Proceeding No.:   A.10-07-_____

Exhibit No.:   _____

WITNESS: Daniel J. Shulman

Application of San Diego Gas & Electric
Company (U 902 E) for Approval of its
Proposals for Dynamic Pricing and Recovery of
Incremental Expenditures Required for
Implementation.

PREPARED DIRECT TESTIMONY OF

DANIEL J. SHULMAN

CHAPTER 5

SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA
July 06, 2010

SDGE

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PREPARED DIRECT TESTIMONY OF

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CHAPTER 5

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I. INTRODUCTION

The purpose of my testimony is to describe the Information Technology (IT) plans and associated incremental costs San Diego Gas & Electric Company (SDG&E) will incur for the PeakShift at Home (PSH), PeakShift at Work (PSW) and other TimeOfDay (TOD) dynamic rate proposals contained in this Application. Prior chapters have described the business functionality that will be required to handle the various elements of offering dynamic rates to the largest segments of our customer base (*i.e.*, small nonresidential and residential customers). IT systems constitute one of the major areas where SDG&E will need to invest resources to implement and support those rates.

The IT systems needed to support the proposed dynamic rates will be incremental in nature. Currently, SDG&E offers Critical Peak Pricing (CPP) rates to its large nonresidential customers (*i.e.*, CPP-D). Because the size of that customer class is small relative to the size of the small nonresidential and residential classes, many of the data management and rate eligibility functions have been performed manually (such as determining whether a business customer is eligible to participate in the CPP-D rate and managing billing exceptions).

This chapter will focus on the new business capabilities which are required to implement the proposed dynamic rates for small nonresidential and residential customers. The sections will focus on the following capabilities:

- Online Presentment and Rate Analysis
- Eligibility
- Marketing, Outreach and Education

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1   • Care and Maintenance

2   • Billing

3   • Event Management

4   • Enrollment and Anniversary Management

5   The following sections describe the required system enhancements, their associated

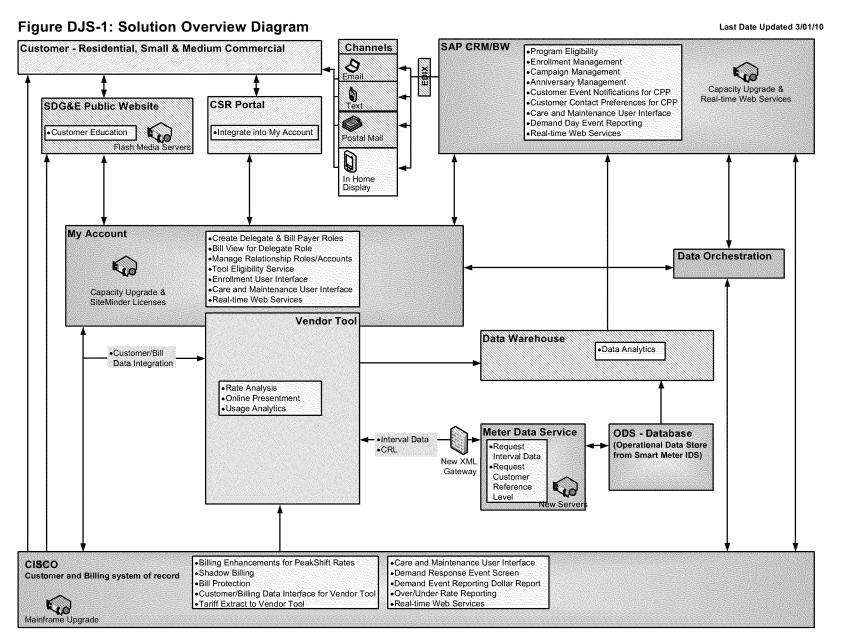6 integration with other legacy systems, and new functionality or systems.

7 **II.   OVERALL SYSTEM ENHANCEMENTS REQUIRED**

8   To effectively support the proposed additional dynamic rates, new and enhanced

9 automation is required in the majority of these business capabilities. The table below (TABLE

10 DJS-1) shows the breakdown of direct costs[1] for each of the business capabilities to be enhanced

11 as part of this filing. SDG&E has also provided a solution overview diagram (FIGURE DJS-1),

12 which shows a high-level functional view of the systems and proposed process flow.

13 **TABLE DJS-1: Breakdown of Direct Costs by Business Capability**

	Direct Cost	%
Online Presentment, Rate Analysis	$13,083,447	40%
Eligibility	$ 3,891,177	12%
Marketing, Outreach, Education	$ 3,727,351	12%
Care and Maintenance	$ 2,578,555	8%
Billing	$ 1,915,283	6%
Event Management	$ 1,842,078	6%
Enrollment, Anniversary Management	$ 1,758,892	5%
Contingency	$ 3,599,598	11%
Total	**$32,396,381**	**100%**

14

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[1] Direct costs do not include labor and non-labor loaders. The appropriate loaders are applied and calculated in Chapter 6 (Myers).

Figure DJS-1: Solution Overview Diagram

Last Date Updated 3/01/10

Customer - Residential, Small & Medium Commercial

Channels
- Email
- Text
- Postal Mail
- In Home Display

EDIX

SAP CRM/BW
- Program Eligibility
- Enrollment Management
- Campaign Management
- Anniversary Management
- Customer Event Notifications for CPP
- Customer Contact Preferences for CPP
- Care and Maintenance User Interface
- Demand Day Event Reporting
- Real-time Web Services

Capacity Upgrade & Real-time Web Services

SDG&E Public Website
- Customer Education

Flash Media Servers

CSR Portal
- Integrate into My Account

My Account

Capacity Upgrade & SiteMinder Licenses

- Create Delegate & Bill Payer Roles
- Bill View for Delegate Role
- Manage Relationship Roles/Accounts
- Tool Eligibility Service
- Enrollment User Interface
- Care and Maintenance User Interface
- Real-time Web Services

Data Orchestration

Vendor Tool

- Customer/Bill Data Integration

- Rate Analysis
- Online Presentment
- Usage Analytics

Data Warehouse
- Data Analytics

- Interval Data
- CRL

New XML Gateway

Meter Data Service
- Request Interval Data
- Request Customer Reference Level

New Servers

ODS - Database
(Operational Data Store from Smart Meter IDS)

CISCO
Customer and Billing system of record

Mainframe Upgrade

- Billing Enhancements for PeakShift Rates
- Shadow Billing
- Bill Protection
- Customer/Billing Data Interface for Vendor Tool
- Tariff Extract to Vendor Tool

- Care and Maintenance User Interface
- Demand Response Event Screen
- Demand Event Reporting Dollar Report
- Over/Under Rate Reporting
- Real-time Web Services

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1   **A.   Online Presentment and Rate Analysis**

2   A significant portion of the IT costs in this testimony are due to the addition of new

3 online presentment and rate analysis capabilities. In addition to a new tool being implemented

4 within *My Account*, there is a significant amount of complex integration and infrastructure

5 required to present a seamless solution to the customer.

6

7 New Online Presentment and Rate Analysis Tool

8   SDG&E is purchasing a new online presentment and rate analysis tool which will be

9 integrated into SDG&E's website, specifically the *My Account* web portal. The functionality of

10 this new online tool will provide customers the ability to perform rate analysis between the

11 newly available dynamic rates along with additional usage analytics and goal setting features as

12 described in the section below. The tool will require SDG&E to purchase additional

13 infrastructure and requires extensive integration to implement the tool into *My Account* and

14 SDG&E IT environments.

15

16 Usage Analytics, Goals and Alerts

17   During the final stages of SDG&E's filing development, the Commission issued a

18 decision on PG&E's application to implement peak day pricing (D.10-02-032, p. 110). The

19 Commission presented additional scope items surrounding the area of usage analytics, goals and

20 alerts, stating: "while PG&E is planning to provide alerts to customers on time varying rates, we

21 will also require that all customers should be able to request alerts based on the conditions of

22 their choice such as a target cumulative consumption threshold, a target cumulative cost

23 threshold, and imminent crossover into a higher tier rate."

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1   SDG&E has placed a high priority on developing a proposal that will result in a smooth

2   and cost-effective customer experience. Throughout this proceeding, SDG&E expects to

3   continue to collaborate with the Commission's Energy Division and other stakeholders to ensure

4   the best solution possible for our customers.

5

6   <u>*My Account* Portal Enhancements</u>

7   *My Account* will be enhanced to allow customers to enroll in available optional rates. To

8   assist customers, SDG&E's new rate analysis tool will use either a customer's own historical

9   smart meter interval data or pre-defined load profiles if historical data does not exist. When a

10   customer enrolls in a rate, this information will be sent to both the SAP Customer Relationship

11   Management (CRM) system and the Customer Information System (CISCO) for further

12   processing. Functionality allowing the customer to update their rate options (*e.g.*, Capacity

13   Reservation Charge for large commercial customers, notification preferences, etc.) will also be

14   added to *My Account*.

15   SDG&E also proposes enhanced functionality that would allow multiple representatives

16   of each nonresidential customer to perform rate analysis and monitor energy consumption on the

17   same set of accounts. The current *My Account* customer portal (which provides a number of

18   customer services, including viewing and paying a customer bill) addresses residential customer

19   needs and can only be associated with one registered user. SDG&E proposes to implement

20   functionality for nonresidential customers to assign more than one employee delegate within a

21   company to view and analyze the customer's data in different ways. *My Account* would be able

22   to show which customer services are available for each specified delegate. For example, one

23   business delegate may be allowed to pay bills, while several delegates would be allowed to view

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1   the business's energy usage and perform rate analyses. This enhancement will require creation

2   of new account management functionality within SDG&E's *My Account* and CISCO.

3   Customer Service Representatives (CSR) will continue to be able to view and update

4   customer information within *My Account*, for the benefit of customers who do not have internet

5   access or who have questions about their *My Account* information. Adding PeakShift

6   implementation-related enhancements requires changes to SDG&E's CSR Portal – an internal

7   view of *My Account* used by select SDG&E employees who need to see information as it is

8   presented to customers.

9

10   Interval Data/Operational Data Store Integration

11   The current smart meter implementation includes the ability to store the interval data

12   within an Operational Data Store (ODS). This will be used to present interval data consumption

13   as well as provide rate analysis for the customer within the *My Account* customer portal, as

14   described previously.

15   SDG&E will use an existing Meter Data Service (see Figure DJS-1) to provide the

16   interval data to any system authorized to make the request, such as the new Online Presentment

17   and Rate Analysis tool. This Meter Data Service currently provides previous day interval data to

18   third parties such as Google for display within the Google PowerMeter.[2] SDG&E proposes to

19   enhance its existing Meter Data Service in order to retrieve the necessary (larger) amounts of

20   historical interval data from the ODS to send to the new vendor tool.

_____

[2] SDG&E has partnered with Google to provide previous day interval usage data to customers
with Smart Meters.

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B.   Eligibility

SDG&E's CRM system will be enhanced to determine which customers are eligible for the proposed new rates. This enhancement will provide the foundational functionality required to support eligibility requirements within this proceeding. This automated eligibility functionality will also need to include the rules for when a customer will default to a specified rate, or if the rate is a voluntary opt-in rate. Currently, the CRM system can only maintain eligibility for SDG&E's Energy Efficiency and Demand Response programs. The CRM system is not currently capable of more complex eligibility and enrollment functionality required for the proposed dynamic rates, which impact a significantly greater number of customers (*i.e.*, hundreds of thousands of customers versus tens of thousands).

The proposed enhancements to the CRM system will allow retrieval of real-time customer rate eligibility from the CRM system and will recognize when a customer is able to opt-in or opt-out of a specific rate. For example, when a customer logs into *My Account*, the new customer portal enrollment functionality will only display the rates the customer is eligible to change at that specific time based on the rate eligibility criteria defined within the CRM system. This example and additional customer self-service capabilities described in the Care and Maintenance section below require real-time web services integration between *My Account* and CRM.

C.   Marketing, Outreach and Education

During the eligibility time period, new customer campaigns will be developed to ensure the customer fully understands the customer program for which they are eligible. The CRM

1   system will be one method for sending out materials related to customer education and outreach

2   for dynamic rates, as addressed in Chapter 2 (Breed) and Chapter 3 (Saxe).

3   SDG&E also proposes implementing enhancements to support the ability for Account

4   Managers to manage their contacts within CRM. This includes the ability to load more accurate

5   external contact lists for customers than may be available within the SDG&E systems and more

6   streamlined workflows for Account Managers to manage their customers. CRM will be

7   enhanced to track which outgoing communications were received by the customers through

8   email, direct mail and text messaging.

9   Customers who have access to the internet and prefer to obtain information on SDG&E's

10   website (www.sdge.com) regarding their expanded electricity rate options will be able to do so,

11   as explained in Chapter 2 (Breed) and Chapter 3 (Saxe). An online classroom will be developed

12   that incorporates segment-specific training and education. The goal will be for these customers

13   to register with the *My Account* customer portal in order to make more educated decisions with

14   their own smart meter interval data. For some of these enhancements, integration into the core

15   Customer Care systems is required. This testimony includes the cost of the infrastructure and

16   software licenses required to implement these capabilities.

17

18   **D.   Care and Maintenance**

19   Currently, the management of customer information related to large business customers

20   on CPP-D is performed manually and is maintained in both SDG&E's CRM and CISCO

21   applications. For example, spreadsheets are used to determine when a business customer is

22   eligible for the CPP-D rate and a flag in CISCO is updated. A nightly batch process sends this

23   information to the CRM for additional processing. If, as proposed here, a large number of

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1 business and residential customers are added to the dynamic rates, maintenance of this

2 information would need to be automated with real-time web services integration between CISCO

3 and CRM. Additional capabilities within *My Account* will also be required so that the customer

4 can update the relevant information online, without the need to call an SDG&E CSR.

5   This system enhancement requires additional complex integration within SDG&E's

6 Enterprise Messaging Framework. This will allow the required information to be updated in any

7 system and have the information immediately available to CISCO (for billing) and CRM (for

8 eligibility, enrollment, marketing, etc.).

9

10 **E.   Billing**

11   In addition to enhancements to the CRM system, SDG&E's proposal requires a number

12 of enhancements for the CISCO billing system. CISCO was previously enhanced to support

13 both Shadow Billing and Bill Protection for our medium and large nonresidential customers

14 participating in the CPP-D program, and would need to be further enhanced to implement

15 Shadow Billing and Bill Protection under the proposed dynamic rates. In the Shadow Bill

16 process, CISCO stores the customer's monthly bill for their Otherwise Applicable Rate (OAR).

17 On a customer's anniversary date, the Bill Protection process will determine whether the

18 customer would have fared better on the OAR and provide a customer credit for the annual

19 difference.

20   Enhanced functionality in the CISCO system will also enable SDG&E to better create the

21 reports needed to determine the annual revenue over/under collections resulting from

22 implementation of the proposed dynamic rates. As explained in Chapter 2 (Breed) and Chapter 3

23 (Saxe), SDG&E proposes tracking and recording differences in revenues collected under the

1   dynamic rates compared to the customer's otherwise applicable rate to ensure any revenue

2   differences are recovered from only the appropriate customer class. Shadow Billing will allow

3   these revenue differences to be tracked and recorded on an ongoing basis.

4   **F.   Event Management**

5   The CRM system will also be enhanced with the ability to integrate with external third

6   parties for the purposes of sending email or text messages. These notifications can occur during

7   marketing activities as well as during peak usage event ("ReduceYourUse Day") periods. The

8   CRM system will also be able to store different customer notification preferences. This new

9   functionality will be tightly integrated with *My Account* to allow customers to update this

10   information within the customer portal, as described in the Care and Maintenance section above.

11   SDG&E does not propose to include ReduceYourUse Day notification using outbound

12   dialer technologies. SDG&E has determined that outbound dialing would not be cost effective

13   for ReduceYourUse Day notifications.

14

15   **G.   Enrollment and Anniversary Management**

16   The CRM system will also be responsible for recognizing when a customer actually

17   enrolls in one of the available rates, either on a default or opt-in basis. Once enrollment occurs,

18   CRM will send information to CISCO, which will set up the billing account for the customer on

19   the new dynamic rates. CISCO will also be responsible for determining the many other variables

20   required to bill customers on the new rate and revising the customer's billed rate attributes

21   accordingly.

1   Likewise, the CRM system will be responsible for all anniversary management

2 functionality, including customer notification and enrollment during the anniversary period as

3 well as allowing a customer to opt-in or opt-out of their current rate within *My Account*.

4 **III.   SUMMARY OF IT COSTS AND STAGED IMPLEMENTATION APPROACH**

5   TABLE DJS-2 reflects the estimated IT capital costs that would be incurred as part of

6 this Application (as proposed). Estimates include all capital costs associated with enhancing the

7 customer portal (*i.e.*, *My Account*), CISCO, and the CRM system. Estimates also include

8 integration of all legacy systems along with the supporting infrastructure and tools.

9   SDG&E has divided implementation of the PeakShift project into two stages. In Stage 1,

10 SDG&E will implement all required systems and interfaces for starting our online customer

11 education and outreach along with the new vendor tool for online presentment of customer

12 interval data. In Stage 2, SDG&E will implement the rest of the functionality required to meet

13 the requirements in this Application. TABLE DJS-3 shows a high-level timeline for these stages

14 with approximate durations of each stage.

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TABLE DJS-2: INCREMENTAL PEAKSHIFT INFORMATION TECHNOLOGY COSTS

(Thousands of Dollars in 2009 Dollars)

ACTIVITY	2010	2011	2012	2013	2014	2015	Total
Capital							
Total system enhancement capital cost	$ 843	$ 10,020	$ 7,357	$ 1,633	$ -	$ -	$ 19,853
Total hardware capital cost	$ 615	$ 1,123	$ 1,514	$ 1,201	$ -	$ -	$ 4,453
Total software capital cost	$ 603	$ 1,751	$ 1,396	$ 740	$ -	$ -	$ 4,491
Contingency	$ -	$ 258	$ 1,612	$ 1,730	$ -	$ -	$ 3,600
Subtotal	$ 2,061	$ 13,152	$ 11,879	$ 5,304	$ -	$ -	$ 32,396
Non-Capital							
Total IT incremental operations and maintenance	$ 337	$ 70	$ 300	$ 656	$ 750	$ 750	$ 2,862
Total Staff operations and maintenance	$ 123	$ -	$ 153	$ 420	$ 459	$ 459	$ 1,613
Total hardware non-capital cost	$ -	$ 20	$ -	$ -	$ -	$ -	$ 20
Total software non-capital cost	$ -	$ -	$ 489	$ 1,240	$ 1,409	$ 1,470	$ 4,608
Subtotal	$ 460	$ 90	$ 942	$ 2,316	$ 2,617	$ 2,678	$ 9,103
Total	$ 2,521	$ 13,242	$ 12,821	$ 7,620	$ 2,617	$ 2,678	$ 41,500

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TABLE DJS-3

Proposed Timeline for Staged Implementation

Stage 1	Month	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13
Project Prep																																			
Pilot																																			
Requirements																																			
Design																																			
Construct/Build																																			
Integration/System Test																																			
UAT																																			
Implementation																																			

Stage 2	Month	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13
Requirements																																			
Design																																			
Construct/Build																																			
Integration/System Test																																			
UAT																																			
Implementation																																			

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IV. PROJECT ESTIMATION METHODOLOGY, RISKS AND MITIGATION

To estimate the costs for this filing, the project management team created a high-level scope document from which the IT teams estimated the project costs. Any scope items which were not mandatory were not included for IT estimation.

An estimate was created based on these minimal scope items. During the project, the nature of such a high-level scoping process will likely lead to a number of additional project costs that were not documented during the initial scoping sessions. Automating eligibility and enrollment of hundreds of thousands of customers to the new dynamic rates being proposed in this Application will require extensive changes to almost every legacy system within the SDG&E IT Customer Care department. Such changes include, but are not limited to: (i) enhancing the CRM system to manage all customer eligibility and enrollment processing, (ii) integrating a new online presentment and rate analysis tool within the *My Account* customer portal, (iii) implementing business customer delegate and customer enrollment functionality within the *My Account* customer portal, and (iv) implementing the entire solution for large volumes of customers.

The above changes will present significant technical challenges, and with such challenges come corresponding risks. To account for such risk, SDG&E has included an 11% additional contingency factor to cover unforeseen costs. There is no contingency adder for projected O&M costs. Contingency costs account for unanticipated additional requirements that commonly arise in the initial phases of an IT project of this magnitude, given the inherent limitations and uncertainty in the initial scope of planning a sizeable and complex IT build out. Such additional requirements will become more defined over the course of implementing the project. It is common that the level of contingency will be 11% or greater during the initial phases of a project

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1   of this size. The amount of contingency required during the later phases reduces as there are

2   fewer unknowns.

3   This concludes my direct testimony.

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V. STATEMENT OF QUALIFICATIONS

My name is Daniel J. Shulman and I am employed by SDG&E. My business address is 8335 Century Park Court, CP11B, San Diego, CA 92123.

My present position is IT Project Manager within the IT Customer Care Program Management Office. I have been employed by SDG&E from 2002 to the present. From 2002 - 2003, I was a Software Project Lead responsible for the Customer Information System areas of Finance, Credit, Collection and Revenue Reporting. During this time, I also implemented the company's *My Account* customer portal which introduced a number of new technologies to the IT organization. From 2004 – 2005, I joined the Advanced Metering Infrastructure (AMI) team and was responsible for gathering all IT costs associated with AMI. In 2006, I became a Software Development Manager responsible for the Customer Information System's Finance and Service Order teams. I assumed my current position in 2008. I started my career at Andersen Consulting (currently Accenture) where I spent most of my tenure implementing the Customer Information System at Southern California Gas Company. I then spent the rest of my career implementing Customer Relationship Management systems at a variety of large companies around the United States until I joined SDG&E.

I received a Bachelor of Science degree in Mathematics Applied Science with a Specialization in Computing from University of California at Los Angeles in 1993. I have not previously testified before the California Public Utilities Commission.

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