market Value Estimates

The purpose of this reconciliation is to develop the most reliable estimate of value based on an analysis of the quality and quantity of data available relating to the property in the Annexation Area. The three approaches to value establish a range as shown in Table C-16.

**TABLE C-16**  
**RANGE OF FAIR MARKET VALUE ESTIMATES**  
**USING THE THREE APPROACHES TO VALUE**  
**FOR THE ANNEXATION AREA**

Item	Value (\$ in millions)
Cost Approach (RCNLD):	\$154
(OCLD):	\$84-\$129
Sales Comparison Approach:	\$105
Income Capitalization Approach:	\$79

The value estimates range from \$79 to \$154 million for the electric property in the Annexation Area. The lower and upper ends of the range are established using the OCLD and RCNLD estimates. The income capitalization and sales comparison approaches determine how the final value estimate relates to this range based upon the property's earning potential.

The income capitalization and sales comparison approaches both indicate that the fair market value is at the lower end of the range shown in Table C-16 and is best represented by the \$110 million estimate of fair market value used by SMUD staff. Therefore, \$110 million is considered a reasonable estimate of fair market value for this property and is supported by all three approaches to value.

COMPARISON OF SMUD AND PG&E RETAIL RATES  
FOR ANNEXATION AREA  
(\$/kWh)

Year	SMUD Estimate of PG&E Rates	PG&E Estimate of its Rates	% SMUD Different Than PG&E
2008	\$0.1302	\$0.1304	0%
2009	\$0.1425	\$0.1385	3%
2010	\$0.1354	\$0.1382	-2%
2011	\$0.1473	\$0.1446	2%
2012	\$0.1468	\$0.1366	7%
2013	\$0.1508	\$0.1397	8%
2014	\$0.1506	\$0.1401	7%
2015	\$0.1613	\$0.1475	9%
2016	\$0.1640	\$0.1473	11%
2017	\$0.1667	\$0.1491	12%
2018	\$0.1723	\$0.1511	14%
2019	\$0.1777	\$0.1532	16%
2020	\$0.1815	\$0.1555	17%
2021	\$0.1855	\$0.1570	18%
2022	\$0.1907	\$0.1581	21%
2023	\$0.1916	\$0.1587	21%
2024	\$0.1963	\$0.1609	22%
2025	\$0.1958	\$0.1688	16%
2026	\$0.1991	\$0.1745	14%
2027	\$0.2025	\$0.1765	15%

Sources: SMUD February 15, 2006 filing, Attachment 1; PG&E March 15, 2006 filing, Attachment 3.



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**COMPARISON OF SMUD AND PG&E RETAIL RATES  
 FOR ANNEXATION AREA  
 (\$/kWh)**

Year	SMUD Estimate of PG&E Rates	PG&E Estimate of its Rates	Adjusted PG&E Rates
2008	\$0.1302	\$0.1304	\$0.1304
2009	\$0.1425	\$0.1385	\$0.1385
2010	\$0.1354	\$0.1382	\$0.1382
2011	\$0.1473	\$0.1446	\$0.1446
2012	\$0.1468	\$0.1366	\$0.1366
2013	\$0.1508	\$0.1397	\$0.1397
2014	\$0.1506	\$0.1401	\$0.1401
2015	\$0.1613	\$0.1475	\$0.1489
2016	\$0.1640	\$0.1473	\$0.1498
2017	\$0.1667	\$0.1491	\$0.1528
2018	\$0.1723	\$0.1511	\$0.1560
2019	\$0.1777	\$0.1532	\$0.1593
2020	\$0.1815	\$0.1555	\$0.1629
2021	\$0.1855	\$0.1570	\$0.1657
2022	\$0.1907	\$0.1581	\$0.1681
2023	\$0.1916	\$0.1587	\$0.1700
2024	\$0.1963	\$0.1609	\$0.1737
2025	\$0.1958	\$0.1688	\$0.1829
2026	\$0.1991	\$0.1745	\$0.1902
2027	\$0.2025	\$0.1765	\$0.1937

Sources: SMUD February 15, 2006 filing, Attachment 1; PG&E March 15, 2006 filing, Attachment 3.

**COMPARISON OF SMUD AND PG&E FORECASTS  
OF POWER SUPPLY COSTS  
IN THE ANNEXATION AREA  
(\$/MWh)**

Year	SMUD Market Electricity (incl. renewables)	PG&E Market Electricity	% SMUD Different Than PG&E
2008	\$60.51	\$67.07	-10%
2009	\$75.30	\$78.49	-4%
2010	\$63.65	\$68.68	-7%
2011	\$77.51	\$81.16	-4%
2012	\$74.37	\$76.30	-3%
2013	\$83.97	\$84.63	-1%
2014	\$80.76	\$82.03	-2%
2015	\$90.95	\$98.23	-7%
2016	\$91.60	\$100.64	-9%
2017	\$92.18	\$97.34	-5%
2018	\$96.87	\$108.92	-11%
2019	\$101.75	\$111.90	-9%
2020	\$104.31	\$115.48	-10%
2021	\$106.96	\$117.57	-9%
2022	\$111.14	\$121.05	-8%
2023	\$115.49	\$127.84	-10%
2024	\$118.99	\$124.90	-5%
2025	\$122.62	\$127.68	-4%
2026	\$122.82	\$117.08	5%
2027	\$123.03	\$122.12	1%

Note: Electricity Prices in \$/MWh are calculated using the sum of the Power Supply and Renewable Power Supply costs per year divided by the Energy Requirement (which includes losses).

Sources: SMUD February 15, 2006 filing, Attachment 1; PG&E March 15, 2006 filing, Attachment 3.

COMPARISON OF SMUD AND PG&E FORECASTS  
OF FRANCHISE FEES AND PROPERTY TAX COSTS  
IN THE ANNEXATION AREA  
(\$/MWh)

Year	SMUD			PG&E			% SMUD Different Than PG&E
	Franchise Tax	Property Tax	Total	Franchise Tax	Property Tax	Total	
2008	\$1.40	\$1.50	\$2.90	\$1.00	\$0.60	\$1.60	81%
2009	\$1.60	\$1.50	\$3.10	\$1.10	\$0.60	\$1.70	82%
2010	\$1.50	\$1.50	\$3.00	\$1.10	\$0.70	\$1.80	67%
2011	\$1.60	\$1.60	\$3.20	\$1.10	\$0.70	\$1.80	78%
2012	\$1.60	\$1.60	\$3.20	\$1.11	\$0.70	\$1.81	77%
2013	\$1.70	\$1.60	\$3.30	\$1.10	\$0.70	\$1.80	83%
2014	\$1.70	\$1.70	\$3.40	\$1.10	\$0.70	\$1.80	89%
2015	\$1.90	\$1.70	\$3.60	\$1.10	\$0.80	\$1.90	89%
2016	\$1.90	\$1.70	\$3.60	\$1.10	\$0.80	\$1.90	89%
2017	\$1.90	\$1.80	\$3.70	\$1.10	\$0.80	\$1.90	95%
2018	\$2.00	\$1.80	\$3.80	\$1.20	\$0.80	\$2.00	90%
2019	\$2.10	\$1.90	\$4.00	\$1.20	\$0.90	\$2.10	90%
2020	\$2.10	\$1.90	\$4.00	\$1.20	\$0.90	\$2.10	90%
2021	\$2.20	\$2.00	\$4.20	\$1.20	\$0.90	\$2.10	100%
2022	\$2.30	\$2.00	\$4.30	\$1.20	\$0.90	\$2.10	105%
2023	\$2.30	\$2.10	\$4.40	\$1.20	\$1.00	\$2.20	100%
2024	\$2.40	\$2.10	\$4.50	\$1.20	\$1.00	\$2.20	105%
2025	\$2.50	\$2.20	\$4.70	\$1.30	\$1.00	\$2.30	104%
2026	\$2.50	\$2.20	\$4.70	\$1.30	\$1.10	\$2.40	96%
2027	\$2.60	\$2.30	\$4.90	\$1.40	\$1.10	\$2.50	96%

Note: Converted from kWh to MWh.

Sources: SMUD February 15, 2006 filing, Attachment 1; PG&E March 15, 2006 filing providing functional breakdown of PG&E electric rate forecast presented in February 28 report to LAFCo.

**COMPARISON OF SMUD AND PG&E NON-BYPASSABLE CHARGES (NBC)  
IN THE ANNEXATION AREA  
\$/MWh**

Year	SMUD				PG&E							% SMUD Different Than PG&E
	DWR Energy/ Bond Costs/ Reg Assets/CTC	Nuclear Decom- missioning	Total	ND	Ongoing CTC	DWR Bond	ECRA	DWR Power	Davis DWR Power Exemption	New Load DWR Power & ECRA Exemption	Total	
2008	\$26.60	\$0.40	\$27.00	\$0.40	\$4.30	\$4.90	\$4.40	\$13.50	-\$0.40	\$0.00	\$27.10	0%
2009	\$26.50	\$0.40	\$26.90	\$0.40	\$4.10	\$4.90	\$4.40	\$13.70	-\$0.40	-\$0.30	\$26.80	0%
2010	\$26.90	\$0.40	\$27.30	\$0.40	\$3.80	\$4.90	\$4.40	\$14.00	-\$0.40	-\$0.30	\$26.80	2%
2011	\$26.90	\$0.40	\$27.30	\$0.40	\$3.50	\$4.90	\$4.40	\$14.20	-\$0.40	-\$0.30	\$26.70	2%
2012	\$27.00	\$0.40	\$27.40	\$0.40	\$3.30	\$4.90	\$4.40	\$14.50	-\$0.40	-\$0.40	\$26.70	3%
2013	\$9.50	\$0.40	\$9.90	\$0.40	\$3.00	\$4.90	-	-	-	-	\$8.30	19%
2014	\$9.50	\$0.40	\$9.90	\$0.40	\$2.80	\$4.90	-	-	-	-	\$8.10	22%
2015	\$9.50	\$0.40	\$9.90	\$0.40	\$2.50	\$4.90	-	-	-	-	\$7.80	27%
2016	\$9.50	\$0.40	\$9.90	\$0.40	\$2.30	\$4.90	-	-	-	-	\$7.60	30%
2017	\$9.50	\$0.40	\$9.90	\$0.40	\$2.00	\$4.90	-	-	-	-	\$7.30	36%
2018	\$9.50	\$0.40	\$9.90	\$0.40	\$1.80	\$4.90	-	-	-	-	\$7.10	39%
2019	\$9.50	-	\$9.50	\$0.40	\$1.50	\$4.90	-	-	-	-	\$6.80	40%
2020	\$9.50	-	\$9.50	\$0.40	\$1.30	\$4.90	-	-	-	-	\$6.60	44%
2021	\$9.50	-	\$9.50	\$0.40	\$1.00	\$4.90	-	-	-	-	\$6.30	51%
2022	\$9.50	-	\$9.50	\$0.40	\$0.80	\$4.90	-	-	-	-	\$6.10	56%
2023	\$5.20	-	\$5.20	\$0.40	\$0.50	-	-	-	-	-	\$0.90	478%
2024	\$5.20	-	\$5.20	\$0.40	\$0.30	-	-	-	-	-	\$0.70	643%
2025	-	-	-	\$0.40	\$0.00	-	-	-	-	-	\$0.40	-
2026	-	-	-	\$0.40	-	-	-	-	-	-	\$0.40	-
2027	-	-	-	\$0.40	-	-	-	-	-	-	\$0.40	-

Note: Converted from kWh to MWh.

Sources: SMUD February 15, 2006 filing, Attachment 1; PG&E March 15, 2006 filing providing functional breakdown of PG&E electric rate forecast presented in February 28 report to LAFCC.

**COMPARISON OF SMUD AND PG&E TOTAL FEES  
IN THE ANNEXATION AREA  
(\$/MWh)**

Year	SMUD			PG&E			% SMUD Different Than PG&E
	Cost of Service	Franchise & Property Taxes	Non- Bypassable Expenses	Cost of Service	Franchise & Property Taxes	Non- Bypassable Expenses	
2008	\$81.85	\$2.90	\$27.00	\$88.95	\$1.60	\$27.10	-5%
2009	\$97.35	\$3.10	\$26.90	\$100.81	\$1.70	\$26.80	-2%
2010	\$84.57	\$3.00	\$27.30	\$90.03	\$1.80	\$26.80	-3%
2011	\$99.90	\$3.20	\$27.30	\$103.87	\$1.80	\$26.70	-1%
2012	\$96.49	\$3.20	\$27.40	\$98.59	\$1.80	\$26.70	0%
2013	\$107.14	\$3.30	\$9.90	\$107.88	\$1.80	\$8.30	2%
2014	\$103.69	\$3.40	\$9.90	\$105.07	\$1.80	\$8.10	2%
2015	\$115.05	\$3.60	\$9.90	\$122.93	\$1.90	\$7.80	-3%
2016	\$115.85	\$3.60	\$9.90	\$125.62	\$1.90	\$7.60	-4%
2017	\$116.59	\$3.70	\$9.90	\$122.17	\$1.90	\$7.30	-1%
2018	\$121.84	\$3.80	\$9.90	\$134.86	\$2.00	\$7.10	-6%
2019	\$127.31	\$4.00	\$9.50	\$138.29	\$2.10	\$6.80	-4%
2020	\$130.21	\$4.00	\$9.50	\$142.28	\$2.10	\$6.60	-5%
2021	\$133.25	\$4.20	\$9.50	\$144.72	\$2.10	\$6.30	-4%
2022	\$137.97	\$4.30	\$9.50	\$148.69	\$2.10	\$6.10	-3%
2023	\$142.90	\$4.40	\$5.20	\$156.25	\$2.20	\$0.90	-4%
2024	\$146.90	\$4.50	\$5.20	\$153.30	\$2.20	\$0.70	0%
2025	\$151.03	\$4.70	-	\$156.51	\$2.30	\$0.40	-2%
2026	\$151.44	\$4.70	-	\$145.25	\$2.40	\$0.40	5%
2027	\$151.87	\$4.90	-	\$150.89	\$2.50	\$0.40	2%
			Total		Total	Total	
			\$111.75		\$117.65		
			\$127.35		\$129.31		
			\$114.87		\$118.63		
			\$130.40		\$132.37		
			\$127.09		\$127.09		
			\$120.34		\$117.98		
			\$116.99		\$114.97		
			\$128.55		\$132.63		
			\$129.35		\$135.12		
			\$130.19		\$131.37		
			\$135.54		\$143.96		
			\$140.81		\$147.19		
			\$143.71		\$150.98		
			\$146.95		\$153.12		
			\$151.77		\$156.89		
			\$152.50		\$159.35		
			\$156.60		\$156.20		
			\$155.73		\$159.21		
			\$156.14		\$148.05		
			\$156.77		\$153.79		

Note: Cost of service calculated by dividing total expenses by load served.

Sources: SMUD February 15, 2006 filing, Attachment 1; PG&E March 15, 2006 filing providing functional breakdown of PG&E electric rate forecast presented in February 28 report to LAFCo.

**COMPARISON OF PG&E RETAIL RATES  
WITH SMUD TOTAL COST OF SERVICE  
IN THE ANNEXATION AREA  
(\$/kWh)**

<b>Year</b>	<b>SMUD Estimate of PG&amp;E Rates</b>	<b>SMUD Cost of Service @ \$137 million</b>	<b>SMUD Cost of Service @ \$154 million</b>	<b>Adjusted PG&amp;E Rates</b>
2008	\$0.1302	\$0.1181	\$0.1193	\$0.1304
2009	\$0.1425	\$0.1332	\$0.1344	\$0.1385
2010	\$0.1354	\$0.1220	\$0.1231	\$0.1382
2011	\$0.1473	\$0.1379	\$0.1390	\$0.1446
2012	\$0.1468	\$0.1349	\$0.1360	\$0.1366
2013	\$0.1508	\$0.1313	\$0.1330	\$0.1397
2014	\$0.1506	\$0.1276	\$0.1293	\$0.1401
2015	\$0.1613	\$0.1389	\$0.1405	\$0.1489
2016	\$0.1640	\$0.1396	\$0.1411	\$0.1498
2017	\$0.1667	\$0.1402	\$0.1416	\$0.1528
2018	\$0.1723	\$0.1453	\$0.1467	\$0.1560
2019	\$0.1777	\$0.1503	\$0.1517	\$0.1593
2020	\$0.1815	\$0.1533	\$0.1545	\$0.1629
2021	\$0.1855	\$0.1561	\$0.1573	\$0.1657
2022	\$0.1907	\$0.1608	\$0.1620	\$0.1681
2023	\$0.1916	\$0.1614	\$0.1625	\$0.1700
2024	\$0.1963	\$0.1654	\$0.1664	\$0.1737
2025	\$0.1958	\$0.1643	\$0.1653	\$0.1829
2026	\$0.1991	\$0.1647	\$0.1656	\$0.1902
2027	\$0.2025	\$0.1650	\$0.1659	\$0.1937



GES ESTIMATED ECONOMIC IMPACTS: HIGH ESTIMATE

CUSTOMERS/LOAD

Customer/Load (MW)	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Continued	80,227	81,634	83,866	84,477	85,900	87,332	88,764	90,238	91,724	93,225	94,761	96,333	97,941	99,581	100,792	102,131	103,497	104,892	106,315	107,767
Residential	496,749	495,188	503,815	512,316	520,987	529,704	538,557	547,537	556,446	565,531	574,823	584,320	594,029	602,699	611,544	619,796	628,215	636,879	645,520	654,435
Commercial	133,284	136,131	139,206	142,311	145,449	148,640	151,883	155,180	158,531	161,937	165,398	168,915	172,488	176,117	179,794	183,519	187,294	191,119	194,994	198,919
Industrial	406,249	396,475	402,580	412,838	423,232	432,844	442,541	451,341	459,140	466,940	474,740	482,540	490,340	498,140	505,940	513,740	521,540	529,340	537,140	544,940
Other	7,300	7,534	7,685	7,846	8,007	8,168	8,329	8,490	8,651	8,812	8,973	9,134	9,295	9,456	9,617	9,778	9,939	10,100	10,261	10,422
Total Load at Meter	1,361,000	1,385,578	1,412,287	1,439,170	1,467,187	1,495,950	1,525,627	1,556,103	1,586,370	1,617,329	1,648,990	1,681,460	1,714,712	1,748,745	1,783,559	1,819,164	1,855,569	1,892,774	1,930,789	1,969,614
Load Factor (LDF)	1,279,948	1,304,523	1,331,191	1,358,116	1,385,316	1,414,985	1,445,572	1,476,108	1,507,631	1,539,190	1,571,744	1,605,253	1,638,767	1,672,236	1,705,710	1,739,139	1,772,563	1,805,932	1,839,306	1,872,635
Peak Demand (PD)	102,396	104,362	106,495	108,690	110,941	113,247	115,606	118,019	120,485	122,997	125,554	128,156	130,803	133,495	136,232	139,014	141,841	144,713	147,630	150,592
Energy Requirement	1,382,341	1,409,494	1,437,667	1,465,963	1,494,390	1,522,949	1,551,631	1,580,436	1,609,364	1,638,415	1,667,589	1,696,886	1,726,305	1,755,846	1,785,509	1,815,294	1,845,199	1,875,224	1,905,368	1,935,631
Conventional Energy	1,198,812	1,184,461	1,178,903	1,173,412	1,167,918	1,162,469	1,157,016	1,151,516	1,146,016	1,140,516	1,135,016	1,129,516	1,124,016	1,118,516	1,113,016	1,107,516	1,102,016	1,096,516	1,091,016	1,085,516
Renewable Energy	193,529	221,421	258,784	291,551	329,269	365,480	408,615	457,920	513,354	575,900	645,573	723,370	811,289	910,330	1,020,489	1,142,769	1,277,173	1,423,688	1,582,772	1,754,115

PROSES (MADN)

Market Electricity	569,044	571,112	562,522	570,932	579,342	587,752	596,162	598,572	598,982	598,392	597,802	597,212	596,622	596,032	595,442	594,852	594,262	593,672	593,082	592,492
DWR Load Repayment	527,000	527,000	527,000	527,000	527,000	527,000	527,000	527,000	527,000	527,000	527,000	527,000	527,000	527,000	527,000	527,000	527,000	527,000	527,000	527,000
Other	331,711	331,711	331,711	331,711	331,711	331,711	331,711	331,711	331,711	331,711	331,711	331,711	331,711	331,711	331,711	331,711	331,711	331,711	331,711	331,711

REVENUES (\$000)

Residential	\$18,531	\$55,819	\$52,869	\$59,633	\$65,188	\$65,188	\$70,211	\$75,716	\$78,238	\$82,301	\$87,501	\$91,201	\$95,964	\$99,651	\$104,317	\$108,720	\$113,309	\$117,561	\$121,975	\$126,601	
Commercial/Industrial	\$15,744	\$18,017	\$17,103	\$19,253	\$20,401	\$21,294	\$21,999	\$24,047	\$24,961	\$25,890	\$27,046	\$28,117	\$30,640	\$31,830	\$33,661	\$35,150	\$36,757	\$38,427	\$39,994	\$41,253	\$42,601
Other	\$3,175	\$4,709	\$4,924	\$5,064	\$5,168	\$5,246	\$5,308	\$5,352	\$5,387	\$5,413	\$5,431	\$5,443	\$5,450	\$5,453	\$5,455	\$5,456	\$5,456	\$5,456	\$5,456	\$5,456	\$5,456
Total Revenues	\$173,318	\$140,708	\$133,658	\$150,324	\$153,649	\$156,988	\$160,708	\$164,801	\$168,261	\$171,112	\$173,422	\$175,191	\$176,422	\$177,191	\$177,422	\$177,191	\$176,422	\$175,191	\$173,422	\$171,112	\$168,261

COST OF SERVICE (\$000)

Residential	\$70,948	\$87,718	\$73,705	\$89,108	\$97,308	\$100,634	\$98,825	\$113,647	\$116,793	\$119,964	\$128,656	\$137,929	\$144,338	\$150,761	\$159,383	\$168,683	\$176,820	\$183,573	\$188,928	\$192,582	\$195,601
Commercial/Industrial	\$17,210	\$16,110	\$16,839	\$17,789	\$18,339	\$18,774	\$19,118	\$19,352	\$19,488	\$19,524	\$19,560	\$19,596	\$19,632	\$19,668	\$19,704	\$19,740	\$19,776	\$19,812	\$19,848	\$19,884	\$19,920
Other	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Total	\$98,158	\$113,828	\$100,544	\$116,897	\$125,647	\$129,408	\$128,943	\$142,804	\$146,156	\$149,988	\$158,216	\$167,425	\$174,336	\$180,521	\$189,745	\$198,383	\$205,646	\$211,593	\$216,928	\$221,582	\$225,601

DWR SHARE (\$000)

Total Debt Service	\$9,275	\$9,927	\$10,577	\$11,227	\$11,875	\$12,471	\$13,049	\$13,611	\$14,159	\$14,703	\$15,243	\$15,779	\$16,311	\$16,841	\$17,369	\$17,895	\$18,419	\$18,941	\$19,461	\$19,979	\$20,495
Net Income (\$000)	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531

PERCENTAGE

Customer/Load	80.227%	81.634%	83.866%	84.477%	85.900%	87.332%	88.764%	90.238%	91.724%	93.225%	94.761%	96.333%	97.941%	99.581%	100.792%	102.131%	103.497%	104.892%	106.315%	107.767%	
Residential	36.1%	35.8%	36.5%	37.2%	37.9%	38.6%	39.3%	40.0%	40.7%	41.4%	42.1%	42.8%	43.5%	44.2%	44.9%	45.6%	46.3%	47.0%	47.7%	48.4%	49.1%
Commercial	27.1%	27.4%	27.7%	28.0%	28.3%	28.6%	28.9%	29.2%	29.5%	29.8%	30.1%	30.4%	30.7%	31.0%	31.3%	31.6%	31.9%	32.2%	32.5%	32.8%	33.1%
Industrial	29.6%	28.8%	29.5%	30.2%	30.9%	31.6%	32.3%	33.0%	33.7%	34.4%	35.1%	35.8%	36.5%	37.2%	37.9%	38.6%	39.3%	40.0%	40.7%	41.4%	42.1%
Other	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%

PERCENTAGE

Customer/Load	80.227%	81.634%	83.866%	84.477%	85.900%	87.332%	88.764%	90.238%	91.724%	93.225%	94.761%	96.333%	97.941%	99.581%	100.792%	102.131%	103.497%	104.892%	106.315%	107.767%	
Residential	36.1%	35.8%	36.5%	37.2%	37.9%	38.6%	39.3%	40.0%	40.7%	41.4%	42.1%	42.8%	43.5%	44.2%	44.9%	45.6%	46.3%	47.0%	47.7%	48.4%	49.1%
Commercial	27.1%	27.4%	27.7%	28.0%	28.3%	28.6%	28.9%	29.2%	29.5%	29.8%	30.1%	30.4%	30.7%	31.0%	31.3%	31.6%	31.9%	32.2%	32.5%	32.8%	33.1%
Industrial	29.6%	28.8%	29.5%	30.2%	30.9%	31.6%	32.3%	33.0%	33.7%	34.4%	35.1%	35.8%	36.5%	37.2%	37.9%	38.6%	39.3%	40.0%	40.7%	41.4%	42.1%
Other	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%

PERCENTAGE

Customer/Load	80.227%	81.634%	83.866%	84.477%	85.900%	87.332%	88.764%	90.238%	91.724%	93.225%	94.761%	96.333%	97.941%	99.581%	100.792%	102.131%	103.497%	104.892%	106.315%	107.767%	
Residential	36.1%	35.8%	36.5%	37.2%	37.9%	38.6%	39.3%	40.0%	40.7%	41.4%	42.1%	42.8%	43.5%	44.2%	44.9%	45.6%	46.3%	47.0%	47.7%	48.4%	49.1%
Commercial	27.1%	27.4%	27.7%	28.0%	28.3%	28.6%	28.9%	29.2%	29.5%	29.8%	30.1%	30.4%	30.7%	31.0%	31.3%	31.6%	31.9%	32.2%	32.5%	32.8%	33.1%
Industrial	29.6%	28.8%	29.5%	30.2%	30.9%	31.6%	32.3%	33.0%	33.7%	34.4%	35.1%	35.8%	36.5%	37.2%	37.9%	38.6%	39.3%	40.0%	40.7%	41.4%	42.1%
Other	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%





