



# CALIFORNIA ISO

**APPROVED**

**FY2000 GRID MANAGEMENT CHARGE**

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## OVERVIEW

- **This FY2000 Budget follows the same format as the preliminary budget posting made available to all stakeholders on September 10, 1999 in accordance with the ISO Grid Management Charge (GMC) Settlement dated 06/01/98 (the “GMC Settlement”).**
- **The Preliminary FY2000 Budget Report was presented at an ISO Budget Workshop open to all stakeholders on October 4, 1999. At that meeting, members of the ISO Management team discussed the draft budget with stakeholders and answered questions.**
- **Comments from stakeholders on the preliminary FY2000 Budget Report were to be submitted by November 5, 1999. No formal comments were received.**
- **No significant changes have been made to the Approved O&M budget from the preliminary posting. The Capital Expenditure Budget has been increased from \$25-30 million in the initial posting to the approved \$40.1 million amount.**

## EXECUTIVE SUMMARY

### Operating Budget

- The authorized GMC for FY1999 <sup>(1)</sup> is \$.7781/MWh<sup>(2)</sup>. This is the “Filed GMC” based on the FY1999 “Filed Operating Budget.”
- In February 1999, the Board approved additional operating expenditures of \$6,163 that would have been consistent with a GMC of \$.8083/MWh. We refer to this as the “*Pro Forma* GMC” based on the FY1999 “Increased Operating Budget.” However, no change was made to the Filed GMC or Filed Operating Budget.
- In August 1999, Management prepared various options for a FY2000 Operating Budget and circulated the draft to the Finance Committee and the Board. These options all reflected significant efforts to control/reduce costs without compromising service. Three options were presented for consideration:
  - ⇒ no increase from the Filed GMC -- \$.7781/MWh;
  - ⇒ minimal budget to provide for maintenance of essential programs-- \$.793/ MWh GMC;
  - ⇒ effective implementation of all Board approved policies and programs--\$.8433/ MWh GMC.
- For each option, Management discussed the impact on levels of service, personnel, and contract negotiating strategies. The Finance Committee discussed in detail these alternate strategies and implications in meetings held August 27 and September 3.

(1) The CAISO fiscal year (FY) is the calendar year.

(2) \$'000 Omitted except for \$/Mwh.

## EXECUTIVE SUMMARY

### Operating Budget (continued)

- Based on guidance from the Finance Committee, Management proposed the current O&M budget that funds critical training, compliance, transmission planning, and market functionality initiatives approved in FY1999, and provides for the major anticipated policy changes in FY2000, but requires prioritization and deferral of less critical programs.
- This budget results in a FY2000 Revenue Requirement of \$179,283, an increase of \$13,792 compared to the Revenue Requirement that would be associated with the FY1999 Increased Operating Budget of \$165,491, and \$20,549 from the FY1999 Filed Revenue Requirement of \$158,734.
- ISO Management recommends a FY2000 Operating & Maintenance Budget of \$133,272 in FY2000, an increase of \$20,210 (17.9%) from \$113,062 in the 1999 Filed Operating Budget, and \$14,047 (11.8%) from the 1999 Increased Operating Budget of \$119,225.
- This budget produces a FY2000 GMC of \$0.8300. This is an increase of \$0.0217 (2.7%) from the *Pro Forma* GMC and \$0.0519 (6.7%) from the Filed GMC.

## EXECUTIVE SUMMARY

### Finance, Expense Recovery and Capital Budgets and Transmission Volume Forecast

- The FY2000 approved Capital Expenditure Budget is \$40,094 vs. \$41,101 in FY1999. Funding sources include the remaining bond proceeds from the initial public borrowing in May of 1998, and excess funds in the Operating Reserve. Additional funding will be required, discussed in Appendix B.
- The FY2000 Finance Budget is projected to decrease by \$750 (2%) from \$48,820 in 1999 to \$ 48,070 in FY2000. The decreased financing costs are the result of the normal amortization of debt.
- The FY2000 O&M Expense Recovery Budget (non-GMC revenues) is projected to decrease by \$1,144 (68%) from \$3,148 in FY1999 to \$2,004 in FY2000. (FY1999 included recovery for Phase II Telecommunications expenses.) There is no FY2000 Capital Recovery budget, compared to \$3,000 in FY1999 (also related to Phase II Telecommunications Expense Recovery). However, stakeholder funding of certain system functionality will be considered for FY2000.
- FY2000 Transmission Volume is projected to increase by 12,000 MWh (5.9%) from 204,000 MWh in 1999 to 216,000 MWh in FY2000. This assumption is based on normal load growth, and sufficient trend data now available at the ISO to establish the effect of existing transmission contracts on total volume. The 216,000 MWh represents an increase of approximately 2.4% from projected FY1999 actual volume of 211,000 MWh.

## FY1999/FY2000 OPERATING & MAINTENANCE BUDGET COMPARISONS

	FY1999 Filed Operating Budget	FY1999 Increased Operating Budget	Approved FY2000 Budget	Amount Change <sup>(1)</sup>	Percentage Change <sup>(1)</sup>
<b>Salaries and Benefits</b>	\$ 38,413	\$ 40,110	\$ 55,059	\$ 14,950	37.3%
<b>Bldg, Lease &amp; Facility Costs</b>	6,165	6,629	10,946	4,317	65.1%
<b>Insurance</b>	768	768	899	131	17.1%
<b>Third Party Vendor Contracts</b>	46,460	48,362	46,481	(1,881)	-3.9%
<b>Professional &amp; Consulting Services</b>	9,533	9,533	6,576	(2,957)	-31.0%
<b>Audit, Legal &amp; Regulatory</b>	5,030	7,630	6,200	(1,430)	-18.7%
<b>Training and Travel</b>	3,455	3,455	4,520	1,065	30.8%
<b>Miscellaneous</b>	1,739	1,739	2,536	797	45.9%
<b>Other: FERC Fees</b>	1,500	1,000	-	(1,000)	-100.0%
<b>Total O&amp;M Budget</b>	<b>\$ 113,062</b>	<b>\$119,225</b>	<b>\$ 133,217</b>	<b>\$ 13,992</b>	<b>11.7%</b>

(1) Based on the FY1999 Increased Operating Budget totaling \$119,225.

## FY1999/FY2000 FINANCE BUDGET COMPARISONS

	FY1999 Budget	Approved FY2000 Budget	Amount Change	Percentage Change
<b>Principal Reserve Funding</b>	\$ 25,600	\$ 26,800	\$ 1,200	4.7%
<b>Interest Reserve Funding</b>	13,456	11,656	(1,800)	-13.4%
<b>Operating Reserve Funding (1)</b>	9,764	9,614	(150)	-1.5%
<b>Total Finance Budget</b>	<b>\$ 48,820</b>	<b>\$ 48,070</b>	<b>\$ (750)</b>	<b>-1.5%</b>

(1) Operating Reserve funding is at 25% of scheduled debt service payments.



## FY1999/FY2000 EXPENSE RECOVERY BUDGET COMPARISONS

	FY1999 Budget	Approved FY2000 Budget	Amount Change	Percentage Change
<b>Interest Earned on Operating Funds (1)</b>	\$ 200	\$ 1,100	\$ 900	450.0%
<b>Connection and Application Fees (2)</b>	100	-	(100)	-100.0%
<b>WSCC Security Coordinator Fees</b>	688	904	216	31.4%
<b>Phase II Telecommunications (3)</b>	2,160	-	(2,160)	-100.0%
<b>Total O&amp;M Expense Recovery Budget</b>	<b>\$ 3,148</b>	<b>\$ 2,004</b>	<b>\$ (1,144)</b>	<b>-36.3%</b>

- (1) Based on a 5% return on full operating reserve and additional operating reserve collection.  
 (2) Energy Communication Network ("ECN") connection charges will not be separately collected in 2000.  
 (3) GCP costs were not incurred by the ISO in 1999, and are paid directly by generators.

## FY1999/FY2000 REVENUE REQUIREMENT COMPARISONS

	<b>FY1999 Filed Budgets</b>	<b>FY1999 Increased Budget</b>	<b>Approved FY2000 Budget</b>	<b>Amount Change (1)</b>	<b>Percentage Change (1)</b>
<b>Total O&amp;M Budget</b>	\$ 113,062	\$119,225	\$ 133,217	13,991	11.7%
<b>Total Finance Budget</b>	48,820	48,820	48,070	(750)	-1.5%
<b>Total Expense Recovery Budget</b>	(3,148)	(3,148)	(2,004)	1,144	-36.3%
	<b>\$ 158,734</b>	<b>\$164,897</b>	<b>\$ 179,283</b>	<b>\$ 14,385</b>	<b>8.7%</b>

(1) Based on the FY1999 Increased Budget.

## FY1999/FY2000 TRANSMISSION VOLUME COMPARISONS

<b>Scheduling Coordinator Category</b>	<b>1998 Annualized</b>	<b>1999 Forecast</b>	<b>2000 Forecast</b>
Power Exchanges/Power Marketers/Other <sup>1</sup>	184,675	198,390	202,358
Municipal/ETC Load <sup>2</sup>	7,666	8,953	9,133
Exports	12,158	4,286	4,372
<b>Total GMC Load</b>	<b>204,500</b>	<b>211,631</b>	<b>215,864</b>
<b>Total GMC Load, Rounded</b>	<b>205,000</b>	<b>212,000</b>	<b>216,000</b>

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- (1) Includes (a) load for PGE, SCE & SDGE scheduled mainly through the Power Exchange (b) power marketers and other power exchanges.  
 (3) Net load after exclusions, from existing contract load scheduled by PG&E, SCE, Vernon, Riverside, Anaheim, CDWR, etc. which is generally subject to a 50% exclusion for the assessment of GMC.

## FY1999/FY2000 GRID MANAGEMENT CHARGE COMPARISONS

	<b>FY1999 Filed Operating Budget / Filed GMC</b>	<b>FY1999 Increased Operating Budget/ <i>Pro Forma</i> GMC <sup>(1)</sup></b>	<b>Approved FY2000 Budget / GMC</b>	<b>Amount Change <sub>(2)</sub></b>	<b>Percentage Change <sub>(2)</sub></b>	<b>Amount Change <sub>(3)</sub></b>	<b>Percentage Change <sub>(3)</sub></b>
<b>Total Revenue Requirement</b>	\$ 158,734	\$164,897	\$ 179,283	\$20,549	13.0%	\$14,386	8.7%
<b>Transmission Volume (MWh)</b>	204,000	204,000	216,000	12,000	5.9%	12,000	5.9%
<b>Grid Management Charge</b>	<b>\$ 0.7781</b>	<b>\$ 0.8083</b>	<b>\$ 0.8300</b>	<b>\$0.0519</b>	<b>6.7%</b>	<b>\$0.0217</b>	<b>2.7%</b>

(1) 1999 Increased Operating budget includes Board authorized spending increases. Pro Forma GMC shown is based on this revenue requirement.

(2) Based on the FY1999 Filed Operating Budget/GMC.

(3) Based on the FY1999 Increased Operating Budget/*Pro Forma* GMC

## FY1999/FY2000 CAPITAL EXPENDITURE BUDGET COMPARISONS

<u>System</u>	FY1999 Filed Capital Budget (1)	FY1999 Forecast (2)	Approved FY2000 Budget (3)
<b>Energy Management System (EMS)</b>	\$ 831	\$ 1,823	\$ 4,121
<b>SA/SI/BBS</b>	7,966	9,757	10,582
<b>Market Redesign &amp; FTRs</b>	17,147	16,076	12,300
<b>IT and Other Systems (including MDAS)</b>	11,762	9,447	10,129
<b>Facilities</b>	1,018	1,621	2,962
<b>Total All Projects</b>	<b>\$ 38,724</b>	<b>\$ 38,724</b>	<b>\$ 40,094</b>

(1) FY1999 Budget included \$3,000 for Phase II Telecommunications, with separate recovery of \$3,000, resulting in a net budget of \$38,724.

(2) Forecast for IT and Other systems is net of \$750K recovery from SCs for GCP project.

(3) See Appendix B for detail and funding alternatives for the proposed capital budget.

## STAFFING CHANGES IN THE FY2000 O&M BUDGET

CAISO Division	FY1999 Filed Operating Budget	Transfers during 1999	1999 Authorized Increase	FY1999 Increased Operating Budget	Contractor Conversions 2000	New Rqmts.	Approved FY2000 Staffing
HR/CEO	15.5	1		16.5	6	0	22.5
CFO	11.5	19		30.5	14	1	45.5
CIO	37.5	29		66.5	25	7	98.5
VP - Operations	160.5	(15)	14	159.5	12	44	215.5
General Counsel	22.5		4	26.5	7	0	33.5
Client Services	60.5	(34)	1	27.5	3	6	36.5
<b>Total</b>	<b>308</b>	<b>0</b>	<b>19</b>	<b>327</b>	<b>67</b>	<b>58</b>	<b>452</b>
<b>Contractors <sup>(1)</sup></b>							
Fixed (MCI, IBM)				134			134
Variable				277			210
<b>Total</b>				<b>411</b>			<b>344</b>
<b>Total ISO</b>				<b>738</b>			<b>796</b>

(1) Contractors reported may differ from Board reports. The figure above excludes certain contractors reported in the Board reports, such as auditors, who are not at the ISO on a full time, continuous basis.

## **APPENDIX A: FY1999/FY2000 ISO DEPARTMENTAL O&M BUDGETS**

**Worksheet: Appendix A  
FY2000 and FY1999 O&M Budget and Revenue Requirement**



**Worksheet: Appendix A**  
**FY2000 vs. FY1999 O&M Budget and Revenue Requirement Comparison**

**APPENDIX B:  
FY2000 CAPITAL EXPENDITURE BUDGET  
DETAIL AND FUNDING ALTERNATIVES**

## Overview of Capital Expenditure Budget for Year 2000

Capital projects proposed for FY2000 total an estimated \$40.1 million:

<b>(amounts in millions)</b>				
<b>Summary</b>	FY2000 9/10/99 Posting	Approved FY2000 Budget	Identified Potential FY2001 & Beyond	<u>Page Reference</u>
EMS	\$ 4.0	\$ 4.1	\$ 5.4	20
SA/SI/BBS	10.0	10.6	13.0	21
Market Redesign	4.6	12.3	22.3	24
IT and Other Systems	9.5	10.1	6.7	25
Facilities and Security	<u>1.5</u>	<u>3.0</u>	<u>2.8</u>	27
<b>Total</b>	<b>\$29.6</b>	<b>\$40.1</b>	<b>\$50.2</b>	

**Individual projects over \$1 million will only be initiated after each project has been reviewed and approved by the Board. The Board will be provided specific cost/benefit and GMC impact analyses, and funding plans on a project specific basis. Management will follow an identical process on smaller projects.**

- Increase from the October Board presentation is due primarily to the increase in Market Redesign work scope recommended by the Market Issues Committee at the October Board meeting.
- Of the \$40.1 million, \$7.3 million was approved previously by the Board (as individual projects in excess of \$1 million that were brought to the Board and as part of original 1998 Infrastructure budget as Phase II work) and \$4.2 million has been contracted.

- Excludes \$6.2 million in previously approved Board projects of which \$4.7 million are contracted. (We are currently renegotiating timeline with vendors.) In addition, some FERC staging plan items have been deferred.
- Estimated impact on future O&M costs of the \$40.1 million capital budget total \$10.0 million annually (25% of capital spending). We will report on specific ongoing O&M costs as projects are presented to the Board for approval.

**The FY2000 Capital Expenditure Budget does not include certain projects (and associated funding) which were originally budgeted and scheduled for completion and payment in 1999, but which may not be completed on schedule. This includes Analope and potentially \$1 million in other projects.**

***Funding:***

- Identified available funds total \$25.7 million (\$16.1 million in bond funds and \$9.6 million from GMC debt coverage collections).
- Other financing sources will be required to meet the proposed spending level. Alternatives include:
  - (1) Additional borrowing (with impact on Y2001 and onward GMC) : either interim bank financing or CAISO direct debt issuance.
  - (2) Direct Stakeholder funding
  - (3) Operating Reserve funds (limited amount, primarily interim financing)
  - (4) Savings from Y2000 O&M budget and/or higher than forecast transmission volume/revenues
  - (5) Accelerated GMC collection from payment calendar changes.
- Projects will not be committed to/ initiated during FY2000 without prior assurance that funding is available. We have been advised by our financial advisors that they are confident that CAISO can successfully issue debt during FY2000 at such time funding is needed. Based on current expectations, this debt issuance appears likely in the third quarter of 2000. It is likely that in any debt issuance, we would also provide for funding FY2001 capital requirements, as a minimum issuance size of at least \$30 million is recommended for a successful offering.

## EMS Capital Projects

### ***Projects Included in Approved FY2000 Budget***

The Year 2000 budget for EMS related projects amounts to \$4.1 million. Included in the total are two major projects with a cost of \$2.6 million:

- Operator Training Simulator (OTS) approved by the Board in 1999 and contracted. The OTS simulates a power system and provides a highly effective training environment.
- Advanced Applications of the EMS contract (Phase II) which was approved by the Board in 1997 and is contracted. This provides the originally contemplated EMS Functionality and is necessary for Reliability.

The remaining projects included in the proposed budget are estimated to cost a total of \$1.5 million, and are needed to handle the growth in data requirements, improve operating efficiency and meet regulatory requirements:

- Real time chart recorders to provide Operations personnel with additional system monitoring capabilities.
- NERC mandated E-Tags for sharing scheduling information between control areas.
- System resizing for growth in excess of original parameters. The EMS System is overgrowing the original design parameters, and a resizing of the Avanti database is necessary to support ICCP growth.
- EMS/ICCP test equipment, GPC clocks for EMS, computer cabinets, GCP development server, and display development server.

### ***Projects Not Included in Approved Year 2000 Capital Budget to be Deferred/Reconsidered at a Future Date***

These projects amount to approximately \$5.4 million:

- Enhancements to the OTS, which were approved by the Board in 1999
- Full market simulator, which will be developed after implementation of the OTS providing full simulation, including the Scheduling functions.
- Dynamic System Monitoring/Post Disturbance Analysis. This system provides enhanced real-time monitoring by Security Coordinators as well as post disturbance analysis.
- Enhancements to Resource Scheduler and Reserve Calculator to improve performance and increase accuracy.
- Interface with Analope II – which may be needed after implementation of Analope Phase II in 2000.
- Expansion and redesign of EMS modularity – necessary to support growth and multi-vendor components.

## SA/SI/BBS Capital Projects

### *Projects Included in Approved FY2000 Budget*

The proposed budget for Year 2000 SA/SI/BBS includes 16 projects with a cost of \$10.6 million:

- SI workspace modifications which will enable SI to communicate via the Internet, to allow for a movement away from MCI
- Support for system testing for all Year 2000 SA/SI/BBS projects
- Ongoing minor SA/SI modifications to maintain system
- Implementation of the Transmission Access Charge
- Completion of OASIS to meet FERC requirements
- Automation of exemption of settlement charges for existing transmission contracts related to UFE, Neutrality Adjustments, Grid Operation Charge and Per Unit Allocations. Should reduce ongoing O&M costs, increase statement usability for clients, and reduce disputes.
- Unbundling neutrality adjustments to minimize disputes.
- Provision for bidding and self-provision from the same unit (approved by the Board in 1997 and contracted with vendor) which should enhance market participation.
- Conversion of BITS (Interchange Transaction Scheduler utilized by real-time) to a three tier architecture (with associated costs in proposed O&M budget) to allow for higher availability, and enhanced reliability in the event of a fallback from Folsom to Alhambra. This infrastructure would also position the ISO to allow other Control Areas to view their schedule via the Web.
- SCs testing for SA/SI
- Phase I of operator entry of RMR unit information and scheduling to comply with the renegotiated RMR contracts
- Calculation of ex-post GMMs and enhancement of validation rules to conform SI to the tariff.
- Enhanced productivity of settlement software and support for post final disputes requested by Stakeholders
- Accelerated Payments calendar to accelerate financial settlement with ISO.
- Settlements system requirements for GMC Unbundling
- Post congestion results based on global optimization

## SA/SI/BBS Capital Projects (continued)

### *Projects Not Included in Approved Year 2000 Capital Budget to be Deferred/Reconsidered at a Future Date*

These projects amount to approximately \$13.5 million. Eight of these projects (with a cost of \$5.7 million) were approved by the Board in 1997 and have been partially contracted. We will need to renegotiate the timeline for these projects with the vendor.

- Phase II of operator entry of RMR unit information and scheduling to comply with the renegotiated RMR contracts
- Standing schedules, Intra-zonal CONG, Available Transfer Capacity, Voltage stability and collapse, refinement of market activity rules and Transient stability--all required by FERC
- Phase II BEEP modifications

Five deferred projects are FERC staging items and are estimated at \$2.1 million:

- Acquisition of voltage support services, non-spinning replacement sync time, and acquisition of black-start services
- Equal competition between A/S and energy on interzonal interfaces

Eleven other excluded projects with an estimated cost of \$5.2 million include:

- SCs testing for SA/SI and enhancement of validation rules
- Capability of handling physical scheduling plants like watersheds
- Bulletin board for DA interim market unused adjustment bids
- Allocation of RMR A/S costs to all SCs
- Allow multiple SC schedules for a generation unit
- GMC unbundling. Billing determinants have not as yet been identified. Costs are dependent on the complexity of the proposal, and may require Board authorization later in 2000. Portion of costs included in FY2000 budget.
- Other Payment Calendar Issues
- Settlement Improvements: These are proposals endorsed by the Settlement Improvement Team. No cost-benefit evaluations have been performed.
- Uninstructed deviation settlement scheme. Several options, including Min/Max and 10-minute Pricing scheme, are still being evaluated.

## Market Redesign Projects

### ***Projects Included in Approved FY2000 Budget***

The Approved budget for Market Redesign 2000 projects amounts to \$12.3 million, consisting of the following projects which were recommended by the Market issues Committee:

- Analope Phase II, which was approved by the Board in 1999. Item will allow tracking of compliance by generator.
- Reduction of Uninstructed Deviations with 10-minute settlements and different treatment for constrained resources – These changes are designed to greatly mitigate the large uninstructed deviations that have caused excessive regulation purchases and CPS2 violations. This is our highest priority.
- Metered Subsystems (a reservation pending conclusion of negotiations with municipals)
- Participating Loads – This will continue activities started with A/S Redesign and advance load participation in the A/S markets, providing load additional price responsiveness and expanding the supply of Non-Spin and Replacement services into the ISO markets.
- Intra-zonal Congestion Management reform – Real Time. Solutions to mitigate intrazonal congestion where workable competition does not exist.
- Multiple Market Separation – This item is intended to increase adjustment bids into the market by giving ESPs more flexibility to submit adjustment pairs within their own portfolios. This element will also help reduce “barriers to entry” for ESPs and should increase their participation in the California markets.
- Non-Firm transmission product – This increases the efficiency and utilization of the transmission system by providing a simple tool for participants to take advantage of unused recallable capacity.
- Inter-SC trades
- AS CONG Integration equal competition-DSOW only. Remainder of project deferred until 2001
- Portfolio Bidding with a simplified Bus model and including Inter-SC Trade Adjustment Bids -DSOW only. Remainder of project deferred until 2001.

### ***Projects Not Included in Approved Year 2000 Capital Budget to be Deferred/Reconsidered at a Future Date***

Projects which are not currently included in the Approved budget include total approximately \$22.3 million:

- Zonal A/S Directional Procurement – This will reduce A/S costs across the entire control area
- Splitting the BEEP stack to provide a separate stack for A/S
- Intra-zonal congestion management reform-Forward Market



### **Market Redesign Projects (continued)**

- Firmness of imports lost in inter-SC trades and zonal procurement
- Export of A/S and ability to treat non-firm exports as non-spin and replacement reserves
- Product specific simultaneous A/S auction
- Buyback of day-ahead for the hour-ahead and buyback of hour-ahead in real time
- Real time A/S procurement
- Multiple ramp rates and load following services
- Rational Buyer Phase II
- AS CONG Integration equal competition
- Portfolio Bidding with a simplified Bus model and including Inter-SC Trade Adjustment Bids

## IT and Other Systems Capital Projects

### *Projects Included in Approved FY2000 Budget*

The Approved Capital budget for Year 2000 IT and Other Systems (MDAS) amounts to \$10.1 million. Included in the total are six major projects with an estimated cost of \$8.3 million:

- Oracle software licenses necessary for capital projects being developed with Oracle databases and tools.
- Data warehousing including Resource Registry, PI, public information access, and Market monitoring systems which provide uniform and manageable data for the analysis done by the ISO, market participants, regulators and others.
- Application Support Center software development for business process improvements and automation such as Employee Life-Cycle, Asset Management Inventory, Facilities Management, ISO Workflow, Issues Management System Enhancements, and Intranet development. Eliminates redundant development of applications and processes across the organization through the centralization and leveraging of resources and efforts.
- Enterprise system management and monitoring enhancements to manage information platforms and systems. Implementation would help ensure system availability and proactive response to potential problems, resulting in improved reliability. Provides the ability to monitor status and viability of over 140 servers running hundreds of applications. Need to extend monitor capability to new systems being added--monitors need to be deployed concurrently with business critical systems.
- Information security architecture, which was approved by the Board in 1999 and is partially contracted. Necessary to achieve lower communication costs by using public networks, and will add stronger audit functionality to facilitate dispute resolution, and provide development and support of new web-enabled applications in year 2000 for Settlements, SI, PLA, GCP and an Intranet Portal. Over \$2M has already been invested.
- Project management for Year 2000 capital projects.

Other budgeted projects with an estimated total cost of \$1.8 million include:

- Upgrade of the Human Resources system to handle the increased number of FTEs and to provide necessary functionality
- Completion of the EDMS project that was previously approved by the Board.
- Enterprise user administration--reduces the need to manage access on a server by server basis, and higher security for single sign on.
- Enhancements to the Generator Communication Project (GCP) including additional protocol conversions and meter interfaces; system monitoring capabilities; and test equipment.
- Master file enhancements to MDAS arising from audit recommendations and additional meters and field test kits to meet the ISO's growth.

## IT and Other Systems Capital Projects (continued)

### ***Projects Not Included in the Approved Year 2000 Capital Budget to be Deferred/Reconsidered at a Future Date***

Projects which are not currently included in the Approved budget total \$6.7 million, include:

- Further enhancements to the EDMS project.
- Additional Oracle software licenses to support deferred capital projects.
- Web applications and change management and software distribution systems.
- Expanded data warehousing functionality.
- Expanded enterprise system management and monitoring enhancements.
- Expanded information security architecture.
- Enhanced meter management to meet continuing growth.

## Facilities and Security Capital Projects

### ***Projects Included in Approved FY2000 Budget***

The Approved Capital budget for Year 2000 Facilities and physical security projects amounts to \$3 million and consists of 4 projects:

- Upgrade critical power to the Folsom facility (Provides redundant power to critical systems. This upgrade would prevent the June 1999 event. We have no way to perform maintenance on electrical Distribution Systems without several single points of failure.
- Building out the OTS training room which was approved by the Board in 1999 and is contracted
- Building out and furnishing space for additional employees, including contractor conversions and new employees included in 2000 Budget. Includes upgrades necessary for extending communications system link to new space. Buildings 151, 101, A13 need work areas redesigned to optimize use to accommodate more people in existing space.
- Access control software upgrade and security system modifications

### ***Projects Not Included in the Approved Year 2000 Capital Budget to be Deferred/Reconsidered at a Future Date***

These projects, totaling \$2.8 million include:

- Upgrade primary power and chiller control panels (Benefit: increased reliability of power to 151 and meet WSCC requirements) and add new generator (increase capacity to meet entire building load as current generator only carries critical power distribution and cooling. Would allow continued operation of entire 151 Building during a power outage.)
- Upgrade Folsom and Alhambra computer room floors (CAISO is running out of computer room space)
- Emergency water storage (Provides emergency water supply in case of loss of local water supply, Mandated in ISO contingency plans), onsite storage, enclosure for yard (encloses controls and primary system for chiller and boiler plant to increase life), and expanded receiving area.
- Strategic facilities plan: at present rate of growth, we will exceed existing accommodations in 2000.
- Enhancements to security system (Phase II of enhancements to system)