Application of San Diego Gas & Electric Company (U902M) for authority to update its gas and electric revenue requirement and base rates effective on January 1, 2012.	A.10-12-005
Application of Southern California Gas Company for authority to update its gas revenue requirement and base rates effective on January 1, 2012. (U904G)	A.10-12-006

Exhibit No.: (SCG-12-CWP-R)

REVISED CAPITAL WORKPAPERS TO

PREPARED DIRECT TESTIMONY

OF JEFFREY C. NICHOLS

ON BEHALF OF SOUTHERN CALIFORNIA GAS COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

JULY 2011

The
Gas
Company®

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
BPS Replacement	778.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	572	0	0	572
DIRECT NONLABOR	0	0	0	799	0	0	799
TOTAL DIRECT CAPITAL	0	0	0	1371	0	0	1371
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	1371	0	0	1371
FTE	0	0	0	6.1	0	0	6.1

Business Purpose

In 2006, IT implemented the Business Planning and Simulation (BPS) module of SAP. Since then, the needs and expectations of the budget planners have evolved and have surpassed the functional capabilities of this product. This coupled with the business changing at a faster rate than the IT systems that support it and the tool's steep learning curve have resulted in a planning system that is inflexible, has functionality gaps and difficult for clients to use (planners only use BPS once a year - planning cycle).

Physical Description

This project will replace the SAP BPS system, address functionality gaps and focus on making this a business-user-driven application. Specific areas for improvement include providing clients with more control over the configuration, setup and execution of the planning process via more intuitive and common front ends (web, MS Office, etc) that will require less training and have a higher adoption rate.

Project Justification

SAP has already sunset SEM-BPS (no additional enhancements, fixes only) which became unsupported as of March 2010.

Forecast Methodology

Estimates based on quotes provided by SAP for similar sized environments and requirements.

Schedule

In order to support budget planning processes, this project must be implemented by September 2011.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE		BUDGET NO.
C&A Security Operations Management		761.0

WITNESS		IN SERVICE DATE
Jeff Nichols		12/31/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	210	0	0	0	210
DIRECT NONLABOR	0	0	1400	0	0	0	1400
TOTAL DIRECT CAPITAL	0	0	1610	0	0	0	1610
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	1610	0	0	0	1610
FTE	0	0	2.2	0	0	0	2.2

Business Purpose

This will be phase one of a multi year phased approach to enhancing the security operational capabilities and enterprise security services. Phase two will include Log Management enhancements, Virtual System Intrusion Prevention, Network Application Identification, and Threat Prevention.

Physical Description

Design, implement, and operate a new set of enterprise preventative security controls. This will include server infrastructure, software, and hardware appliances.

Project Justification

The threat landscape in the areas of Virtual System Intrusion Prevention and Network Application Identification/Threat Prevention will increase in complexity and will become more difficult to detect and prevent as adversaries develop new methods of compromising and exploiting enterprise systems. The management of the technologies used to identify vulnerabilities and manage enterprise security systems plays a critical role in the overhead associated with utilizing the technologies as they were designed. The costs associated with responding to cyber security intrusions will also increase due to regulation and penalties imposed on corporations for security breaches. The associated business costs to implement technologies that identify and prevent intrusions will be at a much lower cost than responding to them after they have occurred.

Forecast Methodology

The budget estimates were created based on a core set of subprojects that will deliver the preventative security controls outlined in the business cases.

Schedule

Capital project will be initiated and completed within the calendar for which they are approved.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE						BUDGET NO.	
Endpoint Security 2010						760.0/761.0	

WITNESS						IN SERVICE DATE	
Jeff Nichols						12/31/2010	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	234	0	0	0	234
DIRECT NONLABOR	0	0	676	0	0	0	676
TOTAL DIRECT CAPITAL	0	0	910	0	0	0	910
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	910	0	0	0	910
FTE	0	0	2.5	0	0	0	2.5

Business Purpose

Company employees have requirements to handle sensitive information on their mobile devices. This information often contains financial data, affiliate compliance information, personally identifiable information (PII), critical infrastructure data, and other types of data that can result in a significant negative impact to the company it released beyond the intended audience.

Mobile devices, because of their nature, are intended to be used inside and outside Company controlled environments. Outside Company facilities, mobile devices are afforded a lower degree of physical protection and are sometimes stolen, lost, or pilfered by their custodians.

Implementation of encryption controls to prevent the disclosure of sensitive information stored on these devices in the event of their loss can effectively mitigate much of the risk associated with handling the sensitive information on them.

Physical Description

Project Goals
(1) Identify and document the vulnerabilities via a risk assessment of the current and anticipated desktop and server environments
(2) Identify a valid combination of software and platform configurations and solutions that protect sensitive data from unauthorized disclosure while minimizing negative impact and complexity for the operator.
(3) Deliver an endpoint security solution that combines malware protection and endpoint assessment capabilities.

Project Justification

Project Benefits:
(1) Reduce exposure to liabilities associated with the compromise of sensitive company information and resources.
(2) Reduce the exposure to regulatory penalties associated with regulatory compliance issues.
(3) Reduce exposure to negative impact resulting from compromise of extremely sensitive Company

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Endpoint Security 2010	760.0/761.0
WITNESS	**IN SERVICE DATE**
Jeff Nichols	12/31/2010

information.

Schedule

Project Start: May 2010
Project Completion: Dec 2010

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
IAM Phase 2	780.0/781.0

WITNESS	IN SERVICE DATE
Jeff Nichols	1/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	299	0	0	0	299
DIRECT NONLABOR	0	0	360	755	0	0	1115
TOTAL DIRECT CAPITAL	0	0	759	755	0	0	2494
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	759	755	0	0	2494
FTE	0	0	3.2	0	0	0	3.2

Business Purpose

Phase II of the IAM project is divided into three parts: 1) Phase I enhancement items – expanding on the efficiencies gained in phase I. 2) Additional systems connected to IAM infrastructure with a focus of enabling OpEx to leverage IAM and 3) role based

Physical Description

The project consists of implementing additional automated, self service workflows for the creation and maintenance of identities within the corporate network. These workflows will also automate the integration/connection to additional systems such as SAP

Project Justification

This project is justified in that with automated processes with complete tracking capabilities we can eliminate the labor required to manually create these identities and to track their lifecycle. Additionally, with the ability to better track identity.

Forecast Methodology

This is the second phase of the Identity & Access Management program. Forecasts are based on historical data from phase 1 and additional bids received.

Schedule

The schedule is estimated to last 18 months. We are planning a phased implementation during this time frame, so parts of the project scope will be implemented as they are developed, tested and approved for released into production.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE NCS Network Small Cap		BUDGET NO. 772
WITNESS Jeff Nichols		IN SERVICE DATE Blanket

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR		0	0	0	0		
DIRECT NONLABOR		350	350	350	350		
TOTAL DIRECT CAPITAL		350	350	350	350		
COLLECTIBLE		0	0	0	0		
NET CAPITAL		350	350	350	350		
FTE		0	0	0	0		

Business Purpose

Blanket capital budget for network and telecommunications infrastructure break / fix and new capacity required.

Physical Description

Routers, switches, firewalls, teleconferencing equipment.

Project Justification

Replacement of failed network / telecommunications infrastructure to maintain operational service levels.

Forecast Methodology

Equipment estimates based on historical break / fix equipment requirements.

Schedule

Replace failed equipment as required January - December.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Telecom Small Cap	772

WITNESS	IN SERVICE DATE
Jeff Nichols	Blanket

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR		0	0	0	0		
DIRECT NONLABOR		350	350	350	350		
TOTAL DIRECT CAPITAL		350	350	350	350		
COLLECTIBLE		0	0	0	0		
NET CAPITAL		350	350	350	350		
FTE		0	0	0	0		

Business Purpose

Blanket capital budget for network and telecommunications infrastructure break / fix and new capacity required.

Physical Description

Routers, switches, firewalls, teleconferencing equipment.

Project Justification

Replacement of failed network / telecommunications infrastructure to maintain operational service levels.

Forecast Methodology

Equipment estimates based on historical break / fix equipment requirements.

Schedule

Replace failed equipment as required January - December.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE LAN Refresh 2010	BUDGET NO. 782.0
WITNESS Jeff Nichols	IN SERVICE DATE 12/31/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	699	0	0	0	699
DIRECT NONLABOR	0	0	350	0	0	0	350
TOTAL DIRECT CAPITAL	0	0	1049	0	0	0	1049
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	1049	0	0	0	1049
FTE	0	0	7.5	0	0	0	7.5

Business Purpose

Upgrade existing LAN infrastructure previously deployed under LAN Refresh Project. Ensure that all SEU site has required port capacity, adequate LAN cabling and comply with LAN standards. Develop strategy and schedule for next LAN Refresh through vendor acquisition process

Physical Description

Review and reclaim port capacity at 23 SEu sites to accommodate current needs and future growth. Review LAN configuration for compliance with configuration standards and complete IOS upgrades as required. Refresh obsolete LAN switches at 29 SCG Branch Office locations. Conduct RFP process to provide recommendations prior to expiration of existing vendor contract.

Project Justification

This project is to manage LAN switches with performance capabilities required to support strategic business and IT initiatives. Development of a consistent and standardized LAN environment reduces operation and maintenance costs.

Forecast Methodology

Competitive cost model achieved through vendor acquisition process to secure best pricing and value for replacement of LAN switches. A three year contract cycle was established with selected vendor with option to new on an annual basis for 3 more years. Cost estimates for equipment and services were based on locked-down pricing model with vendor.

Schedule

This project is in Project Preparation Phase. A formal Business Case and budget estimate will be submitted for Executive approval.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Distributed Backup Growth 2010	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	1/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	436	199	0	0	635
DIRECT NONLABOR	0	0	1300	250	0	0	1550
TOTAL DIRECT CAPITAL	0	0	1736	449	0	0	2185
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	1736	449	0	0	2185
FTE	0	0	4.6	2.1	0	0	6.7

Business Purpose

The current tape based backup solution for the distributed environment is reaching its capacity and will no longer be able to meet the established backup SLA.

Physical Description

The Distributed Backup Growth 2010 project will introduce a disk to disk backup solution at will augment the existing disk-to-tape environment

Project Justification

Historical rates of growth for incremental storage have exceeded 50% a year, while the incremental production capacity growth has only increased 7% a year. The realized backup growth is met annually with a project to supplement the backup environment to meet the growing needs for data protection as the storage environment continues to grow. Subsequent capital projects fund backup capacity growth commensurate to the amount of storage that is added to the environment. This is required to provide capacity to meet the requirements for business continuity and compliance. Without sustained backup capacity growth, the ability to provide these mandatory services would present significant gaps. This gap in capacity to meet this year's storage growth as it pertains to backing up the storage will be addressed with this project. This project will address normal production growth in the Sempra distributed backup environment that has not been captured in the normal growth projects. This will include capital project growth that has not been forecast as normal incremental growth.

Forecast Methodology

The project team will issue a RFP for the disk to disk backup solution.

Schedule

The project team work plan indications the project deliverables will be implemented by 2/11/2011.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Distributed Storage Growth 2010	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	403	0	0	0	403
DIRECT NONLABOR	0	0	1350	0	0	0	1350
TOTAL DIRECT CAPITAL	0	0	1753	0	0	0	1753
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	1753	0	0	0	1753
FTE	0	0	4.3	0	0	0	4.3

Business Purpose

This project will address normal production growth in the Sempra distributed storage environment and provide essential storage infrastructure for capital projects storage growth. This project will address growth needs for current production systems and O&M projects with requirements not to exceed 1Tb of storage residing on our centralized storage environment. This project will include purchase of additional hardware such as storage capacity for Storage Area Network arrays (SAN - a high-speed special-purpose network that interconnects different kinds of data storage devices with associated servers on behalf of a larger network of users) and Network Attached Storage (NAS - hard disk storage that is set up with its own network address rather than being attached to the department computer that is serving applications to a network's workstation users) arrays, SAN storage switches, replication appliances, storage controllers and storage virtualization software.

Physical Description

The project will add storage infrastructure including storage arrays, disk shelves, and disks, SAN fabric switches to meet capacity requirements in the SAN and NAS environments. For example:
•Storage Area Networks arrays –SAN Storage capacity is estimated to be 275 Tb in Rancho Bernardo and 230 Tb in Monterey Park as of January 2011, which is projected to be 90% allocated at that time, with an averaged expected growth rate of 7% for production growth and 60% for capital projects. Additional SAN storage requirements of 35 – 50 TB will be procured to meet the demand.
•Network Attached Storage arrays – NAS Storage capacity is estimated to be 90 Tb in RB, 70 Tb in Rancho Bernardo and 24 Tb in Century Park, which is projected to be 90% allocated, with an averaged expected growth rate of 10% for production growth. Additional NAS storage to 10 – 12 TB will be procured to meet the demand.
•Switches – In order to meet the demands for new SAN storage arrays and incremental server growth it is estimated that connectivity requirements to the SAN fabric will require two fabric switches each in Monterey Park and Rancho Bernardo with 48 ports; 9 workgroup switches with 16 ports each at Monterey Park and Rancho Bernardo to be procured to meet this expected growth of storage devices and servers.

Project Justification

With the historical rate of growth at 7% annually for the current system environments, incremental storage

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Distributed Storage Growth 2010	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2010

is required to keep the systems functional. If additional storage capacity is not available for storage growth, then incremental data can not be added to the systems and the systems will fail to be functional. The storage growth project will address the following:
1) Centralized production storage growth costs
2) Faster reaction time for growth issues
3) Faster environment provisioning

Forecast Methodology

The project team will issue a RFP for the SAN storage

Schedule

The project team work plan indications the project deliverables will be implemented by 12/31/2010.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE		BUDGET NO.
LINUX/UNIX Server Refresh Ph 5		770.0
WITNESS		**IN SERVICE DATE**
Jeff Nichols		12/31/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	495	0	0	0	495
DIRECT NONLABOR	0	0	1562	0	0	0	1562
TOTAL DIRECT CAPITAL	0	0	2057	0	0	0	2057
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	2057	0	0	0	2057
FTE	0	0	5.3	0	0	0	5.3

Business Purpose

The LINUX/UNIX Server Refresh (UR5) project continues with the strategic direction to convert the legacy, non-standard, aging, distributed and difficult to maintain environments over to AIX and Red Hat Linux platforms. Applications targeted for Phase 5 are, but not limited to IS ArcSight, LDAP, ESO, Blast Pager, SendMail, ESM HP Open view and EFX.

Physical Description

Refresh approximately 55 legacy UNIX servers (comprised of a mix of 50% AIX, 21% Red Hat, 18% Windows 2003, and 11% Solaris) to new hardware running the latest standard operating system. 12 of these servers are currently running dedicated Windows 2003 and are required to move to Red Hat in the new Information Security Zone. Approximately 14 of these servers will be AIX-to-AIX refreshes in support of isolating SAP onto dedicated UNIX frames.

Project Justification

Our legacy UNIX environment consists of servers which have a history of hardware reliability problems, contentious vendor support and inflated support costs. The scope of the project is to target approximately 55 servers for refresh. Hardware utilized will include either new Red Hat Linux blades or p570/AIX LPARs available as the result of refreshes accomplished during Phase 4. The estimated mix consists of 20% AIX and 80% Linux. The continued Refresh phases produce soft benefits of reducing duplication of labor and hardware disparities due to segregation of environments and takes full advantage of shared infrastructures.

Forecast Methodology

Estimations are based on historical costs

Schedule

The project team work plan indications the project deliverables will be implemented by 12/31/2010.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Mainframe Hardware Upgrade	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	9/30/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	227	0	0	0	227
DIRECT NONLABOR	0	0	2982	0	0	0	2982
TOTAL DIRECT CAPITAL	0	0	3209	0	0	0	3209
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	3209	0	0	0	3209
FTE	0	0	2.4	0	0	0	2.4

Business Purpose

The Mainframe Hardware Upgrade project, issued a RFI for a z10 business class, X04 model mainframe processor to five vendors on June 21. The project team is in the process of interviewing and rating the three vendors that responded to the RFI. The project expects to complete the RFI rating processing by July 16th and start final contract negotiation for the mainframe hardware that will add 256 MIPS, an Integrated Facility for Linux processor and expand the current memory configuration by 8GB for a totally of 24GB. Supply Management is aggressively negotiating all software upgrade and maintenance fees affected by the hardware upgrade. The project team is aware of the importance of keeping management current on the requirement of the $800k contingency for software upgrade fees that was approved for the project.

The project team is on schedule to meet the Change Advisory Board approved install date of September 19, 2010 for the new z10-X04 mainframe processor.

Physical Description

Project is to replace current IBM z9 BCY04 production mainframe server with proposed IBM z10 BCX04 server in 2010. Following is a HW product list required to support the replacement.

Product	Description	Qty
2098-E10	IBM System z10 Business Class	1
0089	SE-EN Switch (former HUB)	1
0090	HMC	2
0114	I/O Cage Full Card Airflow	6
0157	CEC	1
0162	HCA2-C Fanout	4
0165	MBA Fanout Airflow	2

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Mainframe Hardware Upgrade	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	9/30/2010

0326	IFB-MP Daughter Card	6
0327	STI-A8 Mother Card	3
0864	Crypto Express3 2 ports	2
1123	Model E10	1
1642	2 GB Memory DIMM(4/feature)	8
2323	16 Port ESCON	6
2324	ESCON Channel Port	20
2411	56 GB Memory	1
3326	FICON Express8 SX 4 ports	6
3369	OSA-Express3-2P 1000BASE-T 2 ports	2
3373	OSA-Express3 GbE SX 2 ports	2
3759	Universal Lift Tool/Ladders	1
3863	CPACF Enablement	1
4000	I/O Drawer	3
4001	Frame Costing Feature	1
5137	4-Way Processor Y04	1
6096	Flat Panel Display	2
6650	IFL	1
6654	zIIP	1
6680	CP-Y	4
6967	Y04 Capacity Marker	1
8987	14 ft 250v 3 PH Cord	1
8P2336	Migration Offering Machine	1
9898	Perm Upgr authorization	1
9900	On Line CoD Buying (Flag)	1
9969	z10 BC Site Tool Kit	1

Project Justification

Without the very much needed mainframe refresh, current normal growth will have to be curtailed and no new growth can be introduced. Business units and upper management
will have to decide what business applications and operations will have to be curtailed so the mainframe server can continue to meet the SLAs.

Forecast Methodology

IBM hardware and software pricing quotes were used. 2007 ISV software upgrade costs from last mainframe refresh were used in the cost estimate analysis for this project
Schedule

Project is currently in pre-business case phase. A logical review of the proposed costs are being compiled to go to Cost Accounting for their decisions on what can be capitalized
and what cannot. Business case is expected to be completed by end of May to mid-June.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
MPK Server Room 2010	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	9/30/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	162	0	0	0	162
DIRECT NONLABOR	0	0	993	0	0	0	993
TOTAL DIRECT CAPITAL	0	0	1155	0	0	0	1155
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	1155	0	0	0	1155
FTE	0	0	1.7	0	0	0	1.7

Business Purpose

This project provides floor and rack space to house servers for known/upcoming Capital projects.

Physical Description

Racks and floor space need to be consolidated so additional servers can be added to MPK in support of new capital projects.

Project Justification

Current rack capacity will not support server requirements for existing approved projects or those in the planning stages, and additional rack space requirements above these are a certainty. Without the ability to add servers, the projects will not be successful.

Several examples of capital projects supported include: OMS/DMS, Network refresh, Gridcom, Opex, SoCal AMI, OneVoice, GFMS, Wintel and Unix refreshes, SmartGrid, EMS upgrades, Customer Care Centers.

Older existing racks are no longer suitable for new servers as their physical dimensions are insufficient and rack power systems need to be upgraded to cope with increased server loads.

Forecast Methodology

Historic costs from the past 5 years

Schedule

The work begins with planning in January

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
RB Server Room 2010	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	169	0	0	0	169
DIRECT NONLABOR	0	0	1393	0	0	0	1393
TOTAL DIRECT CAPITAL	0	0	1562	0	0	0	1562
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	1562	0	0	0	1562
FTE	0	0	1.8	0	0	0	1.8

Business Purpose

This project provides floor and rack space to house servers for known/upcoming Capital projects. Additionally, a plan is being developed to monitor and report on some physical components of the server rooms and other related spaces, for power, temperature, etc. and report any anomalies to the ECC, using the enterprise Event management MOM of choice.

Physical Description

Racks and floor space need to be consolidated so additional servers can be added to RB in support of new capital projects.

Project Justification

Current rack capacity will not support server requirements for existing approved projects or those in the planning stages, and additional rack space requirements above these are a certainty. Without the ability to add servers, the projects will not be successful.

Several examples of capital projects supported include: OMS/DMS, Network refresh, Gridcom, Opex, SoCal AMI, OneVoice, GFMS, Wintel and Unix refreshes, SmartGrid, EMS upgrades, Customer Care Centers.

Older existing racks are no longer suitable for new servers as their physical dimensions are insufficient and rack power systems need to be upgraded to cope with increased server loads.

Forecast Methodology

Historic costs from the past 5 years

Schedule

The work begins with planning in January and continues throughout the year until late December.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE						BUDGET NO.	
IEO Small Cap						770.0	

WITNESS						IN SERVICE DATE	
Jeff Nichols						Routine	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR		0	0	0	0		
DIRECT NONLABOR		450	450	450	450		
TOTAL DIRECT CAPITAL		450	450	450	450		
COLLECTIBLE		0	0	0	0		
NET CAPITAL		450	450	450	450		
FTE		0	0	0	0		

Business Purpose

Since 2003 IT Infrastructure Engineering and Operations (IEO) has centralized funding miscellaneous small capital investments and projects through a Small Infrastructure Capitalization Project. These small efforts are primarily initiatives that address unanticipated growth and resultant capacity issues. Additionally, remaining small projects to be bundled include measures that address unforeseen regulatory, security, or abrupt critical failure situations, which adversely affect IT infrastructure. Proposed improvements include storage, servers, operating system and related infrastructure software for monitoring, management and security that are not funded through a formal project, due to dollar threshold or time constraints.

Physical Description

In order to qualify, each individual small project effort must meet minimum capitalization requirements, per SEU and Corporate Center policy.
Small Cap guidelines have been established at $75K. Anything above $75K will need to have its own business case and project established.

Project Justification

Required to support new capital projects.

Forecast Methodology

Historic costs from the past 5 years

Schedule

The work begins with planning in January and continues throughout the year until late December.

JCN-CWP-17-R

CAPITAL PROJECT WORKPAPER

PROJECT TITLE		BUDGET NO.
Wintel Refresh Phase 5		770.0

WITNESS		IN SERVICE DATE
Jeff Nichols		12/31/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	495	0	0	0	495
DIRECT NONLABOR	0	894	1286	0	0	0	2180
TOTAL DIRECT CAPITAL	0	894	1781	0	0	0	2675
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	894	1781	0	0	0	2675
FTE	0	0	5.3	0	0	0	5.3

Business Purpose

The project removes servers that have reached the end of their 5 year life cycle and eliminates Microsoft Windows Server 2000 from Sempra's environment.

Physical Description

The project will remove approximately 163 servers running MS Windows 2000 from the RB & MPK datacenters.

Project Justification

SEU's Wintel server environment currently hosts about 163 servers utilizing an out of date operating system (MS Server 2000) which will no longer be supported by the vendor after 7/13/2010. Utilizing unsupported operating systems invites security issues as patches routinely distributed by the O/S provider to address security vulnerabilities cannot be implemented. In addition utilizing outdated operating systems restricts the use of technical, security, management and administrative features common to newer operating systems.

Forecast Methodology

A unit cost of $2683 was used for estimating the virtual server cost; a unit cost of $12,273 was used for estimating the physical blade cost per server; and a unit cost of $8 was used to estimate stand alone servers costs. $20 per GB was used to estimate the SAN storage cost.

Schedule

The work continues throughout the year until late December.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
WAN Rebuild 2010	762.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	752	0	0	0	752
DIRECT NONLABOR	0	0	5223	0	0	0	5223
TOTAL DIRECT CAPITAL	0	0	5975	0	0	0	5975
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	5975	0	0	0	5975
FTE	0	0	8	0	0	0	8

Business Purpose

Replaces remaining end-of-support WAN hardware (routers), upgrade 5 microwave transport paths, and enables enterprise-wide traffic engineering, virtualized networks and Quality of Service. The current devices/system are not capable of supporting incremental capacity or functionality requirements of major programs including OpEx 20/20 applications.

Physical Description

1) Purchase and install 106 WAN routers, install approximately 100 routers from inventory.
2) Configure all 343 WAN routers as a multi-protocol label switching (MPLS) system, enabling virtualized networks, traffic engineering and QOS,
3) Implement 5 capacity upgrades and 18 network transition units (NTU), in direct support of OpEx 20/20 (GIS)
4) Audit all circuits for under/over-utilization, compare against incremental requirements, and optimize capacity as required.

Project Justification

Using a network capacity / utilization tools such as Netscout and E-health, the network team analyzed current network utilization, capacity requirements driven by legacy applications and net-new applications (OpEx 20/20) to determine the needed capacity to support the business. In addition, the asset management system, accounting systems, and vendors communicated the end-of-support for the aging routers in the field.

Forecast Methodology

Requirements were documented and RFP's were requested from vendors for the replacement hardware and circuits. With regards to the routers, a weighted scoring model was used evaluating the vendors based on their ability to meet the network functionality requirements, support, and pricing. The transport / circuit capacity estimates and corresponding costs utilized existing network analysis tools such as Netscout and E-health to determine current network utilization by site as well as historical year-over-year demand growth of existing legacy applications. Vendors were invited to participate in providing formal

PROJECT TITLE	BUDGET NO.
WAN Rebuild 2010	762.0
WITNESS	**IN SERVICE DATE**
Jeff Nichols	12/31/2010

quotations for evaluation by the project team and Supply Management.   Final prices were determined based on existing contracts or net-new negotiated contracts.

Schedule

106 WAN routers and 100 routers from inventory will be deployed beginning April 2010. The hardware will be used-and-useful on the deployment date. The deployments will be evenly distributed throughout the project period. The transport / circuits will be aligned with the router deployments resulting in an evenly distributed used-and-useful realization during the project period.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE						BUDGET NO.	
SCG Gas Ops MDT						777.0	

WITNESS						IN SERVICE DATE	
Marcher, Alan						Routine	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	0	0	0
DIRECT NONLABOR	0	0	583	911	1100	0	2594
TOTAL DIRECT CAPITAL	0	0	583	911	1100	0	2594
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	583	911	1100	0	2594
FTE	0	0	0	0	0	0	0

Business Purpose

The MDT units being used by SCG Locate & Mark personnel are being upgraded to ensure the field units meet the technology requirements of any corporate initiatives released over the next four years.

The MDT units and peripherals being used by Field Supervisors are being upgraded to ensure the field units meet the technology requirements of any corporate initiatives released over the next four years.

Physical Description

The project will replace Panasonic CF-18 units with Panasonic CF-30 units. This replacement will also upgrade the cellular connectivity from EVDO, Rev 0 to GOBI, Rev A. and increase the hard drive and memory.

The project will replace a variety of Panasonic CF-52 units with new Panasonic Semi-Rugged units. This replacement will also upgrade/install the cellular connectivity and increase the hard drive and memory. Vehicle equipment and printers will be replaced if required.

Project Justification

Corporate Standards set the refresh cycle for MDT units at four years. Due to the environment in which these units are used and the implementation of new corporate initiatives, these units need to be replaced.

Forecast Methodology

The cost is based on current quoted costs of MDT units and peripherals multiplied by the number of units affected by the refresh.

Schedule

Projects slated to begin and end during the calendar year.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Customer Service Mobile Data Terminals (MDTs)	777.0

WITNESS	IN SERVICE DATE
Fong, Ed	Routine

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	0	0	0
DIRECT NONLABOR	0	0	486	282	147	0	915
TOTAL DIRECT CAPITAL	0	0	486	282	147	0	915
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	486	282	147	0	915
FTE	0	0	0	0	0	0	0

Business Purpose
This project will install mobile data terminals (MDTs), vehicle hardware (docking stations, mobile mounts, charge guards, etc.), and cabinet docks for incremental new hire customer service field (CSF) technicians and supervisors. The MDTs are the company standard device and are used by the CSF technicians to work customer service orders. The project cost is for new MDTs over the 2010-2012 timeframe

Physical Description
"Blanket" project estimates are for a total purchase of approximately 136 Panasonic Toughbook MDTs and ancillary equipment that will be deployed to incremental new hire CSF technicians and supervisors over the 2010-2012 timeframe.

Project Justification
Company standards are to issue MDTs to all CSF employees in order for them to receive routes and complete customer and company service orders. It is also a standard to issue Toughbook MDTs to field supervisors.

Forecast Methodology
Current MDT and ancillary equipment pricing was used to estimate total costs.

Schedule
MDT deployment will be coordinated with CSF Operations and Telecommunications to determine new hire dates and arrivals to ensure MDTs are deployed as needed.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE			BUDGET NO.
Call Recording Replacement SCG (NICE)			774.0
WITNESS			IN SERVICE DATE
Fong, Ed			09/30/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	75	0	0	0	75
DIRECT NONLABOR	0	0	713	0	0	0	713
TOTAL DIRECT CAPITAL	0	0	788	0	0	0	788
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	788	0	0	0	788
FTE	0	0	.8	0	0	0	.8

Business Purpose
All customer calls are recorded for quality assurance and follow-up purposes. The current version of the voice recording equipment is no longer supported by the vendor, NICE.

Physical Description
This is a software upgrade to a more recent and supported versison.

Project Justification
The Customer Contact Center is required to record and store all customer calls for three years.

Forecast Methodology
Estimated cost is based upon historic pricing for a similarly sized and scoped project. Estimates for material and equipment prices were from recent vendor quotes and historic pricing.

Schedule
Design work is to commence June 2010 with construct, build, test and implementation to conclude early September 2010.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Battery Plant Replacement 2010	772.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	233	0	0	0	233
DIRECT NONLABOR	0	0	650	0	0	0	650
TOTAL DIRECT CAPITAL	0	0	883	0	0	0	883
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	883	0	0	0	883
FTE	0	0	2.5	0	0	0	2.5

Business Purpose

Replace DC Battery Plants at SEu locations that have exceeded recommended manufacturer warranty.

Physical Description

Replace DC Battery Plants that provide power to telecommunications equipment that have reached or exceeded manufacturer warranty.

Project Justification

This project is to provide reliable power and standby power to telecommunications equipment.

Forecast Methodology

There is one manufacturer of DC Batteries. The vendor acquisition process will be applied to allow for competitive bidding and vendor selection.

Schedule

This project has not yet begun.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE		BUDGET NO.
DC Perimeter 2010		772.0

WITNESS		IN SERVICE DATE
Jeff Nichols		12/31/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	1109	0	0	0	1109
DIRECT NONLABOR	0	0	9985	0	0	0	9985
TOTAL DIRECT CAPITAL	0	0	11094	0	0	0	11094
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	11094	0	0	0	11094
FTE	0	0	11.8	0	0	0	11.8

Business Purpose

Replace aging and end-of-life perimeter network and security components to provide more reliable and functional perimeter network and associated security services. Make architectural changes to deliver services in a more effective manner, as required to support current and planned major initiatives (Smart Grid, Smart Meter, OpEx2020, GridComm). Replace remote access solution to address security deficiencies identified by Internal Audit.

Physical Description

This project consists of replacement of network perimeter routers, switches, firewalls, remote access infrastructure, load balancers, intrusion prevention hardware, and content filtering hardware.

Project Justification

Existing network perimeter hardware is approaching end-of-life and end-of-support. Replacement is necessary to continue meeting agreed upon service objectives. Project estimates are based upon existing purchase agreements, vendor quotations, past experience, and engineering judgment. Some additional, not quantified soft benefits are expected to come from a reduction in design complexity, simplifying maintenance and operations.

Forecast Methodology

Hardware quantity estimates are based on equipment counts in the existing network perimeter. Hardware cost estimates are based on existing purchase agreements and vendor quotations. Labor estimates are based on past experience implementing similar systems and engineering judgment.

Schedule

The rebuilt perimeter network will be available for production network traffic in November 2010.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Voice to Service	763.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	467	361	0	828
DIRECT NONLABOR	0	0	0	1099	1250	0	2349
TOTAL DIRECT CAPITAL	0	0	0	1566	1611	0	3177
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	1566	1611	0	3177
FTE	0	0	0	5	3.9	0	8.9

Business Purpose

Acquire, install, and configure Integration Development Environment for development and proof-of-concept testing for integration of various existing and new applications into a comprehensive Unified Communications model. This will include but not be limited to evaluation of using Exchange as the Voicemail repository, evaluation of using the Avaya as a Video/Voice conferencing Gateway, evaluation of integration of mainframe/distributed application processes with existing business communication applications.

Physical Description

Install Development instances of existing Production Business Communications Service applications into an environment that can be used for developing and refining new uses and integrations before rolling into the Production environment

Project Justification

No development environment exists currently where E-mail, Instant Messaging, Voice/Video/Web Conferencing and Enterprise Voice services can be implemented with proposed configurations and integration points, making progress towards a full leveraging of currently deployed assets slow and potentially painful. This project will provide an environment for this activity, as well as for the deployment of validated features/integrations into the Production environment.

Forecast Methodology

Based on costs for vendor services, labor and hardware

Schedule

Build and deploy   02/15/2011 - 07/15/2011
System Tests   07/15/2011 - 07/15/2012
Production Transition   10/15/2011 - 10/31/2012

CAPITAL PROJECT WORKPAPER

PROJECT TITLE DC Rebuild 2011		BUDGET NO. 772.0
WITNESS Jeff Nichols		IN SERVICE DATE 12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	2329	0	0	2329
DIRECT NONLABOR	0	0	0	7000	0	0	7000
TOTAL DIRECT CAPITAL	0	0	0	9329	0	0	9329
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	9329	0	0	9329
FTE	0	0	0	24.9	0	0	24.9

Business Purpose

Complete Data Center Rebuild initiated in 2009

Physical Description

•MPK Core Refresh – Refresh core and WAN routers; migrate WAN routing from core routers; migrate DLSW from core routers
•RB Core Refresh – Refresh core and WAN routers; migrate WAN routing from core routers; migrate DLSW from core routers

Project Justification

Improve the reliability and stability of the core network allowing for support of future initiatives and programs, reducing downtime and outages.

Forecast Methodology

Based on historical costs for vendor services, labor and hardware

Schedule

Gap Analysis and Assessment   1/20/011 - 2/7/2011
Inventory and Audit   2/7/11 - 3/8/2011
RB Core Refresh   4/10/11 - 9/26/2011
MPK Refresh   4/10/11 - 9/26/2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
WAN Rebuild 2011	762.0
WITNESS	IN SERVICE DATE
Jeffrey Cecil Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	886	0	0	886
DIRECT NONLABOR	0	0	0	3168	0	0	3168
TOTAL DIRECT CAPITAL	0	0	0	4054	0	0	4054
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	4054	0	0	4054
FTE	0	0	0	9.5	0	0	9.5

Business Purpose

Replaces remaining end-of-support WAN hardware (routers), upgrade microwave transport paths, and enables enterprise-wide traffic engineering, virtualized networks and Quality of Service. The current devices/system are not capable of supporting incremental capacity or functionality requirements of major programs including OpEx 20/20 applications. Retire legacy TDM and Sonet network.

Physical Description

Replace any remaining routers not deployed in WAN Rebuild 2010 and upgrade circuits / microwave to support the OpEx and other business critical applications.

Project Justification

Using a network capacity / utilization tools such as Netscout and E-health, the network team analyzed current network utilization, capacity requirements driven by legacy applications and net-new applications (OpEx 20/20) to determine the needed capacity to support the business. In addition, the asset management system, accounting systems, and vendors communicated the end-of-support for the aging routers in the field. TDM and Sonet networks are at end-of-life.

Forecast Methodology

Requirements were documented and RFP's were requested from vendors for the replacement hardware and circuits. With regards to the routers, a weighted scoring model was used evaluating the vendors based on their ability to meet the network functionality requirements, support, and pricing. The transport / circuit capacity estimates and corresponding costs utilized existing network analysis tools such as Netscout and E-health to determine current network utilization by site as well as historical year-over-year demand growth of existing legacy applications. Vendors were invited to participate in providing formal quotations for evaluation by the project team and Supply Management.   Final prices were determined based on existing contracts or net-new negotiated contracts.

Schedule

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
WAN Rebuild 2011	762.0
WITNESS	**IN SERVICE DATE**
Jeffrey Cecil Nichols	12/31/2011

WAN routers will be deployed in last 6 months of 2011. The hardware will be used-and-useful on the deployment date. The transport / circuits will be aligned with the router deployments resulting in an evenly distributed used-and-useful realization during the project period. ATM and Sonet networks will be retired throughout the year.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE Conferencing Refresh 2011						BUDGET NO. 772.0	
WITNESS Jeff Nichols						IN SERVICE DATE 12/31/2011	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	228	0	0	228
DIRECT NONLABOR	0	0	0	780	0	0	780
TOTAL DIRECT CAPITAL	0	0	0	1008	0	0	1008
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	1008	0	0	1008
FTE	0	0	0	2.4	0	0	2.4

Business Purpose

Upgrade Polycom Conferencing Infrastructure to increase concurrent call capacity, provide external conferencing capability, and provide foundation for integration between Avaya and Microsoft OCS platforms. Perform Proof-of-Concept and Pilot testing of Microsoft OCS as potential replacement of MeetingPlace for Audio Conferencing

Physical Description

Upgrade existing capacity on Polcyom Bridge, implement connectivity for both IP and ISDN external connectivity, and install additional infrastructure to provide integration points to Avaya and Microsoft OCS platforms. Existing Video Conferencing Bridge in RB will be upgraded and have additional port capacity installed; ISDN will be moved from legacy Bridge to new Bridge and IP circuit will be installed to support external IP connectivity. Upgrade existing Conference Room equipment where required and install new systems or decommission existing systems as justified by utilization reports and forecasts. Deploy additional hardware in the RB datacenter as required to support integration of Microsoft OCS to Avaya PBX and Polycom RMX

Project Justification

Newer versions of the Video Conferencing systems deployed across the company have higher bandwidth and port requirements to support higher resolution and audio quality. Frequency of requests to provide video conferences with external entities (both affiliated and customer facing) is increasing, and IT has been unable to provide sufficient capacity, connectivity, or quality on a consistent basis.

Forecast Methodology

Based on historical costs for vendor services, labor and hardware

Schedule

Requirements and Design08/15/2010 - 11/15/2010
Build and deploy11/01/2010 - 08/15/2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Conferencing Refresh 2011	772.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

System Tests01/15/2011 - 04/15/2011
Production Transition03/15/2011 - 12/31/2011

Upgraded Polycom Conferencing Bridge to be installed and In-Service during this period

Installation/Upgrade/Decommission of Conference Rooms and Proof-of-Concept/Pilot testing of OCS to continue through this period

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
SAP Support Pack Upgrade 2011	778.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	505	0	0	505
DIRECT NONLABOR	0	0	0	782	0	0	782
TOTAL DIRECT CAPITAL	0	0	0	1287	0	0	1287
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	1287	0	0	1287
FTE	0	0	0	5.4	0	0	5.4

Business Purpose

The SAP Support Pack upgrade is required to receive valuable patches and improvements to the SAP Enterprise system. SAP Support requires the system to be on a supported release and support pack level. SAP will not address help requests when we are behind on our support pack levels as they may have already addressed the issues.

Physical Description

The project will upgrade the SAP Support pack level to the current release level. It also will fully regression test all impacted functional areas of SAP prior to production implementation.

Project Justification

The technical upgrade to the latest SAP support pack level is required for continued SAP production support.

Forecast Methodology

The cost forecast was based on prior history of SAP Support Pack upgrades with SEU. Also factored in current purchased labor rates and internal resource availability

Schedule

The technical upgrade will be implemented as a package and will begin useful life 12/31/2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE		BUDGET NO.
California Producer		754.0

WITNESS		IN SERVICE DATE
Wright, Gillian		4/30/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	134	274	0	0	408
DIRECT NONLABOR	0	0	100	200	0	0	300
TOTAL DIRECT CAPITAL	0	0	234	474	0	0	708
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	234	474	0	0	708
FTE	0	0	1.4	2.9	0	0	4.3

Business Purpose

Regulatory Decision 07-08-029
The decision specifies the terms and conditions by which natural gas produced by gas producers located in California will be granted access to the gas transmission system of the Southern California Gas Company (SoCalGas).

Physical Description

The project consists of modifying and enhancing the Gas Scheduling, Customer Contracts and Billing systems for approximately 50 California producers.

Project Justification

Upon approval of Decision 07-08-029.

Forecast Methodology

Estimated labor cost for modification of IT system based on high level requirements provided by the business unit

Schedule

Final CPUC Decision	May-10
Develop Tariffs	Jun-10
Develop System Requirements	Aug-10
Coding - system development	Dec-10
System Testing	Mar-11
Implementation	Apr-11

CAPITAL PROJECT WORKPAPER

PROJECT TITLE			BUDGET NO.
SAP BIA			768.0/769.0

WITNESS			IN SERVICE DATE
Jeff Nichols			12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	72	0	0	72
DIRECT NONLABOR	0	0	0	582	0	0	582
TOTAL DIRECT CAPITAL	0	0	0	654	0	0	654
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	654	0	0	654
FTE	0	0	0	.8	0	0	.8

Business Purpose

The purpose of this project is to install SAP Business Intelligence Accelerator (BIA). The installation of BIA will be crucial as more business units rely on BI line item data for everyday operational reporting, adhoc analysis, and for dashboard presentations. More business units are looking to BI to provide analytical needs where large volumes of data need to be processed (e.g., CRM). The volume of BI data is growing exponentially, and the requirement to maintain 3 to 5 years of history will be a performance concern.

Physical Description

BIA improves performance for BI queries leveraging cube data based on SAP's TREX technology. BIA installation consists of software using 64 Bit blade servers to generate indexes in memory that allow for on-the-fly data aggregation during query execution. BIA will also reduce operational overhead consisting of maintenance, and storage costs by eliminating the need to aggregate data within the data model structures, detailed cubes can replace existing aggregated cubes, and data replication is avoided within BI. BIA will also eliminate the need for traditional BI tuning techniques such as query caching, cube aggregates, etc.

Project Justification

BIA will provide a 10-100 fold increase in response time for BI queries that will allow:
1. Faster query processing and response time
2. Faster load times, as aggregate change runs due to master data changes are handled by the BIA rather than on top of InfoCubes
3. Lower maintenance costs:
•	BI accelerator eliminates the need to create relational aggregates.
•	BI accelerator may eliminate the need to deal with an OLAP Cache.
•BI accelerator may decrease the need for logical partitioning on the NetWeaver BI side. However, there are other benefits beyond improving query processing speeds to having logical partitions
•	BI Accelerator results in less planning and tuning on the part of DBAs.

Forecast Methodology

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
SAP BIA	768.0/769.0
WITNESS Jeff Nichols	**IN SERVICE DATE** 12/31/2011

Estimates were based on quotes provided by SAP for similar sized environments and requirements.

Schedule

In order to support the growing BI needs and massive data volumes of Smart Meter, OpEx, CRM, CPP and other initiatives such as SCG AMI, the BI Accelerator must be in production starting December 2011.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Enterprise Encryption 2011	770.0/771.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	126	0	0	126
DIRECT NONLABOR	0	0	0	4683	0	0	4683
TOTAL DIRECT CAPITAL	0	0	0	4809	0	0	4809
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	4809	0	0	4809
FTE	0	0	0	1.4	0	0	1.4

Business Purpose

Existing server operating systems, application servers, and database platforms, in their current configurations, are not able to reasonably and effectively accommodate protection of sensitive information in transit and recorded on storage media. This condition prevents many front-line production systems in the environment from accommodating best practices and meeting standing Information Security Requirements. The result is an exposure of sensitive information on disks removed from SAN and NAS storage arrays. This concept proposes to implement a modular, hardware-based encryption mechanism that operates transparently to existing SAN and NAS equipment, servers, operating systems, application servers, and database platforms. The resulting system will assist in reducing risks associated with FERC affiliate compliance issues, and California Civil Code 1798.80-84 as well as reducing complexities associated with handling sensitive HR and financial data. This is phase 1 of a two phase project, and will deliver an enterprise-scale, interoperable solution for encryption of data at rest.

Physical Description

Implement a modular, hardware-based encryption mechanism that operates transparently to existing SAN and NAS equipment, servers, operating systems, application servers, and database platforms.

Project Justification

The resulting system will assist in reducing risks associated with FERC affiliate compliance issues, and California Civil Code 1798.80-84 as well as reducing complexities associated with handling sensitive HR and financial data.

Forecast Methodology

Schedule

To be implemented by December 2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Govern Risk & Compliance	770.0/771.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	583	0	0	583
DIRECT NONLABOR	0	0	0	3725	0	0	3725
TOTAL DIRECT CAPITAL	0	0	0	4308	0	0	4308
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	4308	0	0	4308
FTE	0	0	0	6.2	0	0	6.2

Business Purpose

The Company develops and manages multiple IT governance, risk and compliance management (GRCM) processes. The processes are highly distributed, mostly manual, costly (~ $2 – 3 million for NER-CIP compliance alone), time and resource intensive and/or complex for client recipients. Risk, threat, vulnerability and compliance information is stored in numerous non-consolidated repositories, making it virtually impossible for information owners to make informed risk decisions. The ability to publish or "push" risk and compliance information across the organization at any hierarchical level does not exist.

Physical Description

The project will assess and redesign IT Risk and Compliance management processes support by the Information Security Information Assurance group and selected business client compliance processes (see below):

(ISC)2 Compliance   - Self attestation, Information Asset Inventory, IT Controls and Policy Mapping (Security Requirements), Policy distribution and attestation,
                         IT Control Self Assessment, IT Enterprise Governance, Risk and Compliance
Asset Repository, Enterprise Risk Reporting, IT Compliance
                         Dashboards, IT Risk Assessment (risk acceptance procedure), Remediation
Exception Management, Automated General Computer
                         Collections
IT Compliance   - Record Retention Process
Business Compliance – CA-DMV Pull

These processes will be redesigned, implemented and automated in a vendor GRCM software solution that will be installed on Sempra certified server hardware. Assessment, redesign, technical and client training will be supported through vendor professional services.

Successful deployment will:
1. Add additional capacity to monitor other areas of the SEU environment that are currently not being monitored today.
2. Evaluate consolidation of multiple SEIM solutions currently in Sempra's production environment,

PROJECT TITLE	BUDGET NO.
Govern Risk & Compliance	770.0/771.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

providing a single consolidated security monitoring interface.

3. Avoid costs of multiple solution management
4. Avoid costs of per user/device product licenses
5. Simplify security incident and event decision workflow
6. Increase capability to design and deploy connections between multiple log source devices and the SEIM independent of log solution or version
7. Increase capability to design and deploy event correlation procedures from multiple log sources independent of log solution or version.
8. Centralize management and view of security incidents and events
9. Enhance and extend compliance with NERC/CIP, SOX, and Sempra business continuity/disaster recovery objectives
10. Continue to improve system performance based on dual-site workload load balancing to meet incident and event volume growth Increase flexibility to meet and respond to emerging threats

Project Justification

Sempra Energy's Information Technology group depends in Information Security to measure and maintain risk and compliance levels in accordance with law and guidelines such as SOX, IT NERC CIP requirements, SB1386, HIPPAA as well as Company policies and standards. A key driver of this project is to support the core mission and goals of SEu/SDGE's Information Security and IS Compliance program. Additionally, the project will offer compliance management services to select business clients. Risks and Compliance Management (GRCM) 2010 will benefit current process activities by enhancing, automating or replacing processes with management tools based on the management, measurement, remediation, and reporting of controls and risks against objectives, and in accordance with rules, regulations, standards and policies. Financial drivers include the capability to avoid current costs and resource levels as a result of process automation

Forecast Methodology

The project team will complete proofs of concept of selected vendors by 2Q2010. The proofs of concept will test and score technical and functional product features, evaluate vendor maturity and obtain product, maintenance and professional services cost estimates from each vendor tested. The team will work with the Supply Management team to negotiate best and final costs of selected vendor.

Schedule

To be implemented by December 2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Software Code Security 2011	770.0/771.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	124	0	0	124
DIRECT NONLABOR	0	0	0	700	0	0	700
TOTAL DIRECT CAPITAL	0	0	0	824	0	0	824
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	824	0	0	824
FTE	0	0	0	1.3	0	0	1.3

Business Purpose

Prevailing programming practices lead to conditions that put Sempra information assets at risk of loss and corruption as a result of outmoded software design philosophies. This concept proposes to implement an executable code security program to examine software at the source code level, identify risk conditions, and provide guidance to coding teams to remediate and mitigate risk conditions, as well as provide verification that executable code has met standards for coding and security practices.

Physical Description

Implement an executable code security program to examine software at the source code level, identify risk conditions, and provide guidance to coding teams to remediate and mitigate risk conditions, as well as provide verification that executable code has met standards for coding and security practices.

Project Justification

The program will result in more stable and secure code, reducing risks of impacts associated with California Civil Code 1798.80-84, Sarbanes-Oxley act (SOX), HIPAA rules, and FERC regulatory requirements for affiliate compliance. This is phase two of a three phase project, and will implement an enterprise-scale source code and static executable code analysis tool.

Forecast Methodology

Schedule

Project Start: Jan 2011
Project Completion: Dec 2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Microwave Refresh 1	762.0
WITNESS	IN SERVICE DATE
Jeffrey Cecil Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	431	0	0	431
DIRECT NONLABOR	0	0	0	1999	0	0	1999
TOTAL DIRECT CAPITAL	0	0	0	2430	0	0	2430
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	2430	0	0	2430
FTE	0	0	0	4.6	0	0	4.6

Business Purpose

Provide the incremental capacity to meet the requirements of major new programs such as OpEx and legacy application growth.

Physical Description

Upgrade circuits / microwave to support the OpEx, legacy application growth, and other business critical applications.

Project Justification

Using a network capacity / utilization tools such as Netscout and E-health, the network team analyzed current network utilization, capacity requirements driven by legacy applications and net-new applications (OpEx 20/20) to determine the needed capacity to support the business. In addition, the asset management system, accounting systems, and vendors communicated the end-of-support for the aging microwave radios and transport-related in the field.

Forecast Methodology

Requirements were documented and RFP's were requested from vendors for the upgrade of circuits. The transport / circuit capacity estimates and corresponding costs utilized existing network analysis tools such as Netscout and E-health to determine current network utilization by site as well as historical year-over-year demand growth of existing legacy applications. Vendors were invited to participate in providing formal quotations for evaluation by the project team and Supply Management.   Final prices were determined based on existing contracts or net-new negotiated contracts.

Schedule

The transport / circuits will be aligned with the deployments of new OpEx and other critical business systems being implemented.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
NMS Refresh 2011	762.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	232	0	0	232
DIRECT NONLABOR	0	0	0	819	0	0	819
TOTAL DIRECT CAPITAL	0	0	0	1051	0	0	1051
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	1051	0	0	1051
FTE	0	0	0	2.5	0	0	2.5

Business Purpose
This project proposes to augment and refresh key systems which monitor and manage critical Sempra network infrastructure. Ongoing technical advances in network infrastructure require that associated management systems be kept in sync.

Physical Description
This project consists of replacement of aging monitoring and administration tools, appliances, and software systems that manage crucial network infrastructure

Project Justification
Network management systems provide insight into network status, performance, and outages/problems. These tools are also essential to establishment and management of proper system controls.

Forecast Methodology
Methodology employed was estimated historic costs.

Schedule
*Network Management System implementation - 12/31/2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Sharepoint Phase 3	771.0

WITNESS	IN SERVICE DATE
Jeffrey Cecil Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	232	0	0	232
DIRECT NONLABOR	0	0	0	850	0	0	850
TOTAL DIRECT CAPITAL	0	0	0	1082	0	0	1082
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	1082	0	0	1082
FTE	0	0	0	2.5	0	0	2.5

Business Purpose

This project will allow contractors and Sempra Company employees to collaborate and share documents securely over the internet.

Physical Description

This project consists of new hardware and leveraging existing infrastructure to provide connectivity between vendors and the company over secure internet.

Project Justification

The project is in response to business units requests to share documents with contractors, consultants, and third party vendors.

Forecast Methodology

Our current agreement with microsoft projects maintenance costs and limits increases.

Schedule

7/1/2011	Start design of architecture
9/1/2011	Install of hardware and start of testing
10/1/2011	Start of Client acceptance testing
11/1/2011	Start of Pilot
11/30/2011	Submit for Production approval

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Endpoint Security 2011	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	10/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	290	0	0	290
DIRECT NONLABOR	0	0	0	380	0	0	380
TOTAL DIRECT CAPITAL	0	0	0	670	0	0	670
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	670	0	0	670
FTE	0	0	0	3.1	0	0	3.1

Business Purpose

Company employees have requirements to handle sensitive information on their mobile devices. This information often contains financial data, affiliate compliance information, personally identifiable information (PII), critical infrastructure data, and other types of data that can result in a significant negative impact to the company it released beyond the intended audience.

Mobile devices, because of their nature, are intended to be used inside and outside Company controlled environments. Outside Company facilities, mobile devices are afforded a lower degree of physical protection and are sometimes stolen, lost, or pilfered by their custodians.

Implementation of encryption controls to prevent the disclosure of sensitive information stored on these devices in the event of their loss can effectively mitigate much of the risk associated with handling the sensitive information on them.

Physical Description

Project Goals
(1) Identify and document the vulnerabilities via a risk assessment of the current and anticipated desktop and server environments
(2) Identify a valid combination of software and platform configurations and solutions that protect sensitive data from unauthorized disclosure while minimizing negative impact and complexity for the operator.
(3) Deliver an endpoint security solution that combines malware protection and endpoint assessment capabilities.

Project Justification

Project Benefits:
(1) Reduce exposure to liabilities associated with the compromise of sensitive company information and resources.
(2) Reduce the exposure to regulatory penalties associated with regulatory compliance issues.
(3) Reduce exposure to negative impact resulting from compromise of extremely sensitive Company information.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Endpoint Security 2011	760.0
WITNESS Jeff Nichols	**IN SERVICE DATE** 10/31/2011

Forecast Methodology

Schedule

Project Start: Jan 2011
Project Completion: Oct 2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Distributed Storage Growth 2011	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	45	0	0	45
DIRECT NONLABOR	0	0	0	1140	0	0	1140
TOTAL DIRECT CAPITAL	0	0	0	1185	0	0	1185
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	1185	0	0	1185
FTE	0	0	0	.5	0	0	.5

Business Purpose

This project will address normal production growth in the Sempra distributed storage and backup environment. This project will address growth needs for current production systems
and O&M projects with requirements not to exceed 1Tb of storage residing on our centralized storage environment. This project will potentially purchase additional hardware such
as storage capacity for SAN and NAS arrays, SAN storage switches, replication appliances, storage controllers, virtual tape library expansion storage and physical tapes.

Physical Description

Add storage infrastructure including storage arrays, disk shelves, disks, SAN fabric switches to meet capactiy requirements in the SAN and NAS environments.
SAN arrays - Capacity will be 450 Tb in RB and 350 Tb in MPK, which is projected to be 75% allocated, with an averaged expected growth rate of 7% for production growth
NAS arrays - Capacity 185 Tb in RB, 155 Tb in RB and 10 Tb in CP, which is projected to be 80% allocated, with an averaged expected growth rate of 10% for production growth
Switches - 4 fabric switches each in MPK and RB with 50% utilization; 18 workgroup switches each at MPK and RB with 80 - 90% utilization and 25% annual growth rate
VTL (Disk to Disk Storage) - projected system will have 165 TB of storage with a growth rate ot 10% for production growth

Project Justification

With the historical rate of growth of the current system environments, incremental storage is required to keep the systems functional.
The storage growth project will address the following:
1)   Centralized production storage growth costs
2)   Faster reaction time for growth issues
3)   Faster environment provisioning
.
Forecast Methodology

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Distributed Storage Growth 2011	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

Historically trend data that shows that incremental SAN growth is at a rate of 7% annually, NAS growth is at a rate of 10% annually and backup disk storage at a rate of 10% annually.

Schedule

The incremental SAN, NAS and switch hardware is purchased throughout the year when replenishment points are reached per location and will be completed by 12/31/2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
LINUX/UNIX Server Refresh Ph 6	770.0

WITNESS	IN SERVICE DATE
Jeff Nichols	6/30/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	531	566	0	1097
DIRECT NONLABOR	0	0	0	1518	1605	0	3123
TOTAL DIRECT CAPITAL	0	0	0	2049	2171	0	4220
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	2049	2171	0	4220
FTE	0	0	0	5.7	6	0	6.3

Business Purpose

The LINUX/UNIX Server Refresh Phase 6 project continues with the strategic direction to convert the legacy, non-standard, aging, distributed and difficult to maintain environments over to AIX and Redhat Linux platforms.

Physical Description

2011
HP
Shared Servers   30
Dedicated Servers   10
Shared Servers   8
Dedicated Servers   4
4 min loaded chassis   4
Additional frame   1

2012
HP
Shared Servers   30
Dedicated Servers   10
Shared Servers   8
Dedicated Servers   4
                                  52
4 min loaded chassis   4
Additional frame   1

Project Justification

Our legacy UNIX environment consists of dedicated SUN servers which have a history of hardware reliability problems, contentious vendor support and inflated support costs.
The scope of the project is to target the remainder of these Sun servers for refresh. Hardware utilized will include either new Redhat Linux blades or p570/AIX LPARS available as the result of refreshes

PROJECT TITLE	BUDGET NO.
LINUX/UNIX Server Refresh Ph 6	770.0
WITNESS	**IN SERVICE DATE**
Jeff Nichols	6/30/2011

accomplished during Phase 4 & 5.

Forecast Methodology

Estimates based on vendor quotations and historical perspective of the labor involved to refresh servers.

Schedule

Refreshed servers should begin coming on line around June, 2011 and will continue through December 2012

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
MPK Server Room 2011	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	9/30/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	162	0	0	162
DIRECT NONLABOR	0	0	0	993	0	0	993
TOTAL DIRECT CAPITAL	0	0	0	1155	0	0	1155
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	1155	0	0	1155
FTE	0	0	0	1.7	0	0	1.7

Business Purpose

This project provides floor and rack space to house servers for known/upcoming Capital projects.

Physical Description

Racks and floor space need to be consolidated so additional servers can be added to MPK in support of new capital projects.

Project Justification

Required to support new capital projects.

Forecast Methodology

Historic costs from the past 5 years.

Schedule

The work begins with planning in January and continues throughout the year until late December.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
RB Server Room 2011	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	9/30/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	169	0	0	169
DIRECT NONLABOR	0	0	0	1393	0	0	1393
TOTAL DIRECT CAPITAL	0	0	0	1562	0	0	1562
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	1562	0	0	1562
FTE	0	0	0	1.8	0	0	1.8

Business Purpose

This project provides floor and rack space to house servers for known/upcoming Capital projects. Additionally, a plan is being developed to monitor and report on some physical components of the server rooms and other related spaces, for power, temperature, etc. and report any anomalies to the ECC, using the enterprise Event management MOM of choice.

Physical Description

Racks and floor space need to be consolidated so additional servers can be added to RB in support of new capital projects.

Project Justification

Required to support new capital projects.

Forecast Methodology

Historic costs from the past 5 years.

Schedule

The work begins with planning in January and continues throughout the year until late December.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Wintel Refresh Phase 6	770.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	622	667	0	1289
DIRECT NONLABOR	0	0	0	1541	2171	0	3712
TOTAL DIRECT CAPITAL	0	0	0	2163	2838	0	5001
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	2163	2838	0	5001
FTE	0	0	0	6.6	7.1	0	13.7

Business Purpose

Legacy servers on the Wintel platform fail, fall out of warranty coverage, do not utilize supported OS configurations or reap the benefits of a shared, virtualized infrastructure. The refresh projects are instrumental in updating legacy servers with a secure Information Security approved standardized operating system image on robust vendor supported server infrastructure. Wintel Refresh Project Phase 6 proposes to continue the strategy from previous phases and to leverage newer technologies (VMware) presenting cost avoidance and reduction in physical server hardware.

Physical Description

WR6 2011
Dedicated Servers (Blade)   40
Shared Servers   160
Storage(TB's)   13.4
Labor & Contracting

WR6 2012
Dedicated Servers (Blade)   40
Shared Servers   160
Storage(TB's)   13.4
I3 Licenses   200
Citrix Terminal Server Licenses
Labor & Contracting

Project Justification

The project will enhance the existing VMware infrastructure to virtualized legacy servers and provide a solid platform for "net new" servers. Physical server replacements will be performed as well where virtualization is not feasible. Project goals are to virtualized and/or refresh another 400 servers, 200 per year, in Phase 6. The project will expand and enhance all VMware farms in production to provide additional capacity for refreshes and new server requirements. Benefits of virtualizing servers utilizing VMware include reduced server costs, less physical server hardware that could potentially fail and

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Wintel Refresh Phase 6	770.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012

savings with computer room environmental. Savings of approximately 24% has been factored into the non-labor costs as a result of IT Hardware Strategic Sourcing. As in the past, the server refresh project will be provisioning capacity on demand for Refreshed and Net-New server needs which is in alignment with I3 directives for providing a technical architecture that will enable SEu IT's next generation of data center infrastructure service. This produces soft benefits of reducing duplication of labor and hardware disparities due to segregation of the two environments and takes full advantage of shared infrastructures.

Forecast Methodology

Estimates based on vendor quotations and historical perspective of the labor involved to refresh servers.

Schedule

Refreshed servers should begin coming on line around June, 2011 and will continue through December 2012

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Wired NAC	782.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	275	0	275
DIRECT NONLABOR	0	0	0	0	1350	0	1350
TOTAL DIRECT CAPITAL	0	0	0	0	1625	0	1625
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	1625	0	1625
FTE	0	0	0	0	2.9	0	2.9

Business Purpose

Enterprise implementation of a wired network admissions control system.
Follow up to the Wired NAC Phase 0 project

Physical Description

Implement approved wired NAC solution in MPK and RB. Solution is appliance based
Hardware appliances will be installed at MPK and RB data centers

Project Justification

Secures client wired network from unauthorized devices and computers.
Will improve reliability and reduce audit issues by securing the SEU wired network.

Forecast Methodology

Based on costs for vendor services, labor and hardware

Schedule

Environment requirements assessment   8/15/10 - 11/1/2010
Build and deploy   11/01/10 - 12/31/2010
Audit client wired network   1/01/2011 - 3/01/2011
Establish required processes   03/01/2011 - 5/01/2011
Enterprise roll out   5/01/2011 - 8/15/2011
Storm support of system   8/15/2011 - 9/15/2011
Project wrap-up   09/15/2010 - 15/15/2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Enterprise Command Center Display	770.0

WITNESS	IN SERVICE DATE
Jeff Nichols	7/31/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	2	49	0	0	0	51
DIRECT NONLABOR	0	172	370	0	0	0	542
TOTAL DIRECT CAPITAL	0	174	419	0	0	0	593
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	174	419	0	0	0	593
FTE	0	.1	.5	0	0	0	.6

Business Purpose

Replace and add to failing key components that allow the ECC to achieve their business mission.

Physical Description

Replace broken and install up to 8 large screen monitors that will allow the ECC to operate effectively. Also update the broken audio and video equipment in the adjacent War Room, which is used as an extension of the ECC in case of certain component failure(s).

Project Justification

The ECC is evolving into the single location for handling many forms of 'outage' and following up with the right business and IT units to restore services in a timely manner. They need these screens to do their job effectively.

Forecast Methodology

Primarily bids received and known costs of components and related installation and construction services.

Schedule

Work started in December of 2009 and will complete by July 1, 2010.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE						BUDGET NO.	
SAP GRC Tools Firefighter						778.0	

WITNESS						IN SERVICE DATE	
Jeff Nichols						12/31/2011	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	58	0	0	58
DIRECT NONLABOR	0	0	0	519	0	0	519
TOTAL DIRECT CAPITAL	0	0	0	577	0	0	577
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	577	0	0	577
FTE	0	0	0	0.6	0	0	0.6

Business Purpose
The implementation of SAP Firefighter will automate the process of granting temporary super user access to SAP roles and transactions. Firefighter will also enhance the logging function for work performed with the roles and transactions granted through firefighter. The project will also implement SAP's Role Expert product which will assist in identifying and separation of duty (SOD) issues when a new role is being created.

Physical Description
SAP Role Expert and Firefighter is a preventative security control tool that will reduce the likelihood that a role being defined will create a separation of duty (SOD) risk. The SAP production support team wand some super users periodically require elevated access (access beyond their normal access) to implement changes to the system. In order to provide the access the SAP security team creates a role with the required access in the Production system and assigns it to the users with an expiration date. There are several issues with this process. The first issue is, frequently the access is only required for only hours or minutes, however, without manual intervention from the SAP security team to remove the role the access will not expire until midnight of the expiration date. The second issue is: the present process does not have any audit of what was actually done using this additional access. The combination of the users' normal access and the additional access granted can provide them access to other areas not intended.

Project Justification
The SAP product, Firefighter, provides the ability for users to use predefined and preapproved elevated access for only the period of time they are actually using it. It also automatically creates an audit trail of the work performed while using the access. The audit trail can be accessed by running the reports and it can be configured to automatically send the record activity to the predetermined owner of the firefighter logon id.

Forecast Methodology
The cost include for this project are based on estimates from the vendor, SAP

Schedule
The project plan is to complete the installation and configuration 6 to 8 months after receiving project approval and authorization for expenditure.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE						BUDGET NO.
Records Management Project Phase 1						781.0

WITNESS						IN SERVICE DATE
Jeff Nichols						12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	116	0	0	116
DIRECT NONLABOR	0	0	0	799	0	0	799
TOTAL DIRECT CAPITAL	0	0	0	915	0	0	915
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	915	0	0	915
FTE	0	0	0	1.2	0	0	1.2

Business Purpose

This project will address the systematic practice of maintaining company records from the time they are created up to their eventual disposal. This may include classifying, storing, securing, and destruction (or in some cases, archival preservation) of records. The project will also include the organization, storage and archiving of non-records. While the records management initiative at the company has been active for a number of years now, only the last three years have included electronic records. The current process is a manual examination of the unstructured artifacts on the server and network file shares, the email public folders, employee's local hard drive and network personal share. This manual process entails examining over 100 million documents and provides no automated method for discovery, organization and deletion of records. Additionally, the ownership for file shares is not automated and is a tedious process prone to uncertainty. Through 2010, the process has been handled internally with company staff and auditors. In 2011, an external audit will take place and the results will be published to company officers. This project will look to provide mechanisms to assist in realizing compliance in both the records management area and in the restriction of company sensitive data.

Physical Description

Introduce a suite of software tools and required hardware to implement an enterprise records management system.

Project Justification

This project will address the following needs
1) Systematic method for identifying aged documents
2) Ability to identify the owner responsible for records and non-records
3) Ability to archive records and non-records to various storage tiers seamlessly and with a disposition schedule
4) Provide a reporting mechanism in aiding user's annual records management scrutiny of records and non-records

The Records Management Phase 1 project will provide the following benefits:

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Records Management Project Phase 1	781.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

1)   Free up an estimated 50% of NAS disk Storage by providing visibility to what is old and providing a mechanism to archive those older documents to cheaper storage or deleting
them all together.
2)   Better reporting will facilitate the records management process avoiding audit issues
3)   Identification of object owners will assist in maintaining file share ownership

Forecast Methodology

Current vendor bids were utilized as a baseline for costing.

Schedule

Complete implementation tasks   12/31/2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Mainframe Storage Growth 2011	770.0

WITNESS	IN SERVICE DATE
Jeff Nichols	9/30/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	6	0	0	6
DIRECT NONLABOR	0	0	0	165	0	0	165
TOTAL DIRECT CAPITAL	0	0	0	171	0	0	171
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	171	0	0	171
FTE	0	0	0	.1	0	0	.1

Business Purpose

This project will address normal production growth in the Sempra mainframe storage environment. The utilization of the storage systems are projected to be at 86% for SDGE and 91% for SCG and the storage would be depleted by the end of 2011 if the current growth rate continues. Present capacity in RB is 19TB and in MPK is 25TB.   The growth areas include DB2 production, DW production, Batch production and various development environments.

Physical Description

Present capacity of Hitachi Storage systems in RB is 19TB and in MPK is 25TB. This project will increase the capacity by 25% to 23 TB in RB and 30TB in MPK

Project Justification

With the historical rate of growth of the current system environments, incremental storage is required to keep the systems functional.
The mainframe storage growth project will address the following:
1)   Centralized production storage growth costs
2)   Provide capacity for normal production data growth
3)   Faster reaction time for growth issues

Forecast Methodology

Historical data growth continues to climb at rates of 5% at SCG and 13% at SDGE.

Schedule

The incremental mainframe storage hardware is purchased in the second quarter and will be completed by 04/30/2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Messaging Project	762.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	431	0	0	431
DIRECT NONLABOR	0	0	0	1999	0	0	1999
TOTAL DIRECT CAPITAL	0	0	0	2430	0	0	2430
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	2430	0	0	2430
FTE	0	0	0	4.6	0	0	4.6

Business Purpose

Design and Deploy infrastructure to support Exchange 14;
Provide Feature, Capacity, and Functionality improvements and integrations to existing systems.

Physical Description

Perform evaluation of transition from Dedicated to Shared Storage environment, Improve on existing Failover design (currently only DR scenario supported), Upgrade platform version to current release. Decommission one or both non-Exchange-Native pathways for message delivery to wireless devices

Project Justification

Vendor product development and support lifecycle provide incentive to continue to strive to be at current version - Exchange 2007 will enter extended support phase in early 2012

Forecast Methodology

Based on historic costs for vendor services, labor and hardware

Schedule

Requirements and Design	11/15/2010 - 02/15/2011
Build and deploy	01/15/2011 - 06/15/2011
System Tests	03/15/2011 - 06/15/2011
Production Transition	06/15/2011 - 12/31/2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Next Generation Envoy	754.0

WITNESS	IN SERVICE DATE
Wright, Gillian	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	447	447	0	894
DIRECT NONLABOR	0	0	0	340	340	0	680
TOTAL DIRECT CAPITAL	0	0	0	787	787	0	1574
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	787	787	0	1574
FTE	0	0	0	4.8	4.8	0	9.6

Business Purpose

To modify and upgrade the Envoy system with new software framework.

Physical Description

Software upgrade and development of Envoy system business modules, reports, navigation and underlying software framework.

Project Justification

Upgrade of computer systems to support gas transportation and storage services.   These services are approved by the CPUC and generate significant revenue for the company.

Forecast Methodology

Estimated labor cost for modification of IT system based on high level requirements provided by the business unit
Schedule

Develop System Requirements
Coding - system development
System Testing
Implementation

CAPITAL PROJECT WORKPAPER

PROJECT TITLE		BUDGET NO.
DC Rebuild 2012		772.0

WITNESS		IN SERVICE DATE
Jeff Nichols		12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	1747	0	1747
DIRECT NONLABOR	0	0	0	0	3500	0	3500
TOTAL DIRECT CAPITAL	0	0	0	0	5247	0	5247
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	5247	0	5247
FTE	0	0	0	0	18.7	0	18.7

Business Purpose

Complete Data Center Rebuild initiated in 2011.

Physical Description

•MPK Core Refresh – Refresh core and WAN routers; migrate WAN routing from core routers; migrate DLSW from core routers
•RB Core Refresh – Refresh core and WAN routers; migrate WAN routing from core routers; migrate DLSW from core routers

Project Justification

Improve the reliability and stability of the core network allowing for support of future initiatives and programs, reducing downtime and outages.

Forecast Methodology

Based on historical costs for vendor services, labor and hardware

Schedule

Gap Analysis and Assessment	1/20/012 - 2/7/2012
Inventory and Audit	2/7/12 - 3/8/2012
RB Core Refresh	4/10/12 - 9/26/2012
MPK Refresh	4/10/12 - 9/26/2012

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
LAN Refresh 2012	782.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	543	0	543
DIRECT NONLABOR	0	0	0	0	1429	0	1429
TOTAL DIRECT CAPITAL	0	0	0	0	1972	0	1972
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	1972	0	1972
FTE	0	0	0	0	5.8	0	5.8

Business Purpose

Upgrade existing LAN infrastructure previously deployed under LAN Refresh Project. Ensure that all SEU site has required port capacity, adequate LAN cabling and comply with LAN standards. Develop strategy and schedule for next LAN Refresh through vendor acquisition process.

Physical Description

Review and reclaim port capacity at SEu sites to accommodate current needs and future growth. Review LAN configuration for compliance with configuration standards and complete IOS upgrades as required. Refresh obsolete LAN switches at 20% SEu locations. Conduct RFP process to provide recommendations prior to expiration of existing vendor contract.

Project Justification

This project is to manage LAN switches with performance capabilities required to support strategic business and IT initiatives. Development of a consistent and standardized LAN environment reduces operation and maintenance costs.

Forecast Methodology

Competitive cost model achieved through vendor acquisition process to secure best pricing and value for replacement of LAN switches. A three year contract cycle was established with selected vendor with option to new on an annual basis for 3 more years. Cost estimates for equipment and services were based on locked-down pricing model with vendor.

Schedule

Not yet started.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE		BUDGET NO.
WAN Rebuild 2012		762.0
WITNESS		IN SERVICE DATE
Jeffrey Cecil Nichols		12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	399	0	399
DIRECT NONLABOR	0	0	0	0	2010	0	2010
TOTAL DIRECT CAPITAL	0	0	0	0	2409	0	2409
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	2409	0	2409
FTE	0	0	0	0	4.3	0	4.3

Business Purpose

Provide the incremental capacity or functionality requirements of major programs including OpEx 20/20 applications.

Physical Description

Upgrade circuits / microwave to support the OpEx and other business critical applications.

Project Justification

Using a network capacity / utilization tools such as Netscout and E-health, the network team analyzed current network utilization, capacity requirements driven by legacy applications and net-new applications (OpEx 20/20) to determine the needed capacity to support the business. In addition, the asset management system, accounting systems, and vendors communicated the end-of-support for the aging routers in the field.

Forecast Methodology

Requirements were documented and RFP's were requested from vendors for the upgrade of circuits. The transport / circuit capacity estimates and corresponding costs utilized existing network analysis tools such as Netscout and E-health to determine current network utilization by site as well as historical year-over-year demand growth of existing legacy applications. Vendors were invited to participate in providing formal quotations for evaluation by the project team and Supply Management.   Final prices were determined based on existing contracts or net-new negotiated contracts.

Schedule

The transport / circuits will be aligned with the deployments of new OpEx and other critical business systems being implemented.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Conferencing Refresh 2012	872.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	153	0	153
DIRECT NONLABOR	0	0	0	0	196	0	196
TOTAL DIRECT CAPITAL	0	0	0	0	349	0	349
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	349	0	349
FTE	0	0	0	0	1.6	0	1.6

Business Purpose

Perform Integrations and enable features validated through Proof-of-Concept testing carried out during Conferencing Refresh 2011 Project. Perform additional Proof-of-Concept and Pilot testing of features and integration points enabled as part of Conferencing Refresh 2011 Project

Physical Description

Upgrade existing Conference Room equipment where required and install new systems or decommission existing systems as justified by utilization reports and forecasts. Deploy additional hardware in the RB and MPK datacenters as required to support further integration of Microsoft OCS to Avaya PBX and Polycom RMX and deployment of features validated through Proof-of-Concept testing performed as part of Conferencing Refresh 2011 Project

Project Justification

Continued Refresh/Installation/Decommission of Video Conferencing systems and technology to support business requirements and drive reductions in employee travel and associated expenses

Forecast Methodology

Based on historical costs for vendor services, labor and hardware

Schedule

Requirements and Design	01/15/2012 - 04/15/2012
Build and deploy	03/15/2012 - 07/15/2012
System Tests	04/15/2012 - 09/15/2012
Production Transition	08/15/2012 - 12/31/2012

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
SAP Support Pack 2012	778.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	505	0	505
DIRECT NONLABOR	0	0	0	0	733	0	733
TOTAL DIRECT CAPITAL	0	0	0	0	1238	0	1238
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	1238	0	1238
FTE	0	0	0	0	5.4	0	5.4

Business Purpose

The SAP Support Pack upgrade is required to receive valuable patches and improvements to the SAP Enterprise system. SAP Support requires the system to be on a supported release and support pack level. SAP will not address help requests when we are behind on our support pack levels as they may have already addressed the issues.

Physical Description

The project will upgrade the SAP Support pack level to the current release level. It also will fully regression test all impacted functional areas of SAP prior to production implementation.

Project Justification

The technical upgrade to the latest SAP support pack level is required for continued SAP production support.

Forecast Methodology

The cost forecast was based on prior history of SAP Support Pack upgrades with SEU. Also factored in current purchased labor rates and internal resource availability

Schedule

The technical upgrade will be implemented as a package and will begin useful life 12/31/2012.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE						BUDGET NO.	
Enterprise Encryption 2012						770.0/771.0	

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	250	0	250
DIRECT NONLABOR	0	0	0	0	5564	0	5564
TOTAL DIRECT CAPITAL	0	0	0	0	5814	0	5814
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	5814	0	5814
FTE	0	0	0	0	2.7	0	2.7

Business Purpose

Existing server operating systems, application servers, and database platforms, in their current configurations, are not able to reasonably and effectively accommodate protection of sensitive information in transit and recorded on storage media. This condition prevents many front-line production systems in the environment from accommodating best practices and meeting standing Information Security Requirements. The result is an exposure of sensitive information on disks removed from SAN and NAS storage arrays. This concept proposes to implement a modular, hardware-based encryption mechanism that operates transparently to existing SAN and NAS equipment, servers, operating systems, application servers, and database platforms. The resulting system will assist in reducing risks associated with FERC affiliate compliance issues, and California Civil Code 1798.80-84 as well as reducing complexities associated with handling sensitive HR and financial data. This is phase 1 of a two phase project, and will deliver an enterprise-scale, interoperable solution for encryption of data at rest.

Physical Description

Implement a modular, hardware-based encryption mechanism that operates transparently to existing SAN and NAS equipment, servers, operating systems, application servers, and database platforms.

Project Justification

The resulting system will assist in reducing risks associated with FERC affiliate compliance issues, and California Civil Code 1798.80-84 as well as reducing complexities associated with handling sensitive HR and financial data.

Forecast Methodology

Factored in current purchased labor rates and internal resource availability

Schedule

Project Start: Jan 2012
Project Completion: Dec 2012.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Software Code Security 2011A	770.0/771.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	238	0	0	238
DIRECT NONLABOR	0	0	0	1100	0	0	1100
TOTAL DIRECT CAPITAL	0	0	0	1338	0	0	1338
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	1338	0	0	1338
FTE	0	0	0	2.5	0	0	2.5

Business Purpose

Prevailing programming practices lead to conditions that put Sempra information assets at risk of loss and corruption as a result of outmoded software design philosophies. This concept proposes to implement an executable code security program to examine software at the source code level, identify risk conditions, and provide guidance to coding teams to remediate and mitigate risk conditions, as well as provide verification that executable code has met standards for coding and security practices.

Physical Description

Implement an executable code security program to examine software at the source code level, identify risk conditions, and provide guidance to coding teams to remediate and mitigate risk conditions, as well as provide verification that executable code has met standards for coding and security practices.

Project Justification

The program will result in more stable and secure code, reducing risks of impacts associated with California Civil Code 1798.80-84, Sarbanes-Oxley act (SOX), HIPAA rules, and FERC regulatory requirements for affiliate compliance. This is phase two of a three phase project, and will implement an enterprise-scale source code and static executable code analysis tool.

Forecast Methodology

Factored in current purchased labor rates and internal resource availability

Schedule

Project Start: Jan 2011
Project Completion: Dec 201

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Software Code Security 2012B	770.0/771.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	143	0	143
DIRECT NONLABOR	0	0	0	0	1100	0	1100
TOTAL DIRECT CAPITAL	0	0	0	0	1243	0	1243
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	1243	0	1243
FTE	0	0	0	0	1.5	0	1.5

Business Purpose

Prevailing programming practices lead to conditions that put Sempra information assets at risk of loss and corruption as a result of outmoded software design philosophies. This concept proposes to implement an executable code security program to examine software at the source code level, identify risk conditions, and provide guidance to coding teams to remediate and mitigate risk conditions, as well as provide verification that executable code has met standards for coding and security practices.

Physical Description

Implement an executable code security program to examine software at the source code level, identify risk conditions, and provide guidance to coding teams to remediate and mitigate risk conditions, as well as provide verification that executable code has met standards for coding and security practices.

Project Justification

The program will result in more stable and secure code, reducing risks of impacts associated with California Civil Code 1798.80-84, Sarbanes-Oxley act (SOX), HIPAA rules, and FERC regulatory requirements for affiliate compliance. This is phase three of a three phase project, and will implement an enterprise-scale source code and static executable code analysis tool.

Forecast Methodology

Factored in current purchased labor rates and internal resource availability

Schedule

Project Start: Jan 2012
Project Completion: Dec 2012

CAPITAL PROJECT WORKPAPER

PROJECT TITLE					BUDGET NO.	
Microwave Refresh 2					762.0	
WITNESS					IN SERVICE DATE	
Jeffrey Cecil Nichols					12/31/2012	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	431	0	431
DIRECT NONLABOR	0	0	0	0	1999	0	1999
TOTAL DIRECT CAPITAL	0	0	0	0	2430	0	2430
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	2430	0	2430
FTE	0	0	0	0	4.6	0	4.6

Business Purpose

Provide the incremental capacity to meet the requirements of major new programs such as OpEx and legacy application growth.

Physical Description

Upgrade circuits / microwave to support the OpEx, legacy application growth, and other business critical applications.

Project Justification

Using a network capacity / utilization tools such as Netscout and E-health, the network team analyzed current network utilization, capacity requirements driven by legacy applications and net-new applications (OpEx 20/20) to determine the needed capacity to support the business. In addition, the asset management system, accounting systems, and vendors communicated the end-of-support for the aging microwave radios and transport-related in the field.

Forecast Methodology

Requirements were documented and RFP's were requested from vendors for the upgrade of circuits. The transport / circuit capacity estimates and corresponding costs utilized existing network analysis tools such as Netscout and E-health to determine current network utilization by site as well as historical year-over-year demand growth of existing legacy applications. Vendors were invited to participate in providing formal quotations for evaluation by the project team and Supply Management. Final prices were determined based on existing contracts or net-new negotiated contracts.

Schedule

The transport / circuits will be aligned with the deployments of new OpEx and other critical business systems being implemented.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Microwave Refresh 3	762.0

WITNESS	IN SERVICE DATE
Jeffrey Cecil Nichols	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	431	0	431
DIRECT NONLABOR	0	0	0	0	1999	0	1999
TOTAL DIRECT CAPITAL	0	0	0	0	2430	0	2430
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	2430	0	2430
FTE	0	0	0	0	4.6	0	4.6

Business Purpose

Provide the incremental capacity to meet the requirements of major new programs such as OpEx and legacy application growth.

Physical Description

Upgrade circuits / microwave to support the OpEx, legacy application growth, and other business critical applications.

Project Justification

Using a network capacity / utilization tools such as Netscout and E-health, the network team analyzed current network utilization, capacity requirements driven by legacy applications and net-new applications (OpEx 20/20) to determine the needed capacity to support the business. In addition, the asset management system, accounting systems, and vendors communicated the end-of-support for the aging microwave radios and transport-related in the field.

Forecast Methodology

Requirements were documented and RFP's were requested from vendors for the upgrade of circuits. The transport / circuit capacity estimates and corresponding costs utilized existing network analysis tools such as Netscout and E-health to determine current network utilization by site as well as historical year-over-year demand growth of existing legacy applications. Vendors were invited to participate in providing formal quotations for evaluation by the project team and Supply Management. Final prices were determined based on existing contracts or net-new negotiated contracts.

Schedule

The transport / circuits will be aligned with the deployments of new OpEx and other critical business systems being implemented.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
NMS Refresh 2012	762.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	232	0	232
DIRECT NONLABOR	0	0	0	0	819	0	819
TOTAL DIRECT CAPITAL	0	0	0	0	1051	0	1051
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	1051	0	1051
FTE	0	0	0	0	2.5	0	2.5

Business Purpose
This project proposes to augment and refresh key systems which monitor and manage critical Sempra network infrastructure. Ongoing technical advances in network infrastructure require that associated management systems be kept in sync.

Physical Description
This project consists of replacement of aging monitoring and administration tools, appliances, and software systems that manage crucial network infrastructure

Project Justification
Network management systems provide insight into network status, performance, and outages/problems. These tools are also essential to establishment and management of proper system controls.

Forecast Methodology
Methodology employed was estimated historic costs.

Schedule
*Network Management System implementation - 12/31/2012

CAPITAL PROJECT WORKPAPER

PROJECT TITLE		BUDGET NO.
Physical Layer Refresh		772.0

WITNESS		IN SERVICE DATE
Jeff Nichols		12/31/2013

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	45	0	45
DIRECT NONLABOR	0	0	0	0	80	0	80
TOTAL DIRECT CAPITAL	0	0	0	0	125	250	375
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	125	250	375
FTE	0	0	0	0	.5	0	.5

Business Purpose
This project replaces aging inside Structured Cabling Plant at a number of our locations in our company.

Physical Description
This project consists of replacing old inside plant cabling infrastructures and installing cabling that meets our standards for Structured Cabling Plant. In addition network equipment cabinets will be deployed where needed to improve our Inside Plant Infrastructure.

Project Justification
We have a number of sites where the Structured Cabling Plant is over 20 years old and does not meet the standards of new technologies.   In addition, these sites continue to experience problems due to the age of the Structured Cabling Plant.

Forecast Methodology
We have used historical Structured Cabling costs for equipment and labor to estimate an annual effort for refreshing our aging Structured Cabling Plant. This effort will be an ongoing activity requiring two FTEs to manage due to the number of locations that need to be refreshed.

Schedule

Deployment of Structured Cabling Plant refresh activities will be scheduled each year with each site competitively quoted

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Sharepoint Refresh	771.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	361	0	361
DIRECT NONLABOR	0	0	0	0	1250	0	1250
TOTAL DIRECT CAPITAL	0	0	0	0	1611	0	1611
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	1611	0	1611
FTE	0	0	0	0	3.9	0	3.9

Business Purpose
This project will allow contractors and Sempra Company employees to collaborate and share documents securely over the internet.

Physical Description
This project consists of new hardware and leveraging existing infrastructure to provide connectivity between vendors and the company over secure internet.

Project Justification
The project is in response to business units' requests to share documents with contractors, consultants, and third party vendors.

Forecast Methodology
Our current agreement with Microsoft projects maintenance costs and limits increases.

Schedule

Start design of architecture
Install of hardware and start of testing
Start of Client acceptance testing
Start of Pilot
Submit for Production approval

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Distributed Storage Growth 2012	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	45	0	45
DIRECT NONLABOR	0	0	0	0	1356	0	1356
TOTAL DIRECT CAPITAL	0	0	0	0	1401	0	1401
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	0	0	0
FTE	0	0	0	0	1401	0	1401

Business Purpose

This project will address normal production growth in the Sempra distributed storage and backup environment. This project will address growth needs for current production systems and O&M projects with requirements not to exceed 1Tb of storage residing on our centralized storage environment. This project will potentially purchase additional hardware such as storage capacity for SAN and NAS arrays, SAN storage switches, replication appliances, storage controllers, virtual tape library expansion storage and physical tapes.

Physical Description

Add storage infrastructure including storage arrays, disk shelves, and disks, SAN fabric switches to meet capacity requirements in the SAN and NAS environments.
SAN arrays - Capacity will be 550 Tb in RB and 450 Tb in MPK, which is projected to be 75% allocated, with an averaged expected growth rate of 7% for production growth
NAS arrays - Capacity 235 Tb in RB, 205 Tb in RB and 10 Tb in CP, which is projected to be 80% allocated, with an averaged expected growth rate of 10% for production growth
Switches - 4 fabric switches each in MPK and RB with 50% utilization; 18 workgroup switches each at MPK and RB with 80 - 90% utilization and 25% annual growth rate
VTL (Disk to Disk Storage) - projected system will have 250 TB of storage with a growth rate ot 10% for production growth.

Project Justification

With the historical rate of growth of the current system environments, incremental storage is required to keep the systems functional.
The storage growth project will address the following:
1) Centralized production storage growth costs
2) Faster reaction time for growth issues
3) Faster environment provisioning

Forecast Methodology

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Distributed Storage Growth 2012	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012

Historically trend data that shows that incremental SAN growth is at a rate of 7% annually, NAS growth is at a rate of 10% annually and backup disk storage at a rate of 10% annually.

Schedule

The incremental SAN, NAS and switch hardware is purchased throughout the year when replenishment points are reached per location and will be completed by 12/31/2012

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
MPK Server Room 2012	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	9/30/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	178	0	178
DIRECT NONLABOR	0	0	0	0	1092	0	1092
TOTAL DIRECT CAPITAL	0	0	0	0	1270	0	1270
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	1270	0	1270
FTE	0	0	0	0	1.9	0	1.9

Business Purpose

This project provides floor and rack space to house servers for known/upcoming Capital projects.

Physical Description

Racks and floor space need to be consolidated so additional servers can be added to MPK in support of new capital projects.

Project Justification

Required to support new capital projects.

Forecast Methodology

Historic costs from the past 5 years

Schedule

The work begins with planning in January and continues throughout the year

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
RB Server Room 2012	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	9/30/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	186	0	186
DIRECT NONLABOR	0	0	0	0	1532	0	1532
TOTAL DIRECT CAPITAL	0	0	0	0	1718	0	1718
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	1718	0	1718
FTE	0	0	0	0	1.9	0	1.9

Business Purpose

This project provides floor and rack space to house servers for known/upcoming Capital projects. Additionally, a plan is being developed to monitor and report on some physical components of the server rooms and other related spaces, for power, temperature, etc. and report any anomalies to the ECC, using the enterprise Event management MOM of choice.

Physical Description

Racks and floor space need to be consolidated so additional servers can be added to RB in support of new capital projects

Project Justification

Required to support new capital projects.

Forecast Methodology

Historic costs from the past 5 years

Schedule

The work begins with planning in January and continues throughout the year

CAPITAL PROJECT WORKPAPER

PROJECT TITLE Test Automation SAP Processes						BUDGET NO. 778.0	
WITNESS Jeff Nichols						IN SERVICE DATE 12/31/2011	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	99	0	0	99
DIRECT NONLABOR	0	0	0	1456	0	0	1456
TOTAL DIRECT CAPITAL	0	0	0	1555	0	0	1555
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	1555	0	0	1555
FTE	0	0	0	1.1	0	0	1.1

Business Purpose

The project will convert our existing test scripts to an automated solution leveraging HP Mercury Quality Center.

Physical Description

Approximately 4,000 Test scripts in Word and Excel docs to be converted to HP Mercury Quality Center test scripts

Project Justification

The project will result in a reduction in test time for all follow on enhancement, project, upgrades to due to drastic reduction in overall test cycle time.

Forecast Methodology

The forecast of project cost and saving are based on historical information and industry standards

Schedule

The Project will be delivered as a package 12/31/2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Records Management Project Phase 2	781.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	175	0	175
DIRECT NONLABOR	0	0	0	0	1559	0	1559
TOTAL DIRECT CAPITAL	0	0	0	0	1734	0	1734
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	1734	0	1734
FTE	0	0	0	0	1.9	0	1.9

Business Purpose

This project will address the systematic practice of maintaining company records from the time they are created up to their eventual disposal. This may include classifying, storing, securing, and destruction (or in some cases, archival preservation) of records. The project will also include the organization, storage and archiving of non-records. While the records management initiative at the company has been active for a number of years now, only the last three years have included electronic records. The current process is a manual examination of the unstructured artifacts on the server and network file shares, the email public folders, employee's local hard drive and network personal share. This manual process entails examining over 100 million documents and provides no automated method for discovery, organization and deletion of records. Additionally, the ownership for file shares is not automated and is a tedious process prone to uncertainty. Through 2010, the process has been handled internally with company staff and auditors. In 2011, an external audit will take place and the results will be published to company officers. This project will look to provide mechanisms to assist in realizing compliance in both the records management area and in the restriction of company sensitive data.

Physical Description

Build upon the Records Management Phase 1 project's suite of software tools.

Project Justification

This project will address the following requirements:
1) Capture - Capture includes the ingesting of the document as well as its metadata and changes to the document. It is essentially the front-end of the document lifecycle and the main input into the system
2) Identification - The system shall uniquely identify each record/object.
3) Storage - These requirements include the storing, accessing, and logical referencing of the documents in the system.
4) Search and Retrieval - These requirements include the searching of documents and metadata in the system data repository and in external repositories as well as the accessing of the documents for viewing or editing.
5) Management - The configuration of the RM system plus the abilities for screening records, records disposition, transferring records, system audits, reporting, document versioning, internal integration,

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Records Management Project Phase 2	781.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012

external repository integration and security.
Benefits:
The Records Management Phase 1 project will provide the following benefits:
1) Records management optimizes the legal admissibility of records
2) Records management improves the use of staff time by reducing the time spent looking for information
3) Records management identifies how long records are needed
4) Records management reduces the unnecessary duplication of information

Forecast Methodology

Current vendor bids were utilized as a baseline for costing

Schedule

Complete implementation tasks

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
IAM Phase 3	781.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	736	0	736
DIRECT NONLABOR	0	0	0	0	426	0	426
TOTAL DIRECT CAPITAL	0	0	0	0	1162	0	1162
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	1162	0	1162
FTE	0	0	0	0	7.9	0	7.9

Business Purpose

Phase 3 of the IAM project is divided into two parts: 1) Additional systems connected to IAM infrastructure with a focus of enabling OpEx to leverage IAM 2) role based access control – implement a Sempra standard & enterprise (within Corp Center and SEu)

Physical Description

The project consists of implementing additional automated, self service workflows for the maintenance of application and environment access within the corporate network.

Project Justification

This project is justified in that with automated processes with complete access tracking capabilities we can eliminate the regular Audit findings of improper or elevated access by Sempra workers to critical systems such as SAP.

Forecast Methodology

This is the third phase of the Identity & Access Management program. Forecasts are based on historical data from phase 1 and additional bids received.

Schedule

The schedule is estimated to last 12 months. We are planning a phased implementation during this time frame, so parts of the project scope will be implemented as they are developed, tested and approved for released into production

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
DS8100 Storage Arrays Refresh 2012	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	10/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	40	0	40
DIRECT NONLABOR	0	0	0	0	3600	0	3600
TOTAL DIRECT CAPITAL	0	0	0	0	3640	0	3640
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	3640	0	3640
FTE	0	0	0	0	.4	0	.4

Business Purpose

The IBM DS8100 storage arrays in RB and MPK were purchased in 2004 with the Unix Refresh project and will be eight years old in 2012, past the recommended life for storage arrays and disks. The arrays are fully allocated and can not be expanded and have a current capacity of 202 Tb among the three arrays. These top tier SAN storage arrays host production and non-production applications, including such application environments as SAP financials and thus are key systems in the running of the business.

Physical Description

Replace the DS8100 SAN storage arrays with newer technology by either the complete replacement of the storage arrays or by populating existing frames with the required 202 TB of disk storage

Project Justification

Replace end of life storage equipment with newer technology
1)   Increased performance through more advanced technology
2)   Larger capacity disks will reduce the physical footprint requirement for equivalent capacity
3)   Greater scalability for the future
4)   Reduced power and heat consumption
5)   Integration with current virtualization software implementation
6)   Reduction in O&M support costs and cost avoidance of support costs for 3 years

Forecast Methodology

Historical bids were utilized that represented the latest comparable disk storage technology.

Schedule

The three storage arrays will be replaced by 07/31/2012

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
RB Tape Library Replacement	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	40	0	0	40
DIRECT NONLABOR	0	0	0	662	0	0	662
TOTAL DIRECT CAPITAL	0	0	0	702	0	0	702
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	702	0	0	702
FTE	0	0	0	.4	0	0	.4

Business Purpose

This project will replace the aging (10 years+) 3494 tape library in RB with a 3495 tape library. With the implementation of the new data protection solution (VTL project) there will be less requirements for the physical tape infrastructure that exists in RB currently. A smaller tape library can handle the tape load and still be compatible with the current tapes. Issues with the current tape library have taken longer to resolve in order to find the documentation for this older machine.

Physical Description

Replace the aging (10 years+) 3494 tape library in RB with a 3495 tape library.

Project Justification

The tape library replacement project will yield the following benefits.
1)   Easier maintenance for newer equipment
2)   The current footprint for the tape library is approximately 900 sq ft and the new library will be half in size, freeing up data center space
3)   Use less power and cooling
4)   Reduction in hardware maintenance costs

Forecast Methodology

Historical bids were utilized that represented the same 3594 tape library.

Schedule

Order equipment   6/30/2011
Install equipment   9/30/2011
Complete implementation tasks   12/31/2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Network Middleware Refresh	773.0

WITNESS	IN SERVICE DATE
Jeff Cecil Nichols	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	140	0	140
DIRECT NONLABOR	0	0	0	0	400	0	400
TOTAL DIRECT CAPITAL	0	0	0	0	540	0	540
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	540	0	540
FTE	0	0	0	0	1.5	0	1.5

Business Purpose

Several network projects have implemented new, and in some cases, different Sempra standard infrastructure assets.   New infrastructure was required to support major business client initiatives like Smart Meter, OpEx, Smart Grid, etc. NMS Refresh proposes to implement new, or expand existing, network management solutions in order to administer the new network infrastructure assets, without having to augment existing support staff.

Physical Description

Network Management 2010 Project proposes to refresh our existing network management systems to support increased network infrastructure being rolled out for major corporate initiatives (like Smart Meter, OpEx, Smart Grid, etc). New appliances, software modules, and corresponding hardware will provide the capability to access remote network assets for monitoring, troubleshooting, configuration updates, and maintenance purposes. New servers/appliances plus associated software will be acquired and installed at Rancho Bernardo Data Center, Monterey Park Data Center, and various other remote Sempra locations.

Project Justification

Business clients are rolling out many new automated systems, in support of major corporate initiatives. New automated systems are to be used by employees throughout the entire Sempra Energy service territory. Business clients require the new systems to be highly available, with minimal down time. A substantial increase in network infrastructure and assets is required to meet this need. Other related IT projects (WAN Rebuild, LAN Refresh, etc) are rolling out the required new network infrastructure. Network administrators need to easily manage, configure, and monitor new network infrastructure to avoid extensive configuration delays and down time. Without automated management solutions, IT would possibly need to hire additional network administrators to manage the added workload.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Network Middleware Refresh	773.0

WITNESS	IN SERVICE DATE
Jeff Cecil Nichols	12/31/2012

Forecast Methodology

Estimated cost is based upon historic pricing for similar size and scope of project. Estimates for material and equipment prices were from the vendor's web page, recent vendor quotes and historic pricing.

Schedule

Design work began in 2009 and is forecasted to be completed in July 2010. Forecast for installation is third quarter 2010 with completion of the project by the end of 2011.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
WLAN Refresh	782.0

WITNESS	IN SERVICE DATE
Jeffrey Cecil Nichols	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	113	0	113
DIRECT NONLABOR	0	0	0	0	569	0	569
TOTAL DIRECT CAPITAL	0	0	0	0	682	0	682
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	682	0	682
FTE	0	0	0	0	1.2	0	1.2

Business Purpose

Refresh and upgrade of existing wireless network infrastructure (802.1)
Provides necessary update to comply with existing and new standards
Updates required supporting a secure wireless network

Physical Description

Implement approved wireless network solution and provide upgrades and locations requiring refresh thought the enterprise. Hardware will be installed for both SDGE and SCG

Project Justification

Wireless network architechture and standards change, requireing upgrades for both functionalty and secuirty. Failure to upgrade wireless network radios may result in malfactors access companies wireless network. Will improve reliablity and reduce audit issues by continues to provide a secure wireless network..

Forecast Methodology

Based on costs for vendor services, labor and hardware

Schedule
Environment requirements assessment 01/02/2012 - 02/17/2021
Audit client wired network   02/20/2012 - 03/02/2012
Design   03/05/2012 - 04/09/2012
Build/Test/Deploy   04/10/2012 - 10/05/2012
Implement/Storm Support   10/08/2012 - 12/14/2012
Project wrap-up   12/17/2012 - 12/31/2012

CAPITAL PROJECT WORKPAPER

PROJECT TITLE						BUDGET NO.
E-Sourcing, Contract Lifecycle Management						788.0

WITNESS						IN SERVICE DATE
Jeff Nichols						12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	1001	0	0	1001
DIRECT NONLABOR	0	0	0	525	0	0	525
TOTAL DIRECT CAPITAL	0	0	0	1526	0	0	1526
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	1526	0	0	1526
FTE	0	0	0	10.7	0	0	10.7

Business Purpose

The current sourcing solution Power Advocate and the Contract Management solution ECM/Nextance can be consolidated onto one standard SAP Platform

Physical Description

Replace and retire the Power Advocate hosted Sourcing solution and also replace and retire the ECM/Nextance Contract Management solution with a enterprise SAP e-Sourcing solution.

Project Justification

Reduce support and maintenance costs by leveraging an enterprise SAP solution which is already licensed and available. Retire the legacy systems

Forecast Methodology

The costs to deploy are standard SAP and well understood. The ongoing historical support costs for the legacy systems and SAP are well documented with historical costs available.

Schedule

The new solution would be deployed as a package by 12/31/2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE **Battery Plant**	BUDGET NO. 772.0
WITNESS Jeffrey Cecil Nichols	IN SERVICE DATE 12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	477	0	477
DIRECT NONLABOR	0	0	0	0	799	0	799
TOTAL DIRECT CAPITAL	0	0	0	0	1276	0	1276
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	1276	0	1276
FTE	0	0	0	0	4.1	0	4.1

Business Purpose

Replace DC Battery Plants at SEu locations that have exceeded recommended manufacturer warranty.

Physical Description

Replace DC Battery Plants that provide power to telecommunications equipment that have reached or exceeded manufacturer warranty.

Project Justification

This project is to provide reliable power and standby power to telecommincations equipment.

Forecast Methodology

There is one manufacturer of DC Batteries. The vendor acquisition process will be applied to allow for competitive bidding and vendor selection.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE						BUDGET NO.	
SCG Streaming Media						772.0	

WITNESS						IN SERVICE DATE	
Jeff Nichols						12/31/2012	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	140	140	0	280
DIRECT NONLABOR	0	0	0	511	511	0	1022
TOTAL DIRECT CAPITAL	0	0	0	651	651	0	1302
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	651	651	0	1302
FTE	0	0	0	1.5	1.5	0	3

Business Purpose

Design and deploy centrally managed application to provide Streaming Media content; Deploy digital signage endpoints on which to broadcast company related information and media content.

Physical Description

Install infrastructure and resident management application for capturing and configuring Streaming Media content within the RB Data Center. Deploy digital displays with local players at various company locations on which to deliver content.

Project Justification

Success of limited deployment of 'digital signage' displays and players; Needs of various business units to begin composing and delivering tailored content;

Forecast Methodology

Based on historic and projected costs for vendor services, labor and hardware

Schedule

Requirements and Design

        02/15/2011 - 05/15/2011

Build and deploy

        05/15/2011 - 12/15/2011

System Tests

        07/15/2011 - 09/15/2011

Production Transition

        10/15/2011 - 12/31/2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE						BUDGET NO.	
SAP BI Software Enterprise Agreement						787.0	

WITNESS						IN SERVICE DATE	
Jeff Nichols						12/31/2011	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	0	0	0
DIRECT NONLABOR	0	0	0	3696	0	0	3696
TOTAL DIRECT CAPITAL	0	0	0	3696	0	0	3696
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	3696	0	0	3696
FTE	0	0	0	0	0	0	0

Business Purpose

SEu currently does not have an enterprise agreement for SAP Business Intelligence (BI) software. As a result, as clients and project teams identify a need for tools such as the Business Objects suite, Crystal and Xcelsius, spot purchases are required. All the existing licenses we own today for Business Objects, Crystal and Xcelsius were purchased in this manner. Although we are able to take advantage of an 80% deep discount, this discount expires in 2012.

Based upon SEu's growing need and demand for BI capabilities in areas such as Smart Meter, OpEx, CRM, CPP and SCG AMI, a SAP BI enterprise agreement would provide functionality and capabilities to user's just-in-time without requiring each project to make their acquisitions separately.

Physical Description

An enterprise SAP BI agreement would enable any SEu employee to use any (or all) of the tools in the SAP BI toolset including Business Objects, Crystal and Xcelsius

Project Justification

An enterprise agreement is economically more feasible than spot buy purchases, especially once we lose our 80% discount.

Forecast Methodology

Estimates based on quotes provided by SAP for similar sized environments and requirements.

Schedule

Needs to be implemented by December 2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
SCG Meter Reading Handheld/System Replacement	00775.1

WITNESS	IN SERVICE DATE
Fong, Ed	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	233	524	0	757
DIRECT NONLABOR	0	0	0	10	6150	0	6160
TOTAL DIRECT CAPITAL	0	0	0	243	6674	0	6917
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	243	6674	0	6917
FTE	0	0	0	2.5	5.4	0	7.9

Business Purpose

SCG meter reading handheld computers will reach the end of life in 2011-2012. The vendor will no longer be supporting the current DAP 9500 and 9800 model handhelds. As the revenue billing cycle is dependent on a reliable collection and transmission system of meter reads to the customer information system (CIS), operating with hardware that is extremely old and non-supported leaves the revenue billing cycle vulnerable to not being able to accurately obtain the read and bill the customer. Options will be investigated to determine whether used models that are not at the end of their life might be available and/or whether vendors would be willing to continue to support end of life equipment.

Physical Description

The project has two main components – hardware acquistion and integration of software with CIS. The hardware component involves upgrade of approximately 980 current handheld computer units (and 15 units for growth in the next two years) with new radio frequency (RF) based units, cradles, antennas, and set-up of the associated software into the units. The other component primarily involves the integration of new system software with CIS. This work involves SCG Information Technology (IT) working with the vendor consultants and includes necessary CIS testing with the Customer Service Systems and Technology (CSST) group. Other alternative solutions such as purchasing used hardware and/or extension of support on existing hardware will also be evaluated.

Project Justification

There is risk to the revenue cycle process at SCG if handhelds fail and no other unit is available, resulting in an ever growing number of customer accounts estimated each month. Potential revenue loss and violation of CPUC tariff rules.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
SCG Meter Reading Handheld/System Replacement	00775.1

WITNESS	IN SERVICE DATE
Fong, Ed	12/31/2012

Forecast Methodology
Estimated cost is based on informal vendor quotes and IT estimates for CIS IT and CSST related work. Also, historic costs from prior system/handheld replacement projects were used as a framework for the two major components.
- Handheld unit costs estimated at 995 units x $5025 = $5,000,000
- Miscellaneous hardware, unit software and system software from vendor for $900,000
- Vendor consulting/travel costs of $250,000
- SCG IT labor of approximately 9,906 hours at $49/hr = $485,400
- CSST labor of approximately 1,800 hours at $40/hr = $72,000
- Meter Reading labor of approximately 2,646 hours at $35/hr = $92,600

Schedule
The design preplanning and Request for Proposal to conclude approximately mid-year 2011. Software integration work starts in 2011 with approximately 31% of the IT work expected to be completed in 2011, with the balance finished in 2012. Hardware acquisition, set-up or roll out to districts and testing of unit and system software to be completed by 12/31/2012.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
IT Depot & NCS Conversion to SAP Supply Chain	787.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	50	233	0	0	283
DIRECT NONLABOR	0	0	770	930	0	0	1700
TOTAL DIRECT CAPITAL	0	0	820	1163	0	0	1983
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	820	1163	0	0	1983
FTE	0	0	.5	2.5	0	0	3

Business Purpose

The purpose of the project is to deploy standard SAP Supply Chain process to the IT Depot and NCS process.

Physical Description

The project will replace the Macola system in the IT Depot and deploy SAP Inventory Management, Contract Management, Procurement, e-Procurement for Order Entry and Catalog Requisitioning.
The project will also deploy these same functions to NCS along with a mobile data collection system to execute Inventory transactions and asset tracking. Both the IT Depot and NCS will also be able to leverage out of the box integration with SAP Accounts Payable, Finance and Accounting systems.

Project Justification

The conversion to a standard SAP solution will leverage the system of record for the supply chain functions and is an enterprise wide solution. It will reduce applications and maintenance along with the related support. The current system is an 'Island' and is not integrated with the SAP Supply Chain system of record, the new process will provide this missing integration and will eliminate the manual upload of purchasing, accounting, accounts payable and other data into SAP.

Forecast Methodology

The costs to deploy and support the SAP supply chain functions are will understood and have good historical cost information which was leveraged.

Schedule

The SAP Supply Chain solution will be delivered as a package at the end of 2011. However the project can be phased with the IT Depot conversion first at mid 2011 and NCS delivered second 12/31/2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE			BUDGET NO.
One Voice SCG			782.0

WITNESS			IN SERVICE DATE
Jeff Nichols			10/31/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	332	388	197	0	0	0	917
DIRECT NONLABOR	2952	2665	1350	0	0	0	6967
TOTAL DIRECT CAPITAL	3284	3053	1547	0	0	0	7884
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	3284	3053	1547	0	0	0	7884
FTE	3.5	4.1	2.1	0	0	0	9.7

Business Purpose

This project standardizes the phone system for SEu, Corporate Center and Global. It retires end-of-life PBX systems (more than 100) throughout the enterprise. It replaces multiple telecom service providers with one vendor, Level 3 Communications; thus eliminating all internal calling charges. It implements one common dial plan and dialing requirements for all three companies. It also provides new communication features that enhance productivity, safety (e911), and mobility. The unification, standardization, and centralization of voice services provides for a more reliable and available telephone system as well as reduces the company's overall cost of ownership.

Physical Description

This project consists of a main VoIP Communication System comprised of 35 shared-asset servers and a backup VoIP Communication System comprised of six (6) servers.
The project also consists of an Enterprise Notification System (ENS) for EOC and other system-wide communications. The ENS system consists of ten (14) shared-asset servers and eight (8) backup shared servers in MPK.
The project also consists of 31 G450 Gateways and 82 TGM550 Gateways, 8,050 IP Phones and 75 Digital Phones.

Project Justification

• Voice Systems - The number of voice systems will be reduced from 112 to 2-4, which reduces operating costs and simplifies security.
• Facilities – VoIP will reduce the cost of employee moves by reducing costs required from the Network/Telecom organization. Estimated savings of $250,000.
• Day to Day Installation & Maintenance - VoIP systems are based on software rather than hardware to control call processing. This allows for greater expansion capabilities as well as makes it is easier to alter and maintain. Fewer technicians will be required to move and install phones and troubleshoot voice related issues. Estimated savings of $300,000 per year.
• Bandwidth Efficiency - With VoIP, voice is compressed with data and transmitted over a common network thus using substantially less bandwidth. Estimated savings of Telephone Company services of up to $250,000.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
LAN Refresh Phase 3	782.0

WITNESS	IN SERVICE DATE
Jeff Nichols	4/30/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	126	181	38	0	0	0	345
DIRECT NONLABOR	512	2928	154	0	0	0	3594
TOTAL DIRECT CAPITAL	638	3109	192	0	0	0	3939
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	638	3109	192	0	0	0	3939
FTE	1.3	1.9	.4	0	0	0	3.6

Business Purpose

This project replaces obsolete LAN switches no longer supported by manufacturer and considered end of life.

Physical Description

This project consists of replacing obsolete Cisco LAN switches with new Brocade switches at SCG locations. The replacement includes infrastructure improvements (i.e. LAN Cabling, electrical, HVAC) to support the new equipment.

Project Justification

This project installs new switches with performance capabilities required to support strategic business and IT initiatives. Development of a consistent and standardized LAN environment reduces operation and maintenance costs.

Forecast Methodology

Competitive cost model achieved through vendor acquisition process to secure best pricing and value for replacement of LAN switches. A three year contract cycle was established with selected vendor with option to new on an annual basis for 3 more years. Cost estimates for equipment and services were based on locked-down pricing model with vendor.

Schedule

Approved work order to refresh 5 SCG locations including GCT, Chatsworth, Compton, Redlands and San Dimas. The refresh of GCT was removed from scope and formally approved by Executive stakeholders. All project deliverables were met and project completed as of 04/30/2010.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
WAN Rebuild 2009	08869.0

WITNESS	IN SERVICE DATE
Jeffrey Cecil Nichols	5/31/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	370	256	0	0	0	626
DIRECT NONLABOR	0	4991	219	0	0	0	5210
TOTAL DIRECT CAPITAL	0	5361	475	0	0	0	5836
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	5361	475	0	0	0	5836
FTE	0	3.9	2.7	0	0	0	6.6

Business Purpose

Replaces remaining end-of-support WAN hardware (routers), upgrade microwave transport paths and create network designs to support MPLS / QOS. The current devices/system is not capable of supporting incremental capacity or functionality requirements of major programs including OpEx 20/20 applications.

Physical Description

Purchase and install 106 WAN routers.   Implement capacity upgrades and network transition units (NTU), in direct support of OpEx 20/20 (GIS), 4).

Project Justification

Using a network capacity / utilization tools such as Netscout and E-health, the network team analyzed current network utilization, capacity requirements driven by legacy applications and net-new applications (OpEx 20/20) to determine the needed capacity to support the business. In addition, the asset management system, accounting systems, and vendors communicated the end-of-support for the aging routers in the field.

Forecast Methodology

Requirements were documented and RFP's were requested from vendors for the replacement hardware and circuits. With regards to the routers, a weighted scoring model was used evaluating the vendors based on their ability to meet the network functionality requirements, support, and pricing. The transport / circuit capacity estimates and corresponding costs utilized existing network analysis tools such as Netscout and E-health to determine current network utilization by site as well as historical year-over-year demand growth of existing legacy applications. Vendors were invited to participate in providing formal quotations for evaluation by the project team and Supply Management.   Final prices were determined based on existing contracts or net-new negotiated contracts.

Schedule

106 WAN routers deployed beginning during the calendar year 2009. The hardware will be used-and-

PROJECT TITLE	BUDGET NO.
WAN Rebuild 2009	08869.0
WITNESS	**IN SERVICE DATE**
Jeffrey Cecil Nichols	5/31/2010

useful on the deployment date. The deployments will be evenly distributed throughout the project period. The transport / circuits will be aligned with the router deployments resulting in an evenly distributed used-and-useful realization during the project period.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Active Directory Refresh	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	4/30/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	54	47	0	0	0	101
DIRECT NONLABOR	0	434	91	0	0	0	525
TOTAL DIRECT CAPITAL	0	488	138	0	0	0	626
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	488	138	0	0	0	626
FTE	0	.6	.5	0	0	0	1.1

Business Purpose

There are currently 35 Wintel servers utilized as domain controllers in service supporting active directory for SEU and Corporate. Primary objective for this project is to replace the aging server infrastructure and upgrade the existing Windows 20003 A/D infrastructure to the current version. (Microsoft's Active Directory 2008).

Physical Description

G5 Servers
Virtual Sessions
Server 2008 Licenses
Microsoft Engineering
Burton Engineering Support
Internal Labor/CSC
UNIX labor to upgrade VAS

Project Justification

This project will upgrade aging DC hardware with vendor current. Many of the DC's are running on server hardware older than our normal 5 year lifecycle (approaching 7+ years) and are starting to see hardware failures that are greater than normal. At the same time that the hardware is upgraded, we are also going to upgrade the AD version from Windows 2003 to Windows 2008. Finally we are going to take this opportunity to develop a fully-realized directory strategy and compare the AD design to the strategy to make sure that the directory is in alignment.

Forecast Methodology

Estimates based on vendor quotations and historical perspective of the labor involved to refresh servers.

Schedule

All domain controllers should be refreshed by End of April 2010

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
GRC Model Development	758.0

WITNESS	IN SERVICE DATE
Nichols, Jeff	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	427	68	0	0	0	495
DIRECT NONLABOR	0	392	88	0	0	0	480
TOTAL DIRECT CAPITAL	0	819	156	0	0	0	975
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	819	156	0	0	0	975
FTE	0	4.6	.6	0	0	0	5.2

Business Purpose

The three General Rate Case Models from the 2008 rate case must be updated to conform to the CPUC requirements and recommendations as defined in the 2008 GRC decision.

Physical Description

Generate revenue requirements for each utility, dynamically calculate: All taxes, Rate base and depreciation, Working Cash, The software is standalone executed by Rates and Revenues department and Commission staff. Update models to comply with the 2008 GRC Decision which requires the presentation of the applications to be shown in cost center format vs current FERC account format. Also include the addition of change log functionality. Create a "super model" to eliminate handoff of data between two utilities RO models. Create separate GRC workpaper reports and direct cost forecasting system for use. Mechanics to forecast direct cost of capital and O&M. Generate workpapers to report consistent data to be transferred to the RO models for processing into revenue requirements. Workpaper and data system will be built into SQL, Access, and VBA.

Project Justification

The three General Rate Case Models from the 2008 rate case must be updated to conform to the CPUC requirements and recommendations as defined in the 2008 GRC decision.

Forecast Methodology

Historical Cost

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Source to Pay	760.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	250	1015	0	0	0	1265
DIRECT NONLABOR	0	348	2280	0	0	0	2628
TOTAL DIRECT CAPITAL	0	598	3295	0	0	0	3893
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	598	3295	0	0	0	3893
FTE	0	2.7	10.8	0	0	0	13.5

Business Purpose

This project will deliver an AP Imaging Intelligent OCR & Workflow solution to reduce manual activity of entering invoices in SAP via Intelligent OCR scanning technology. IT will also enable online collaboration with our suppliers via a Supplier Network. In addition, the project plans to replace the existing procurement application.

Physical Description

This project will automate the AP - Invoice Process by scanning invoices currently received through email, fax, or hard-copies. Once scanned, the invoices will be routed through a set of workflows to expedite the approval process. The project will also enable connectivity with our Suppliers through a Suppliers Network to exchange information on PO's and Invoices. In addition, the project will replace our existing procurement application with a solution that offers greater efficiencies.

Project Justification

The existing AP Process lacks automation and efficiency to optimize discounts for early payment. It also lacks efficiencies in Pos and Invoice disputes. The supplier network will allow us to trace AP information more rapidly and resolve issues with vendors more efficiently.

Forecast Methodology

The cost forecast was based on vendor estimates and prior history on software development projects.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
BCAP	754.0

WITNESS	IN SERVICE DATE
Baldwin, Mike	6/30/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	387	493	0	0	0	880
DIRECT NONLABOR	0	535	340	0	0	0	875
TOTAL DIRECT CAPITAL	0	922	833	0	0	0	1755
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	922	833	0	0	0	1755
FTE	0	4.1	5.2	0	0	0	9.3

Business Purpose

BCAP decision addresses cost allocation changes among customers and introduces new rate design and conditions of service for customers served directly from the Utilities' transmission system

Physical Description

Software Enhancement

Project Justification

CPUC Compliance to ensure avoidance of customer litigation and/or CPUC penalties related to regulatory non-compliance
Mandated billing rate structure changes involving our largest non-core customers

Forecast Methodology

Product life cycle estimation methodology. Used good historical estimation information from past regulatory projects for the applications impacted.

Schedule

Changes for contracts, Envoy, CIS and SCBS implemented in January 2010.
Remaining Envoy and SCBS changes to be implemented by June 2010

CAPITAL PROJECT WORKPAPER

PROJECT TITLE		BUDGET NO.
Bill Re-Design		774.0

WITNESS		IN SERVICE DATE
Baldwin, Mike		9/30/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	504	160	176	0	0	0	840
DIRECT NONLABOR	1114	266	52	0	0	0	1432
TOTAL DIRECT CAPITAL	1618	426	228	0	0	0	2272
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	1618	426	228	0	0	0	2272
FTE	5.4	1.7	1.8	0	0	0	8.9

Business Purpose

This is a regulatory project. This project will redesign residential and commercial customer bill formats to be more customer-friendly, understandable and flexible, giving bills an updated "look and feel" common across both SoCalGas and SDG&E.

Physical Description

This project consists of application software enhancements.

Project Justification

This is a regulatory project.

Forecast Methodology

Use IT Product Lifecycle estimation methodology. Used historical estimation information as reference.

Schedule

Expected Construction completion in June 2010 and in-service in Sep 2010.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Customer Service Field Operating Efficiency (CSFOE)	774.0

WITNESS	IN SERVICE DATE
Fong, Ed	3/31/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	364	797	180	0	0	0	1341
DIRECT NONLABOR	335	587	86	0	0	0	1008
TOTAL DIRECT CAPITAL	699	1384	266	0	0	0	2349
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	699	1384	266	0	0	0	2349
FTE	2.8	8.5	1.9	0	0	0	13.2

Business Purpose

Create the ability to electronically generate, track and store all activity related to the services provided to SCG industrial customers. This will provide the supporting documentation needed to determine adequate workforce needs, future staffing requirements and validate the importance of the Industrial Service Technician (IST) classification as it relates to industrial customers within the SCG service territory. This project will also allow for enhanced management of business controls and records retention and delivery of route enhancement data gathering capabilities using GPS to increase customer service routing efficiency.

Physical Description

The project introduced technical solutions to replace the archaic paper based processes that were used by the Industrial Service Technician (IST) classification. Various service order types and auto-populated forms associated with IST work were created and successfully placed into service. Information from these new orders types and forms integrate with SCG's customer information system (CIS), marketing and equipment database and the company's routing and dispatching application (PACER).

Implementation of the Geographical Route Study Display (GRSD) route enhancement portion of the project was completed in August 2009. This functionality delivered visual displays and information captured via GPS of completed Customer Service Technician routes. The data gathered is used for analysis to improve routing efficiencies.

The CSFOE project was fully completed in April of 2010. The estimated benefit associated with the project is $270,000 in customer service field direct labor.

Project Justification

The CSFOE project was critical to meeting the future organizational objectives and timelines as well as current and future key performance elements directly associated with levels and proficiency of customer initiated service. The new electronic capabilities implemented by the project are providing the supporting documentation needed to determine adequate workforce needs (present), future staffing requirements and most importantly validate the importance of this classification as it relates to industrial customers within our service territory; while ensuring appropriate business controls and records retention.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Customer Service Field Operating Efficiency (CSFOE)	774.0
WITNESS	**IN SERVICE DATE**
Fong, Ed	3/31/2010

Forecast Methodology
The IT Project Life Cycle was used to forecast.

Schedule
Route Enhancement (GRSD) - August 2009
Industrial Service Technician - April 2010

CAPITAL PROJECT WORKPAPER

PROJECT TITLE							BUDGET NO.
Forecasting & Scheduling							774.0

WITNESS							IN SERVICE DATE
Fong, Ed							12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	679	575	0	0	1254
DIRECT NONLABOR	0	0	428	1091	0	0	1519
TOTAL DIRECT CAPITAL	0	0	1107	1666	0	0	2773
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	1107	1666	0	0	2773
FTE	0	0	7.3	6.1	0	0	13.4

Business Purpose
This project will provide automation and new tools within the PACER application and redesign the routing process to allow for improved management of the Order Completion Deferment Schedule (OCDS) and corresponding workforce resources.

Physical Description
This project involves software development changes. There is no physical change resulting from the project.

Project Justification
Hard benefits equivalent to $1.2 million in loaded labor costs per year are required to meet IRR, assuming full savings beginning in 2012.
Sources of savings:
    Annual reduction/avoidance in extended day overtime due to efficiencies gained in routing and reduction of wait time in the field
    Efficiencies gained through automating the OCDS
    Reduction of dispatch overtime corresponding to field extended day overtime decreases

Forecast Methodology
Cost estimates are based on software development life cycle and historical costs.

Schedule
Single Phase Implementation by end of 2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
JDK/WLS/WLP Upgrade	764.0

WITNESS	IN SERVICE DATE
Jeff Nichols	4/30/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	126	1039	186	0	0	1351
DIRECT NONLABOR	0	100	1895	488	0	0	2483
TOTAL DIRECT CAPITAL	0	226	2934	674	0	0	3834
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	226	2934	674	0	0	3834
FTE	0	1.3	11.2	2.1	0	0	14.6

Business Purpose

This technology upgrade is necessary to deliver our committed service level agreements (SLA), and to support new enhancements for our mission critical applications. Core application components being upgraded as part of this project are JDK (Java Development Kit), WLS (Web Logic Server) and WLP (Web Logic Portal). The combination of JDK and WLS/WLP provides Java programming language-based tools and application development framework for developing and running computer programs that provide systems functionality and underlying computer logic. JDK (Java Development Kit) version 1.4.x reached its End of Service Life on Oct 30th 2008.   BEA WLP (Weblogic Portal)/WLS(Weblogic Server) version 8 is approaching its End Of Life by Oct. 2009.

Physical Description

This project will upgrade Customer Care System Applications including ENVOY, CCS, SCBS, CAT, MyAccount Portal, eService, HECT, GRC2 and EBPP ; and Utility Operation Applications including MyProject, NBC, MCC, and CallOut to use the latest version of the JAVA JDK (1.6), WebLogic (10.3), Oracle (10R2), and third-party vendor tools running on this environment. (provide expansions to all acronyms and brief definitions of what they mean or do)

•JDBC (Java Database Connectivity) - Provides connectivity between Java-based computer programs and database servers (Oracle, Sybase) utilized for data storage purposes.
•	ENVOY – SoCalGas's internet based gas transportation management system.
•Customer Contracts System (CCS) – SoCalGas's system for managing gas transportation customer's contracts.
•Specialized Customer Billing System (SCBS) – SoCalGas's system for handling non-core customer's billing.
•Core Aggregator Transportation (CAT) - SoCalGas's system for managing core aggregator's gas transportation.
• MyAccount Portal – SoCalGas's internet-based web portal that offers a variety of self-service options including electronic bill payment.
•Electronic Bill Payment and Presentment (EBPP) – SoCalGas's internet-based customer self-service application for presenting electronic bills and accepting on-line payments.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
JDK/WLS/WLP Upgrade	764.0

WITNESS	IN SERVICE DATE
Jeff Nichols	4/30/2011

•Home Energy Comparison Tool (HECT) – SDG&E's internet-based tool gives customers the ability to compare their home energy usage with similar households in their neighborhood.
•   GRC2 (General Rate Case) – SDG&E application to support general rate case preparation.
•My Project – SDG&E internet-based self-service application that enables customer's to register and update their profiles.
•MCC (Mission Control Center) – SDG&E application primarily used at Mission Control Center to track keys to substations and authorization training. Also used to schedule transmission related outages, and allow operators to create and send trouble tickets to various trouble groups.
•NBC (New Business Construction) – SDG&E application that allows builders to request new electric and gas service, and to monitor those requests.
• CCA (Critical Cyber Access) – SDG&E application utilized for tracking access to utilities critical cyber assets.
•Callout – SDG&E application utilized for calling-in work crews in response to after-hours electric and gas repair service calls.

Project Justification

The current version of JDK, WLS and WLP many of our computer systems run on are obsolete. JDK (Java Development Kit) version 1.4.x reached its End of Service Life on Oct 30th 2008. BEA's WLP (Weblogic Portal)/WLS(Weblogic Server) version 8 is approaching its End Of Life by Oct. 2009. The performance of mission critical applications including SCBS, CCS, ENVOY, MyAccount and EBPP is at risk running on this obsolete vendor software and platform. Existing version of WLP does not adequately support secured remote portlets. Existing Oracle JDBC connection to MyAccount EBPP is lack of encrypted logon credentials. WLP/WLS/JDK Upgrade is necessary to continue our ability to maintain reliable, stable, and flexible applications and to support the dynamic business changes.

Forecast Methodology
Based on Software Development Life Cycle and Historic Cost

Schedule
CAT (3/20/10), CCS (5/22/10), EBPP-SDGE & Portal-SDGE (6/5/10), HECT&GRC (7/31/10), SCBS (9/19/10), ENVOY (Q1' 11), EBPP-SC & Portal-Sc (Q1 '11)
NBC (8/1/10), CCA (8/1/10), MCC & Callout (Q1 '11)

CAPITAL PROJECT WORKPAPER

PROJECT TITLE Distributed Backup Growth 2012		BUDGET NO. 760.0
WITNESS Jeff Nichols		IN SERVICE DATE 12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	102	0	102
DIRECT NONLABOR	0	0	0	0	1634	0	1634
TOTAL DIRECT CAPITAL	0	0	0	0	1736	0	1736
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	1736	0	1736
FTE	0	0	0	0	1.1	0	1.1

Business Purpose

This project will address normal production growth in the Sempra distributed backup environment that has not been captured in the normal growth projects. This will include capital project growth that has not been forecast as normal incremental growth.

Physical Description

Add incremental backup software licenses and storage hardware as required

Project Justification

Historical rates of growth for incremental storage have exceeded 50% a year, while the incremental production capacity growth has only increased 7% a year. The realized backup growth is met annually with a project to supplement the backup environment to meet the growing needs for data protection as the storage environment continues to grow. Subsequent capital projects fund backup capacity growth commensurate to the amount of storage that is added to the environment. This is required to provide capacity to meet the requirements for business continuity and compliance. Without sustained backup capacity growth, the ability to provide these mandatory services would present significant gaps. This gap in capacity to meet this year's storage growth as it pertains to backing up the storage will be addressed with this project. This project will address normal production growth in the Sempra distributed backup environment that has not been captured in the normal growth projects. This will include capital project growth that has not been forecast as normal incremental growth.

Forecast Methodology
Historical trends were utilized with current vendor bids that represented the latest comparable backup technology.

Schedule

The three storage arrays will be replaced by 07/31/2012

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Enterprise Encryption 2010	760.0/761.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	126	0	0	0	126
DIRECT NONLABOR	0	0	5517	0	0	0	5517
TOTAL DIRECT CAPITAL	0	0	5643	0	0	0	5643
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	5643	0	0	0	5643
FTE	0	0	1.3	0	0	0	1.3

Business Purpose

Existing server operating systems, application servers, and database platforms, in their current configurations, are not able to reasonably and effectively accommodate protection of sensitive information in transit and recorded on storage media. This condition prevents many front-line production systems in the environment from accommodating best practices and meeting standing Information Security Requirements. The result is an exposure of sensitive information on disks removed from SAN and NAS storage arrays. This concept proposes to implement a modular, hardware-based encryption mechanism that operates transparently to existing SAN and NAS equipment, servers, operating systems, application servers, and database platforms. The resulting system will assist in reducing risks associated with FERC affiliate compliance issues, and California Civil Code 1798.80-84 as well as reducing complexities associated with handling sensitive HR and financial data. This is phase 1 of a two phase project, and will deliver an enterprise-scale, interoperable solution for encryption of data at rest.

Physical Description

Implement a modular, hardware-based encryption mechanism that operates transparently to existing SAN and NAS equipment, servers, operating systems, application servers, and database platforms.

Project Justification

The resulting system will assist in reducing risks associated with FERC affiliate compliance issues, and California Civil Code 1798.80-84 as well as reducing complexities associated with handling sensitive HR and financial data.

Forecast Methodology
Historical trends were utilized.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE Security Operations Management 2011						BUDGET NO. 760.0/761.0	
WITNESS Jeff Nichols						IN SERVICE DATE 12/31/2011	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	240	0	0	240
DIRECT NONLABOR	0	0	0	1980	0	0	1980
TOTAL DIRECT CAPITAL	0	0	0	2220	0	0	2220
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	2220	0	0	2220
FTE	0	0	0	2.5	0	0	2.5

Business Purpose

This will be phase two of a multi year phased approach to enhancing the security operational capabilities and enterprise security services. Phase two will include Log Management enhancements, Virtual System Intrusion Prevention, Network Application Identification, and Threat Prevention.

Physical Description

Design, implement, and operate a new set of enterprise preventative security controls. This will include server infrastructure, software, and hardware appliances.

Project Justification

The threat landscape in the areas of Virtual System Intrusion Prevention and Network Application Identification/Threat Prevention will increase in complexity and will become more difficult to detect and prevent as adversaries develop new methods of compromising and exploiting enterprise systems. The management of the technologies used to identify vulnerabilities and manage enterprise security systems plays a critical role in the overhead associated with utilizing the technologies as they were designed. The costs associated with responding to cyber security intrusions will also increase due to regulation and penalties imposed on corporations for security breaches. The associated business costs to implement technologies that identify and prevent intrusions will be at a much lower cost than responding to them after they have occurred.

Forecast Methodology

The budget estimates were created based on a core set of subprojects that will deliver the preventative security controls outlined in the business cases.

Schedule

Capital project will be initiated and completed within the calendar for which they are approved.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Security Operations Management 2012	760.0/761.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	403	0	403
DIRECT NONLABOR	0	0	0	0	1800	0	1800
TOTAL DIRECT CAPITAL	0	0	0	0	2203	0	2203
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	2203	0	2203
FTE	0	0	0	0	4.3	0	4.3

Business Purpose

This will be phase three of a multi year phased approach to enhancing the security operational capabilities and enterprise security services. Phase two will include Log Management enhancements, Virtual System Intrusion Prevention, Network Application Identification, and Threat Prevention.

Physical Description

Design, implement, and operate a new set of enterprise preventative security controls. This will include server infrastructure, software, and hardware appliances.

Project Justification

The threat landscape in the areas of Virtual System Intrusion Prevention and Network Application Identification/Threat Prevention will increase in complexity and will become more difficult to detect and prevent as adversaries develop new methods of compromising and exploiting enterprise systems. The management of the technologies used to identify vulnerabilities and manage enterprise security systems plays a critical role in the overhead associated with utilizing the technologies as they were designed. The costs associated with responding to cyber security intrusions will also increase due to regulation and penalties imposed on corporations for security breaches. The associated business costs to implement technologies that identify and prevent intrusions will be at a much lower cost than responding to them after they have occurred.

Forecast Methodology

The budget estimates were created based on a core set of subprojects that will deliver the preventative security controls outlined in the business cases.

Schedule

Capital project will be initiated and completed within the calendar for which they are approved.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE		BUDGET NO.
2011 DR Mainframe Hardware Upgrade		770.0

WITNESS		IN SERVICE DATE
Jeff Nichols		12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	151	0	0	151
DIRECT NONLABOR	0	0	0	449	0	0	449
TOTAL DIRECT CAPITAL	0	0	0	600	0	0	600
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	600	0	0	600
FTE	0	0	0	1.6	0	0	1.6

Business Purpose

Based on October 2009's CP3000 reporting of current production utilization and an estimated projection of 8% compounded normal growth, our current CBU (z9 BC A01) would not be able to support production workload beyond 1st quarter of 2012. Additionally IBM has withdrawn marketing of the z9 servers. An upgrade of CBU to z10 server would be needed in 2011 to support the projected production workload in early 2012.

Physical Description

Project is to replace current IBM z9 BC A01 S/N 865BFCBU with proposed IBM z10. Following is a proposed HW product list required to support the replacement.

Project Justification

Without the upgrade in 2011, the current CBU will not be able to support the full production load by 2012.

Forecast Methodology

IBM hardware pricing quotes from 2009 were used. October 2009 CP3000 reporting was used. 2010 Mainframe Hardware Upgrade Labor estimates were used as basis for this labor estimates.

Schedule

Project is currently in pre-business concept phase. Business concept is expected to be completed by 3rd quarter 2010.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE EMF Upgrade		BUDGET NO. 770.0
WITNESS Jeff Nichols		**IN SERVICE DATE** 8/30/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	403	0	0	403
DIRECT NONLABOR	0	0	0	1036	0	0	1036
TOTAL DIRECT CAPITAL	0	0	0	1439	0	0	1439
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	1439	0	0	1439
FTE	0	0	0	4.3	0	0	4.3

Business Purpose

This project refreshes aging hardware for existing EMF environment to reduce potential hardware outages and improve system performance. This project will also upgrade SOA software to align with IT strategic directions. This project will also migrate Oracle instances used by EMF to Enterprise Oracle on Linux to align with new IT strategy for Oracle Database platform.

Physical Description

EMF servers will be refreshed using latest blade hardware. Oracle Weblogic Integration and Oracle Enterprise Service Bus will be upgraded to latest version. Oracle BPEL will be implemented on these servers to meet new system integration requirements. Oracle instances used by EMF servers will be migrated to Enterprise Oracle RAC on Linux.

Project Justification

Refreshing aging hardware will reduce hardware maintenance cost, and provide additional system capacity and performance without incurring new software license cost. Upgrading EMF software reduces support cost since we'll not need to get more expensive extended support. Migrating EMF Oracle instances to Enterprise Oracle on Linux will significantly reduce the on-going hardware maintenance cost due to organic growth and/or break/fix.

Forecast Methodology

Historic costs and potential cost to migrate to the new environment.

Schedule

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
EMF Upgrade	770.0

WITNESS	IN SERVICE DATE
Jeff Nichols	8/30/2011

Project Phase	Start Date	End Date
Business Case Phase	11/1/2010	1/28/2011
Project Preparation Phase	2/1/2011	2/4/2011
Requirements Phase	2/7/2011	2/18/2011
Design Phase	2/21/2011	3/18/2011
Construct / Build Phase – Platform Completed	3/21/201	4/29/2011
Test Phase	5/2/2011	5/20/2011
Implementation Phase – App. Migration / Testing	5/23/2011	7/29/2011
Post Implementation Review (PIR) Phase	8/1/2011	8/12/2011
Project Complete	8/12/2011	8/12/2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
i3 Ph 2	770.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	582	0	0	582
DIRECT NONLABOR	0	0	0	500	0	0	500
TOTAL DIRECT CAPITAL	0	0	0	1082	0	0	1082
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	1082	0	0	1082
FTE	0	0	0	6.2	0	0	6.2

Business Purpose

The i3 Phase 2 Concept is to continue the strategy of developing and building Sempra IT's Next Generation Data Center with a foundation of virtualization (including Servers, Storage, Networks and Information Security).

Physical Description

i3 Phase 2 will drive to address the current capacity issues related to site-specific restrictions (facility, row, rack, etc.) i3 Phase 2 will evolve the Reference Architecture developed in Phase 1 and establish the Factory Management process for demand forecasting and infrastructure planning. i3 Phase 2 will partner with and look to integrate with the ESM Service Catalog, enabling infrastructure and application provisioning/release automation through workflow orchestration

Project Justification

• Allow for best practices in data center automation - reduce time-to-market by automating configuration change to adapt to constantly shifting business requirements.
• Maintaining operational control, consistency and improve cost structure while supporting a growing data center infrastructure.
• Lowering compliance assurance costs through automated auditing, testing, and remediation.

Forecast Methodology

Estimations are based on historical costs

Schedule

12 Months

CAPITAL PROJECT WORKPAPER

PROJECT TITLE						BUDGET NO.
I3 Phase 3						770.0

WITNESS						IN SERVICE DATE
Jeff Nichols						12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	815	0	815
DIRECT NONLABOR	0	0	0	0	500	0	500
TOTAL DIRECT CAPITAL	0	0	0	0	1315	0	1315
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	1315	0	1315
FTE	0	0	0	0	8.7	0	8.7

Business Purpose

The i3 Phase 3 Concept is to continue the strategy of previous i3 Phases of developing and building Sempra IT's Next Generation Data Center with a foundation of virtualization.

Physical Description

i3 Phase 3 will continue to evolve the Reference Architecture developed in previous phases, as well as continuing the evolution of the Factory Management process for demand forecasting and infrastructure planning.

Project Justification

• Allow for best practices in data center automation - reduce time-to-market by automating configuration change to adapt to constantly shifting business requirements.
• Maintaining operational control, consistency and improve cost structure while supporting a growing data center infrastructure.
• Lowering compliance assurance costs through automated auditing, testing, and remediation.

Forecast Methodology

Estimations are based on historical costs.

Schedule

12 Months

CAPITAL PROJECT WORKPAPER

PROJECT TITLE		BUDGET NO.
ISISC Small Cap Budget		770.0

WITNESS		IN SERVICE DATE
Jeff Nichols		Blanket

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR		0	0	0	0		
DIRECT NONLABOR		0	300	300	300		
TOTAL DIRECT CAPITAL		0	300	300	300		
COLLECTIBLE		0	0	0	0		
NET CAPITAL		0	300	300	300		
FTE		0	0	0	0		

Business Purpose

ISIC as it own organizational unit was formed at the end of 2009. To support small projects related to activities that cannot be handled in capital efforts, a small infrastructure cap budget is required.

Proposed use of the budget includes the replacement of aging Intrusion Prevention devices, licensing and or hardware extensions to support additional infrastructure projects not capitalized, support forensic investigations and to support capacity requirements for enterprise security solutions as they are leverage by other O&M efforts.

In order to qualify, each individual small project effort must meet minimum capitalization requirements, per SEU and Corporate Center policy. Small Cap guidelines have been established at $75K. Anything above $75K will need to have its own business case and project established.

Physical Description

Hard Drives and Software Solutions for forensic investigations, Intrusion Prevention and Logging appliances for business O&M projects

Project Justification

Run the Business - these projects involve keeping the business operational, providing mission- and business-critical services for the front and back office. Common expenditures include network services, data center operations, IT vendor support, backup/restore, and disaster recovery.

Forecast Methodology

Estimations are based on historical costs.

Schedule

12 Months

CAPITAL PROJECT WORKPAPER

PROJECT TITLE					BUDGET NO.	
SMS Upgrade					770.0	

WITNESS					IN SERVICE DATE	
Jeff Nichols					12/31/2011	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	87	713	0	0	800
DIRECT NONLABOR	0	0	0	1600	0	0	1600
TOTAL DIRECT CAPITAL	0	0	87	2313	0	0	2400
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	87	2313	0	0	2400
FTE	0	0	.9	7.6	0	0	8.5

Business Purpose

Infrastructure upgrade project from the existing System Management Server (SMS) to System Center Configuration Manager (SCCM) due to product end of life and support by Microsoft. This project can potentially allow consolidation of Management consoles of the Citrix, Server and Desktop infrastructures. It will reduce power consumption on our desktop environment through the Desktop Power Management and reporting features. The new platform allows us to support and leverage newer technologies such as Windows 7 and Application Virtualization.

Physical Description

This project consists of replacing hardware and software of the 12 existing SMS servers for desktop management and 5 servers for server management with 13 new servers. It is an infrastructure upgrade project moving from the existing System Management Server (SMS) to System Center Configuration Manager (SCCM) due to product end of life and support by Microsoft.

Project Justification

This project can potentially allow consolidation of Management consoles of the Citrix, Server and Desktop infrastructures. It will reduce power consumption on our desktop environment through the Desktop Power Management and reporting features. The new platform allows us to support and leverage newer technologies such as Windows 7 and Application Virtualization.

Although Sempra IT has achieved its immediate goals of transitioning many desktop management tasks through automated tools and processes (SMS 2003, Active Directory and Group Policy Owners), we still have some gaps that are preventing us from increasing our ability to quickly respond to rapidly changing demands of the business, and our ability to obtain further efficiencies through standardization and automation of client technology management tasks. Some of the areas that need to be addressed are:
•The ability to quickly provision desktops by enhancing the effectiveness of IT's automated deployment and provisioning technology.
•The ability to further reduce desktop costs and minimize operational risks by consolidating desktops, and virtualizing software.
•The ability to prevent end-user downtime by proactively monitoring and maintaining client technology

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
SMS Upgrade	770.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

devices.
•The ability to reduce manual labor by leveraging integration with other management tools to automate support tasks..
•The ability to reduce client technology Total Cost of Operation by increased standardization of the desktop environment

Forecast Methodology

Historic costs based on original installation of SMS 2003.

Schedule

Business Case Complete by 12/31/10
Project Start Date 1/1/11
Project Completion Date 12/31/11

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
CIS SNA Conversion	774.0

WITNESS	IN SERVICE DATE
Jeff Nichols	9/30/2013

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	353	226	579
DIRECT NONLABOR	0	0	0	0	150	227	377
TOTAL DIRECT CAPITAL	0	0	0	0	503	453	956
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	503	453	956
FTE	0	0	0	0	3.8	2.4	6.2

Business Purpose

Remove Application dependency on technology which will no longer be supported after 2014

Physical Description

Remove SNA/DLSW protocols from the network. Move CIS off SNA to native TCP/IP

Project Justification

The ability to provide for a stable system to support critical business functionality. The product not compatible with 64-bit OS which is expected to be the enterprise standard in 2014

Forecast Methodology

Empirical data

Schedule

Implenment 2013

CAPITAL PROJECT WORKPAPER

PROJECT TITLE						BUDGET NO.	
PACER PRDS PCOMM Conversion						774.0	

WITNESS						IN SERVICE DATE	
Jeff Nichols						9/30/2011	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	233	0	0	233
DIRECT NONLABOR	0	0	0	150	0	0	150
TOTAL DIRECT CAPITAL	0	0	0	383	0	0	383
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	383	0	0	383
FTE	0	0	0	2.5	0	0	2.5

Business Purpose

Convert PACER PRDS from PCOMM to newer supported technology. PCOMM not supported by vendor starting 2014. There is limited domain knowledge, the code is harder to maintain and requires more resources to support changes.

Physical Description

Convert PACER PRDS from PCOMM to TPC/IP or other newer supported technology.

Project Justification

The ability to provide for a stable system to support critical business functionality. The product not supported by the vendor starting 2014. Savings of $165k annually in licenses fees (based on IBM calculation of per-user license requirements)

Forecast Methodology

Empirical data

Schedule

Implement 2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
PACER SNA Conversion	774.0

WITNESS	IN SERVICE DATE
Jeff Nichols	4/30/2013

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	349	0	349
DIRECT NONLABOR	0	0	0	0	200	0	200
TOTAL DIRECT CAPITAL	0	0	0	0	549	0	549
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	549	0	549
FTE	0	0	0	0	3.7	0	3.7

Business Purpose

Remove Application dependency on technology which will no longer be supported after 2014

Physical Description

Remove SNA/DLSW protocols from the network. Move PACER/PRDS off SNA to native TCP/IP.

Project Justification

The ability to provide for a stable system to support critical business functionality. The product not compatible with 64-bit OS which is expected to be the enterprise standard in 2014

Forecast Methodology

Empirical data

Schedule

Implement 2013

JCN-CWP-122-R

CAPITAL PROJECT WORKPAPER

PROJECT TITLE						BUDGET NO.
Windows 7 Remediation for CCS						774.0

WITNESS						IN SERVICE DATE
Jeff Nichols						12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	579	579	0	1158
DIRECT NONLABOR	0	0	0	145	145	0	290
TOTAL DIRECT CAPITAL	0	0	0	724	724	0	1448
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	724	724	0	1448
FTE	0	0	0	6.2	6.2	0	12.4

Business Purpose

Upgrade impacted Customer Care System's applications to run on Windows 7. This effort is a part of the initiative to upgrade desktop operating system from Windows XP to Windows7.

Physical Description

Assess impact of upgrading desktop operating system from Windows XP to Windows 7. Make required modifications to applications so that they will successfully run in the Windows 7 operating environment, perform required testing and migrate all changes into production. The following CCS applications will participate in this project.

ENVOY, Customer Comment Tracking System, SCBS, CRM, CAT ,DAP, CCS, Energy Waves, EBPP, EBMS, SORT, Gas 2000, AMMS, CPP, Dashboard, HECT, DASR, HEES, Instrument Transformer, iEBMS, MDMA, Issue Bank, MDMS, MAS, Meter Reading Statistics ,Online Brochures, MV90, Powertrak, SCG Portal, Rate Information Web Display, SDGE Portal, SCG HEAT, SCG My Account Self-Service, SDGE CARE, SDGE My Account Self-Service, SDGE HEAT, SCG CSR Module, Dialogue, SDGE CSR module, Compareit!, SCG Outside My Account Self-Service, CIS, SDGE Outside My Account Self-Service, PEP, Customer Care Development Tools, MCS, Customer Care SI Infrastructure, PACER, CACS, AMIGO, Cactus (Online),ART

Project Justification

Microsoft will stop supporting Windows XP in 2014 and Sempra must upgrade to supported version of the desktop operating system Windows 7. Any known compatibility issues between Customer Care Systems application' s and Windows 7 must addressed by making code changes and performing required testing to make sure applications will continue to function properly. This is to avoid potential issues/problem with many of our applications that support critical business functions through out the company.

Forecast Methodology
Based on Software Development Life Cycle and Historic Cost

Schedule
Implement 2012

CAPITAL PROJECT WORKPAPER

PROJECT TITLE						BUDGET NO.	
PACER Mobile Data Terminal (MDT) Refresh						775.0	
WITNESS						IN SERVICE DATE	
Fong, Ed						12/31/2013	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	408	679	1087
DIRECT NONLABOR	0	0	0	0	3500	5821	9321
TOTAL DIRECT CAPITAL	0	0	0	0	3908	6500	10408
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	3908	6500	10408
FTE	0	0	0	0	4.4	7.3	11.7

Business Purpose
The current SCG customer service MDTs are over 5 years old and approaching the end of their useful lifecycle. Limited memory and aging processing capabilities are severely limiting the ability to add any new applications to the machines. Due to their age and condition, these MDTs will not be able to support the expected new operating system (Windows 7) and must be replaced by 2014.

Physical Description
The project's scope is to replace approximately 1,600 existing MDTs (Panasonic Toughbooks) used by SCG customer service employees.

Project Justification
The PACER MDT refresh is driven by changes in technology, future limitations or no support of the current operating system and aging assets that require more frequent and extensive repairs. The current MDT model used by most of the SCG customer service field technicians is the CF18. These machines are lacking the minimum hardware and memory requirements needed to support the change to the Windows 7 operating system. All CF18s are out of warranty. Hardware breakdowns and memory issues are contributing to customer service technician nonproductive time in the field.

Forecast Methodology
Historic costs and current pricing of equipment and labor rates were used to calculate the estimated project cost.

Schedule
The major tasks of this project include identifying the model of MDT to be used in the field by customer service field employees based on client feedback; purchasing all MDTs and supplementary equipment; developing setup procedures and imaging all MDTs prior to deployment; scheduling deployment of MDTs to over 50 operating bases in the SCG service territory without interrupting normal business operations; securing and properly disposing of all electronic waste; and salvaging any useable inventory per investment recovery guidelines.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE						BUDGET NO.	
Enhance Environmental Tracking System						776.0	

WITNESS						IN SERVICE DATE	
Marcher, Alan						12/31/2012	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	116	0	116
DIRECT NONLABOR	0	0	0	0	450	0	450
TOTAL DIRECT CAPITAL	0	0	0	0	566	0	566
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	566	0	566
FTE	0	0	0	0	1.2	0	1.2

Business Purpose

The project, Environmental Tracking System (eTS) enhancements will address several business objectives that will expand functionality and improve efficiency for the users. Significant upgrades to the eTS system include developing post-project-restoration tracking, "ticklers" (or time-specific email notifications), and the building of a system based protocol generator. The additional eTS functionality will integrate with the GIS layers, data repository and document management capabilities. This project will further improve the effectiveness and efficiencies of the eTS application.

Physical Description

Environmental Tracking System (eTS) enhancements includes software, hardware and labor needed to update the GIS servers and program the necessary components to achieve the business objectives. Additional eTS labor and non-labor will be required to support the additional eTS functionality, new users and additional eTS screens will need to be updated to implement the requirements.

Project Justification

Environmental Tracking System (eTS) enhancements has a projected cost of $555,000 with FTE avoidance hire and reporting benefits. High level requirements gathering has not been completed for the eTS enhancements. Labor costs were estimated by developers and business analyst tasks from high level conceptual requirements. Other costs were estimated at a "Level of effort" FTE cost by analyzing high level requirements.

Forecast Methodology

Environmental Tracking System (eTS) enhancements were based on high level requirements gathering, labor estimates, SME labor, hardware, software and consultant costs. Estimates were categorized as a low, moderate, and high level of effort in order to estimate labor hours. Estimates were utilized to produce cost variables used as inputs into a NPV calculation.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Enhance Environmental Tracking System	776.0
WITNESS	**IN SERVICE DATE**
Marcher, Alan	12/31/2012

Schedule

Project Schedule and Work Description for Environmental Tracking System (eTS) enhancements		
A) Activity / Milestone / Event	B) Duration	C) Deliverables
Project Planning – Phase 3	20 days 1/1/12 – 1/20/12	Plan in parallel with GEARS Phase 3.
Requirements / Design Phase – Phase 3	30 days 1/21/12 – 2/22/10	Requirements and design signed off by client
Construct / Build Phase – Phase 3	60 days 3/1/12 – 5/1/12	Beta version
Testing and Training Phase – Phase 3	20 days 5/2/12 – 5/30/12	Training and training materials Approved test plans.
Production Rollout and Acceptance – Phase 3	10 days 6/1/12 –6/12/12	Product and dedicated IT support

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
M4 Fleet Application Replacement	776.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	333	0	0	333
DIRECT NONLABOR	0	0	0	1560	0	0	1560
TOTAL DIRECT CAPITAL	0	0	0	1893	0	0	1893
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	1893	0	0	1893
FTE	0	0	0	3.6	0	0	3.6

Business Purpose

The M4 application needs to be replaced. The user interface is no longer supported and the upgraded M5 version does not meet all our requirements.

Physical Description

M4 (The Fleet Service System) was installed in 1999 at SCG and in 2001 at SDG&E. Part of the initial install required a custom module to enable lease/license functionality. We have been advised by the vendor that the software for the M4 client-server front-end is no longer being supported, and is encouraging us to consider the next version (M5). However, the M5 system is not as robust as M4, especially in lease/license administration. At some point, compatibility with the front-end will also become an issue. The purpose of this concept document is to start developing a business case to consider a M4 system change-out in the next two years.

Project Justification

The Fleet Maintenance system is crucial to the maintenance of our company vehicles and equipment and requires a maintenance application to manage to demanding process.

Forecast Methodology

The costing methodology used a combination of historical costing information and various vendor quotes for replacement solutions.

Schedule

The new system will be implemented as a package at the close of 2011 by 12/31

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Logistics Mobile Refresh & Expansion	777.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	235	0	0	235
DIRECT NONLABOR	0	0	0	2300	0	0	2300
TOTAL DIRECT CAPITAL	0	0	0	2535	0	0	2535
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	2535	0	0	2535
FTE	0	0	0	2.5	0	0	2.5

Business Purpose

The current mobile barcode and RFID solutions are 5 - 7 years old and are being dropped from support by the hardware manufacturer and by the software vendor. The legacy scanning equipment does not take advantage of new scanning technology which is lighter and more reliable; it also utilizes less expensive labeling technology. The system also needs to be expanded to all warehouse locations at the utilities and we need to standardize on scanner hardware technology. Scanning technology expansion is also be driven by serialized meter tracking.

Physical Description

All the current handheld scanning devices and portals will be replaced or upgraded to supported equipment. The Catamaran mobile application will also be upgraded to a supported release. The Mobile solution will be expanded to 20 new warehouse locations at SCG.

Project Justification

The current system needs to be replaced or upgraded to a supported hardware and software release. Costs are based on historical costs and known replacement costs.

Forecast Methodology

Identify the estimating methodology used, e.g. name the estimating system (such as CMS), bids received, contracted work costs, historic costs used or other estimating method. Ideally this would be in terms of unit costs i.e. "5,600 ft of 26 inch replacement main @ $480 per ft., (direct) based on similar scope jobs in similar locations."

Schedule

The new system will be implemented as a package at the close of 2011 by 12/31

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Payment Processing Disaster Recovery	777.0

WITNESS	IN SERVICE DATE
Nichols, Jeff	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	0	0	0
DIRECT NONLABOR	0	590	133	0	0	0	723
TOTAL DIRECT CAPITAL	0	590	133	0	0	0	723
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	590	133	0	0	0	723
FTE	0	0	0	0	0	0	0

Business Purpose

Install new Disaster recovery site in Anaheim for the processing of customer payments

Physical Description

Install new servers, extraction equipment, payment transport and key services

Project Justification

To support payment processing in the event of a disaster at the Monterey Park facility.

Forecast Methodology

Historical Cost

CAPITAL PROJECT WORKPAPER

PROJECT TITLE		BUDGET NO.
SAP (ERP) Upgrade EHP5		777.0

WITNESS		IN SERVICE DATE
Jeff Nichols		3/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	565	235	0	0	800
DIRECT NONLABOR	0	0	820	50	0	0	870
TOTAL DIRECT CAPITAL	0	0	1385	285	0	0	1670
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	1385	285	0	0	1670
FTE	0	0	6	2.5	0	0	8.5

Business Purpose

The SAP ERP Upgrade is required to support functionality required by AMI SoCalGas and OpEx Construction Phase.

Physical Description

The project will upgrade the SAP ERP environment to the EHP5 release level. It also will fully regression test all impacted functional areas of SAP prior to production implementation.

Project Justification

The SAP ERP upgrade will be the latest SAP service pack required for AMI SoCalGas and OpEx Contruction Phase.

Forecast Methodology

The cost forecast was based on prior history of SAP upgrades with SEU. Also factored in current purchased labor rates and internal resource availability

Schedule

The technical upgrade will be implemented as a package and will begin useful life 3/31/2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Safety Performance Management Reporting	778.0

WITNESS	IN SERVICE DATE
Jeff Cecil Nichols	3/30/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	26	26	0	0	0	52
DIRECT NONLABOR	0	419	307	0	0	0	726
TOTAL DIRECT CAPITAL	0	445	333	0	0	0	778
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	445	333	0	0	0	778
FTE	0	0.3	.3	0	0	0	.6

Business Purpose

The purpose of this project is to implement a reporting and analytical solution for the Safety and Emergency Services Group to help them with the design, development and distribution of Safety Performance Management data to company employees and external regulating agencies.

Physical Description

Use the SAP Business Objects Business Intelligence Suite of tools to report Safety data. This will allow the users to access the data via Dashboards, and be able to drill down to details, perform ad-hoc reporting and customize reports to meet there needs, reducing the involvement of the Safety team and IT.

Project Justification

Currently, the Safety and Emergency Services team take the data from the SAP BW system and manually manipulated (rearrange it, format it, filter it, create graphs) and package it to meet there clients needs. The main issues is that this delivers static data, and does not allow the clients (safety data consumers) to drill down, and indentify where the problems reside or discover information that will help them find way to mitigate the issues. This project will close the reporting and analytical GAP identified between the SAP BW repotting capabilities and provide a self service reporting platform for the safety data consumers.

Forecast Methodology

Estimates based on quotes provided by SAP and Consultants Vendors for similar sized environments and requirements.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
SAP BI Upgrade	778.0

WITNESS	IN SERVICE DATE
Jeff Cecil Nichols	4/30/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	272	28	0	0	0	300
DIRECT NONLABOR	0	637	302	0	0	0	939
TOTAL DIRECT CAPITAL	0	909	330	0	0	0	1239
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	909	330	0	0	0	1239
FTE	0	2.9	.3	0	0	0	3.2

Business Purpose

The purpose of this project is to perform an SAP BW upgrade from version 3.5 to SAP NetWeaver 2004s Business Intelligence (BI 7.0). This will allow Sempra Energy to implement additional business functionality and close functionality gaps in the delivery of reporting and analytical solutions for future SAP \ BW Projects.

Physical Description

This upgrade will take advantage of the current SAP investment (Sempra has already licensed these products) to standardize the SAP technical layer landscape, enhance the ECC\Enterprise Portal\BW integration and allow Sempra Energy to take advantage of cost avoidance opportunities by leveraging additional business content, new development\content delivery tools and out of the box functionality. The scope of this project is two folds: technical upgrade and functional improvements.

Project Justification

SAP has begun to phase out BW 3.5, and will be out of maintenance as of March 2010. Extended maintenance may be purchased, but that will only delay the need to upgrade.

Forecast Methodology

Estimates based on quotes provided by SAP and Consultants Vendors for similar sized environments and requirements.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE Oracle Enterprise Environment		BUDGET NO. 779.0
WITNESS Jeff Nichols		IN SERVICE DATE 10/31/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	0	0	0
DIRECT NONLABOR	0	0	698	0	0	0	698
TOTAL DIRECT CAPITAL	0	0	698	0	0	0	698
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	698	0	0	0	698
FTE	0	0	0	0	0	0	0

Business Purpose

In 2009, the data stored within DBA-supported Oracle databases grew 233% over 2008. In 2010, the data is expected to grow another 60% within Oracle.
The Oracle Enterprise Database Environment – supporting over 30 application databases - is currently at near-capacity. This means we cannot add new application databases, or allow enhancements to existing applications, without posing a significant risk to the health of the environment.   We require a new environment that will sustain service levels and meet growing Oracle Database demands.

Physical Description

A new Enterprise Environment – shared by many application databases – is not meant to replace the existing environment, but rather to add to our capacity. It is a much better value proposition to build an environment that can be shared by multiple databases, as opposed to isolating each database on its own database server. A shared environment reduces costs to our hardware, software license maintenance, and especially labor.   This new Oracle Enterprise Environment will also provide better service levels through the benefits of the Oracle clustering technology on which it will run.   In addition, the new environment will position us to achieve our strategic goal of provisioning new Oracle Application Databases on the next-generation Linux / Wintel-blade architecture.

Typically, additional database environments (running additional application databases) require additional labor resources to support them. This is especially true of clustered environments. However, with the procurement of the Quest Spotlight tool – included in the project costs – we will be able to manage, monitor and sustain the health of this environment without increasing DBA headcount. In addition, the tool will also be leveraged to help us better support other new projects, such as the Smart Meter Oracle databases, OpEx GIS, OMS/DMS, the Customer Contact ICE/IVR system,
as well as the massive SCG AMI project planned.

Project Justification

Reduced hardware costs as a result of deploying the new environment on Linux / HP-Blade technology:
The comparable costs between IBM / AIX and HP / Linux is orders-of-magnitude in favor of HP / Linux.
We have very high confidence that this will not change during the life of this project.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Oracle Enterprise Environment	779.0

WITNESS	IN SERVICE DATE
Jeff Nichols	10/31/2010

Reduced time to provision new application databases will increase Projects' ROI: We assume that by reducing the time to provision an Oracle database through all non-production and production environments, we will increase a Project's ROI, based on bringing it online to achieve the return quicker. We have high confidence that the automated provisioning software used to deploy the environments will have a profound impact on reducing time to complete work.

Fewer planned and unplanned outages will increase application availability: Fewer outages increases overall application availability, and thereby, making our business clients more productive. This is achieved through the clustering architecture and hardware redundancy employed.

Reduced electricity consumption by utilizing Energy Star-compliant Server enclosures: The reduced energy consumption should save the company thousands over the course of a year, when compared to the consumption of a similarly-equipped IBM AIX frame. These savings would only increase if the electricity rates spike upward.

Forecast Methodology

The project assumes the Proof of Concept, Oracle RAC on Linux, will have completed, and Sempra IT START will have approved of new Oracle environments built on the Linux platform by the time this project begins. The hardware estimates are based on the POC being done in a timely manner. If the POC is delayed to the point where hardware / software costs increase, the project has built in 20% on top of the hardware and software costs.

The project assumes the DBA group will have gained enough knowledge from the above-referenced Proof of Concept to be able to build and test the new environments by the project due date. If that is not the case, the project has built in 20% on top of the expected date / time lines.

Schedule

Oracle Enterprise Environment (OEE) Project 122 days Mon 2/15/10 Thu 8/5/10
Business Case phase 40 days Mon 2/15/10 Fri 4/9/10
Project Prep phase 5 days Mon 4/12/10 Fri 4/16/10
Requirements Phase 10 days Mon 4/19/10 Fri 4/30/10
Design Phase 15 days Mon 5/3/10 Fri 5/21/10
Construction/Build Phase 33 days Mon 5/24/10 Fri 7/9/10
Testing Phase 15 days Mon 7/12/10 Fri 7/30/10

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
ESM Capacity Planning	780.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	367	0	367
DIRECT NONLABOR	0	0	0	0	1384	0	1384
TOTAL DIRECT CAPITAL	0	0	0	0	1751	0	1751
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	1751	0	1751
FTE	0	0	0	0	3.9	0	3.9

Business Purpose

The primary objective of this project is to implement best practice Capacity Management processes, tools and governance to enable the delivery of optimal IT capacity, at the right time (present and future) and place, for a justifiable cost.

Physical Description

This project will add new capacity to the existing ESM Solutions in order to support the new IT Capacity Management process also being implemented by this project. This project will also add new modules and adapters to these tools, along with a new solution.

Project Justification

Avoid Unplanned Purchases
Reduce Maintenance Cost
Reduce IT Labor Cost

Forecast Methodology

FTE & Labor forecasts - Wide-Delphi Estimates + Vendor projections on level of effort required
Non-Labor forecasts - Vendor quote for implementation services

Schedule

SOW	Jan-12
Design	May-12
Construct/Build	Jul-12
Implement/Test	Aug-12
Pilot	Oct-12
Production	Nov-12

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
ESM Enhancement	780.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2010

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	806	0	0	0	806
DIRECT NONLABOR	0	0	760	0	0	0	760
TOTAL DIRECT CAPITAL	0	0	1566	0	0	0	1566
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	1566	0	0	0	1566
FTE	0	0	8.6	0	0	0	8.6

Business Purpose

The ESM Enhancement project will upgrade existing ESM Solutions in order to implement new functionality and features for the existing ESM Solution Suite that will facilitate the reduction of IT Total Cost of Ownership via the automation of routine ticket creation and ticket routing, the augmentation of CMDB data using federated data from other information repositories and facilitating new "Self-Service" offerings in Sempra's Service Desk and Service Catalog systems. Currently, ticket creation, ticket routing, IT service requests, as well as CMDB data imports and updates, require mostly manual labor to complete. This project will implement new out-of-the-box (OOTB) connectors which will facilitate new functionality and features mentioned above, thus reducing the time and manual labor required to complete these. This project assumes that new features and enhanced functionality provided by the system upgrades will avoid over $1.9 in custom development cost to otherwise obtain these.

Physical Description

Upgrade ESM CA Solution Suite from R11 to R12 in order to implement new features required to facilitate automated ticket creation and self-healing, enhanced CMDB data federation capabilities, improved service catalog approval mechanism, enhanced reporting and improved monitoring capabilities. Consulting & Implementation Services

Project Justification

This project may potentially contribute to annual Distributed Computing Services Agreement reductions based on gradually replacing a number of manual ticket creations, ticket responses and escalations with automated functions provide by these tools.

Forecast Methodology

FTE & Labor forecasts - Wide-Delphi Estimates + Vendor projections on level of effort required
Non-Labor forecasts - Vendor quote for implementation services

Schedule

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
ESM Enhancement	780.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2010

Requirements	Jun-10
Design	Jul-10
Construct/Build	Aug-10
Test/Pilot	Sep-10
Production	Oct-10

CAPITAL PROJECT WORKPAPER

PROJECT TITLE				BUDGET NO.
ESM Event Management				780.0

WITNESS				IN SERVICE DATE
Jeff Nichols				7/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	1017	1648	0	0	2665
DIRECT NONLABOR	0	0	1324	843	0	0	2167
TOTAL DIRECT CAPITAL	0	0	2341	2491	0	0	4832
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	2341	2491	0	0	4832
FTE	0	0	10.9	17.6	0	0	28.5

Business Purpose

Sempra Energy Utilities (SEu) depends on IT to deliver business critical services and to help maintain service quality, by quickly determining, alerting and resolving events that impact these services at any given time. In fact, any disruptions or degradations in IT service can cause serious, even catastrophic damage to the business and our clients/customers. IT is under considerable pressure to achieve the high levels of service that users require—and demand. The overall goal of the SEu Enterprise Service Management Project is to transform IT from a support function to a business enabler.   This project will seek to provide a formal Event Management process in order to help reduce the number of unwanted outages impacting our business services, and the time it takes to resolve incidents/problems caused by events. This project will also seek to reduce service impacts caused by IT changes by increasing the usability of the CMDB.

Physical Description

The ESM Event Management project will implement Sempra IT's Event Management process and an integrated Event Management tool architecture. This project will leverage and add significant capacity to the current Sempra Service Desk (SSD), CMDB, SPECTRUM and Ehealth systems, along with tools being implemented by ESM Service Monitoring and other system management tools, to facilitate the new Event Management procedures.
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Project Justification
The overall number of high impact service outages and their durations has increased over the past year and this trend might continue and get increasingly worse if IT does not change the way it manages and monitors events.
Sempra outage stats for July 2009 – Mar 2010 indicate that Sempra has incurred > $18M in productivity losses based on the quantity, impacted users and average duration of outages for those months. Per industry statistics ITIL Event Management will reduce outages by introducing proper event detection, correlation and processing procedures by 60%. This project assumes that we'll be able to reduce outages by a total of 25% by YR3, and that client productivity losses will decrease by 7% during this time because of clients' ability to work on other things during these outages.
Sempra will be leveraging the ESM Phase 1 Unlimited licensing contract to build out additional capacity in SPECTRUM, Ehealth, SSD and the CMDB to accommodate an integrated event management solution to

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
ESM Event Management	780.0

WITNESS	IN SERVICE DATE
Jeff Nichols	7/31/2011

help manage Sempra's most critical business services. If this activity is not incurred before the licensing term expires in 2013, it will require Sempra to purchase licenses and system maintenance contracts in excess of $4.3M to accommodate this type of solution.

This project will also rationalize existing system monitoring tools, to determine tools that need to be integrated into the new integrated Event Management solution, as well as underutilized tools that can be replaced by new integrated monitoring tool functionality.

Forecast Methodology

FTE & Labor forecasts - Wide-Delphi Estimates + Vendor projections on level of effort required
Non-Labor forecasts - Vendor quote for implementation services

Schedule

Requirements	Jul-10
SOW	Aug-10
Design	Oct-10
Construct/Build	Dec-10
Implement/Test	Feb-11
Pilot	Mar-11
Production	Jun-11

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
ESM Service Monitoring	780.0

WITNESS	IN SERVICE DATE
Jeff Nichols	2/28/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	1059	204	0	0	1263
DIRECT NONLABOR	0	0	2024	25	0	0	2049
TOTAL DIRECT CAPITAL	0	0	3083	229	0	0	3312
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	3083	229	0	0	3312
FTE	0	0	11.3	2.2	0	0	13.5

Business Purpose

The ESM Service Monitoring project will improve IT's ability to rapidly identify and address events that impact our business application services and provide end-to-end visibility into the actual performance and end user experience with these services This project will be implementing a "Service Monitoring" solution comprised of Business Service, Application Performance and Client Experience monitoring, integrated with our existing infrastructure Manager of Managers (CA SPECTRUM) in order to provide that holistic view.   Year-to-Date, the largest percentage (31%) of all high-impact outages incurred have been at the Application Tier. As more applications and services are released by some of large initiative, namely OPEX and Smart Meter, it is highly likely that this trend will continue or get gradually worst if this project is not pursued.

Physical Description

This project will implement tools that when used alongside processes that will be implemented by ESM Event Management, will enable IT to detect and pin-point issues with monitored applications regardless of what technology tier is causing the incident.

Project Justification

Industry sources indicate that Service Monitoring tools will cut service downtime caused by failed applications/services by 75% due to facilitating proactive identification of issues and the ability to automate fixes to known issues if they occur. This project will aim to provide real-time monitoring of key business critical applications so that events that impact these can be detected and resolved quickly. This project assumes productivity losses to be reduced by 11% .

Forecast Methodology
FTE & Labor forecasts - Wide-Delphi Estimates + Vendor projections on level of effort required
Non-Labor forecasts - Vendor quote for implementation services

Schedule

Requirements   Jun-10

CAPITAL PROJECT WORKPAPER

PROJECT TITLE ESM Service Monitoring	**BUDGET NO.** 780.0
WITNESS Jeff Nichols	**IN SERVICE DATE** 2/28/2011

Design	Jul-10
Construct/Build	Sep-10
Implement/Test	Oct-10
Pilot	Nov-10
Production	Feb-11

CAPITAL PROJECT WORKPAPER

PROJECT TITLE		BUDGET NO.
MCS Improvement Project		784.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	116	116	0	232
DIRECT NONLABOR	0	0	0	150	150	0	300
TOTAL DIRECT CAPITAL	0	0	0	266	266	0	532
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	266	266	0	532
FTE	0	0	0	1.2	1.2	0	2.4

Business Purpose

Rewrite MCS Open Server to reduce maintenance effort required to support the system.

Physical Description

Rewrite MCS Open Server to reduce maintenance effort required to support the system; Streamline front end PB by decommissioning unused application windows; Decommission unused Open Servers; Consolidate hourly measurement volume tables.

Project Justification

Reduce maintenance by reducing number of data fix requests. Remove dependency on the Sybase Open Server Architecture; Remove mainframe interface platform; re-architect database perbe/archival/restore process.

Forecast Methodology

Empirical data

Schedule

Implement 2012 - Q4

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Click Enhancements	786.0

WITNESS	IN SERVICE DATE
Marcher, Alan	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	699	233	0	932
DIRECT NONLABOR	0	0	0	1200	600	0	1800
TOTAL DIRECT CAPITAL	0	0	0	1899	833	0	2732
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	1899	833	0	2732
FTE	0	0	0	7.5	2.5	0	10

Business Purpose

Major enhancements will be added to the Click software suite. The Forecast module will be purchased and implemented in 2011. Interfaces will also be developed between Click and SAP - PM for the Construction phase of the Field Force initiative 2011 through 2012. An additional project will be required to refine the Click Background Optimizer beginning in 2011. Others include Appointment Booking, Multi-stage Task, Split Task, Assist Order creation allow greater efficiencies in resource and workforce utilization. OMS/DMS Integration provides reduced outage time and cost for the ratepayer.

Physical Description

This project consists of the implementation of the Click Forecast Module, Interface to SAP-PM, refinement of the Click Background Optimizer OMS/DMS Integration, Appointment Booking, Multi-stage Task, Split Task, and Assist Order creation.

Project Justification

The Forecast functionality will allow SDG&E to optimize resources over a longer timeframe, resulting in efficiencies in resource and workforce planning. Interfacing Click to SAP - PM is necessary as SAP replaces DPSS and CMS and the legacy systems are decommissioned. The Background Optimizer refinement is necessary after experience is gained using the Click software suite to maximize scheduling efficiency based on feedback from end users within the business units. Appointment Booking, Multi-stage Task, Split Task, Assist Order creation allow greater efficiencies in resource and workforce utilization. OMS/DMS Integration provides reduced outage time and cost for the ratepayer.

Forecast Methodology

The estimates were based on historical costs from phase 1 of the project and internal labor and non-labor values

PROJECT TITLE	BUDGET NO.
Click Enhancements	786.0

WITNESS	IN SERVICE DATE
Marcher, Alan	12/31/2012

Schedule

Forecast Module -- In Service by 2011 (4,000 hours)

ClickSchedule - ClickMobile - SAP-PM interface -- In Service by 2012 (100 new forms needed for mobile, 80 hours perform = 8,000, Interface, 2,000 hours)

Background Optimizer Tuning -- In Service by 2011 (500)

ClickSchedule Appointment Booking in Service by 2012 (1,500 hours)

Split Task in Service by 2012 (600 hours)

MultiStage Task Dependencies in Service by 2012(500 hours)

Assist Order Creation, Scheduling and Configuration in Service by 2012 (500 hours)

OMS/DMS Integration with ClickSchedule in Service by 2012 (5,000) (may be covered in another workpaper)

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
GEARS Phase 3	786.0

WITNESS	IN SERVICE DATE
Marcher, Alan	12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	0	326	0	326
DIRECT NONLABOR	0	0	0	0	500	0	500
TOTAL DIRECT CAPITAL	0	0	0	0	826	0	826
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	0	826	0	826
FTE	0	0	0	0	3.5	0	3.5

Business Purpose

The third phase of the Geographic Environmental Analysis Reporting System (GEARS) project will implement additional functionality and hardware required to enable rollout to additional users. GEARS Phase 3 addresses the business need for Environmental Services to incorporate incremental updates to vegetation based on field surveys, implements technology to maintain "incidentals" layer of persistent data gathered in the field and to add this component to the screening reports and for incorporating additional data layers as needed to support compliance and efficiencies. GEARS PHASE 3 will also integrate GEARS with the SPESCOM eB document management system that will enable the centralization of all documents enabling users to attach photos, field notes and other documentation to GEARS projects. In addition, this functionality is driven by the Coastal Region Conservation Plan (CRCP) future permit acquisition and streamlines GIS model maintenance & updates.

Physical Description

GEARS Phase 3 includes software, hardware and labor needed to update the GIS servers and program the necessary components to achieve the business objectives. Additional servers will be required to support new users and the GIS model will need to be updated to implement the phase 3 requirements.

Project Justification

 GEARS Phase 3 has a cost of $775,299 with estimated annual benefits of $378,533 with a 4.2 year payback. The basis for estimating the NPV analysis was using high level vendor costs, (estimated from a preliminary scope of work with contingencies). IT costs were estimated by developers from high level requirements. Other costs were estimated at a "Level of effort" FTE cost by analyzing high level requirements. The primary financial benefit to GEARS is improved efficiency in screening environmental jobs and an estimated reduction in the need for future full-time employees. Various factors such as user learning and acceptability ease of use of software, and actual time savings of planned functionality will all impact the improved efficiency projected by the GEARS Phase 3 product.

Forecast Methodology

GEARS Phase 3 estimates were based on high level requirements gathering, labor estimates, SME labor,

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
GEARS Phase 3	786.0

WITNESS	IN SERVICE DATE
Marcher, Alan	12/31/2012

hardware, software and consultant costs. Estimates were categorized as a low, moderate, and high level of effort in order to estimate labor hours. Estimates were utilized to produce cost variables used as inputs into a NPV calculation.

Schedule

Project Schedule and Work Description for Phase 3		
A) Activity / Milestone / Event	B) Duration	C) Deliverables
Project Planning – Phase 3	20 days 1/1/12 – 2/5/12	Plan for Phase 3 in parallel with the end of Phase 2.
Requirements / Design Phase – Phase 3	60 days 2/5/12 – 4/1/12	ETS and GIS requirements and design signed off by client
Construct / Build Phase – Phase 3	120 days 4/5/12 – 9/1/12	Beta version of phase 3 GEARS
Testing and Training Phase – Phase 3	40 days 9/1/12 – 10/15/12	GEARS training and training materials Approved GIS and ETS test plans. Beta version of GEARS
Production Rollout and Acceptance – Phase 3	20 days 10/16/12 –11/27/12	GEARS product and dedicated IT support

CAPITAL PROJECT WORKPAPER

PROJECT TITLE						BUDGET NO.	
Master Data Management						786.0/787.0	

WITNESS						IN SERVICE DATE	
Jeff Nichols						12/31/2011	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	242	0	0	242
DIRECT NONLABOR	0	0	0	900	0	0	900
TOTAL DIRECT CAPITAL	0	0	0	1142	0	0	1142
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	1142	0	0	1142
FTE	0	0	0	2.6	0	0	2.6

Business Purpose

This project centralizes the management of key business data such as Asset and Customer and ensures that all interfacing applications reflect the most recent state of this data. This reduces the cost of coordinating different pieces of software to keep this information in sync and ensure that there is consistent reporting of this data among applications and to regulatory agencies.

Physical Description

This project will consist of software purchased by a 3rd party. The software would be used to coordinate the applications that need to have an accurate state of the key business data. It is anticipated that the hardware needed to support this environment would be at least 2 servers one for production and the other for test. Optimally there would be a third for staging, however, this may be instantiated via a virtual server.

Project Justification

A Total Economic Impact™ (TEI) analysis of a typical first-phase MDM project indicates that it is likely to produce a small positive return on investment (ROI) of 7% and almost $217,000 dollars in positive business benefits in a traditional large enterprise over three years, with more significant return realized over the longer term.

Forecast Methodology

Methodology for forecasting this project is based on similar project estimations documented in the IT Project lifecycle.

Schedule

This project will follow the traditional software project lifecycle. Since it is anticipated that the software will not be built in-house but by an outside vendor, it is anticipated that an outside vendor be selected via the RFP (Request for Proposal process). From that selection, the project will proceed through design and construct/build and implementation. It is anticipated that the in-service date be 9 months from the selection of the vendor.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE						BUDGET NO.	
Meta Data Repository						786.0/787.0	

WITNESS						IN SERVICE DATE	
Jeff Nichols						12/31/2011	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	121	0	0	121
DIRECT NONLABOR	0	0	0	600	0	0	600
TOTAL DIRECT CAPITAL	0	0	0	721	0	0	721
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	721	0	0	721
FTE	0	0	0	1.3	0	0	1.3

Business Purpose

Sempra has an explosive growth in the amounts of data being generated with no overarching strategy of managing it. A metadata repository solution along with a string governance process provides an accurate view of information assets across the organization for business and technical users. A metadata repository is foundational to managing data as an asset and provides valuable advantages of data at various stages. Data integration, data warehousing and application development projects will become more operational efficient by: 1) Improving access to and understanding of information; 2) Reducing development and maintenance time; 3) Improving data quality; 4) Simplifying the scoping of projects; and 4) Understanding the impacts of changes enterprise-wide.

Physical Description

This project will consist of software purchased by a 3rd party. The software key components would be to integrate metadata from disparate sources such as Enterprise Architect and unstructured source and technical metadata sources (system catalogs) and relate this metadata to business and technical end-users. It is anticipated that the hardware needed to support this environment would be at least 2 servers one for production and the other for test.

Project Justification

A Total Economic Impact™ (TEI) analysis of a typical first-phase MDM project indicates that it is likely to produce a small positive return on investment (ROI) of 7% and almost $217,000 dollars in positive business benefits in a traditional large enterprise over three years, with more significant return realized over the longer term.

Forecast Methodology

Methodology for forecasting this project is based on similar project estimations documented in the IT Project lifecycle.

Schedule

This project will follow the traditional software project lifecycle. Since it is anticipated that the software will not be built in-house but by an outside vendor, it is anticipated that an outside vendor be selected via the RFP (Request for Proposal process). From that selection, the project will proceed through design and construct/build and implementation. It is anticipated that the in-service date be 9 months from the selection of the vendor.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Citrix 6	770.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	667	0	0	667
DIRECT NONLABOR	0	0	0	1828	0	0	1828
TOTAL DIRECT CAPITAL	0	0	0	2495	0	0	2495
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	2495	0	0	2495
FTE	0	0	0	7.1	0	0	7.1

Business Purpose

The Citrix farm was built in 2005. Incremental upgrades have been implemented as needed. The farm supports users of mission critical and other applications. The user base exceeds 1000 users with 500+ concurrent connections per day. About half of these connections originate from users making secure, external connections into the Sempra Energy network. Some of the large user groups that rely on Citrix include users of the Locate Mark, ESRI GIS and Fleet systems. This production environment meets Sempra's strict information security requirements. It is the preferred external access method over methods using Virtual Private Networks (VPN).

This is a tightly integrated platform that comprises of hardware, operating system and system software. It serves the need for connecting internal and external users to Sempra's IT environment efficiently and securely. It is especially critical to resources that support large and complex initiatives like OPEX and Smart Meter. Additionally, it enables Grid Operations and Palomar Generation groups to be compliant with the NERC / CIP mandates and enhances the software license management capabilities for Citrix-Hosted applications.

The Citrix virtualization technologies have made great strides in generating efficiencies and enabling flexibility and scalability since our original implementation. The vendor, Citrix Systems, has released Citrix XenApp v6 which is a major upgrade with enhancements expected to save incremental O&M costs through the use of existing hardware, the potential elimination of some Citrix system administration and support software, as well as, a potential reduction in the number of servers required to support production capacity. The currently installed version 4 is no longer supported by the vendor following the implementation of this new release.

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Physical Description

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Citrix 6	770.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

This project will replace the various existing Citrix system components to achieve the desired upgrade. These include replacing the existing Citrix physical server deployments with Sempra IT approved standard blade systems running Windows 2008 x64 R2, replacing the Citrix virtual server deployments with Citrix standard VM server builds running Windows 2008 x64 R2, upgrading the existing SEU Citrix Farm from Presentation Server v4 to XenApp v6, upgrading the Citrix support infrastructure to take advantage of updated support and management technology and increasing the failover build out in the Monterey Park data center for DR Tier-1 and Tier-2 rated business applications, such as CMS. The project effort will also include analysis to identify opportunities to consolidate commonly used applications, such as Office Suite, onto fewer servers by using application virtualization and newer packaging techniques to reduce the number of physical servers deployed and the associated system licensed software instances.

Project Justification
The Citrix farm was built in 2005. Incremental upgrades have been implemented as needed. The farm supports users of mission critical and other applications. The user base exceeds 1000 users with 500+ concurrent connections per day. About half of these connections originate from users located outside the Sempra Energy geographic footprint. Some of the large user groups that rely on Citrix include: Locate Mark, ESRI GIS and Fleet. This production environment meets Sempra's strict information security requirements. It is identified as the preferred external access method over VPN.

Citrix Systems has released Citrix XenApp v6 as a major upgrade with enhancements expected to save incremental O&M costs through the use of existing hardware, the potential elimination of some 3rd party software requirements, as well as, a potential reduction in the number of servers required to support production capacity. This new release has unfortunately made the currently installed version 4 unsupported.

The Citrix virtualization technologies have made great strides in generating efficiencies and enabling flexibility and scalability. However, IT has not made a concerted effort or investment in upgrading the Citrix environment since its implementation. The on-going maintenance efforts only advance the environment incrementally. It is now time to make the investment in upgrading and refreshing Citrix farm to version 6.

Forecast Methodology
Historic costs, potential cost to migrate to the new environment and savings to the hardware and software environments were used in developing the forecasts.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE						BUDGET NO.	
Distributed Storage Resource Management Tool						760.0	

WITNESS						IN SERVICE DATE	
Jeff Nichols						12/31/2011	

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	109	0	0	109
DIRECT NONLABOR	0	0	0	720	0	0	720
TOTAL DIRECT CAPITAL	0	0	0	829	0	0	829
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	829	0	0	829
FTE	0	0	0	1.2	0	0	1.2

Business Purpose

The purpose of the Storage Resource Management project is to implement tools to assist in the building, managing, optimizing and auditing of SEU's heterogeneous storage environments to support vital business initiatives including OpEx and Smart Meter programs across our main datacenters in Rancho Bernardo, Monterey Park and Century Park.

Physical Description

Add Storage Resource Management software tool on server hardware.

Project Justification

Benefits: The SRM solution will :
1)   Provide visibility to the data across the enterprise on all storage arrays to better understand whether the data has been positioned in the correct data storage tier and
appropriately position the data in lower cost tiers. Moving data from a higher cost tier to a lower cost tier has great potential in the current environment.
2)   Provide visibility to utilization of allocated data across all storage arrays to optimally re-allocate underutilized space.
3)   Provide visibility as to what applications are causing storage growth
4)   Identify those applications that would benefit the most from implementing an archiving strategy
5)   Provide new audit trails for space allocation and service level reporting.
6)   Provide diagnostic capabilities for storage issues to a more finite level than is possible today.
7)   Assist in capacity planning to build the right capacity at the appropriate time at the lowest cost possible.
8)   Assist in the reduction of capital asset purchases by improving capacity management planning to leverage larger purchases.
9)   Provide reporting capabilities to create architectual input data for ESM Configuration Management DB.

Forecast Methodology

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Distributed Storage Resource Management Tool	760.0
WITNESS Jeff Nichols	**IN SERVICE DATE** 12/31/2011

Current vendor bids were utilized as a baseline for costing.

Schedule

Complete implementation tasks   12/31/2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE		BUDGET NO.
Print Servers Upgrade		770.0

WITNESS		IN SERVICE DATE
Jeff Nichols		7/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	145	291	0	0	436
DIRECT NONLABOR	0	0	118	236	0	0	354
TOTAL DIRECT CAPITAL	0	0	263	527	0	0	790
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	263	527	0	0	790
FTE	0	0	1.5	3.1	0	0	4.6

Business Purpose

In order for Sempra employees to be able to print once they are upgraded to the new 64 bit desktop OS -- Windows 7, all print servers, virtual and physical, must be upgraded to a 64-bit operating system. This project will be replacing all Windows 2003 print server operating systems to Windows 2008 R2. To upgrade to Windows 2008 R2 in our virtual server environment the virtual host server must be upgraded to VMware 4.0 commonly known as vSphere. To upgrade to vSphere and Windows Server 2008 R 2, the existing server hardware must be upgraded to HP DL380 G6s. Due to the hard dependency on Windows 7, the server team has decided to expedite the print server and Modular Smart Array (Storage Arrays) upgrade at remote sites originally planned as part of the Wintel Refresh 6 project in 2011. In addition, approximately 350 legacy printers and 96 plotters will need to be replaced because they might not work on the new print environment.

Physical Description

Print queue rebuilds at all 13 remote sites and both core data centers, RB and MPK
22 print servers will be upgraded (and one added)
9 MSA (Mass Storage Arrays) will be upgraded
New printer server deployment to 13 sites remote sites
Migrate 2700+ Print Queues
112 Printer models
416 Print drivers (32 & 64 bit drivers for PCL and PostScript)

Project Justification

This is a straightforward calculation of all the components and labor required to complete the job.
The Wintel Servers Team has done a number of these upgrades so they are quite accurate in their project estimates.

Forecast Methodology

Bids received, contracted work costs, historic costs used or other estimating method

CAPITAL PROJECT WORKPAPER

PROJECT TITLE		BUDGET NO.
Legacy Printers Replacement		770.0

WITNESS		IN SERVICE DATE
Jeff Nichols		7/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	119	0	0	119
DIRECT NONLABOR	0	0	0	465	0	0	465
TOTAL DIRECT CAPITAL	0	0	0	584	0	0	584
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	584	0	0	584
FTE	0	0	0	1.3	0	0	1.3

Business Purpose

Once the print servers are replaced a number of legacy printers will not work with the upgraded print servers, therefore, approximately 350 legacy printers and 96 plotters will need to be replaced because they might not work on the new print environment.

Physical Description

Replace 350 legacy printers and 96 plotters

Project Justification

This is a straightforward calculation of all the components and labor required to complete the job from the Desktop team.

Forecast Methodology

Bids received, contracted work costs, historic costs used or other estimating method

Schedule

Jan '11 - Jun '11 - Legacy Printers Replacement

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Applications Testing & Remediation(P1)	770.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	372	742	0	0	1114
DIRECT NONLABOR	0	0	160	320	0	0	480
TOTAL DIRECT CAPITAL	0	0	532	1062	0	0	1594
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	532	1062	0	0	1594
FTE	0	0	4	7.9	0	0	11.9

Business Purpose

Sempra must migrate 12,000 PCs from Windows XP Operating System (OS) to Windows 7 Operating System by April 8, 2014 due to product end of support from Microsoft. In order for this large migration to be successful, all Sempra business applications must be systematically tested, certified and/or remediated to work on Windows 7 Operating System , Internet Explorer (IE) 8, and Office 2007. The specific goal of this project consists primarily of four objectives: (1) Test and certify with acceptance sign-off from Sempra application owners that each business application work properly on Windows 7 (or IE8); (2) Remediate "readily upgradable to Windows 7" 1; (3) Develop a vendor supported Sempra-standard Microsoft Windows 7 image; (4) Deploy Windows 7, IE8 and Office 2007 to organizations that qualify. Note: Desktop applications that require special handling such as expensive software license upgrade purchases, difficult software remediation efforts, or lengthy software rewrites are out of scope for Phase 1 and will be handled as part of the next phase.

Physical Description

•Develop a vendor supported Sempra-standard Microsoft Windows 7 image (including IE8 and Office 2007)
•Assess Sempra desktop applications for Windows 7 and IE8
•Develop UAT environment and App-V infrastructure to facilitate the testing and remediation of applications
•Compile a list of desktop applications tested and remediated for Windows 7
•Remediate applications that can be upgraded to Windows 7
•Facilitate end-users training for Windows 7, Office 2007, and IE8
•Deploy Windows 7, IE8 and Office 2007 to organizations that qualify.

Project Justification

Phase 1 focuses primarily on the remediation of "easy to handle" applications. This budget DOES NOT include funds to purchase "shrink-wrap" upgrade licenses and/or costs to rewrite software. All software deemed "difficult2" will be handled in Phase 2. Allocated approximately 4,700 hours total for clients to test, certify, remediate and implement their applications. Phase 1 plan to borrow 20 pilot machines from the depot at no cost. Project set won't be utilizing IAC for the deployment of Windows 7 to IT.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Applications Testing & Remediation(P1)	770.0
WITNESS Jeff Nichols	**IN SERVICE DATE** 12/31/2011

Forecast Methodology

Bids received, contracted work costs, historic costs used or other estimating method

Schedule

Jul '10 -Dec '10 - UAT & Application Virtualization Set-Up, Initiate Application Testing
Jan '11 - Jun '11 - Applications Testing & Remediation Deployment to IT
Jul '11 - Dec '11 - Applications Testing & Remediation Deployment to Qualified Business Units

CAPITAL PROJECT WORKPAPER

PROJECT TITLE						BUDGET NO.
Total PC Hardware Replacement						827.0

WITNESS						IN SERVICE DATE
Jeff Nichols						4/30/2014

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	1303	1303	0	2606
DIRECT NONLABOR	0	0	0	2416	2416	0	4832
TOTAL DIRECT CAPITAL	0	0	0	3719	3719	7000	14438
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	3719	3719	7000	14438
FTE	0	0	0	13.9	13.9	0	27.8

Business Purpose

The project also includes upgrading Sempra's print environment. In order for Sempra employees to be able to print once they are upgraded to the new 64-bit desktop OS -- Windows 7, all print servers, virtual and physical, must be upgraded to a 64-bit operating system. This project will be replacing all Windows 2003 print server operating systems to Windows 2008 R2.   To upgrade to Windows 2008 R2 in our virtual server environment the virtual host server must be upgraded to VMware 4.0 commonly known as vSphere. To upgrade to vSphere and Windows Server 2008 R 2, the existing server hardware must be upgraded to HP DL380 G6s. Due to the hard dependency on Windows 7, the server team has decided to expedite the print server and Modular Smart Array (Storage Arrays) upgrade at remote sites originally planned as part of the Wintel Refresh 6 project in 2011. In addition, approximately 350 legacy printers and 96 plotters will need to be replaced due to incompatibility with the new print server environment.

Physical Description

In order for the Windows 7 OS roll out to be successful, Sempra must put in place a hardware refresh program to accommodate the computing power of the Windows 7 operating system. Presently, the minimum requirements for Windows 7 are: Lenovo T61 or newer for laptops and Dell Optiplex 745 or newer for desktops. This proposed project is an aggressive "forklift" effort to bring Sempra's entire PC hardware environment current to meet the minimum requirements for the Windows 7 OS. This project will conduct a total system replacement of PC Hardware to bring the entire company current in its PC computing power. The 39 month project will cover 12,000 laptop and desktop devices and will conclude in 2014. MDTs are not in scope for this project.

Project Justification

Sempra IT's strategic decision to adopt the Windows 7 OS is the key driver for the Total PC Hardware Replacement project. The business driver behind adopting the Windows 7 OS platform was is the current operating system, Windows XP, has a product end of support from Microsoft of April 2014, operating system forward compatibility, and data security   Cost of not doing this now will be around $67 million (assuming 1% of Sempra employees downtime for 12 hours at $45/hour) due to OS system instability and security vulnerabilities if Sempra's decides to remain on the unsupported Microsoft XP platform.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
Total PC Hardware Replacement	827.0

WITNESS	IN SERVICE DATE
Jeff Nichols	4/30/2014

Forecast Methodology

Bids received, contracted work costs, historic costs used or other estimating method

Schedule

Q2 2011 - Q4 2011 - Set up, communication, planning
Q1 2012 - Q3 2012 - Wave 1 Deployment
Q4 2012 - Q2 2013 - Wave 2 Deployment
Q3 2013 - Q1 2014 - Wave 3 Deployment

CAPITAL PROJECT WORKPAPER

PROJECT TITLE		BUDGET NO.
Telecommunications Expense Management		786.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2011

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	116	458	0	0	574
DIRECT NONLABOR	0	0	600	509	0	0	1109
TOTAL DIRECT CAPITAL	0	0	716	967	0	0	1683
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	716	967	0	0	1683
FTE	0	0	1.1	4.2	0	0	5.3

Business Purpose
•Need for better efficiencies and cost savings in telecommunications billing, invoicing, procurement, order management/fulfillment.
• OpEX 20/20, Grid Comm, and WAN Rebuild initiatives are substantially increasing the wireless and wireline spend, inventory and services with our telecommunications providers.
• A TEM software solution needs to be integrated with the Help Desk, Service Catalog, and APM.
• Current system (TRAX) not supportable from vendor.
• Wireless contracts demand investment in analytical capabilities to avoid costs in mismanagement of services.

Physical Description
Implement a solution that will add new capabilities to:
üOptimize and trend corporate shared data and voice plans on an automated monthly schedule.
üOrder and receive processes to automatically update inventory records and invoice expense activities
üAutomatically audit line items to contract terms when the carrier invoice is loaded.
üProvide flexible reporting and analysis of exception billing expenses.
üProvide flexible automated integration with telecommunications ordering and inventory systems.
üIntegrate with SAP Accounts Payable

Forecast Methodology
The forecasting method for determining estimated investment costs were based on vendor proposed costs.
The projected benefits were based on conservative savings based on industry best practices and sample savings from actual erroneous billing results which would be eliminated from an automated TEM solution.

Schedule
Task Name	Start	Finish
Business Case	10/5/2009	6/30/2010
Project Preparations	7/1/2010	9/30/2010
Requirements	10/1/2010	1/20/2011
Design	1/28/2011	4/30/2011
Construct/Build	5/1/2011	8/30/2011
Test	9/1/2011	10/30/2011
Implement	11/15/2011	11/15/2011

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
SCG Grid Communication System (SGCS) Phase 2	782.0

WITNESS	IN SERVICE DATE
Jeff Nichols	6/30/2011 6/30/2012 12/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	698	698	0	1396
DIRECT NONLABOR	0	0	0	13540	13540	0	27080
TOTAL DIRECT CAPITAL	0	0	0	14238	14238	0	28476
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	14238	14238	0	28476
FTE	0	0	0	7.4	7.4	0	14.8

Business Purpose

This project builds the next generation wireless network for SoCalGas, servicing the needs of the mobile workforce and selected fixed assets. The project will implement an advanced wireless communications system that will allow SoCalGas to communicate with the mobile workforce, enabling rapid work order response and logistical efficiencies.

SCG Grid Communication System (SGCS) is required for functions never envisioned for SoCalGas' existing communications systems. It will replace outmoded, inefficient, single-use radio frequency (RF) systems with one secure, consolidated system yielding greater performance, security and interoperability.

SGCS will improve security and lower operating costs for SoCalGas for years to come.

Physical Description

The project will implement a set number of base transceiver stations to provide the required coverage. Additionally, the project will implement the radio endpoints for the mobile workforce and any required fixed assets. Additional backhaul capability may be required. Lastly, the project will integrate the Phase 2 network with the Control Services layer implemented in SGCS Phase 1.

Project Justification

The project will consolidate multiple networks, centralizing support and costs. Additonally, application advancements enabled by the network will enable new sources of business value and reduced costs.

Forecast Methodology

RFQ was issued for the SGCS Phase 1 scope, and a project plan was developed in detail. SGCS Phase 2 is a subset of the technical scope of Phase 1, deployed over a disparate service area. Therefore, the forecast methodology is the same across both phases.

Schedule

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
SCG Grid Communication System (SGCS) Phase 2	782.0

WITNESS	IN SERVICE DATE
Jeff Nichols	6/30/2011
	6/30/2012
	12/31/2012

Design complete Q3 2011.
Deployment complete Q3 2012.
System in full production 12/31/2012.

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
SCG Data Warehouse Infrastructure Upgrade	768.0/769.0

WITNESS	IN SERVICE DATE
Jeff Nichols	12/31/2012 1/31/2012

PROJECT COST ($000 in 2009$)	PRIOR YEARS	2009	2010	2011	2012	REMAINING YEARS	TOTAL
DIRECT LABOR	0	0	0	255	180	0	435
DIRECT NONLABOR	0	0	0	476	0	0	476
TOTAL DIRECT CAPITAL	0	0	0	731	180	0	911
COLLECTIBLE	0	0	0	0	0	0	0
NET CAPITAL	0	0	0	731	180	0	911
FTE	0	0	0	2.7	1.9	0	4.6

Business Purpose

The SCG Data Warehouse is a DR Tier 4 application currently deployed on a DB2 platform sharing mainframe resources with Tier 1 and 2 Operational applications. The Data Warehouse is refreshed monthly and involves an Extract-Transform-Load (ETL) process doing a full load of customer data for 6 Million customers consisting of 400+ batch mainframe jobs which take approximately 14-16 hours to run on the same weekend as the CIS month end processing.

The Data Warehouse team regularly receives client requests to provide data on a more frequent basis (e.g., weekly, daily) in order to meet operational reporting requirements. However due to the large amount of batch jobs involved and the increased demand on the mainframe environment, providing more current data in the Data Warehouse to meet new and changing business requirements will put a huge burden on the mainframe resources. The scope of this project is to upgrade the SCG Data Warehouse infrastructure to allow for greater flexibility, user functionality and supportability.
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Physical Description

The infrastructure upgrade would consist primarily of two components:
1. Migrating the CIS data warehouse to a non-DB2 platform
2. Implementing data federation capability which would allow users to query and/or report off of disparate data sources from a single virtual layer without the need to replicate data

Project Justification

1. Cost avoidance of mainframe premium due to 100% of extended CPU utilization
2. Reduced maintenance and data refresh costs
3. Reduced DBA support costs
4. Reduced storage cost due to lower levels of data replication

Forecast Methodology

CAPITAL PROJECT WORKPAPER

PROJECT TITLE	BUDGET NO.
SCG Data Warehouse Infrastructure Upgrade	768.0/769.0
WITNESS	**IN SERVICE DATE**
Jeff Nichols	12/31/2012
	1/31/2012

Estimates were based on assumption that SCG data warehouse would be migrated to SQL server platform and that we would be using either Informatica's data services solution or SAP's Data Federator.

<u>Schedule</u>

In order to support the growing BI needs and massive data volumes of Smart Meter, OpEx, CRM, CPP and other initiatives such as SCG AMI, this project needs to be in production by December 2011.