Attachment A

2018 Budget and Grid Management Charge Rates

December 6, 2017
DRAFT

Prepared by the Financial Planning and Procurement Department
California Independent System Operator Corporation

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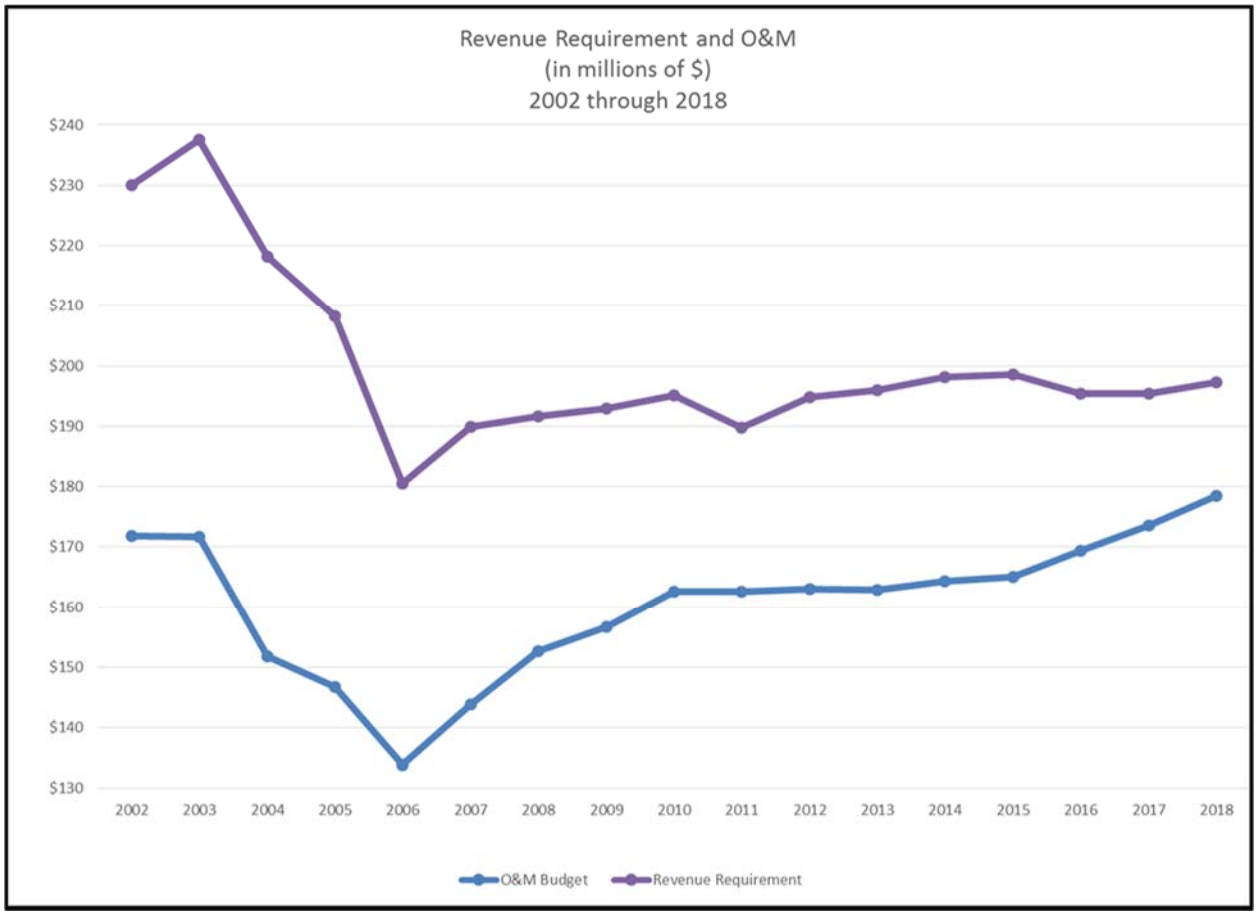
I. 2018 Revenue Requirement

The 2018 budget results in a revenue requirement of $197.2 million, which represents a 1% increase over 2017. Fiscal discipline remains a priority for the California Independent System Operator Corporation as evidenced by the continued stability of the revenue requirement. Since 2007, the revenue requirement has averaged an annual increase of less than 1% and remains 17% lower than the peak in 2003. The ISO has absorbed several major initiatives during this time with no material impact to the revenue requirement, which include the launching of the new market, construction of its secure primary and secondary locations, as well as implementation of the western Energy Imbalance Market (EIM).



The Operations & Maintenance (O&M) budget is the major component of the revenue requirement; therefore, managing it is critical to keeping a stable revenue requirement. At $178.5 million, this component makes up 91% of the 2018 revenue requirement.

As in recent years, the largest increase in the annual O&M budget is related to labor costs. In addition to merit adjustments, promotions, and benefit costs increases, the 2018 budget allows for an additional 14 full time positions. These positions are largely the result of the growing western EIM. However, the net impact to the revenue

requirement is minimal as revenue from the EIM is budgeted to increase by approximately $2.6 million in 2018.

Components of 2018 Revenue Requirement

A summary of the 2018 revenue requirement compared to 2017 follows.

Revenue Requirement Components ($ in millions)	2018 Budget	2017 Budget	Change $	Change %
Operations & Maintenance Budget	$178.5	$173.6	$4.9	2.8%
Debt Service (including 25% reserve)	16.9	16.9	0.0	0.0%
Cash Funded Capital	22.0	24.0	(2.0)	-8.3%
Other Costs and Revenues	(16.7)	(13.3)	(3.4)	25.6%
Operating Costs Reserve Adjustment	(3.5)	(5.9)	2.4	-40.5%
Total Revenue Requirement	**$197.2**	**$195.3**	**$1.9**	**1.0%**
Transmission Volume in TWh	241.3	240.7	0.6	0.2%
Pro-forma bundled cost per MWh	**$0.817**	**$0.811**	**$0.006**	**0.7%**

The projected 2018 volumes are based on the actual annual 2016 volumes and year-to-date 2017 volumes. The ISO projects that 2018 transmission volume will increase to 241.3 TWh based on observed higher peak demands, which results in a bundled cost per megawatt-hour (MWh) of $0.817, or an increase of $0.006 per MWh from 2017.

The ISO recovers its revenue requirement through unbundled Grid Management Charges (GMC). Each unbundled service has a corresponding rate, which is paid by service users. Rates are calculated by dividing each service cost by its forecasted billing determinant volume. The result is a rate per unit of use. Section X of this document outlines the determination of GMC rates.

II. Budget Overview

This budget package provides an overview of and detail for the 2018 cost of service and consists of the following items:

- O&M budget (Sections III thru V)
- debt service costs (Section VI)
- capital and project funding and cash funded capital (Section VII)
- other costs and revenues (Section VIII)
- operating cost reserve adjustment (Section IX)
- grid management charge components (Section X)

The **O&M budget**, the primary focus of this report, is the largest of these components and consists of costs incurred for ongoing operations. The 2018 O&M budget of $178.5 million is $4.9 million greater than the 2017 O&M budget of $173.6 million. The O&M budget is presented in three separate views as noted below:

- by process — e.g., support customers and stakeholders (Section III)
- by resource — e.g., salaries and benefits (Section IV)
- by division — e.g., the Operations Division (Section V).

Debt service costs are the principal and interest payments related to the 2013 bonds, and collection of a 25% debt service reserve. The 2013 bonds refinanced the 2009 bonds (which the ISO issued to build a new headquarters facility in Folsom, California, and fund other capital expenditures). The total debt service to be collected in the 2018 revenue requirement ($16.9 million) remains unchanged from 2017.

Cash funded capital included in the revenue requirement is $22.0 million with any unencumbered amounts carried over to fund future years' capital requirements. Collecting capital as a component of the revenue requirement avoids additional costs with tax-exempt debt financing, which includes debt issuance costs, interest expense and the 25% debt service reserve.

Capital and project requirements for 2018 are budgeted for $18 million. Significant work is anticipated for 2018 (as shown on the proposed project list). This work includes the systems development related to expanding market capabilities and integrating renewable resources.

Other costs and revenues are offsets to the revenue requirement and are budgeted to increase $3.4 million in 2018 (to $16.7 million). These transactions include EIM administrative charges, intermittent resource forecasting fees, interest earnings, California-Oregon intertie path operator fees, large generator interconnection fees, scheduling coordinator application and other fees.

The **operating cost reserve adjustment** is a credit of $3.5 million in 2018. In any year that the ISO operating reserve account exceeds 15% of the prospective year's O&M budget, the excess reduces the revenue requirement for the following year. This adjustment also includes the 25% debt service reserve collected in 2017 and the difference between the actual and budgeted revenues and expenses from 2016.

The **current GMC rate design** went into effect in 2012. The design provides for three volumetric charges and five transaction fees. The design was updated in 2014; the amendment was approved by FERC December 18, 2014 and was effective January 1, 2015. The rate design requires a cost of service study be completed every three years to ensure the ISO is properly charging costs to its cost categories. The latest cost of service study was completed in 2017 using 2016 data. The study revealed a shift of resources (time and dollars) from the System Operations and CRR Services cost categories to the Market Services cost category. The study also validated the Transmission Ownership Rights (TOR) charge should remain unchanged from $0.24/MWh rate.

The cost category percentage shifts are represented below.

Cost Category	2013 Study	2016 Study	Amount Over / (Under) Since Last Study
Market Services	27%	32%	5%
System Operations	70%	66%	-4%
CRR Services	3%	2%	-1%

The **Market Services charge** applies to megawatt-hours (MWh) and megawatts (MW) of awarded supply and demand in the ISO market. The **Systems Operations charge** applies to MWh of metered supply and demand in the ISO controlled grid. The **CRR Services charge** applies to MWh of congestion.

The study's results were presented to Stakeholders in May 2017 as well as presented to the EIM Governing Body and Board of Governors in July 2017. The updated percentages were filed with FERC in October 2017 and approved by FERC in November 2017. The new cost category percentages will become effective January 1, 2018.

Budget Guidance

The ISO held its budget kick-off meeting with stakeholders in July 2017 with the clear intent to consider stakeholder input when building the 2018 budget. Notes from that discussion and subsequent stakeholder questions are available on the ISO website[1]. Based on a firm commitment to fiscal responsibility, the ISO's leadership team required each division to develop an O&M budget consistent with the corporate Strategic Plan.

The combined efforts lead to the 2018 revenue requirement to come in at $197.2 million, approximately $4.8 million less than the FERC approved $202 million cap. The budget achieves the goals outlined above and funds operations and initiatives as set forth in the company's Strategic Plan.

[1] The 2018 Budget and Grid Management Charge initial Stakeholder meeting materials are available on the ISO website at http://www.caiso.com/informed/Pages/StakeholderProcesses/Budget-GridManagementCharge.aspx.

The ISO Board of Governors will review the preliminary budget at its November 1-2, 2017 meeting. Stakeholders will have an opportunity to provide feedback on the posted preliminary budget during the budget workshop (scheduled for November 7, 2017). Discussion notes gathered during the budget workshop as well as responses to written questions submitted by stakeholders will be posted on the ISO website.

Strategic Outlook

The ISO is diligent in meeting its mission to maintain the reliability of the high voltage grid that serves California and market participants throughout the West. Over the past several years, the ISO has been creating power markets and a grid infrastructure that efficiently uses renewable resources while strengthening system resiliency, all to the benefit of consumers.

At this time, the ISO grid has about 21,000 megawatts (MW) renewable generation connected to the grid, including over 10,000 MW of solar and nearly 6,300 MW of wind-powered capacity.

The ISO is closely coordinating and collaborating with generators, utilities, transmission owners, energy regulators and diverse stakeholder groups, developing a grid and market structure that encourages Distributed Energy Resources (DERs). Following a tariff filing and regulatory approval (which is expected in early 2018), entrepreneurs and utilities will be allowed to bundle, or aggregate DERs, such as energy storage, so that any extra energy can participate in the ISO wholesale market just like a utility-scale generator. This enhancement will provide supply and liquidity to the market, as well as contribute to a more secure and sustainable electric generation and power delivery system. In addition, DERs will help reduce carbon emissions and contribute to meeting state clean air goals.

Aligning with the ISO's Strategic Plan

The grid is becoming a flexible and adaptable system that will support a society and economy becoming ever more dependent on electricity required by technological advancements. The ISO embraces its unique position to lead the grid and market transformations to improve services and enhance system reliability. The ISO is committed to supporting growth and change while carefully managing its own operating costs.

The 2018 budget aligns with the ISO's Strategic Plan, which is a guide to meet organizational and operational goals. The plan contains the following three strategies:

1. developing new and enhancing existing market structures that encourage the participation of new clean energy resources, including demand response and storage;
2. tirelessly working to encourage a generation fleet that has the capability and flexibility to reliably meet electricity needs of our homes and businesses; and,

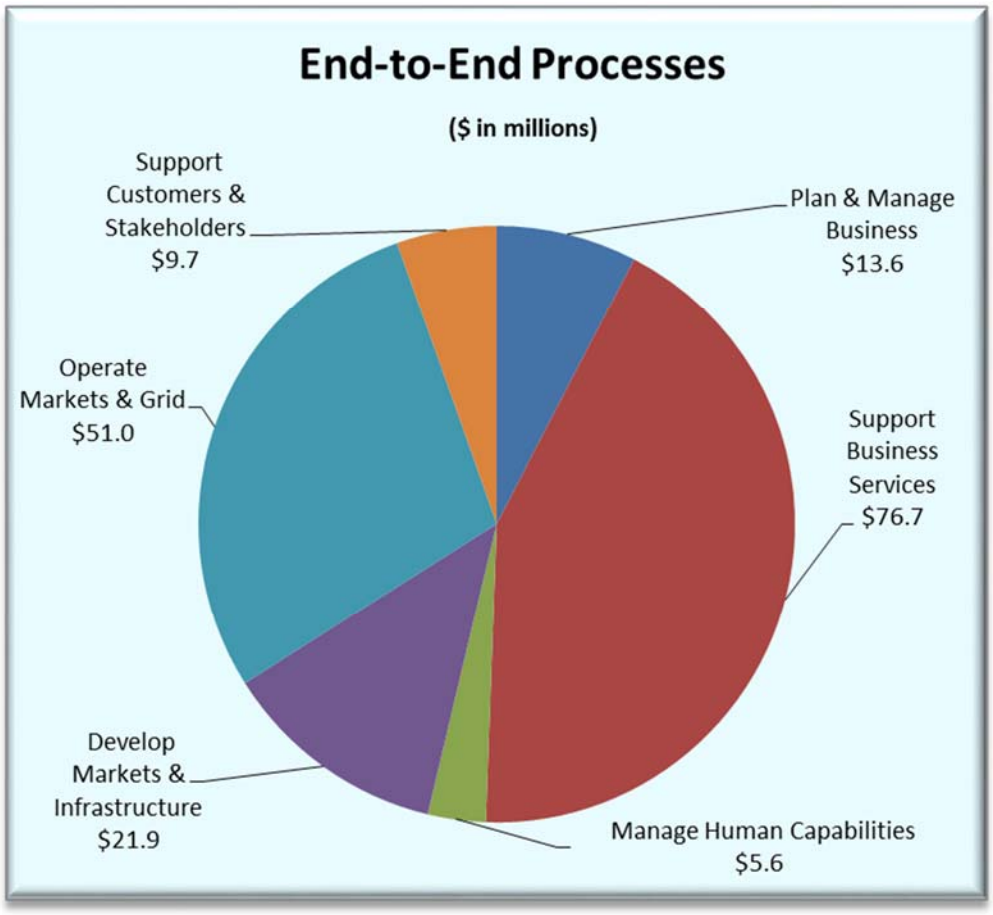
3. assuming a leadership role within the state and the West to ensure we use our infrastructure investments to their fullest potential to benefit consumers and the future.

The Strategic Plan outlines to employees and managers our common goals while the budget explains how the corporation funds and allocates its resources to support its business plans. The 2018 budget is built upon a balanced mix of staffing, skills and financial resources. Together these elements will enable the ISO to effectively and successfully support the Strategic Plan goals.

Aligning the strategic planning process more closely with budget planning provides greater transparency into the ISO's resources as well as associated costs for business and operational activities. The ISO is resolute in managing costs and emphasizes using corporate resources in a smart and prudent manner that results in increased productivity.

III. Process View

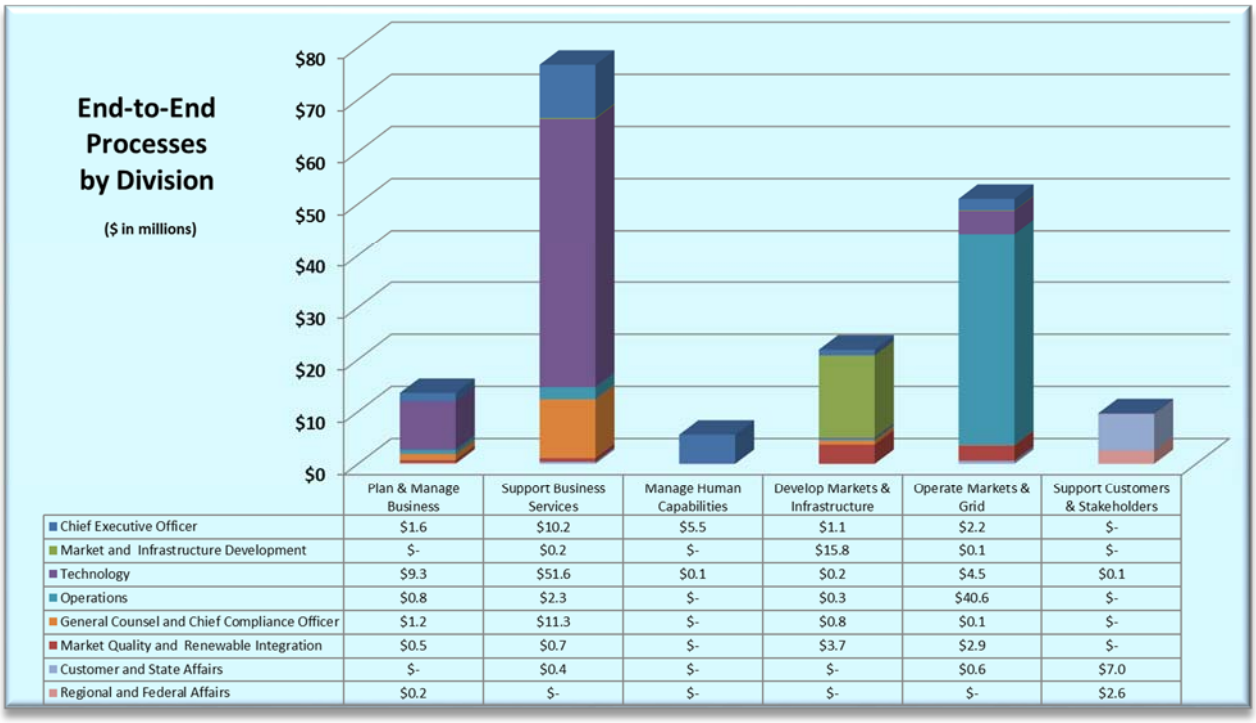
The ISO has leveraged the activity-based costing system to provide greater transparency and granularity in how the budget supports corporate business plans. In support of this system all employees record time worked to second level activities under nine primary processes. For purposes of this presentation, the nine processes are grouped into six processes. Aggregating the time reported by employees results in percentages for each of the processes (the hours from the first six months of 2017 were used). Applying these hours to the 2018 budget results in costs for the six processes as shown below.



- **Plan and manage business** — strategic planning, governance, budgeting and project management;
- **Support business services** — general, information technology, financial, legal and compliance support services;
- **Manage human capabilities** — employee lifecycle, training and organizational development;
- **Develop markets and infrastructure** — regulatory, market, policy and product design and transmission planning, grid asset reviews and interconnection studies;
- **Operate markets and grid** — manage and operate the markets including modeling, setup, and settlements; and

- **Support customers and stakeholders —** client, account and stakeholder processes, government affairs and communications.

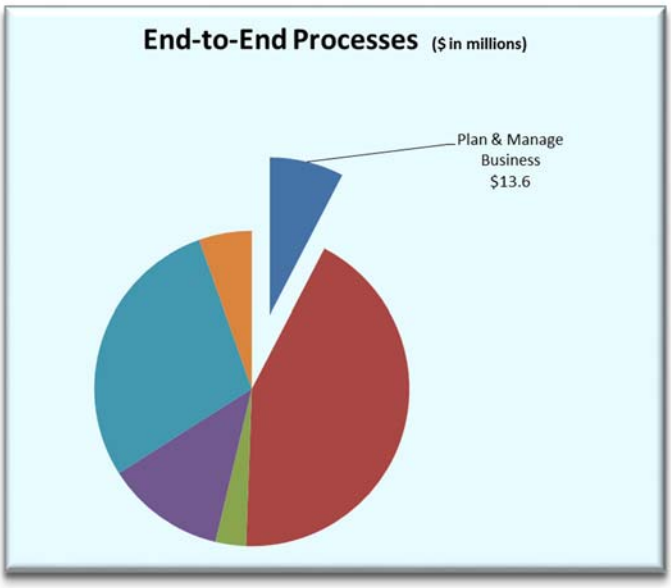
Division costs are allocated into the end-to-end processes as follows.



	Plan & Manage Business	Support Business Services	Manage Human Capabilities	Develop Markets & Infrastructure	Operate Markets & Grid	Support Customers & Stakeholders
Chief Executive Officer	$1.6	$10.2	$5.5	$1.1	$2.2	$-
Market and Infrastructure Development	$-	$0.2	$-	$15.8	$0.1	$-
Technology	$9.3	$51.6	$0.1	$0.2	$4.5	$0.1
Operations	$0.8	$2.3	$-	$0.3	$40.6	$-
General Counsel and Chief Compliance Officer	$1.2	$11.3	$-	$0.8	$0.1	$-
Market Quality and Renewable Integration	$0.5	$0.7	$-	$3.7	$2.9	$-
Customer and State Affairs	$-	$0.4	$-	$-	$0.6	$7.0
Regional and Federal Affairs	$0.2	$-	$-	$-	$-	$2.6

Plan and Manage Business

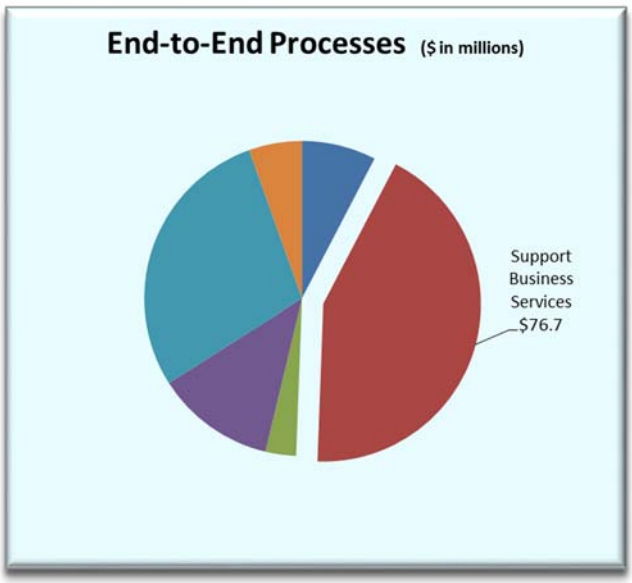
The *Plan and Manage Business* process, amounting to $13.6 million and 40 staff, consists primarily of the efforts of the Technology, Chief Executive Officer and General Counsel and Chief Compliance Officer divisions with elements of the Operations, Market Quality and Renewable Integration, and Regional and Federal Affairs divisions. The ISO measures every process, project or policy against identified benefits. This activity finds support in part by aligning the strategic planning process with budget planning, as outlined in Section II: Aligning with the ISO's Strategic Plan.



It is the budget process that drives revenue requirement needs, which then translates into the rates charged to scheduling coordinators and other market participants.

Support Business Services

Support Business Services, amounting to $76.7 million and 226 staff, is comprised primarily of functionalities of the Technology, General Counsel and Chief Compliance Officer, Chief Executive Officer, and Operations divisions with elements of all other divisions with the exception of Regional and Federal Affairs division.

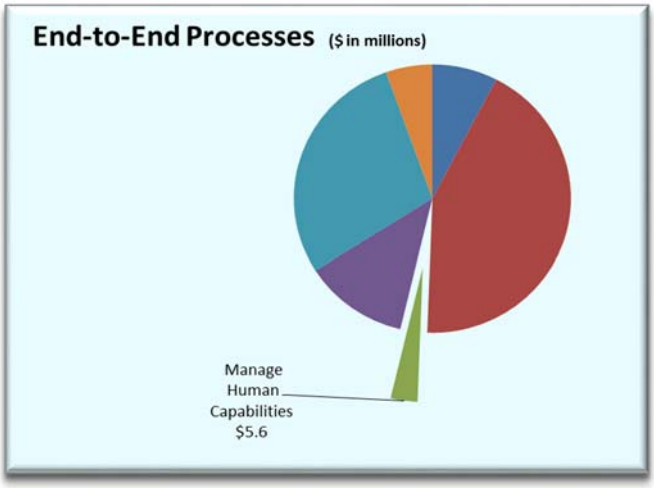


This process establishes the ISO's ability to carry out its business duties by developing well defined, measured and controlled processes (workflow and information technology), as well as nurturing disciplined business decision making, maintaining quality assurance and efficiently implementing enhancements.

In addition, this process supports the initiatives that improve and maintain a responsive and effective compliance culture.

Manage Human Capabilities

Manage Human Capabilities, amounting to $5.6 million and 16 staff, consists of the efforts of the Chief Executive Officer division along with elements from the Technology division. It consists of five primary end-to-end processes that combine to ensure the ISO attracts and retains the skills and talent necessary to achieve business objectives. The processes are compensation, benefits, recruitment, training and development, and employee relations.



The budget supports the ISO's ability to attract and retain uniquely skilled and highly sought-after professionals by continually assessing the quality of compensation and benefit packages. The benefits menu reflects cost containment measures while at the same time preserving the competitive options needed to meet the needs of a diverse employee population.

It is a top corporate priority to ensure the ISO is equipped with the knowledge, skills and expertise to meet the increasingly complex challenges of a changing industry landscape. The budget provides resources to help employees not only grow in their jobs but also increase their value to the corporation.

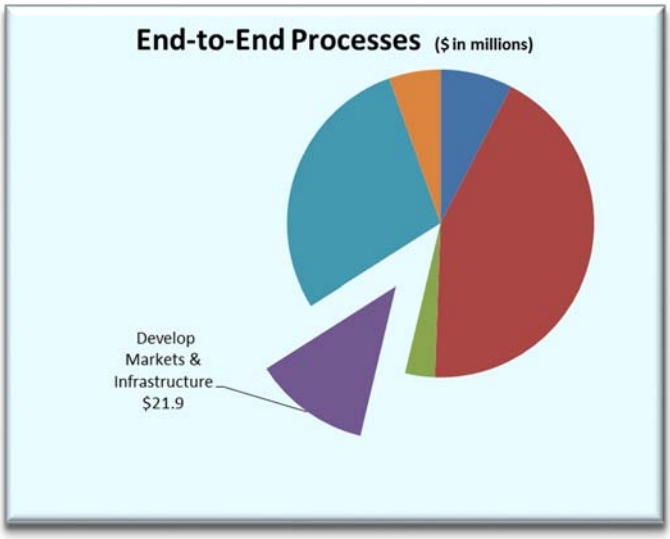
In addition, the budget provides resources to support management and employees in maintaining a high-performance and respectful workplace environment where employees are motivated to pursue their highest potential as well as contribute to the corporation's success.

Develop Markets and Infrastructure

Develop Markets and Infrastructure includes two separate processes that support the creation of value-added enhancements to the market design, as well as proactively plan and facilitate grid upgrades, such as those needed to reliably integrate renewable resources.

Develop Markets

Develop Markets, amounting to $9.3 million and 31 staff, consists primarily of the efforts of the Market Infrastructure and Development, Market Quality and Renewable Integration divisions with elements of all other divisions with the exception of the Regional and Federal Affairs division.



This activity includes enhancing our abilities to review and analyze the efficiency and quality of market results, as well as identifying needed market design improvements that increase efficiencies and transparency.

Initiatives under this banner include creating the business and operational frameworks that support demand response and renewable resources in the ISO market, and provide the rules for distributed generation, energy efficiency and energy storage participation.

Develop Infrastructure
Develop Infrastructure, amounting to $12.6 million and 49 staff, consists primarily of the efforts of the Market Infrastructure and Development division and elements of the Market Quality and Renewable Integration, Chief Executive Officer, and Operations divisions. The budget supports a comprehensive approach to transmission and generation interconnection planning that considers reliability and public policy needs.

Operate Markets and Grid

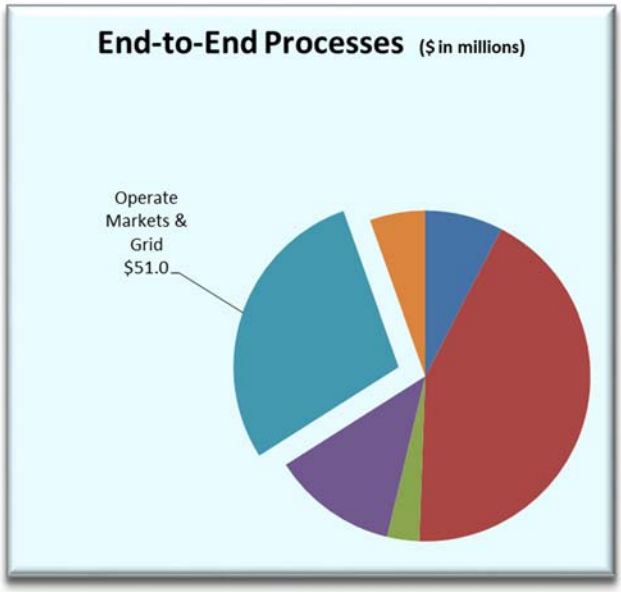
Three end-to-end processes make up *Operate Markets and Grid*: 1) Manage Market and Reliability Data and Modeling; 2) Manage Markets and Grid; 3), Manage Operations Support and Settlements.

Manage Market and Reliability Data and Modeling
Manage Market and Reliability Data and Modeling, amounting to $14.1 million and 58 staff, is primarily comprised of functionalities of the Operations, Technology, and Chief Executive Officer divisions with elements of the Customer and State Affairs, Market Quality and Renewable Integration, and Market and Infrastructure Development divisions.

The ISO carefully re-evaluates its network modeling policies and protocols to find ways to reduce out-of-market energy dispatches, assure models reflect all grid constraints and produce timely and accurate prices.

Manage Markets and Grid

Manage Markets and Grid, amounting to $24.6 million and 108 staff, is primarily comprised of functionalities of the Operations and Technology divisions with elements of the Market Quality and Renewable Integration and Chief Executive Officer divisions. One of the ISO's major duties is to manage transmission and generation outages, especially those that are unplanned, as it takes well-honed grid expertise to ensure continuous flow of power to all consumers. Managing the market includes running the day-ahead market and interchange scheduling so that all local energy needs are met and the power is delivered at the most reasonable cost.



Manage Operations Support and Settlements

Manage Operations Support and Settlements, amounting to $12.3 million and 51 staff, is mostly comprised of functionalities of the Operations and Market Quality and Renewable Integration divisions along with elements of the Technology, Chief Executive Officer, and General Counsel and Chief Compliance Officer divisions. The budget provides the resources that result in creating new market efficiencies. This effort includes lowering the financial risk of participating in the wholesale market and in turn lowers the cost of doing business with the ISO.

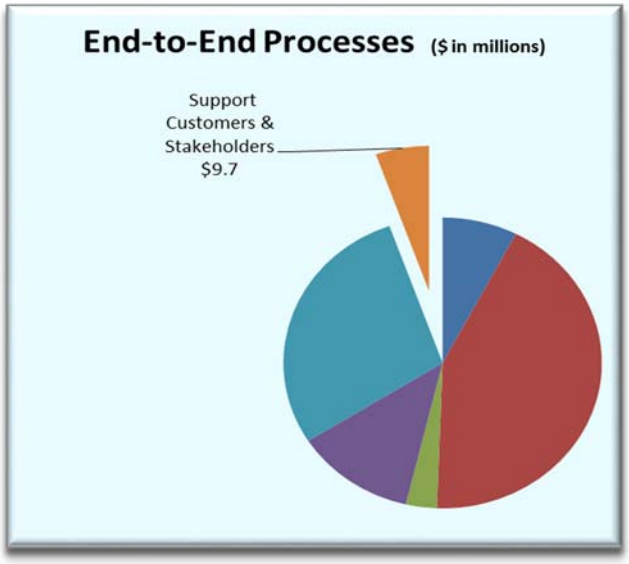
Support Customers and Stakeholders

Support Customers and Stakeholders, amounting to $9.7 million and 35 staff, consists primarily of the efforts of the Customer and State Affair and Regional and Federal Affair divisions along with elements of the Technology, Market and Infrastructure Development, Operations, and General Counsel and Chief Compliance Officer divisions.

The ISO is diligent in providing the highest quality of service to its market participants and stakeholders. This includes resolving customer issues in a timely manner and streamlining access to market information when possible.

Primary Activities

This process improves the overall business experience stakeholders and market participants have with the ISO, as well as sharing clear corporate and business information. The ISO is dutiful in quickly resolving inquiries and encouraging quality dialogue with its key customers. This activity also provides the framework to make improvements in the stakeholder processes as well as build proactive outreach to new market participants that, in turn, supports their active participation in the wholesale market.

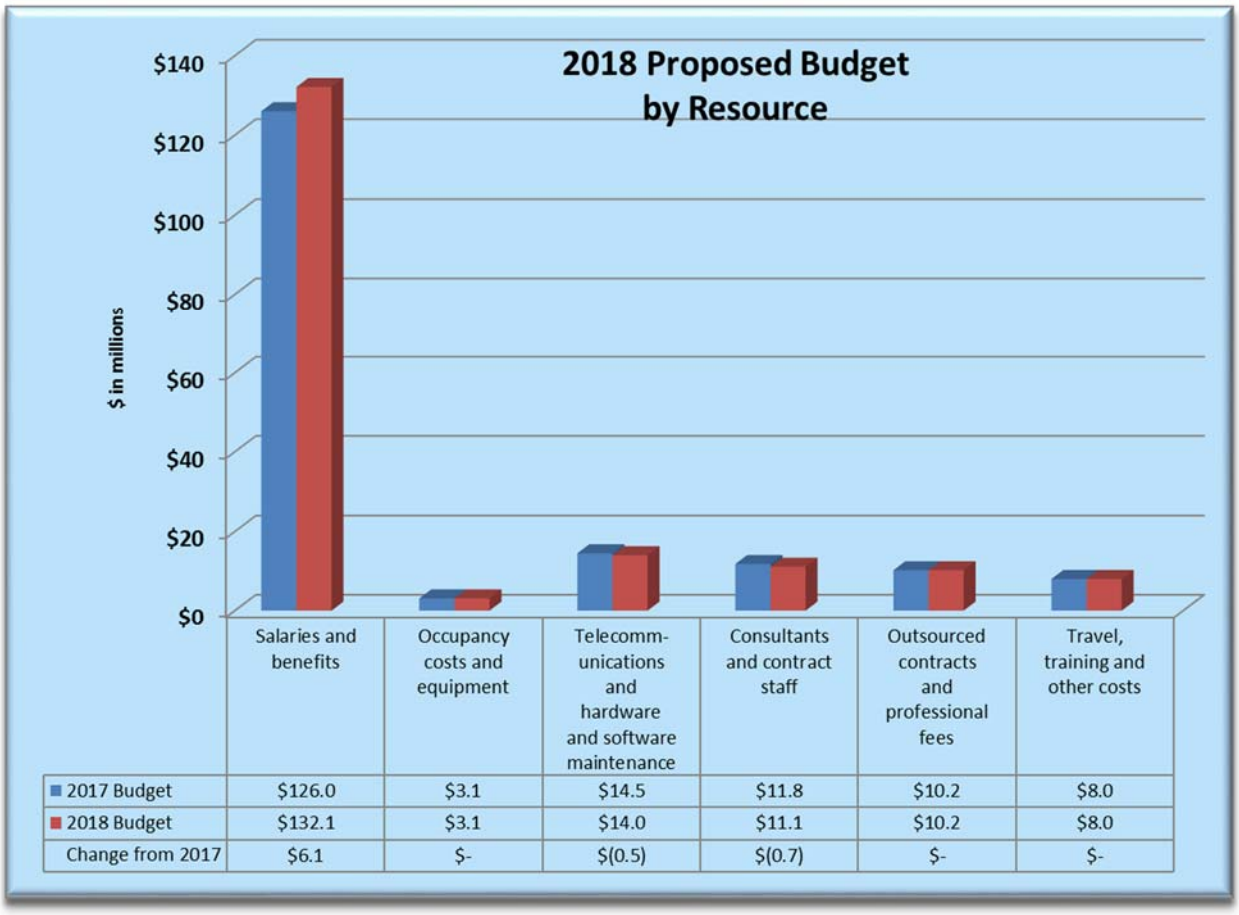


The government affairs department is active in effectively sharing ISO technical expertise and communicating advice to government and regulatory bodies to help inform and advance policies and mandates that protect grid reliability.

IV. ISO Resource Utilization

This section deals with the resources used in the O&M budget to accomplish strategic objectives and goals. The 2017 budget reflects reclassifications in order for it to be comparable to the 2018 budget presentation.

The chart below shows the major resource components.



	Salaries and benefits	Occupancy costs and equipment	Telecomm-unications and hardware and software maintenance	Consultants and contract staff	Outsourced contracts and professional fees	Travel, training and other costs
2017 Budget	$126.0	$3.1	$14.5	$11.8	$10.2	$8.0
2018 Budget	$132.1	$3.1	$14.0	$11.1	$10.2	$8.0
Change from 2017	$6.1	$-	$(0.5)	$(0.7)	$-	$-

Salaries and Benefits

The ISO depends on its highly educated employees to operate the grid and support market functions, which makes staff a critically important resource with salaries and benefits comprising 74% of the 2018 O&M budget and 73% of the 2017 O&M budget.

The staffing plan concentrates on attracting and retaining the best and brightest individuals in the industry. At times, the ISO revises the organizational structure to help keep pace with changing resource needs. The ISO also makes periodic organizational changes to align resources to focus on the important matters identified in the company's Strategic Plan, and better reflect end-to-end business processes.

The budgeted staffing level for 2018 is 614 employees, which includes eight operators in training. The staffing level has increased by 14 from the budgeted 2017 staffing level to primarily address resource needs being driven by the growing western EIM. Additionally, the budgeted increase includes a few planned contractor to employee conversions.

There were 595 full time employees as of the end of November 2017. As the number of full time employees going into 2018 equals 97% of the proposed 2018 staffing level, the 2018 budget makes no provision for vacancies.

A summary of the budgeted headcount for 2018 and 2017 is as follows.

Projected Staffing Levels	2018 Budget	2017 Budget	Change
Chief Executive Officer	58	58	-
Market and Infrastructure Development	65	62	3
Technology	193	185	8
Operations	198	198	-
General Counsel and Chief Compliance Officer	34	34	-
Market Quality and Renewable Integration	26	23	3
Customer and State Affairs	33	33	-
Regional and Federal Affairs	7	7	-
Gross Headcount	**614**	**600**	14
Less Program Office Staff Included in Capital	(5)	(5)	-
Net Headcount	**609**	**595**	14

Staffing Related to Capital

As in past years, the O&M budget does not include the costs of staff dedicated full-time to capital projects, which are components of a separate capital budget. The capitalized staff amounted to five full-time staff in the Technology division's Program Management Office. The cost of other staff engaged in capital projects is budgeted in their respective cost centers; however, the financial statements that are prepared in accordance with generally accepted accounting principles include the capitalization of this labor.

Compensation Structure

The 2018 compensation budget includes funding for employee base salaries, benefits and payroll taxes, as well as other compensation elements, such as overtime and performance compensation, and related costs such as relocation and tuition reimbursement. The budget also includes funds for 2018 salary adjustments for merit, equity and market adjustments; as well as for increased healthcare costs. These costs have been budgeted for each position.

In setting the annual merit, equity and market adjustments budget, the Human Resources department participates in salary surveys administered by qualified third-party vendors. These vendors confidentially gather information related to competitive

market pay rates. The ISO's ability to attract and retain talent with the necessary skills and knowledge directly links to our ability to maintain competitive pay practices.

The total compensation packages provided to employees include performance compensation with payouts in the subsequent year based on individual and corporate performance.

A summary of the compensation components is as follows.

Compensation Components With Benefit Burden ($ in millions)	2018 Budget	2017 Budget	Change
Base Compensation	$109.4	$103.9	$5.5
Overtime (includes structured overtime for grid operators)	6.0	6.2	(0.2)
Performance Compensation	15.3	14.7	0.6
Other	1.4	1.2	0.2
Total Personnel Expense	**$132.1**	**$126.0**	**$6.1**

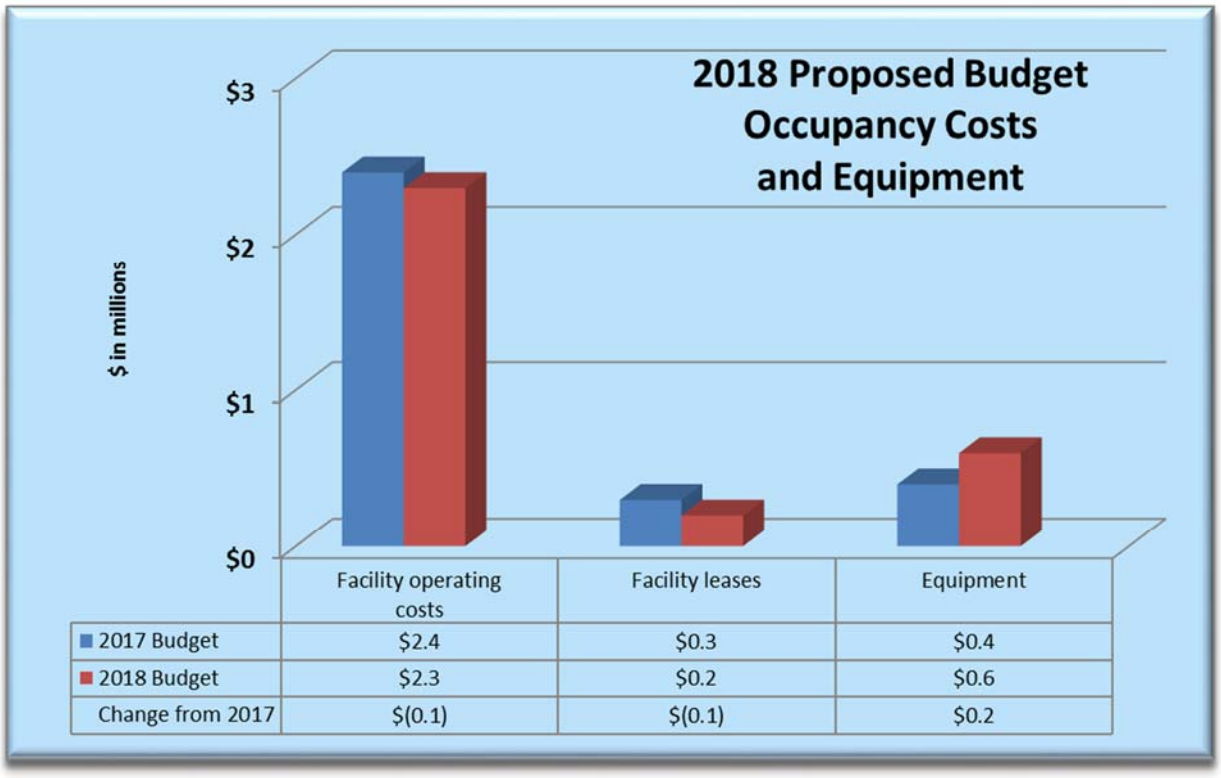
Employee benefits are budgeted at 36% of salary costs as summarized in the table below. The 2017 and 2018 rates are identical. Management will enter into contracts with selected vendors to ensure these benefits are available to eligible employees with the costs primarily depending on employee population levels and participation.

The benefits burden is broken down as follows.

Benefit Obligation	ISO Cost Components	Rate
Health and Welfare Plans Medical, Dental and Vision	Medical, dental and vision; life, accidental death and long-term disability insurance; state unemployment insurance; and worker's compensation	15%
Retirement Benefit Plans	Retirement Savings Benefit Plan 401(k); Federal social security and Medicare; executive retirement plans; and retiree medical benefit plan	20%
Other Obligations	Administration related costs	1%
Total Burden		**36%**

Occupancy Costs and Equipment

Occupancy costs and equipment remain unchanged at $3.1 million in 2018. These costs make up approximately 2% of the 2018 and 2017 budget.



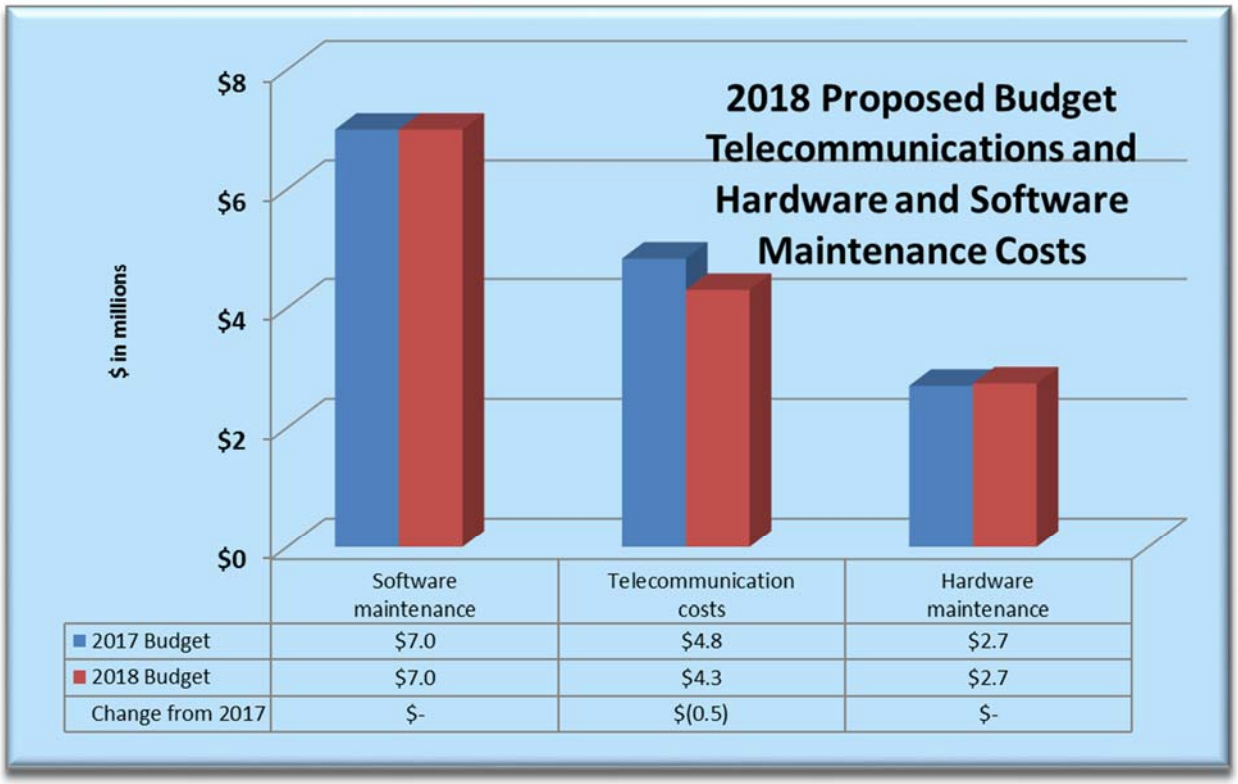
Facility operating costs decreased by $0.1 million, or 5%, to $2.3 million in 2018 from $2.4 million in 2017.

Facility leases decreased by $0.1 million, or 42%, to $0.2 million in 2018 from $0.3 million in 2017.

Equipment expense increased by $0.2 million, or 69%, to $0.6 million in 2018 from $0.4 million in 2017.

Telecommunications and Hardware and Software Maintenance Costs

Telecommunications and hardware and software maintenance costs decreased $0.5 million, or 3%, to $14.0 million for 2018 compared to $14.5 million in 2017. These costs make up approximately 8% of the 2018 and 2017 budgets.



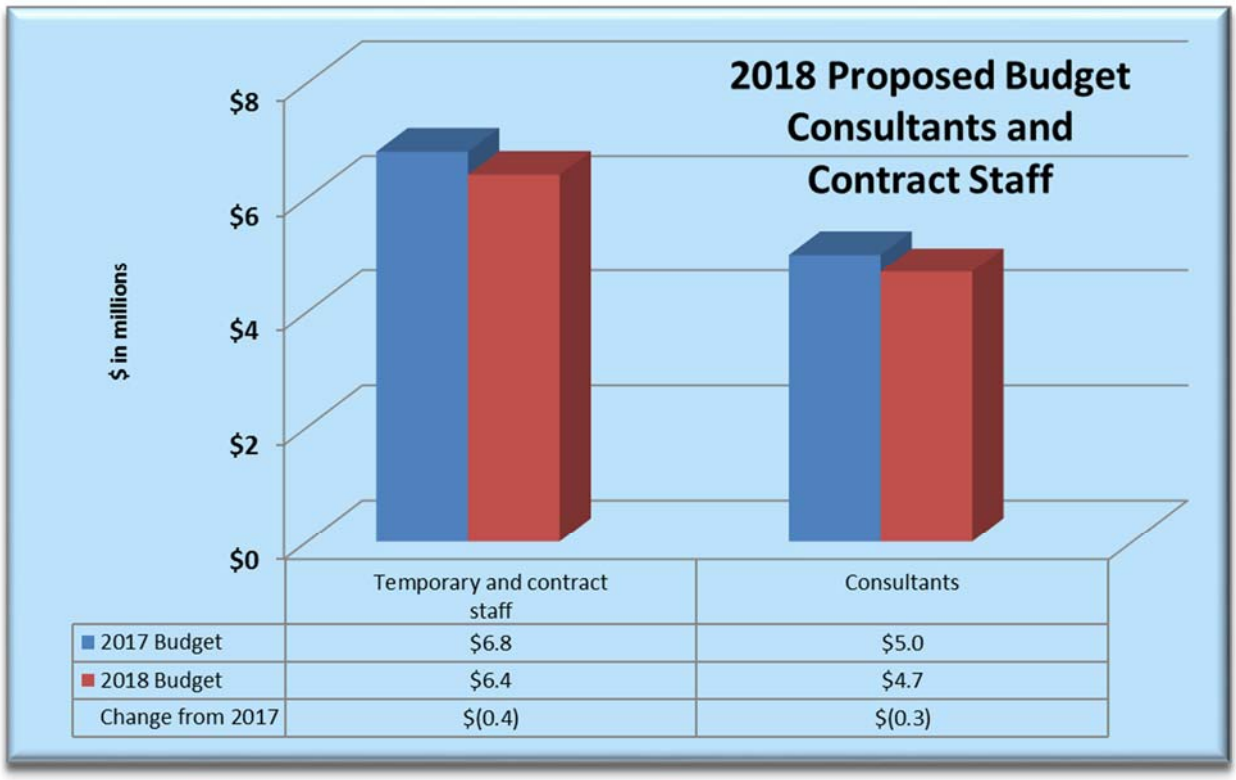
	Software maintenance	Telecommunication costs	Hardware maintenance
2017 Budget	$7.0	$4.8	$2.7
2018 Budget	$7.0	$4.3	$2.7
Change from 2017	$-	$(0.5)	$-

Telecommunication costs decreased $0.5 million, or 11%, to $4.3 million in 2018 from $4.8 million in 2017. The decrease is due to improved contracted telecommunications rates as well as continued active management of wired line and mobility services.

Hardware and software maintenance costs remain unchanged for 2018 compared to 2017 due to continued cost management of these services.

Consultants and Contract Staff

Consulting and contract staff costs decreased $0.7 million, or 6%, to $11.1 million in 2018 compared to $11.8 million in 2017. The consulting and contract staff budgets make up 6% of the 2018 budget, which is a reduction of 1% from the 2017 budget.

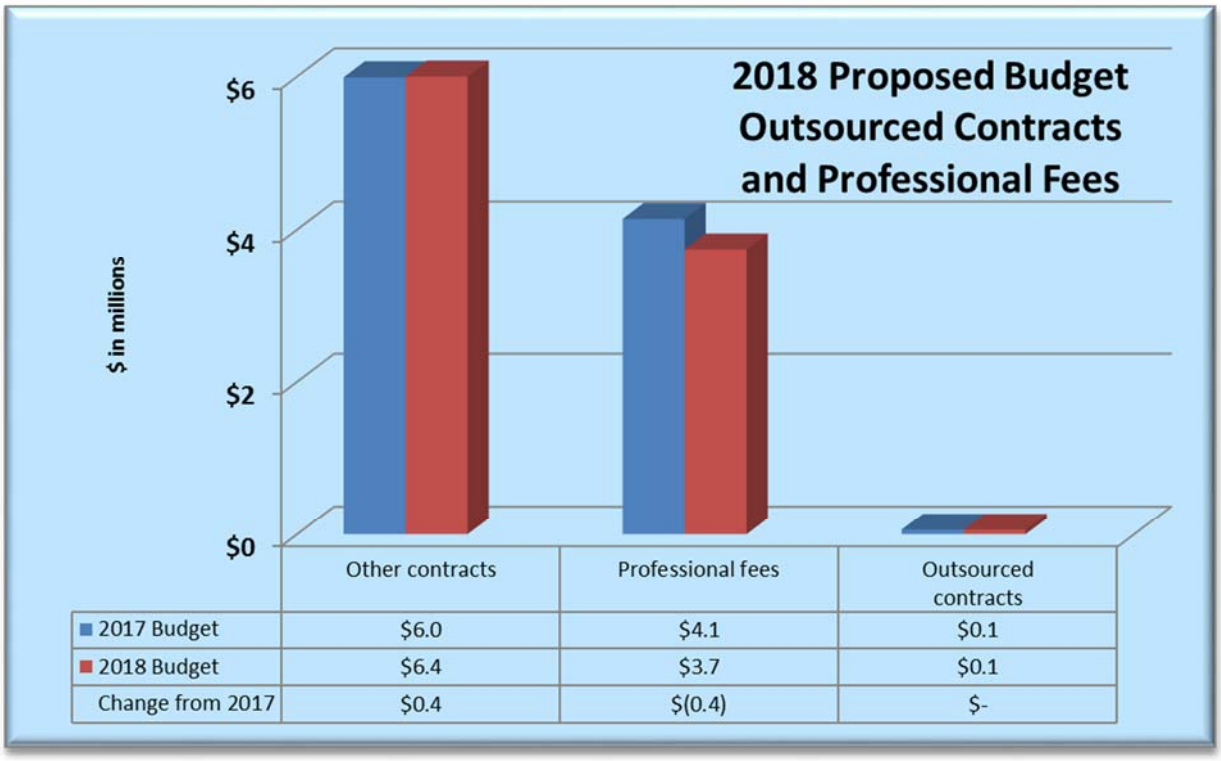


	Temporary and contract staff	Consultants
2017 Budget	$6.8	$5.0
2018 Budget	$6.4	$4.7
Change from 2017	$(0.4)	$(0.3)

The ISO regularly evaluates how to meet its responsibilities while remaining cost effective and providing the highest service quality whether through hiring full-time employees or using outside resources (e.g., contractors, consultants or temporary staff). At times, the Company may bring contractor work in-house when it is of an ongoing nature and lowers overall cost with the same or better service quality. Examples of efforts requiring budget in 2018 include resource adequacy studies, process assessments, training, regional coordination and integration initiatives, and the need for subject matter experts in fields such as renewable integration.

Outsourced Contracts and Professional Fees

Outsourced contracts and professional fees remains unchanged at $10.2 million in 2018. The budget category makes up 6% of the 2018 and 2017 budgets.



	Other contracts	Professional fees	Outsourced contracts
2017 Budget	$6.0	$4.1	$0.1
2018 Budget	$6.4	$3.7	$0.1
Change from 2017	$0.4	$(0.4)	$-

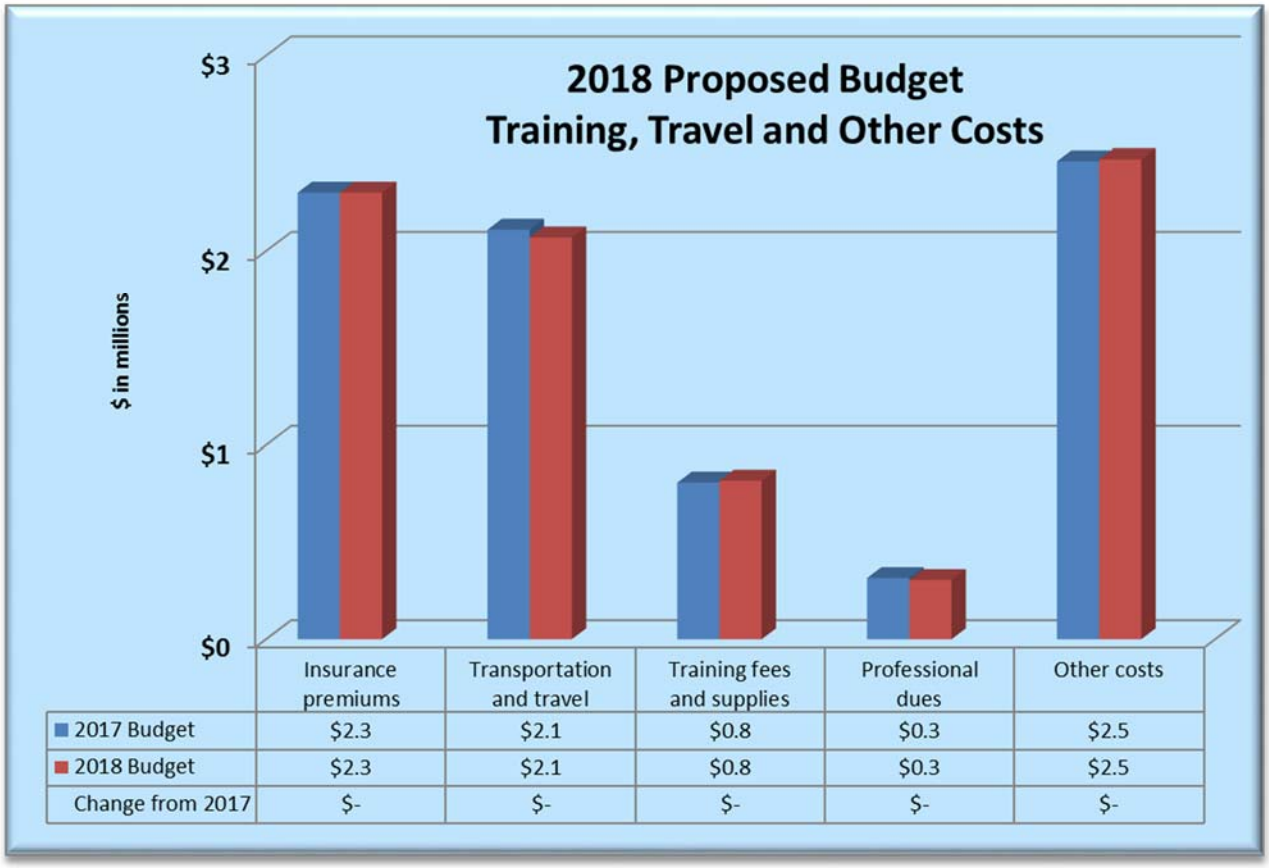
Professional fees decreased $0.4 million to $3.7 million in 2018 from $4.1 million in 2017. This represents a reduced level of support anticipated around the need for outside legal services in 2018.

Outsourced and other contracts combined increased $0.4 million to $6.4 million in 2018 from $6.0 million in 2017. The primary driver behind the increase is a shift in the categorization of corporate benefit management expenses from benefit burden expense to other contracts expense.

A large component of the outsourced and other contracts resource category is our forecasting costs. The costs are expected to increase slightly in 2018 when compared to 2017. Intermittent resources pay a forecasting fee to the ISO of 10 cents per megawatt of generation. Such fees are budgeted for a total of $3.2 million in 2018. These fees received from the variable resources are included in the other costs and revenues component of the revenue requirement to offset the related forecasting costs.

Training, Travel and Other Costs

Training, travel and other costs remain unchanged at $8.0 million in 2018. These budgets make up 4% of the 2018 budget, which is a reduction of 1% from the 2017 budget.



	Insurance premiums	Transportation and travel	Training fees and supplies	Professional dues	Other costs
2017 Budget	$2.3	$2.1	$0.8	$0.3	$2.5
2018 Budget	$2.3	$2.1	$0.8	$0.3	$2.5
Change from 2017	$-	$-	$-	$-	$-

Insurance premiums remain unchanged at $2.3 million in 2018.

Transportation and travel remain unchanged at $2.1 million in 2018.

Training fees and supplies remain unchanged at $0.8 million in 2018.

Professional dues remains unchanged at $0.3 million in 2018.

Other costs (primarily bank fees, conference fees, office supplies and Board and stakeholder meeting costs) remains unchanged at $2.5 million in 2018.

Reconciliation of 2018 O&M Budget

The 2018 proposed O&M budget increased by $4.9 million, or 3%, to $178.5 million in 2018 compared to $173.6 million in 2017.

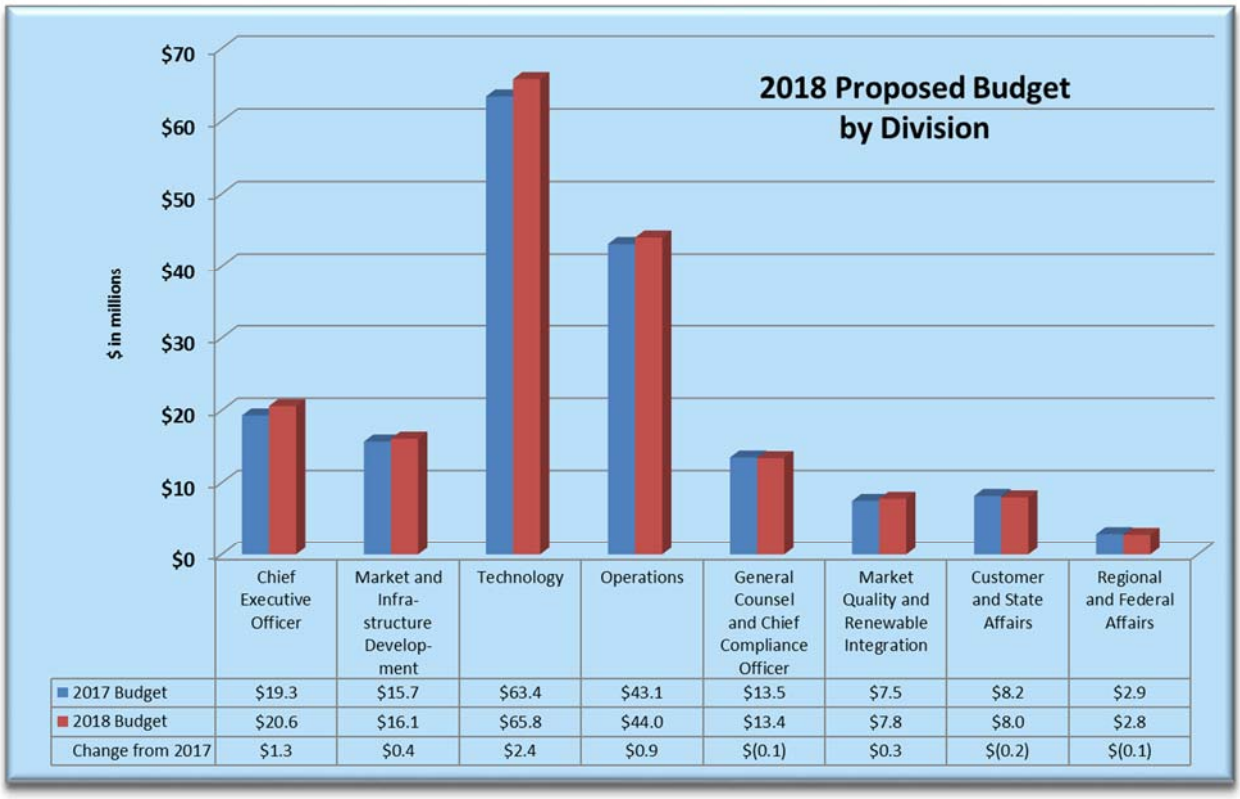
A reconciliation of the change follows ($ in millions).

2017 O&M Budget	**$173.6**
Increases in the Budget	
Net merit, other compensation increases	5.9
Increase in other contracts and services	0.4
Increase in equipment	0.3
Increase in other payroll items	0.2
Increase in bank fees	0.1
Net Increases in the Budget	**6.9**
Decreases in the Budget	
Reduction in telephone/network	(0.5)
Reduction in temporary staff	(0.4)
Reduction in outside legal and audit services	(0.4)
Reduction in consultants	(0.3)
Reduction in facility operating expenses, leases	(0.3)
Reduction in other	(0.1)
Net Decreases in the Budget	**(2.0)**
Proposed 2018 O&M Budget	**$178.5**

V. ISO Divisional Budget Overviews

Each corporate division provides a description of their department, functions, staffing and proposed budget. The divisions appear in the following order:

- Chief Executive Officer
- Market and Infrastructure Development
- Technology
- Operations
- General Counsel and Chief Compliance Officer
- Market Quality and Renewable Integration
- Customer and State Affairs
- Regional and Federal Affairs



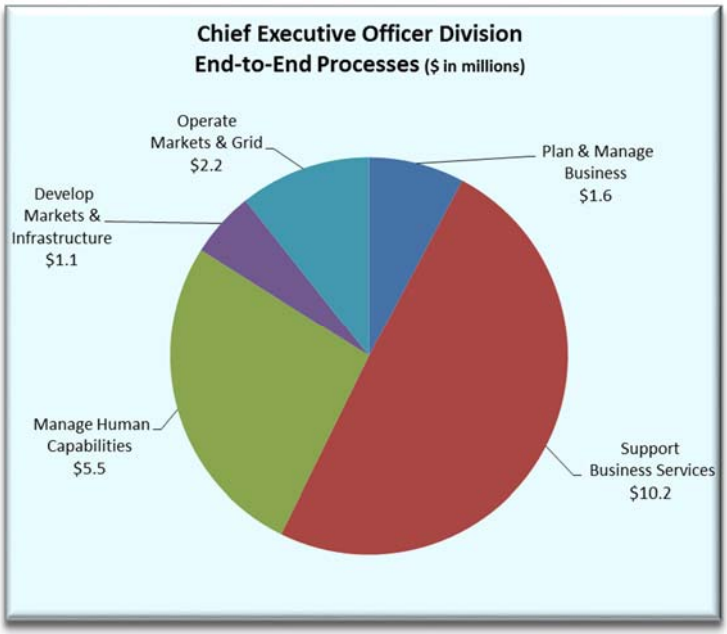
	Chief Executive Officer	Market and Infra-structure Develop-ment	Technology	Operations	General Counsel and Chief Compliance Officer	Market Quality and Renewable Integration	Customer and State Affairs	Regional and Federal Affairs
2017 Budget	$19.3	$15.7	$63.4	$43.1	$13.5	$7.5	$8.2	$2.9
2018 Budget	$20.6	$16.1	$65.8	$44.0	$13.4	$7.8	$8.0	$2.8
Change from 2017	$1.3	$0.4	$2.4	$0.9	$(0.1)	$0.3	$(0.2)	$(0.1)

The 2018 budget of $178.5 million is $4.9 million, or 3%, more than the 2017 budget of $173.6 million. Budgeted staffing has increased to 614 for 2018 from 600 in 2017. The increase in headcount reflects the need to address corporate wide growth.

The Technology and Operations divisions account for approximately 37% and 25%, respectively, of the 2018 O&M budget, while the Chief Executive Officer division comprises 11%. The Market and Infrastructure Development division accounts for 9% of the 2018 O&M budget, while the General Counsel and Chief Compliance Officer division accounts for 8%, the Customer and State Affairs and the Market Quality and Renewable Integration divisions each account for 4%, and the Regional and Federal Affairs division accounts for 2%.

Chief Executive Officer Division

This division comprises the office of the Chief Executive Officer, Department of Market Monitoring, as well as the Finance and Human Resources departments.



The **Department of Market Monitoring (DMM)** actively undertakes analysis that the ISO can use to enhance market efficiencies and mitigate the exercise of market power. This effort is especially important as new market features and services are implemented to support renewable resource development.

The department is vigilant in monitoring the wholesale energy markets to ensure participants are following the rules to prevent non-competitive behavior. The DMM also reviews market results to confirm the activity is producing effective and efficient outcomes.

The department continues to review and provide feedback regarding the effectiveness of the 15-minute/5-minute markets and the western Energy Imbalance Market.

The department provides timely input on major market design initiatives, as well products and requirements the ISO is developing to ensure sufficient flexible capacity is available to integrate increasing amounts of variable renewable energy. The department is also working closely with the Market Quality and Renewable Integration division in reviewing and highlighting the challenges associated with excess generation that is occurring as more renewable resources, especially solar, are interconnected to the grid.

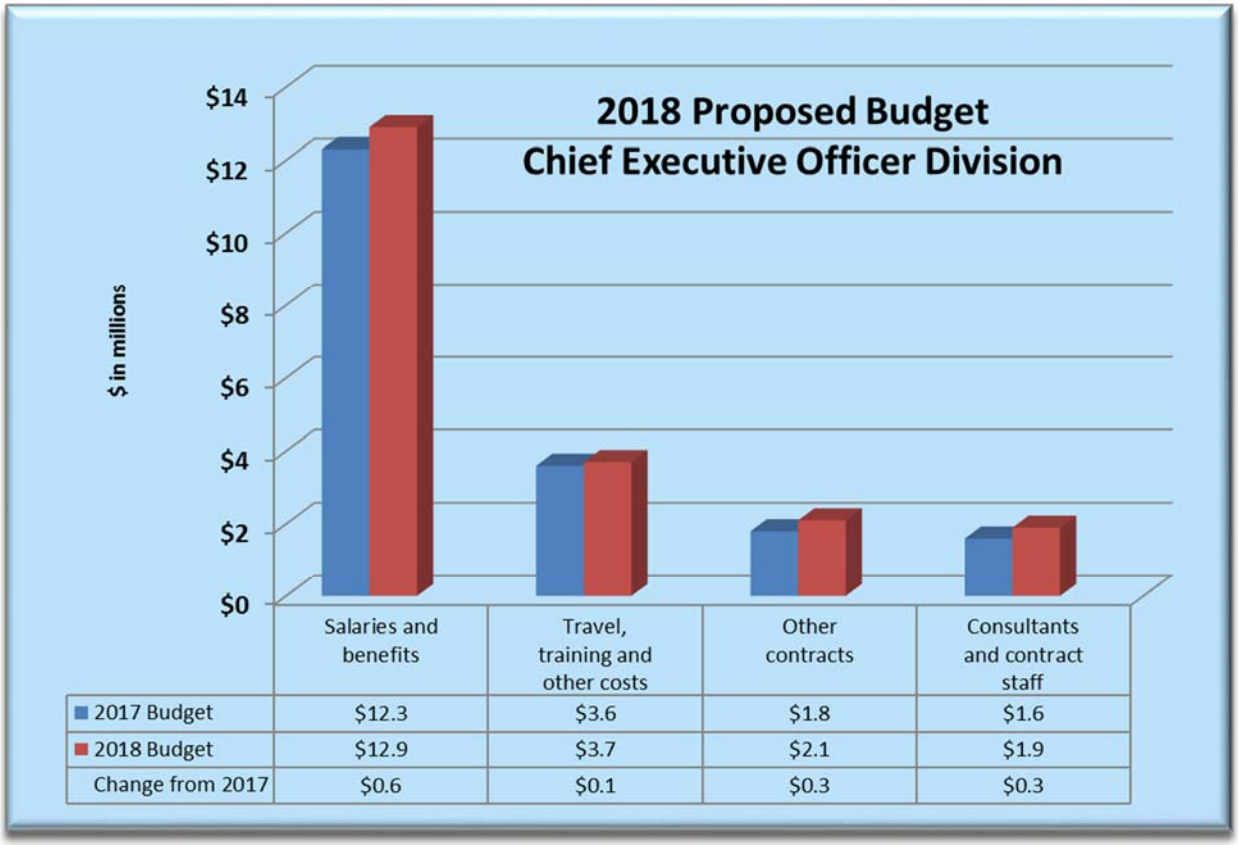
Due to a change in corporate structure in 2017, the DMM Oversight Committee of the Board of Governors separately reviews and approves the DMM budget. The budget is then included in the Chief Executive Officer division as before.

The **Finance department** consists of the Chief Financial Officer, treasury, credit, accounting, financial planning and procurement teams. This team of finance professionals manage ISO cash and investments, insurance, credit and collateral management, clearing of the ISO market, general accounting, internal and external financial reporting, payables processing, financial planning and forecasting, budgeting, and administering the grid management charge (GMC). It also procures goods and

services for the corporation by efficiently selecting vendors, negotiating corporate savings, negotiating and managing commercial contracts, and managing costs.

The **Human Resources department** establishes the policies, programs and "people" strategies that enable the Corporation to attract and retain the uniquely talented professionals needed to reliably operate the electric grid and meet ISO strategic objectives and goals. Developing the next generation of ISO people includes a dedicated focus on enhancing their knowledge and skills; continuing to develop technical experts; strengthening leadership and managerial capabilities; retaining and recruiting targeted skills for critical areas; and sustaining an engaging workplace environment.

Discussion of Proposed Budget
The 2018 budget of $20.6 million increased by $1.3 million, or 6%, from the 2017 budget. Staffing remains at 58 in 2018.



	Salaries and benefits	Travel, training and other costs	Other contracts	Consultants and contract staff
2017 Budget	$12.3	$3.6	$1.8	$1.6
2018 Budget	$12.9	$3.7	$2.1	$1.9
Change from 2017	$0.6	$0.1	$0.3	$0.3

Personnel costs increased by $0.6 million primarily due to merit increases.

Training, travel, and other costs increased $0.1 million in 2018 compared to 2017.

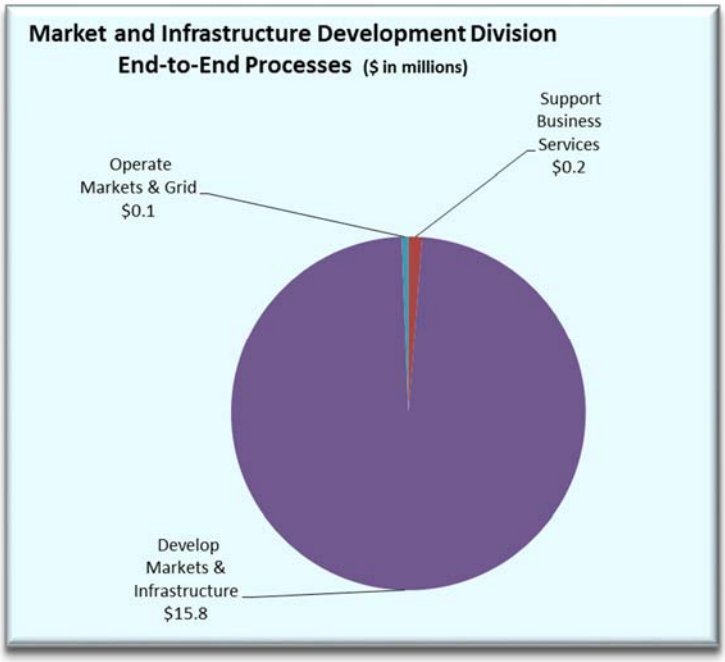
Outsourced contracts and professional fees increased $0.3 million primarily due to a shift in the categorization of corporate benefit management expenses.

Consultants and contract staff increased $0.3 million primarily due to a shift in the categorization of corporate benefit services.

Market and Infrastructure Development Division

The Market and Infrastructure Development division is a recognized leader in developing the wholesale energy market designs that supports a modern, flexible grid powered with zero carbon resources. Grid planners use sophisticated modeling and analysis to develop a comprehensive 10-year forward-looking transmission plan each year that not only supports the growth in renewable resources but also maintains and strengthens grid reliability. In addition, division staff perform studies for resources seeking to interconnect to the grid. The division is key in developing policies to support a robust market, and timely and efficient infrastructure development. Finally, it is also responsible for negotiating, executing and tracking compliance with contractual agreements between the ISO and external entities, such as power plant owners and operators.

The division also provides high-level advice and analysis to state regulators on issues related to grid reliability and market efficiency.



A main priority for the division is developing the market mechanisms needed to expand the ISO's day ahead market to balancing areas throughout the West. Creating a west-wide regional market can play a critical role in managing and efficiently using renewable resources, meeting state and federal environmental goals and sharing low cost energy across a wide geographic area.

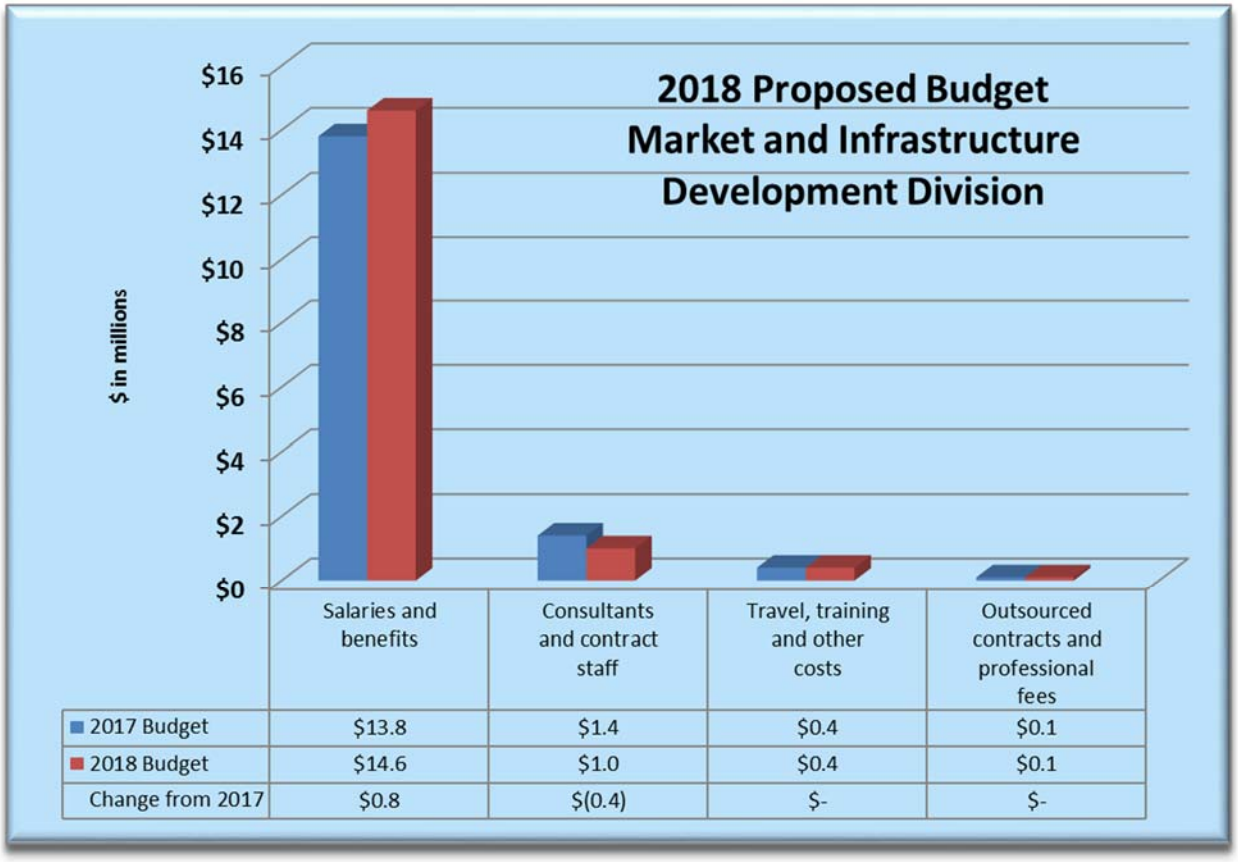
The division spends substantial time and effort in developing the rules and mechanisms to efficiently and reliably integrate renewable resources and advance the ability of distributed energy resources, such as energy storage and electric vehicles, to participate in the wholesale energy market. In addition, the division continually looks for ways to enhance transmission planning and generator interconnection processes that support state energy and environmental goals.

The **Market and Infrastructure Policy department** creates, reviews, and updates ISO policies and rules that support efficient functioning of the energy and ancillary services markets and the reliable operation of the grid. The department is also refining the Energy Imbalance Market processes and rules that promotes an effective and transparent real-time market for EIM participants, which benefits the western U.S. interconnected grid.

The **Infrastructure Contracts and Management department** develops and manages the contracts that support the efficient functioning of ISO markets. This includes generator interconnections and contracts related to the reliable grid operations driven by state and federal policies, and technological advances. In addition, the department responds to identified market inefficiencies and stakeholder issues. Ongoing duties include developing policy positions on regulatory issues and responsibility for over 2,700 ISO regulatory contracts, including their negotiation, drafting and administration.

Discussion of Proposed Budget

The 2018 budget of $16.1 million is $0.4 million, or 3%, greater than the 2017 budget of $15.7 million. Staffing increased by 3 to 65 compared to 2017 to address Infrastructure Contracts and Management workload growth.



	Salaries and benefits	Consultants and contract staff	Travel, training and other costs	Outsourced contracts and professional fees
2017 Budget	$13.8	$1.4	$0.4	$0.1
2018 Budget	$14.6	$1.0	$0.4	$0.1
Change from 2017	$0.8	$(0.4)	$-	$-

Salaries and benefit expenses increased by $0.8 million due to merit increases and the additional headcount.

Consulting and contract staff costs decreased by $0.4 million primarily due to efficiencies within the transmission competitive solicitation process and contract conversion staffing.

Travel, training, and other costs remain unchanged at $0.4 million in 2018 due to the corporate initiative to identify savings relating to areas such as conferences and regional meetings.

Outsourced contracts and professional fees remain unchanged at $0.1 million.

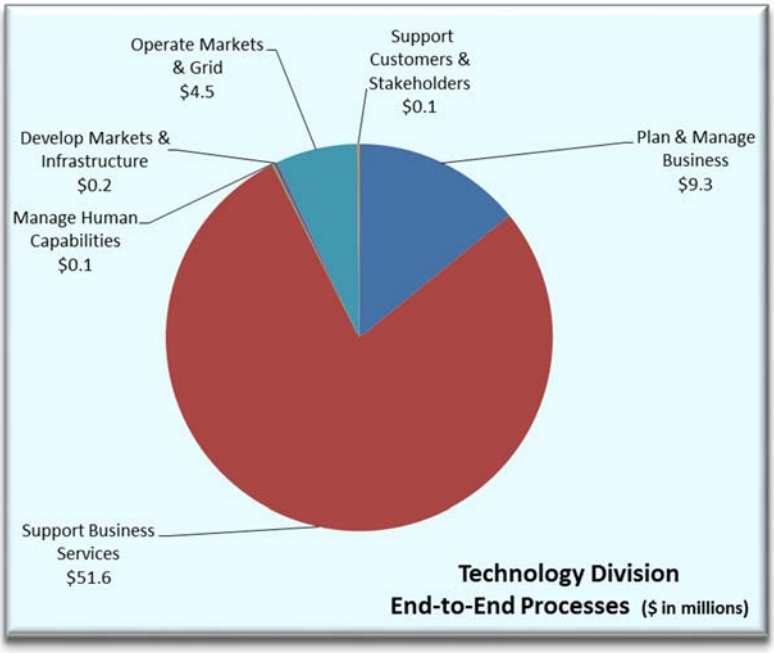
Technology Division

The Technology division encompasses information technology (IT), power systems technology, campus operations, software quality, IT architecture, information security and program management functions. The division provides reliable, cost efficient and world-class service. The division strives to enhance system performance and implement new functionalities to support corporate goals and objectives.

The division's 2018 priorities are as follows:

- implement strategic initiatives by making appropriate process, procedure and system changes;
- make incremental technology improvements, especially for market and reliability operations;
- proactively identify and fix system problems; and
- predict and proactively strengthen system vulnerabilities.

The Technology division provides the foundation upon which the numerous changes required to integrate renewable resources and enable a transparent and robust wholesale energy market and transmission system relies. The division is also developing a scalable ISO IT infrastructure that will support an expanded day ahead market and provide grid optimization to utilities throughout the West.



The division is progressing in its mid- to long-term plan to make network architectural changes so that ISO systems are easier to maintain, reduce maintenance costs and leverage technologies to improve cost effectiveness.

The **Program Management Office** leads and manages major initiatives and projects that enhance customer service and processes. The department's primary functions include release planning, program management, and business and system analysis for the Strategic Plan and the market initiatives roadmap. The Program Management Office follows proven, reliable processes to provide quality services – which are based upon Project Management Institute and Capability Maturity Model Integration standards.

The **Power Systems and Smart Grid Technology Development department** identifies emerging technologies that could benefit ISO operations, even while it finds better ways to use mature technologies to enhance grid efficiencies and monitoring

capabilities. Technology is critical for interconnecting and managing renewable resources output variability as well as to get ahead of issues that could threaten grid reliability. The department reviews and approves technical requirements, software designs, and testing of the scheduling infrastructure business rules, integrated forward market, real-time markets, and market quality service applications.

The **Power System Technology Operations department** provides support for Operations by developing supporting critical cyber assets and real-time systems. Key functions include product management, software design, and production support for real-time and operations applications. The department works side-by-side with Operations while making sure all network releases, patching, and upgrade enhancements transition to production without disrupting grid operations.

The **Infrastructure Engineering and Network Operations department** includes systems engineering and administration, database engineering and storage administration, network and data center operations as well as change, problem, and asset management.

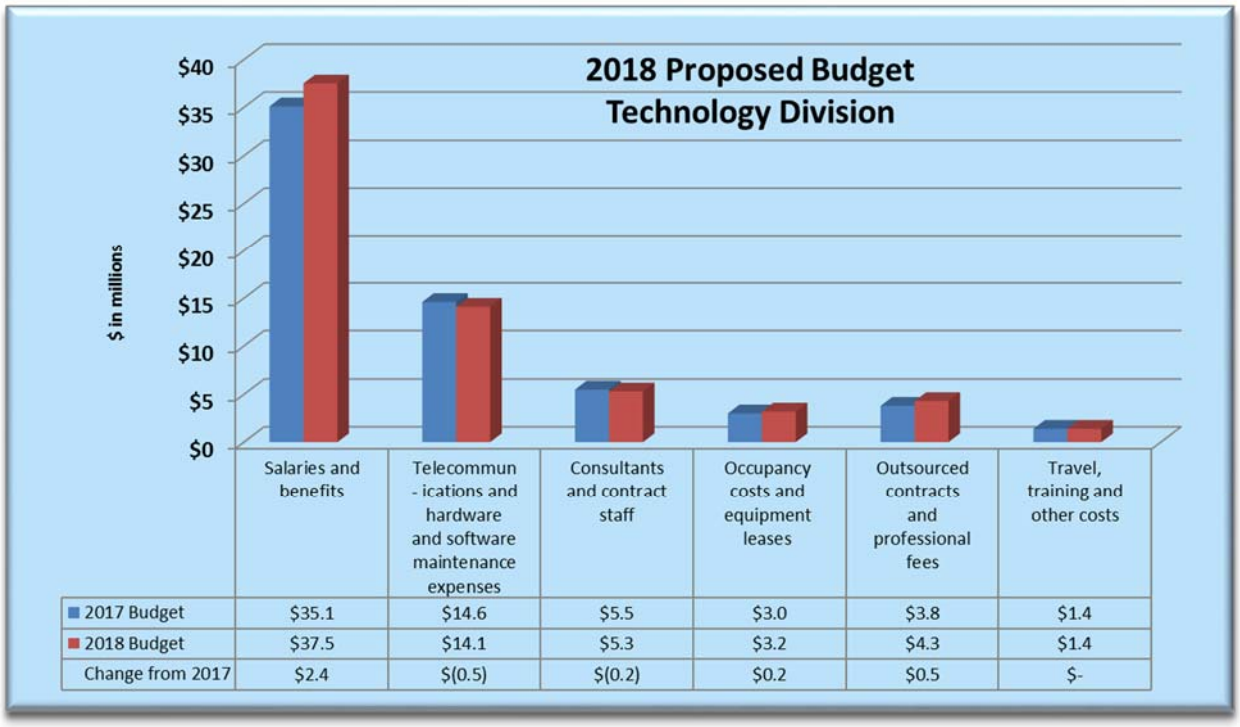
The **Security, Architecture and Model Management and Quality department** helps create the tools to maintain the enterprise network model. The team also tracks and suggests controls to safeguard corporate information security. The department also oversees Critical Infrastructure Protection compliance. Other duties include executing security, performance and test automation, and ensuring overall software quality. Other responsibilities include defining information technology architecture guidelines.

The **Business Solutions department** identifies software solutions and readies them for deployment. Key functions include product management, systems analysis, software development, functional and regression testing, customer relationship management, vendor management, production support for Operations as well as for corporate and enterprise applications. This work includes developing software applications that support every ISO division, all enterprise applications and most applications that interact with external customers. The scope does not include those applications provided by the Power System department. In 2018, the Business Solutions department will contribute to most of the efforts on the ISO capital project list.

The **IT Enterprise Support and Campus Operations department** manages the service desk, desk side support of client systems, email, and support of all Windows servers. The group also manages company buildings and infrastructure to support a safe, efficient and comfortable work environment. Campus Operations keeps costs down by developing best practices and maintains the ISO's 277,000 square foot Folsom building that sits on 27 acres, as well as the 35,833 sq. ft. backup facility in Lincoln. The team is responsible for physical security at both of the ISO campuses. Additionally, the team includes Incident Command and Business Continuity for the company.

Discussion of Proposed Budget

The 2018 budget of $65.8 million is an increase of $2.4 million, or 4%, over the 2017 budget of $63.4 million. Staffing increased by 8 to 193 compared to 2017 to address growth in the Energy Imbalance Market.



	Salaries and benefits	Telecommun - ications and hardware and software maintenance expenses	Consultants and contract staff	Occupancy costs and equipment leases	Outsourced contracts and professional fees	Travel, training and other costs
2017 Budget	$35.1	$14.6	$5.5	$3.0	$3.8	$1.4
2018 Budget	$37.5	$14.1	$5.3	$3.2	$4.3	$1.4
Change from 2017	$2.4	$(0.5)	$(0.2)	$0.2	$0.5	$-

Salaries and benefit expenses increased $2.4 million, due to merit increases and additional headcount.

Telecommunication costs decreased $0.5 million to $4.4 million in 2018 from $4.9 million in 2017. The reduction is due to improved contracted telecommunications rates as well as continued management of wired line and mobility services. The telecommunication savings are accompanied by unchanged hardware and software maintenance costs, which are budgeted at $9.7 million in 2018. The ISO continues efforts to control hardware and software maintenance growth and make improvements where available.

Consulting and contract staff costs decreased $0.2 million to $5.3 million in 2018 from $5.5 million in 2017.

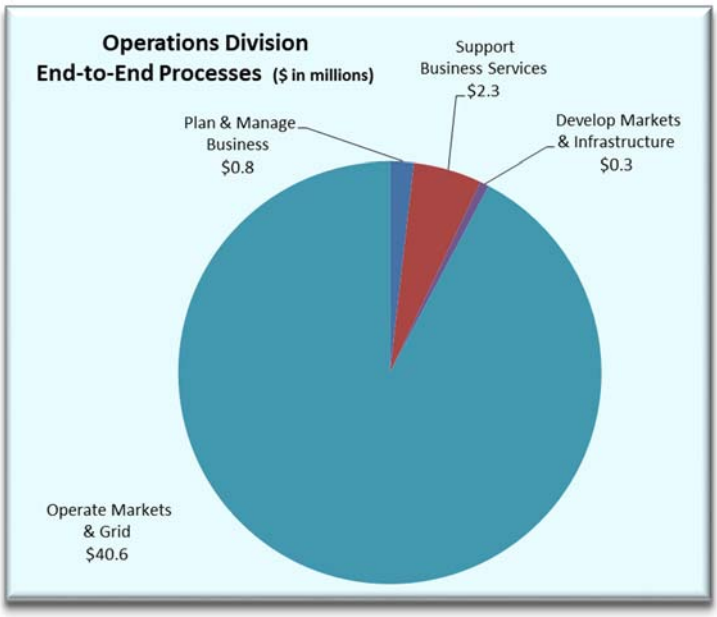
Occupancy costs and equipment leases increased by $0.2 million to $3.2 million in 2018 from $3.0 million in 2017 primarily due to routine equipment refreshes.

Outsourced contracts and professional fees increased $0.5 million to $4.3 million in 2018 primarily due to the shift of data subscriptions from the Market Quality and Renewable Integrations division to the Technology division.

Travel, training, and other costs remained unchanged at $1.4 million.

Operations Division

The Operations division mission is operating the bulk electric system and wholesale electricity markets with a high degree of reliability. It is comprised of System Operations, Operations Engineering Services, Regional Operations Initiatives, Market Services Support, and Market Services Production departments.



Operating engineers use advanced tools to proactively manage the grid system and generation fleet changes. The ISO control center utilizes geospatial technology and advanced visualization capabilities that provides system operators with a granular view of grid conditions and the capability to identify potential problems with a goal of solving before they affect the real-time delivery of power. The Systems Operations department operates the Integrated Forward Market and the real-time market to deliver the most cost effective electricity to consumers in California and seven other Western states while maintaining grid reliability.

The professionals in the Systems Operations and Operations Engineering Services departments are highly skilled in using the advanced technologies and tools necessary to reliably operate the grid and supporting efficient markets while contributing to the evolution to a modern, flexible grid that reflects federal and state policy goals.

The **System Operations department** comprises the Real-Time Operations and the Operational Readiness groups. The Real-Time Operations group is composed of interchange, transmission, generation, and market system operators who oversee electricity production schedules and power deliveries, as well as having the authority to manage the generation fleet and transmission lines to maintain reliability.

The Operational Readiness group implements the operational aspects of policy initiatives, ISO operational goals and provides system operators with the tools and training necessary to reliably manage the bulk electric system. The department functions include operating a training simulator program, implementing operations change initiatives, maintaining operating procedures, and developing and delivering training.

The **Operations Engineering Services department** directly supports System Operations with engineering and technical planning services. This includes performing

annual and monthly resource adequacy validation and replacement requirement analysis, seasonal assessments, outage management and coordination analysis, day-ahead and real-time engineering analysis. The department also provides input in developing operating procedures and tools.

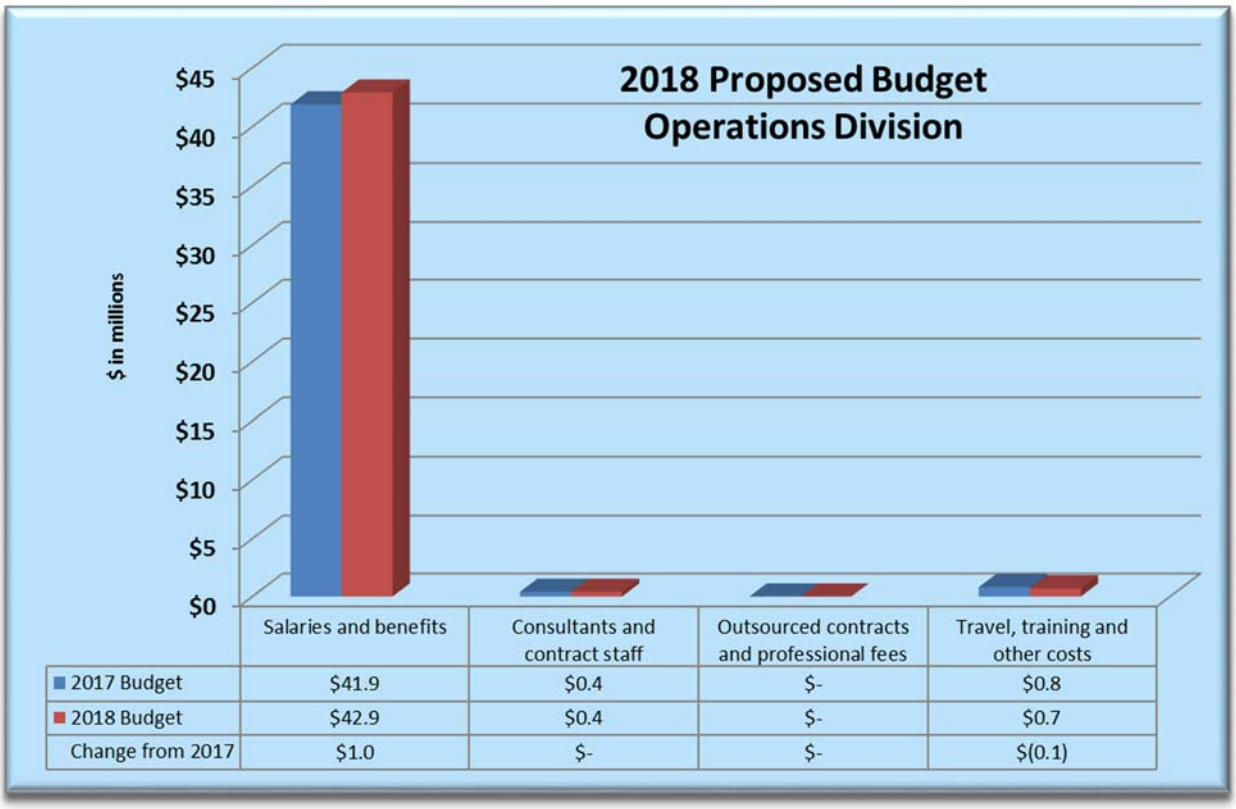
The **Regional Operations Initiatives department** works with state, regional and national entities to balance policy direction with operational capabilities. This department is also the ISO liaison for coordinating gas and electric policies with state agencies and stakeholders, and represents the West in national forums on related gas and electric market issues. Additionally, this team provides comprehensive root-cause analysis services for operational events.

The **Market Services Support department** is responsible for implementing market software and technology enhancements that produce transparent, consistent and efficient operations and settlements. Other responsibilities include ensuring the accuracy of revenue metering data and responsibility for the resolution of settlement disputes. The team is fully responsible for the management of the Congestion Revenue Rights program, including model development, execution of the monthly and annual auctions, and reporting on results. The team also manages the Rules of Conduct program, which includes providing oversight of certain market participant behaviors.

The **Market Services Production department** works with new ISO participants to arrange for the data used in the ISO network and market models. In addition, the department supports existing participants in revising parameters for all related resources used in the markets. This is accomplished by direct coordination of required resource information between the ISO participants and internal supporting departments, allowing defined weekly model scoping, verified accuracy of real-time telemetry and revenue metering, and coordinated resource interconnections. This department is also responsible for communicating with the ISO participants to produce daily settlement statements meeting the tariff defined settlement timeline. This task is accomplished through daily system processing, data validations, corrections updating, and maintaining the weekly billing invoice publication cycle.

Discussion of Proposed Budget

The 2018 budget of $44.0 million increased by $0.9 million, or 2%, from the 2017 budget of $43.1 million while staffing remains unchanged at 198.



	Salaries and benefits	Consultants and contract staff	Outsourced contracts and professional fees	Travel, training and other costs
2017 Budget	$41.9	$0.4	$-	$0.8
2018 Budget	$42.9	$0.4	$-	$0.7
Change from 2017	$1.0	$-	$-	$(0.1)

Salaries and benefit costs increased $1.0 million to $42.9 million primarily due to merit increases.

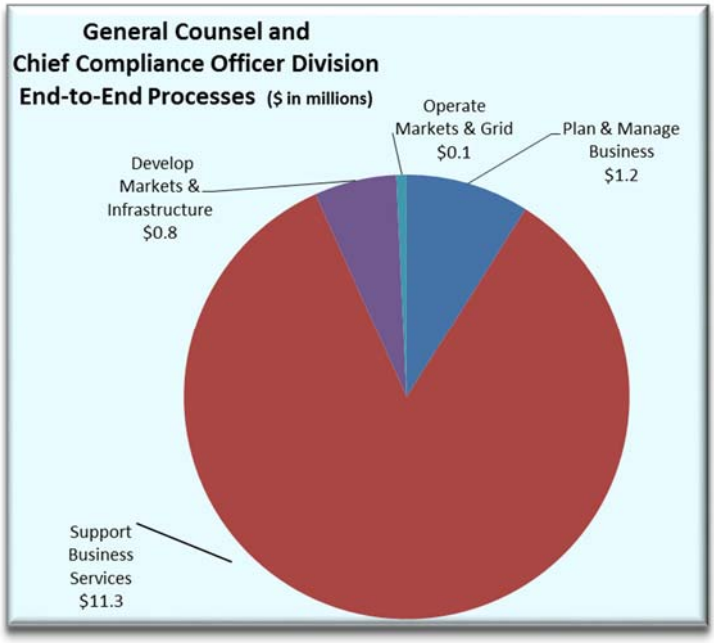
Consulting and contract staff costs remain unchanged at $0.4 million in 2018.

Outsourced contracts and professional fees remain unchanged.

Transportation, training and other costs decreased by $0.1 million in 2018 primarily related to the reduction of off-site training efforts.

General Counsel and Chief Compliance Officer Division

The General Counsel division is led by the Vice President, General Counsel, Chief Compliance Officer and Corporate Secretary. The division is comprised of the legal department, compliance and corporate affairs, internal audit, and the corporate secretary functions.



The **Legal department** provides legal counsel to the Board of Governors, the CEO, the executive team, and the business units. The legal team provides advice and support on a wide array of topics. Topic areas include, regulatory proceedings before the Federal Energy Regulatory Commission, the California Public Utilities Commission, and other state and federal agencies; tariff-related activities, including stakeholder processes, tariff amendments and maintenance; generator interconnection issues; regulatory contracts; state and federal court litigation, appeals and other adversary proceedings; compliance matters, investigations and regulatory audits; vendor contracts; intellectual property; finance; tax; corporate governance; ethics and code of conduct; human resources; and, immigration.

Compliance and Corporate Affairs oversees the company's compliance responsibilities, and promotes a corporate culture of compliance in support of applicable laws, regulations and corporate policies. It provides reasonable assurance to executive management and the Board that there are effective and efficient policies and procedures in place, that are well understood and adhered to by ISO personnel, and that the company is maintaining compliance with the tariff and other legal and regulatory requirements governing the ISO. Compliance ensures business units implement new and revised reliability standards and tariff requirements by documenting and monitoring processes, procedures and tools used to validate compliance. It collaborates with business units to test the effectiveness of internal controls to minimize the risk of non-compliance. This team also develops and implements the corporate records management program in accordance with legal and regulatory requirements. Compliance and corporate affairs has various enterprise-wide responsibilities, including strategic plan development and formation of corporate annual and long-term goals and metrics.

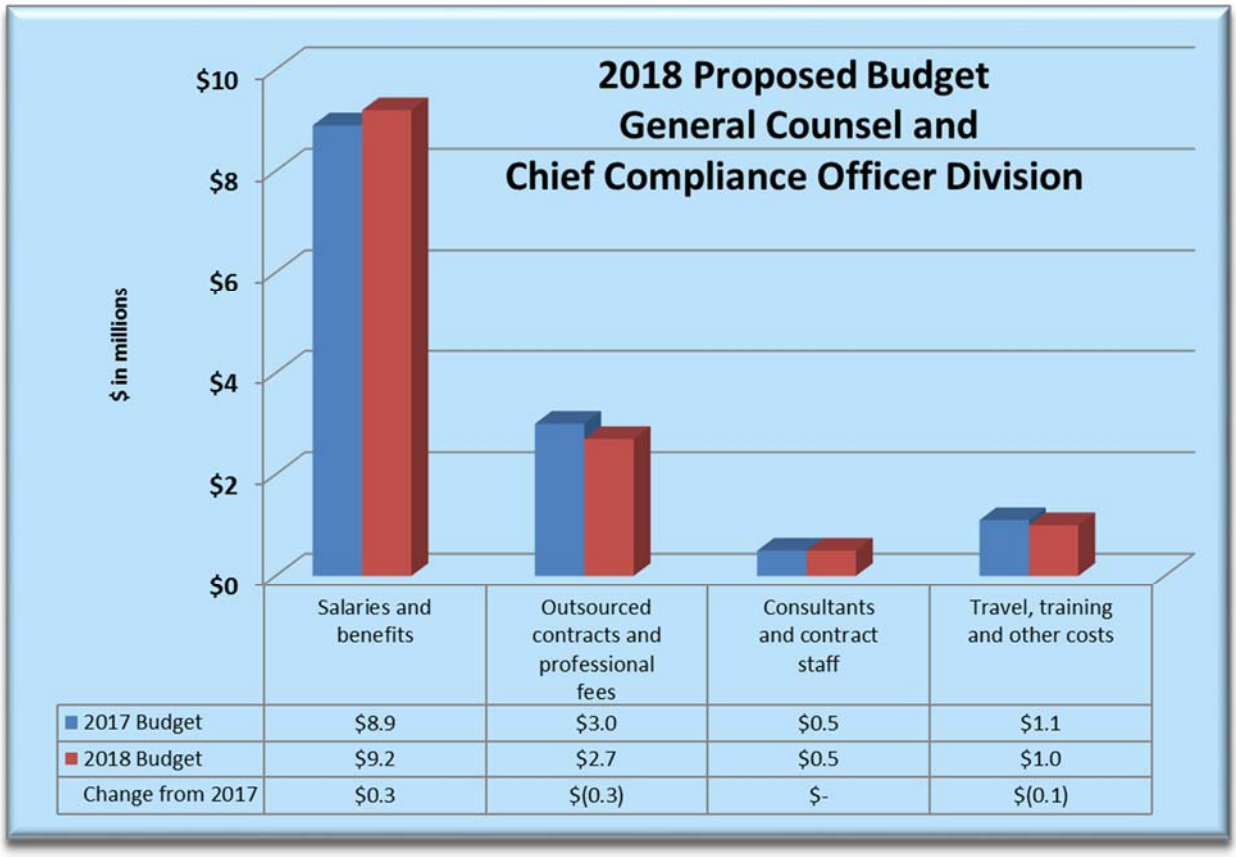
Internal Audit develops and implements the annual internal audit plan and conducts audits to evaluate the effectiveness of management practices and controls. The team provides the executive leadership team and the Audit Committee with reasonable assurance that processes and controls are functioning as intended and risks are well

managed. Internal Audit facilitates the ISO enterprise risk activities, including briefings to management and the Board, risk response and status of mitigation plans. Internal Audit serves as a business advisor to business units in a number of advisory activities to add value and help promote a culture of compliance and ethics.

The **Corporate Secretary** oversees a team that coordinates Board and other governance-related matters that include Board of Governor and EIM Governing Body meetings and materials, Board committee meetings and materials (including for the Market Surveillance Committee), and other Board and EIM Governing Body communications. This group also maintains the official corporate record and overseeing Board and EIM Governing Body compensation.

Discussion of Proposed Budget

The 2018 budget of $13.4 million decreased by $0.1 million, or 1%, from the 2017 budget of $13.3 million. Staffing remains at 34 for 2018.



	Salaries and benefits	Outsourced contracts and professional fees	Consultants and contract staff	Travel, training and other costs
2017 Budget	$8.9	$3.0	$0.5	$1.1
2018 Budget	$9.2	$2.7	$0.5	$1.0
Change from 2017	$0.3	$(0.3)	$-	$(0.1)

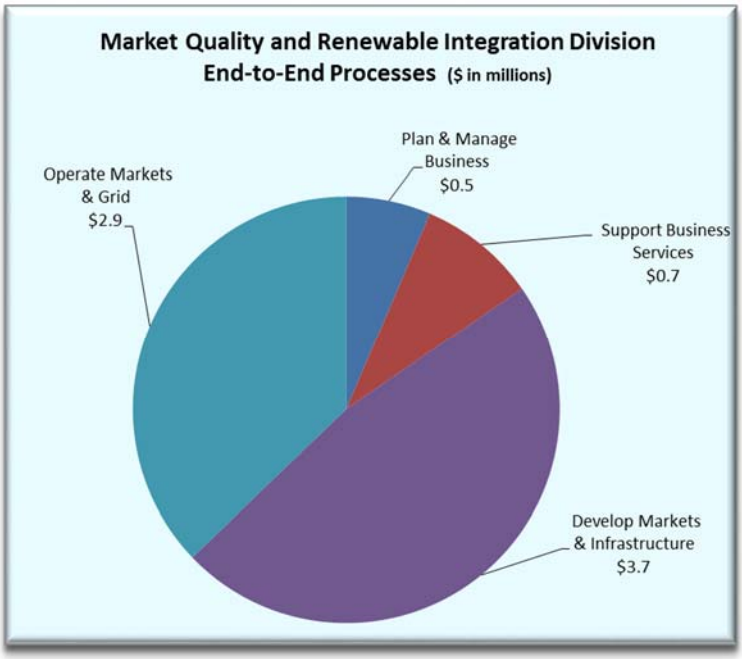
Salaries and benefit costs increased by $0.3 million to $9.2 million in 2018 primarily due to merit increases.

Professional fees decreased $0.3 million in 2018 primarily due to the General Counsel and Chief Compliance Officer's long-term goal to stabilize and reduce the use of outside legal services where possible.

Consultants and contract staff remain unchanged at $0.5 million.
Travel, training and other costs decreased by $0.1 million.

Market Quality and Renewable Integration Division

The Market Quality and Renewable Integration division tracks and reports market performance metrics, and performs price analysis and validation that enhances transparency and confidence in market results. The division performs short-term load, wind and solar forecasting and is responsible for performing system flexibility assessments in support of integrating renewable resources. The division also performs assessments and quantifies benefits related to the western Energy Imbalance Market.



Along with performing and reporting in-depth market analysis, the division uses advanced short-term demand and supply forecasting technologies to ensure grid needs are being meet through the competitive wholesale energy market. The division is responsible for conducting generation fleet studies that test whether adequate "flexible capacity" is installed to meet future electricity growth. The division focus for 2018 is to enhance the consistency of modeled conditions between the day-ahead and real-time market, which increases market efficiency.

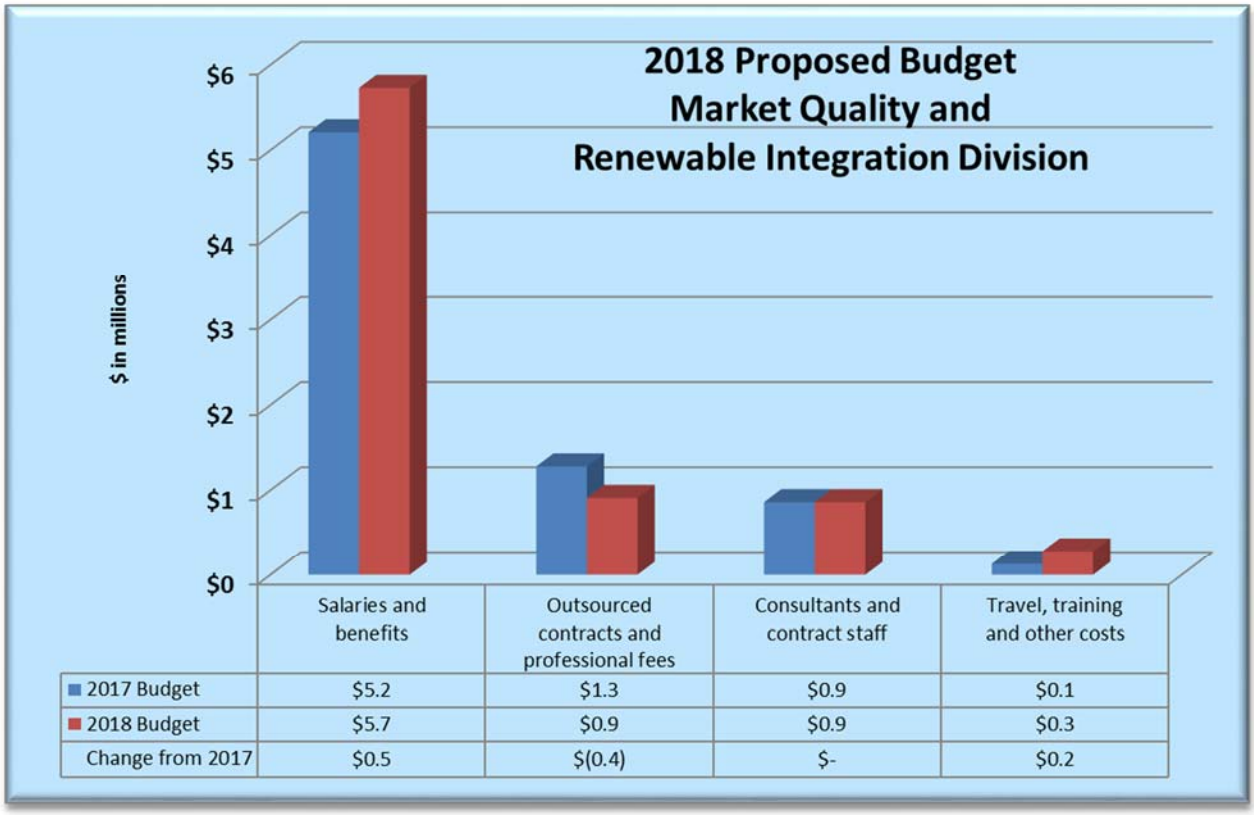
The **Market Development and Analysis department** monitors the market, identifies systemic issues, and ultimately develops solutions to rectify the issues. The department is also responsible for supporting policy development and implementing new market designs. Additionally, the department co-hosts the Market Performance and Planning Forum web conference, which provides updates and observations on current market performance with an emphasis on coordinating plans with stakeholders to implement market enhancements, services and features. Outreach is an important ISO effort to improve its communications with stakeholders and encourage feedback.

The **Market Validation and Quality Analysis department** monitors, analyzes and validates the quality of daily market results. The department is also responsible for price corrections as well as identifying and addressing root causes of erroneous prices and other market quality issues.

The **Short Term Forecasting department** produces accurate short-term forecasts for load and variable energy resources such as wind and solar generation.

Discussion of Proposed Budget

The 2018 budget of $7.8 million increased by $0.3 million, or 4%, from the 2017 budget of $7.5 million. Staffing increased by 3 to 26 in 2018 to address growth in the Energy Imbalance Market.



	Salaries and benefits	Outsourced contracts and professional fees	Consultants and contract staff	Travel, training and other costs
2017 Budget	$5.2	$1.3	$0.9	$0.1
2018 Budget	$5.7	$0.9	$0.9	$0.3
Change from 2017	$0.5	$(0.4)	$-	$0.2

Personnel costs increased in 2018 by $0.5 million to $5.7 million primarily due to merit increases and additional headcount.

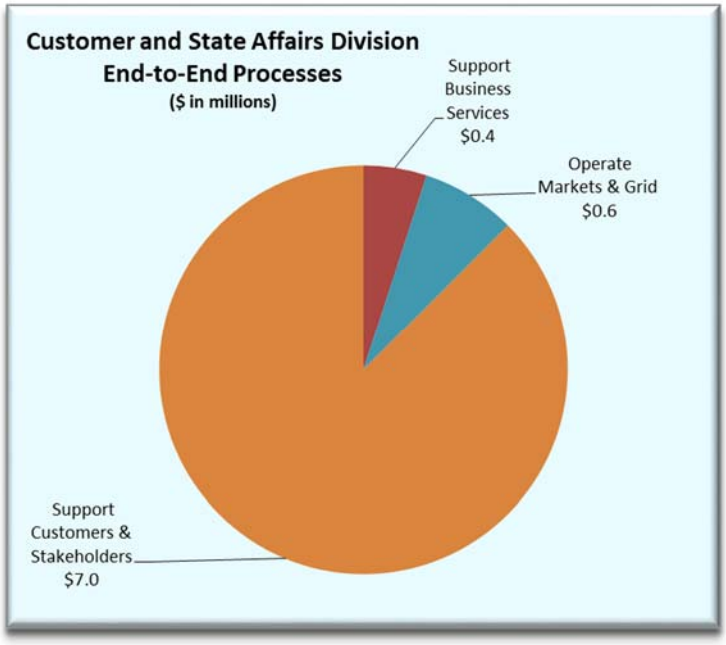
Outsourced contracts and professional fees decreased in 2018 to $0.9 million primarily due to a shift of data subscriptions to the Technology division.

Consultants and contract staff remain unchanged in 2018 at $0.9 million primarily due stabilization of short-term regional integration and coordination initiatives.

Travel, training and other costs increased $0.2 million to $0.3 million in 2018 to support regional travel needs.

Customer and State Affairs Division

The Customer and State Affairs division builds collaborative relationships with regulators, state officials, environmental and consumer groups, as well as industry stakeholders. The division works to foster superior customer service by providing timely and accurate information. Among its duties, the division works closely with other ISO business units to proactively and promptly resolve market customer issues. One of the division's highest priorities is maintaining open and robust communications with customers, regulators and other stakeholders. This includes creating fact sheets and infographics that translates technical engineering and market design terms and concepts into language that non-technical audiences can understand and use. Among other duties, the division coordinates and consults with state agencies and the governor's office to help shape and enhance environmental and grid reliability policies.



The **Communications and Public Relations department** manages internal and external communications that includes producing printed, digital, social media and video materials. The department is responsible for website management, employee communications and media relations. The department also issues stakeholder communications and develops new information products and services that add value to customer and stakeholder participation in the ISO grid and energy markets.

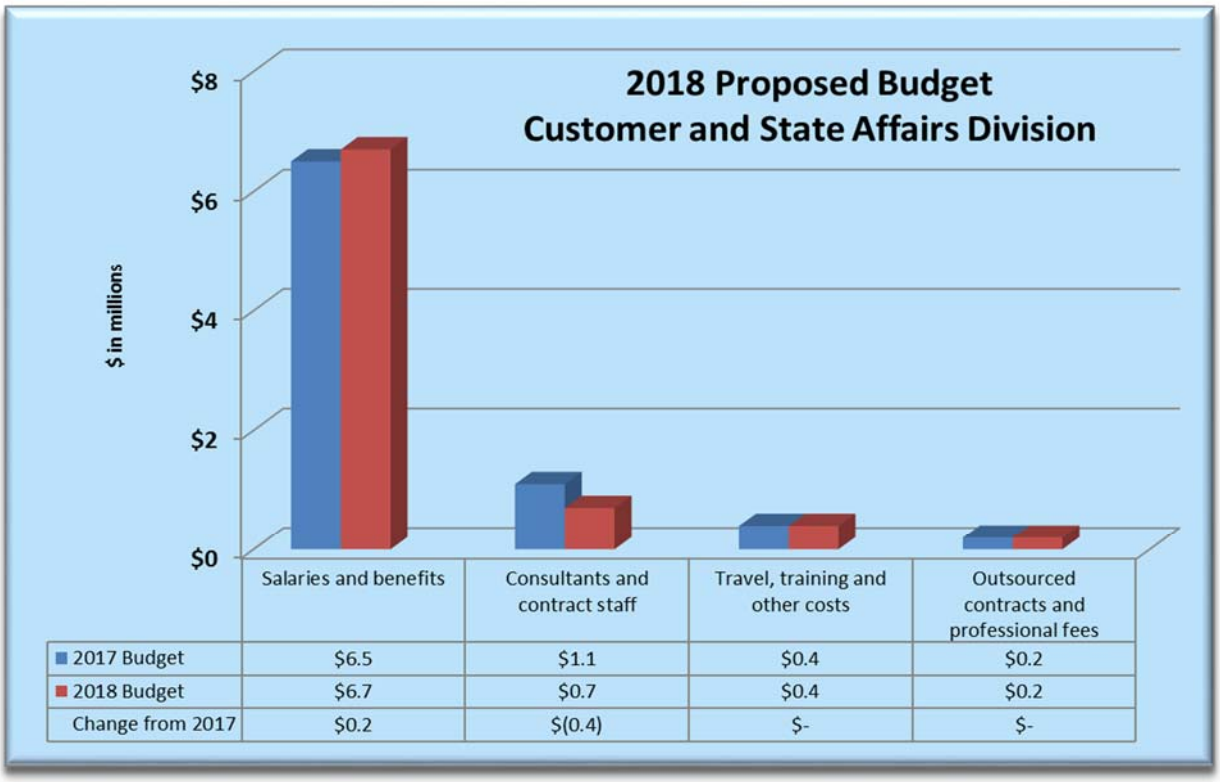
The **Customer Service and Industry Affairs department** is the primary business contact between the ISO and its clients, as well as stakeholders. The department offers technical support to new participants and advanced systems training. The team relies on web-based resources, links to trade associations, and staff support to resolve newcomer issues, making it easier and seamless for entities to navigate and realize the full benefits of participating in the ISO markets.

The **State Affairs department** interacts with state lawmakers, the Governor's office and interested associations and organizations on matters that could affect the reliability or economics of the ISO grid and energy markets.

The **State Regulatory Affairs department** builds and maintains relationships with regulatory agencies such as the California Public Utilities Commission, the California Energy Commission, and the California Air Resources Board, as well as monitors and manages regulatory matters that could influence ISO practices and policies.

Discussion of Proposed Budget

The 2018 budget of $8.0 million reflects a $0.2 million, or 2%, decrease over the 2017 budget of $8.0 million. Staffing remains unchanged at 33.



	Salaries and benefits	Consultants and contract staff	Travel, training and other costs	Outsourced contracts and professional fees
2017 Budget	$6.5	$1.1	$0.4	$0.2
2018 Budget	$6.7	$0.7	$0.4	$0.2
Change from 2017	$0.2	$(0.4)	$-	$-

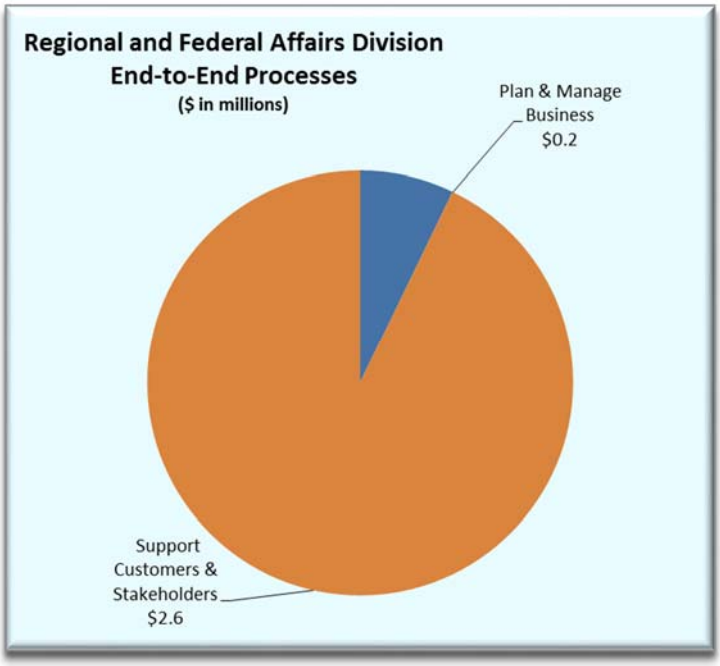
Salaries and benefit costs increased by $0.2 million to $6.7 million primarily due to merit increases.

Consultants and contract staff decreased by $0.4 million to $0.7 million due to reduced need for external resources.

The budget for the other resource categories remain the same in 2018.

Regional and Federal Affairs Division

This division leads the regional coordination efforts for the California ISO. It engages stakeholders, regulators, consumer groups and elected officials on topics related to pursuit of deeper collaboration, governance and policy strategies that will support activities such as further participation in EIM and a regional ISO market. Consistent cooperation with regional entities such as the Western Interstate Energy Board, Western Conference of Public Services Commissioners and a variety of industry groups allows the dissemination of ISO related matters to the larger western footprint, and provide stakeholders with insight into market functions, where no previous experience exists. The team skillfully presents complex engineering and power market analysis in an easy to understand format which can be used by decision makers in their deliberations, as well as to gain support from the public at large.



This division also supports the EIM Governing Body, Body of State Regulators and the Regional Issues Forum, which all provide a regional voice on EIM related matters. Consistent and robust coordination occurs between these groups and amongst other regional stakeholders. The ISO staff in this division provide the support and management that allows for effective meetings, valuable dialogue and advancement of ISO goals. The work of this division reflects the significant shift in how the power market operates in the West and how consumers ultimately benefit from lower costs, a more reliable grid, and a cleaner environment from improved regional coordination.

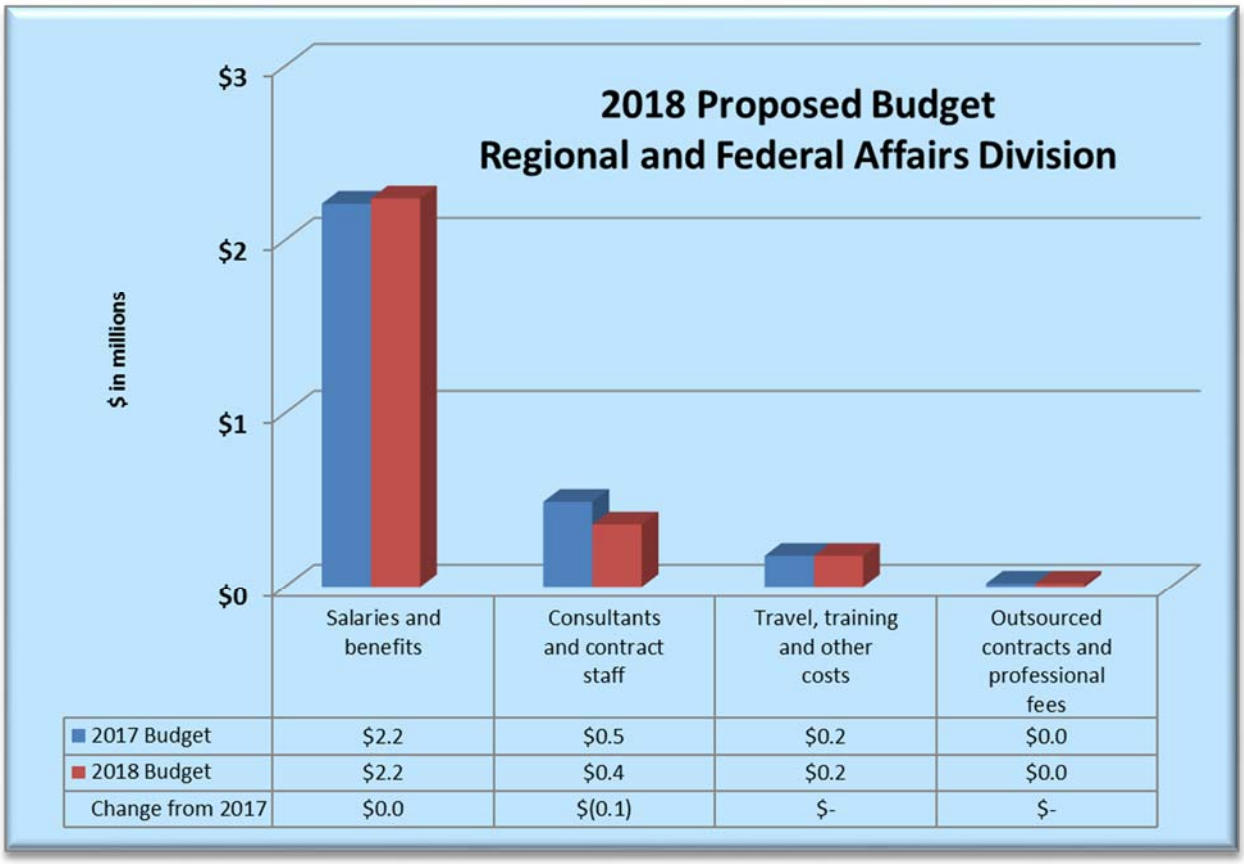
The **Strategic Alliances department** promotes regional coordination and cooperation across the West, which includes expanding the real-time western Energy Imbalance Market, which can reduce energy production and delivery costs for participants by more efficiently using a large pool of generation resources to serve demand. Western entities face new challenges caused by a changing resource mix, including increased penetration of clean resources and various initiatives supporting deeper regional transmission planning coordination. This department leads activities aimed at meeting the needs of regional energy providers while maintaining and/or increasing value to affected parties, which includes existing entities served by the ISO. Strategic Alliances assists entities seeking participation with the ISO. In addition, this division provides education and outreach to affected entities such as neighboring balancing authorities, third party transmission customers, and a variety of other stakeholders.

The **Regional Integration department** supports transmission owners' interest in becoming a full ISO participating member. This department acts as the primary liaison between new participants and internal ISO business units to facilitate smooth market entries, which includes facilitating any needed studies or changes to the ISO tariff and procedures. The department works closely with ISO executives and management to develop strategies for successfully integrating new participants, and provides the expertise to support interactions between the ISO and regional policymakers on a variety of market issues.

The **Federal Affairs department** monitors and manages federal legislative and regulatory matters that could influence ISO practices and policies. It works with members of Congress, federal agency personnel and allied stakeholders to advise and educate lawmakers on policies that could affect the power system.

Discussion of Proposed Budget

The 2018 budget of $2.8 million reflects a decrease of $0.1 million, or 3%, compared to the 2017 budget of $2.9 million. Staffing remains unchanged at 7.



	Salaries and benefits	Consultants and contract staff	Travel, training and other costs	Outsourced contracts and professional fees
2017 Budget	$2.2	$0.5	$0.2	$0.0
2018 Budget	$2.2	$0.4	$0.2	$0.0
Change from 2017	$0.0	$(0.1)	$-	$-

Salaries and benefit costs increased marginally due to merit increases.

Consultants and contract staff decreased in 2018 to $0.4 million primarily due to realignment of short-term regional integration and coordination initiatives.

The budget for the other resource categories remain the same in 2018.

VI. Debt Service

The debt service amount included in the 2018 revenue requirement remains unchanged from 2017. At $16.9 million, the amount includes the principal and interest payments due on the Series 2013 bonds and the 25% debt service reserve. The total equals the sum of the semiannual interest payment due in August of the budget year, the principal and semiannual interest payment due in February of the ensuing year and the 25% debt service reserve amount required by the tariff.

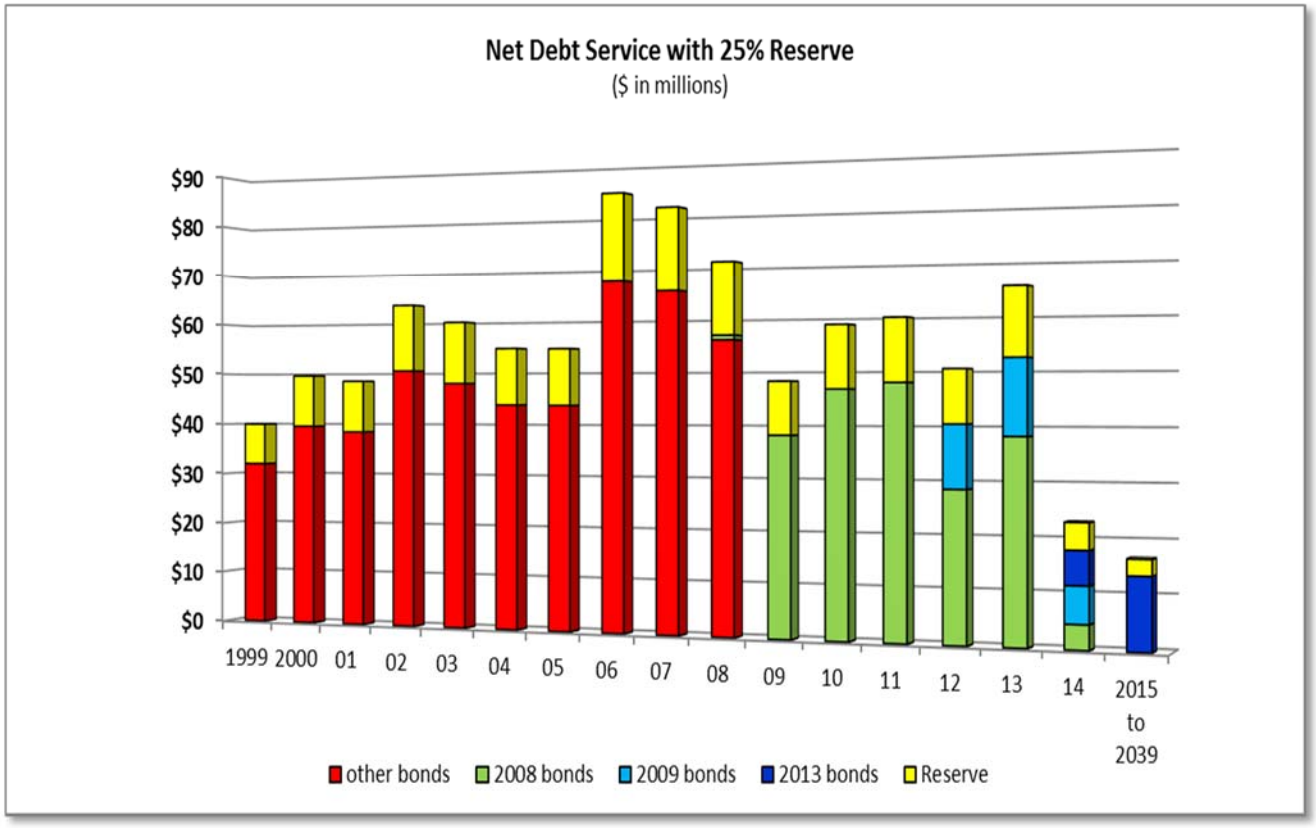
A summary of the debt service components for 2018 and 2017 included in the revenue requirement is as follows.

Debt Service ($ in millions)	**2018 Budget**	**2017 Budget**	**Change**
Principal payments	$4.8	$4.6	$ 0.2
Interest payments	8.7	8.9	(0.2)
Subtotal	**13.5**	**13.5**	**-**
25 % Debt service reserve	3.4	3.4	-
Total	**$16.9**	**$16.9**	**$ -**

The Series 2013 bonds were issued in November 2013 to refinance the 2009 bonds. The refinancing resulted in approximately $1.25 million in lower annual debt service payments and over $30 million in total savings. The 2009 bonds had been issued to finance the ISO's new headquarters facility in Folsom, California and to fund other capital expenditures. Below is the future amortization schedule for the 2013 bonds.

Amortization Schedule for 2013 Bonds ($ in millions)	**Principal**	**Interest**	**Total**
2018	$4.8	$8.7	$13.5
2019	5.0	8.5	13.5
2020	5.2	8.2	13.4
2021	5.4	8.0	13.4
2022-2039	158.0	81.5	239.5
Total	**$178.4**	**$114.9**	**$293.3**

The chart below shows the net debt service of the ISO from inception.



VII. Capital / Project Budget and Cash-Funded Capital

The proposed 2018 capital and project budget of $18 million will fund projects as detailed on the following pages. The Board approves the capital and project budget separately, along with the revenue requirement. The Corporate Management Committee (CMC), made up of the Chief Executive Officer, Chief Financial Officer and General Counsel and Chief Compliance Officer, authorizes individual projects within the approved budget throughout the year. The Board must also approve any increases in the approved budget.

Future annual capital project budgets are estimated to be in the range of $18 million - $20 million per year and are funded through the cash-funded capital component of the revenue requirement and its related reserves. The cash-funded capital collected via the 2018 revenue requirement is proposed to be $22 million with the excess used to fund future projects. The funds set aside for future projects will enable the ISO to maintain a stable revenue requirement for an extended period.

Supplemental Board Approved Projects

In addition to the annual capital project budget process identified above, the Board approved the following supplemental capital projects outside of the annual capital budget limitations:

1) In January 2016, the Board approved the Energy Management System (EMS) Replacement project. The project addresses the need for the EMS to be robust and scalable to meet the expected load. The projected completion of this project is second quarter 2018.

2) The Board also approved several EIM implementation agreements with new entities. Future implementations include two to be completed in 2018 (i.e., Idaho Power Company and Powerex Corp.), three to be completed in 2019 (i.e., City of Los Angeles Department of Water and Power, Sacramento Municipal Utility District (BANC), and The City of Seattle, City Light Department) and one to be completed in 2020 (i.e., Salt River Project Agriculture Improvement and Power District). As outlined in the agreements, the prospective EIM entities reimburses the ISO for costs incurred around the implementation. Since funding comes from the entity, these projects are handled outside of the annual capital project budget.

Capital / Project Budget Development Process

The 2018 project prioritization process runs from July 2017 through November 2017. The Program Management Office collaborates with the internal business units and maintains a list of projects throughout the year. The list aligns with the corporate

Strategic Plan, the information technology roadmap, and the market initiatives roadmap. On a periodic basis, strategic initiative owners and managers review the progress of active projects, identify issues and risks, and propose changes to the master project list.

During the budgeting process, the list is updated to match strategic projects scheduled for the following year, which results in an initial master list. The CMC prioritizes and ranks projects when the list exceeds the available budget. The following chart identifies the criteria used to rank projects. The ISO website contains the full ranking criteria schedule.

Ranking Criteria		
Strategy	**Strategic Initiative**	**Weight**
Compliance	Establish a culture of compliance	15%
Grid reliability	Enhances reliability of the grid by addressing and existing or potential operational issue	15%
Contributes to increased customer service		10%
Ensure continued reliability during grid transformation (capacity on the system)	Evolve the market Markets and performance (MAP) Develop infrastructure and tools	10%
Explore opportunities for regional collaboration and technological innovation	Incorporate renewable resources Improve forecasting capabilities MAP	10%
ISO process improvement	Process and quality	10%
Market efficiency	Addresses a current or potential market inefficiency	10%
Strengthen California's global leadership commitment to renewable, responsible and reliable energy (regulatory coordination)	Advance state energy and environmental initiatives	10%
Development of staff / talent pipeline	People strategies	5%
Information Technology system qualities	System and tools	5%

The business and financial case criteria follows:

- Does the project require market participant development efforts?
- Does the project deliver cost savings?
- How much are the project implementation costs?
- Does the project reduce operations and maintenance costs?
- Does the project mitigate any corporate risk?
- A factor for executive discretion is included.

Proposed Project List

The following list provides an indication of the projects proposed for initiation during 2018. Current listing is of all projects is in the process of being ranked to determine final

list within current year budget. This year's list includes the following four areas and initiatives:

- market and operational excellence;
- enhancement of the technology foundation;
- focus on customer service and other costs; and
- grid evolution readiness and regional innovation opportunities

Before receiving funding approval, all projects on the proposed list will be evaluated to consider project need, cost-benefit analysis and project plan review. Specifically, the CMC reviews and approves all projects considered for funding. The 2018 priorities may change depending on developments during the remainder of 2017. The actual projects completed during 2018 will vary, including the potential addition of projects currently not on the following list, the deferral of projects on this list to future years, or the elimination of projects deemed to be unnecessary.

Proposed Projects for 2018	**Amount**
Market and Operational Excellence	
Operations and market systems enhancements 2018	Large
Program office internal labor	Large
Commitment costs and default energy bid enhancements (CC DEBE)	Medium
Coordinated transmission agreement (CTA) 2018	Medium
Energy imbalance market (EIM) non policy enhancements 2018	Medium
Existing transmission contract calculator (ETCC) path limit calculator enhancements	Medium
Incorporate the multi-stage generator (MSG) transition and aggregate transition	Medium
Load forecasting improvements for load distribution factor (LDF)	Medium
Real time contingency analysis (RTCA) enhancements	Medium
Aliso Canyon phase 3	Small
Allow market to consume switches with multiple outage status changes over the course of an outage	Small
Capacity procurement mechanism (CPM) risk-of-retirement process enhancements	Small
Expand voltage stability analysis (VSA) to include renewable variability	Small
Generator contingency and RAS modeling	Small
Information security improvements- net flow data collection	Small
Initialization funding for capital projects	Small
Allow market to consume switches with multiple outage status changes over the course of an outage	Small
Operations training environment improvements	Small
Reducing time gap between real time pre dispatch (RTPD) running time and binding interval	Small
Use of market operator field in e-tag system for adjustment	Small
Use short-term unit commitment (STUC) bids when clean bids are unavailable	Small
Total	**$10,050,000**

Proposed Projects for 2018	Amount
Enhance the Technology Foundation	
Miscellaneous hardware & software purchases	Large
Model synchronization and activation (MSAA) on a weekly basis	Large
Automated Dispatch System (ADS) replacement	Medium
Technology systems improvements for production 2018	Medium
Energy costs and index calculator (ECIC) Phase 2b	Small
Reliability must-run (RMR) application validation engine (RAVE) consolidation with settlement	Small
Robustness (data streams quality) improvements	Small
Total	**$6,050,000**
Focus on Customer Service and Other Costs	
Facilities replacement reserve	Medium
Campus operations annual budget	Small
External training program development – phase 3	Small
Total	**$1,150,000**
Grid Evolution Readiness and Regional Innovation Opportunities	
Wind and solar forecasting improvements	Medium
Resource interconnection management system (RIMS) enhancements	Small
Total	**$750,000**
Total Proposed Projects for 2018	**$18,000,000**

Note: The costs of individual projects are not identified; they are categorized by size as follows: small projects under $500,000, medium projects from $500,000 up to $1 million, and large projects over $1 million. The actual projects completed during 2018 will vary, including the potential addition of projects not on this list, the deferral of projects on this list to future years, or the elimination of projects on this list if no longer necessary.

VIII. Other Costs and Revenue

The proposed budgeted other costs and revenue for 2018 is $16.7 million, which is $3.4 million, or 26%, higher than 2017 primarily due to increased revenues from the EIM administrative charge and forecasting fees.

The details of this category are as follows.

Other Costs and Revenue ($ in millions)	2018 Budget	2017 Budget	Change
Energy Imbalance Market Administrative Charges	$7.4	$4.8	$2.6
Intermittent Resource (wind and solar) Forecasting Fees	3.2	2.1	1.1
Interest Earnings	2.5	2.1	0.4
California-Oregon Intertie Path Operator Fees	2.0	2.0	-
Large Generator Interconnection Fees	1.2	1.9	(0.7)
Scheduling Coordinator Application and Other Fees	0.4	0.4	-
Total	**$16.7**	**$13.3**	**$3.4**

EIM administrative charges are projected to be $7.4 million in 2018, which is an increase of $2.6 million, or 56%, over 2017 due to increased participation in the market. EIM began serving participating utilities in the West in the fall of 2014 and has produced over $200 million dollars in gross benefits (as of the second quarter of 2017) and will continue to grow strong into 2018 with the planned implementations in April 2018 for Idaho Power Company and Powerex Corp.

Intermittent resource forecasting fees are projected to be $3.2 million in 2018, which is an increase of $1.1 million, or 52%, over 2017 due to additional eligible intermittent resources coming on line.

Interest earnings are projected to come in $0.4 million higher in 2018 due to more favorable short-term interest rates.

Fees for conducting studies of large generator interconnection projects requests are projected to decrease by $0.7 million, or 37%, to $1.2 million in 2018. The reduction better reflects the volume of estimated work for 2018.

All other components of this category are projected to remain unchanged.

IX. Operating Cost Reserve Adjustment

The operating cost reserve adjustment is a reduction or offset to the ISO revenue requirement for 2018. In any year that the ISO operating reserve account exceeds 15% of the prospective year's O&M budget, the excess goes toward reducing the revenue requirement for the coming year. Additionally the adjustment includes the 25% debt service reserve collected in the prior year and the difference between the budgeted revenues and expenses from the preceding audited fiscal year. In the case of the 2018 revenue requirement, the preceding audited fiscal year is 2016. For 2018, the ISO forecasts a credit from the operating reserve account of $3.5 million based on the trued-up activity from 2016[2].

A summary of the adjustment is below.

Operating Cost Reserve Adjustment ($ in millions)	**2018 Budget**	**2017 Budget**	**Change**
Increase/(decrease) in 15% reserve for O&M budget	$(0.7)	$(0.6)	$0.1
25% debt service collection from prior year	3.4	3.4	-
True-up of budget to actual revenues and other expenses	0.8	3.1	2.3
Total	**$3.5**	**$5.9**	**$ 2.4**

The calculation of the 15% change is as follows.

Change in 15% Operating Reserve ($ in millions)	**2018 Budget**	**2017 Budget**	**Change**
Change in O&M budget from prior year	$178.5	173.6	$4.9
Percentage	15%	15%	-
Increase in Operating Reserve requirement	$26.7	$26.0	$0.7

[2] See Attachment C, Calculation of Operating Cost Reserve Adjustment, for detailed calculation information.

X. Grid Management Charge Calculations

The ISO recovers its costs through separate GMC paid by market participants. The design originally approved in 2011 provides for three service categories and five associated fees and charges.

The rate design requires a cost of service study be completed every three years to ensure the ISO is properly charging costs to its cost categories. The latest cost of service study was completed in 2017 using 2016 data. The study revealed a shift of resources (time and dollars) from the System Operations and CRR Services cost categories to the Market Services cost category. The study also validated the Transmission Ownership Rights charge should remain unchanged from $0.24/MWh rate.

The cost category percentage shifts are represented below.

Cost Category	2013 Study	2016 Study	Amount Over / (Under) Since Last Study
Market Services	27%	32%	5%
System Operations	70%	66%	-4%
CRR Services	3%	2%	-1%

The study's results were presented to Stakeholders in May 2017 as well as presented to the EIM Governing Body and Board of Governors in July 2017[3]. The updated percentages were filed with FERC in October 2017 and approved by FERC in November 2017. The new cost category percentages will become effective January 1, 2018.

[3] The 2016 Cost of Service Study and related material is available on the ISO website at http://www.caiso.com/informed/Pages/StakeholderProcesses/Budget-GridManagementCharge.aspx.

Components of GMC and Billing Determinants

The three service categories, five associated fees and charges, and their billing determinants are as follows:

Type	Bill Determinant	Charge Code
Service Categories		
Market Service Charge	Awards in MWh or MW of supply and demand excluding Transmission Ownership Rights (TORs)	4560
Systems Operations Charge	Metered flows in MWh of supply and demand in the ISO balancing authority with the following two exceptions, TORs and qualifying grandfathered supply contracts	4561
CRR Service Charge	MWh of congestion	4562
Fees and Charges		
Bid segment Fee	Number of bid segments in the ISO market for supply or demand	4515
Inter-SC Trades Fee	Number of trades by scheduling coordinator (SC)	4512
SCID Fee	Monthly charge if statement produced for an SC	4575
TOR Charge	Minimum of metered supply or demand in MWh on TORs	4563
CRR Auction Bid Fee	Number of accepted bids in CRR auctions	4516

Rate Calculation

There are eight steps to calculate rates, as noted below:

1. estimate billing determinant volumes for fees and charges;
2. multiply volumes by rates to derive revenues for individual fees and charges;
3. allocate over or under collection of GMC revenue to the three service categories;
4. allocate remaining revenue requirement into three service categories;
5. deduct fee and charge revenue from associated service category costs;
6. estimate billing determinant volumes for three service categories;
7. deduct grandfathered supply volumes from system operations charge; and
8. divide residual revenue requirement from step 4 by adjusted billing determinant volumes from steps 6 and 7 to derive individual service category rates[4].

[4] See Attachment B, Actual and Estimated Volumes, for detailed information.

Calculation of Fee Revenue

Fees and Charges	Rate	Estimated Volumes	Estimated Revenue ($ in thousands)
Bid Segment Fees	$0.005	66,168,823	$331
Inter-SC Trade Fees	1.00	2,446,870	2,447
SCID Fees (monthly)	1,000	298	3,576
TOR Fees	0.24	2,677,256	643
CRR Auction Bid Fees	1.00	989,646	990
Total			**$7,987**

Calculation of Service Category Rates

Component	Market Services	System Operations	CRR Services	Total
Allocation of Revenue Requirement ($ in thousands)				
Total Revenue Requirement				$197,250
Adjust for (over) /under collection of 2016 rates	$1,142	$1,424	$392	2,958
Remaining to allocate				194,292
Percentages	32%	66%	2%	100%
% allocation of costs	62,174	128,233	3,885	194,292
Combined costs	63,316	129,657	4,277	197,250
Deduct Fee Revenue				
Bid Segment Fees	331	-	-	331
Inter-SC Trade Fees	2,447	-	-	2,447
SCID Fees	3,576	-	-	3,576
TOR Fees	-	643	-	643
CRR Auction Bid Fees	-	-	990	990
Total Fees	**6,354**	**643**	**990**	**7,987**
Calculation of Recoverable Costs				
Costs Less Fees	**$56,962**	**$129,014**	**$3,287**	**$189,263**
Estimated Volumes				
Volumes	539,460,145	458,418,153	869,459,590	
Deduct Exceptions				
Less grandfathered supply	-	3,723,000	-	
Adjusted Volumes	**539,460,145**	**454,695,153**	**869,459,590**	
Resulting Rates	**$0.1056**	**$0.2837**	**$0.0038**	

Summary of GMC Costs and Rates

Comparison of Net Revenue Requirements by Service Category
($ in millions)

Charge Code	Service Category or Fee	2018 Budget	2017 Budget	$ Variance	% change
4560	Market Service Charge	$57.0	$46.9	$10.1	21.5%
4561	Systems Operations Charge	129.0	136.3	(7.3)	-5.4%
4562	CRR Services Charge	3.3	4.6	(1.3)	-28.3%
4515	Bid Segment Fees	0.3	0.3	-	0.0%
4512	Inter-SC Trades Fees	2.4	2.5	(0.1)	-4.0%
4575	SCID Fees	3.6	3.1	0.5	16.1%
4563	TOR Charges	0.6	0.7	(0.1)	-14.3%
4516	CRR Auction Bid Fees	1.0	0.9	0.1	11.1%
Total		$197.2	$195.3	$1.9	1.0%

Comparison of Rates
($ per unit)

Charge Code	Service Category	2018 Rate	2017 Rate	$ Variance	Comments
4560	Market Service Charge	$0.1056	$0.0854	$0.0202	Rate increased due to higher allocation of Revenue Requirement to the Market Services category and lower projected volumes.
4561	Systems Operations Charge	$0.2837	$0.3025	($0.0188)	Rate decreased due to lower allocation of Revenue Requirement to the System Operations category and lower projected volumes.
4562	CRR Services Charge	$0.0038	$0.0059	($0.0021)	Rate decreased due to lower allocation of Revenue Requirement to the CRR Services category offset by higher projected volumes.

The rates for bid segment fees, inter-SC trade fees, SCID fees, TOR fees and CRR auction bid fees are fixed and remain unchanged from 2017.

EIM Administrative Charge
($ per unit)

Grid Management Charge	EIM Portion	2018		2017		$ Variance
		% of GMC Service Charge	EIM Administrative Charge	% of GMC Service Charge	EIM Administrative Charge	
Market Services	Real Time Market	79%	$ 0.0834	61%	$ 0.0521	$ 0.0313
System Operations	Real Time Dispatch	39%	$ 0.1106	45%	$ 0.1361	$ (0.0255)

California ISO

Actual and Estimated Volumes

Attachment B

Note: Actual data may vary between reporting cycles due to recalculation of settlement statements.

Charge Type:	Market Services	System Operations	CRR Services	Inter-SC Trades	Bid Segment Fees	CRR Auction Bid Fees	TOR Fees	SCID Fees
Charge Code:	4560	4561	4562	4512	4515	4516	4563	4575
Unit:	MWh & MW	MWh	MWh	# of trades	# of bid segments	# of nominations & bids	Minimum of TOR supply & demand	# of SCID's
2012 Actual Units								
Jan-12	41,470,390	36,270,011	46,736,512	217,838	3,483,726	-	223,836	170
Feb-12	38,175,948	33,159,745	43,903,862	205,680	3,207,014	16,769	203,273	171
Mar-12	40,842,102	35,196,343	46,868,371	217,498	3,548,308	15,875	227,618	172
Apr-12	41,226,566	35,125,377	46,854,727	210,420	2,990,604	17,303	424,578	171
May-12	45,578,090	39,217,641	46,271,441	239,352	3,117,538	9,170	388,107	171
Jun-12	46,993,173	40,452,139	44,679,797	227,834	3,210,952	8,994	335,497	171
Jul-12	52,552,966	44,505,089	47,162,239	249,026	3,414,812	8,292	413,234	176
Aug-12	57,266,605	49,091,161	48,956,894	253,052	3,392,776	9,213	371,237	177
Sep-12	50,856,326	43,365,213	46,782,687	244,754	3,309,624	9,458	302,235	177
Oct-12	46,989,785	39,499,041	46,044,613	236,474	3,389,264	14,230	244,313	180
Nov-12	42,673,653	35,960,204	44,907,063	227,776	3,348,360	19,007	207,353	179
Dec-12	43,907,230	37,188,843	50,318,160	237,256	3,544,112	50,003	189,720	183
Total 2012	**548,532,833**	**469,030,805**	**559,486,365**	**2,766,960**	**39,957,090**	**178,314**	**3,531,000**	**2,098**

California ISO

Actual and Estimated Volumes

Attachment B

Note: Actual data may vary between reporting cycles due to recalculation of settlement statements.

Charge Type:	Market Services	System Operations	CRR Services	Inter-SC Trades	Bid Segment Fees	CRR Auction Bid Fees	TOR Fees	SCID Fees
Charge Code:	4560	4561	4562	4512	4515	4516	4563	4575
Unit:	MWh & MW	MWh	MWh	# of trades	# of bid segments	# of nominations & bids	Minimum of TOR supply & demand	# of SCID's
2013 Actual Units								
Jan-13	43,779,521	37,369,820	51,618,373	217,220	3,523,600	15,895	190,566	186
Feb-13	38,297,385	32,448,659	46,618,927	193,990	3,266,442	17,348	239,397	188
Mar-13	41,231,958	35,351,473	51,428,779	222,598	3,584,612	17,986	251,455	194
Apr-13	42,505,186	35,650,561	50,167,807	217,820	3,355,932	16,428	364,617	197
May-13	46,976,059	39,021,934	51,065,016	218,026	3,539,990	16,717	410,603	199
Jun-13	49,911,210	41,313,709	51,646,337	227,552	3,846,524	21,723	342,352	200
Jul-13	55,257,629	46,477,818	57,231,587	268,870	4,199,262	22,469	361,222	201
Aug-13	53,229,909	45,148,734	60,019,278	263,794	4,391,894	20,807	270,650	202
Sep-13	50,098,260	41,732,867	61,580,649	251,958	4,129,712	20,371	214,275	197
Oct-13	44,152,133	37,156,028	65,489,227	217,892	4,093,246	31,067	186,842	194
Nov-13	43,054,231	35,489,302	67,993,796	214,024	4,046,412	32,547	138,976	198
Dec-13	45,569,399	38,057,980	72,206,389	223,432	4,524,992	108,864	191,364	200
Total 2013	**554,062,881**	**465,218,884**	**687,066,163**	**2,737,176**	**46,502,618**	**342,222**	**3,162,319**	**2,356**

California ISO

Actual and Estimated Volumes

Attachment B

Note: Actual data may vary between reporting cycles due to recalculation of settlement statements.

Charge Type:	Market Services	System Operations	CRR Services	Inter-SC Trades	Bid Segment Fees	CRR Auction Bid Fees	TOR Fees	SCID Fees
Charge Code:	4560	4561	4562	4512	4515	4516	4563	4575
Unit:	MWh & MW	MWh	MWh	# of trades	# of bid segments	# of nominations & bids	Minimum of TOR supply & demand	# of SCID's
2014 Actual Units								
Jan-14	41,916,948	35,955,164	70,627,561	208,200	4,472,836	35,293	161,740	192
Feb-14	37,630,907	32,061,563	70,125,501	189,790	3,954,726	37,283	154,960	194
Mar-14	41,964,737	35,193,766	77,546,233	213,966	4,364,666	37,439	163,477	197
Apr-14	42,418,534	35,691,410	70,600,199	205,372	4,312,460	39,386	230,018	200
May-14	46,814,631	39,405,493	65,725,167	216,512	4,479,448	34,215	304,968	198
Jun-14	47,580,782	40,390,108	67,850,745	220,828	4,533,968	36,765	268,891	196
Jul-14	55,025,692	46,575,523	75,947,941	241,100	4,941,786	33,522	287,956	201
Aug-14	53,984,563	45,137,708	81,142,260	242,496	4,921,252	34,212	284,393	200
Sep-14	51,112,789	42,955,809	80,617,059	225,858	4,798,540	38,071	235,526	198
Oct-14	47,201,350	38,872,003	100,804,167	217,024	4,701,466	53,656	199,361	202
Nov-14	40,302,942	33,998,000	84,623,932	197,838	4,434,130	60,567	170,093	205
Dec-14	43,055,388	36,575,502	93,924,753	206,464	4,733,938	208,375	181,997	207
Total 2014	**549,009,262**	**462,812,049**	**939,535,518**	**2,585,448**	**54,649,216**	**648,784**	**2,643,379**	**2,390**

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Actual and Estimated Volumes

Attachment B

Note: Actual data may vary between reporting cycles due to recalculation of settlement statements.

Charge Type:	Market Services	System Operations	CRR Services	Inter-SC Trades	Bid Segment Fees	CRR Auction Bid Fees	TOR Fees	SCID Fees
Charge Code:	**4560**	**4561**	**4562**	**4512**	**4515**	**4516**	**4563**	**4575**
Unit:	**MWh & MW**	**MWh**	**MWh**	**# of trades**	**# of bid segments**	**# of nominations & bids**	**Minimum of TOR supply & demand**	**# of SCID's**
2015 Actual Units								
Jan-15	41,477,031	35,421,771	87,665,561	193,662	4,800,024	59,079	192,988	204
Feb-15	37,190,221	31,431,356	81,334,029	175,534	4,438,108	67,528	165,605	202
Mar-15	42,920,596	35,928,249	87,777,329	192,190	4,971,736	62,444	250,365	205
Apr-15	41,990,016	34,743,923	84,154,793	184,772	4,725,408	54,904	251,571	214
May-15	43,534,101	35,905,940	78,907,269	196,492	4,716,922	52,138	230,249	216
Jun-15	49,310,493	41,406,503	68,830,408	201,326	5,134,062	53,671	248,449	213
Jul-15	53,949,417	44,690,920	75,218,475	219,530	4,861,702	58,001	296,023	217
Aug-15	55,591,161	46,228,182	74,800,817	220,522	4,934,262	54,937	300,673	219
Sep-15	51,741,664	43,474,914	72,374,036	209,958	4,780,338	57,915	278,713	219
Oct-15	47,306,871	39,483,777	69,453,993	200,180	4,808,362	69,184	200,790	220
Nov-15	40,588,908	34,185,161	71,406,854	178,076	4,461,582	73,322	171,278	216
Dec-15	44,487,358	37,086,724	68,934,954	192,168	4,734,942	191,556	174,441	225
Total 2015	**550,087,837**	**459,987,419**	**920,858,519**	**2,364,410**	**57,367,448**	**854,679**	**2,761,145**	**2,570**

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Actual and Estimated Volumes

Attachment B

Note: Actual data may vary between reporting cycles due to recalculation of settlement statements.

Charge Type:	Market Services	System Operations	CRR Services	Inter-SC Trades	Bid Segment Fees	CRR Auction Bid Fees	TOR Fees	SCID Fees
Charge Code:	**4560**	**4561**	**4562**	**4512**	**4515**	**4516**	**4563**	**4575**
Unit:	**MWh & MW**	**MWh**	**MWh**	**# of trades**	**# of bid segments**	**# of nominations & bids**	**Minimum of TOR supply & demand**	**# of SCID's**
2016 Actual Units								
Jan-16	42,266,502	35,205,345	58,723,112	181,760	4,636,070	56,441	136,501	226
Feb-16	38,242,052	32,063,733	59,160,131	177,090	4,360,806	68,337	158,847	228
Mar-16	42,465,768	35,037,653	66,064,698	193,114	4,712,180	66,507	199,365	232
Apr-16	41,612,181	34,447,057	61,191,096	199,228	4,765,154	67,127	269,498	239
May-16	43,979,064	36,992,445	63,114,378	214,838	5,139,592	70,386	306,438	242
Jun-16	50,195,316	42,588,143	62,299,386	225,426	5,127,418	66,337	263,748	247
Jul-16	53,784,564	46,583,921	66,843,208	230,808	5,305,540	60,504	264,674	252
Aug-16	53,369,579	45,855,510	70,130,476	236,742	5,284,354	58,347	266,431	254
Sep-16	47,197,653	40,219,578	68,008,824	222,096	5,171,054	54,574	242,689	257
Oct-16	44,512,132	36,778,826	66,025,122	206,998	5,573,306	72,242	221,933	266
Nov-16	40,722,032	34,679,607	60,056,145	186,910	5,328,268	59,765	139,575	275
Dec-16	42,134,758	36,397,069	62,670,453	200,006	5,420,618	253,428	157,543	276
Total 2016	**540,481,600**	**456,848,887**	**764,287,029**	**2,475,016**	**60,824,360**	**953,995**	**2,627,243**	**2,994**

California ISO

Actual and Estimated Volumes

Attachment B

Note: Actual data may vary between reporting cycles due to recalculation of settlement statements.

Charge Type:	Market Services	System Operations	CRR Services	Inter-SC Trades	Bid Segment Fees	CRR Auction Bid Fees	TOR Fees	SCID Fees
Charge Code:	4560	4561	4562	4512	4515	4516	4563	4575
Unit:	MWh & MW	MWh	MWh	# of trades	# of bid segments	# of nominations & bids	Minimum of TOR supply & demand	# of SCID's
2017 Actual Units (January - October) and Estimated Units (November - December)								
Jan-17	43,034,411	36,862,670	66,225,336	174,622	5,205,586	58,821	172,149	274
Feb-17	38,044,104	32,113,042	60,748,988	158,500	4,765,778	61,788	135,505	276
Mar-17	40,411,641	34,407,398	66,443,290	174,018	5,267,614	66,952	200,827	276
Apr-17	40,325,286	33,553,546	64,998,622	199,744	5,220,122	67,423	252,706	279
May-17	44,527,830	37,465,576	65,920,690	201,118	5,496,430	73,357	350,337	280
Jun-17	48,536,817	41,817,405	64,707,064	205,082	5,494,366	63,564	332,165	285
Jul-17	54,642,647	47,386,056	72,507,166	215,110	5,690,786	58,608	327,077	296
Aug-17	54,833,044	46,873,057	74,393,081	203,910	5,725,446	66,164	299,641	291
Sep-17	48,327,214	41,407,921	73,908,881	195,770	5,426,082	69,381	262,398	298
Oct-17	44,295,292	37,624,804	69,560,658	181,236	5,584,084	81,819	305,758	298
Nov-17	41,209,461	35,439,746	75,630,544	191,301	4,399,861	76,025	206,523	298
Dec-17	43,626,270	37,341,550	73,012,432	199,480	4,801,086	198,618	227,248	298
Total 2017	**541,814,016**	**462,292,770**	**828,056,753**	**2,299,891**	**63,077,242**	**942,520**	**3,072,334**	**3,449**

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Actual and Estimated Volumes

Attachment B

Note: Actual data may vary between reporting cycles due to recalculation of settlement statements.

Charge Type:	Market Services	System Operations	CRR Services	Inter-SC Trades	Bid Segment Fees	CRR Auction Bid Fees	TOR Fees	SCID Fees
Charge Code:	**4560**	**4561**	**4562**	**4512**	**4515**	**4516**	**4563**	**4575**
Unit:	**MWh & MW**	**MWh**	**MWh**	**# of trades**	**# of bid segments**	**# of nominations & bids**	**Minimum of TOR supply & demand**	**# of SCID's**
2018 Estimated Units								
Jan-18	42,847,451	35,313,558	69,536,602	185,782	5,460,725	61,762	163,743	298
Feb-18	37,878,824	31,747,545	63,786,438	168,629	4,999,361	64,877	159,804	298
Mar-18	40,236,076	35,482,951	69,765,454	185,139	5,525,794	70,300	204,402	298
Apr-18	40,150,096	34,595,490	68,248,553	212,509	5,475,974	70,794	250,362	298
May-18	44,334,382	36,449,192	69,216,724	213,971	5,765,824	77,025	280,552	298
Jun-18	48,325,952	41,997,323	67,942,418	218,188	5,763,659	66,742	260,363	298
Jul-18	54,405,256	45,637,420	76,132,524	228,857	5,969,706	61,538	282,884	298
Aug-18	54,594,826	46,041,846	78,112,735	216,941	6,006,065	69,472	283,832	298
Sep-18	48,117,260	41,847,246	77,604,325	208,281	5,692,029	72,850	252,309	298
Oct-18	44,102,854	38,131,301	73,038,691	192,818	5,857,775	85,910	207,361	298
Nov-18	41,030,430	34,432,384	79,412,071	203,527	4,615,510	79,826	160,315	298
Dec-18	43,436,739	36,741,897	76,663,054	212,228	5,036,400	208,549	171,327	298
Total 2018	**539,460,145**	**458,418,153**	**869,459,590**	**2,446,870**	**66,168,823**	**989,646**	**2,677,256**	**3,576**
Change from 2012 Actual	-1.7%	-2.3%	55.4%	-11.6%	65.6%	455.0%	-24.2%	70.4%
Change from 2013 Actual	-2.6%	-1.5%	26.5%	-10.6%	42.3%	189.2%	-15.3%	51.8%
Change from 2014 Actual	-1.7%	-0.9%	-7.5%	-5.4%	21.1%	52.5%	1.3%	49.6%
Change from 2015 Actual	-1.9%	-0.3%	-5.6%	3.5%	15.3%	15.8%	-3.0%	39.1%
Change from 2016 Actual	-0.2%	0.3%	13.8%	-1.1%	8.8%	3.7%	1.9%	19.4%
Change from 2017 Actual + Estimate	-0.4%	-0.8%	5.0%	6.4%	4.9%	5.0%	-12.9%	3.7%

California ISO

Attachment C

Calculation of Operating Cost Reserve Adjustment

$ in '000

There are four factors that affect the calculation of the reserve adjustment:

-Prior year's 25% debt service reserve
-2016 true-up
-2017 estimates
-Change in the 15% O&M Reserve

Summary of Operating Cost Reserve Adjustment	If no changes to last years plan (a)	Budget to Actual (b)	Difference
Prior year's 25% debt service reserve collected	$ 3,400	$ 3,400	$ -
2016 true-up	-	789	789
Current year estimates	-	-	-
15% O&M Reserve	(730)	(730)	-
2018 Reserve Credit / (Debit) from 2016 Operations	$ 2,670	**$ 3,459**	$ 789

(a) Plan assumes prior year expenses and revenues were equal to budgeted amounts
(b) Revised reflects the true -up of prior year activities

California ISO

Attachment C

Calculation of Operating Cost Reserve Adjustment

$ in '000

2016 True Up			
Description	Budget	Actual	Difference
Revenue			
GMC Revenue	$ 195,300	$ 193,205	$ (2,095)
Other Income	10,800	13,714	2,914
Realized loss on Investments	-	(798)	(798)
Total revenue	206,100	206,121	21
Expenses			
Expenses	(169,342)	(165,969)	3,373
Debt Service: Principal	(4,600)	(4,600)	-
Debt Service: Interest	(8,900)	(8,906)	(6)
Debt Service Reserve	(3,400)	(3,400)	-
Cash Funded Capital	(24,000)	(24,000)	-
Capital Funded by EIM Fees Adjustment	-	(2,653)	(2,653)
Generator Fines Interest Adjustment	-	54	54
Total expenses	(210,242)	(209,473)	769
Impact to Operating Reserve			
Net Increase in Prior Year true-up	$ (4,142)	$ (3,353)	$ 789

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Attachment C

Calculation of Operating Cost Reserve Adjustment

$ in '000

2017 Estimates			
Description	Budget	Estimate	Difference
Revenue			
GMC Revenue	$ 195,300	$ 195,300	$ -
Other Income	13,300	13,300	-
Total revenue	208,600	208,600	-
Expenses			
O&M	(173,637)	(173,637)	-
Debt Service: Principal	(4,600)	(4,600)	-
Debt Service: Interest	(8,900)	(8,900)	-
Debt Service Reserve	(3,400)	(3,400)	
Cash Funded Capital	(24,000)	(24,000)	-
Total expenses	(214,537)	(214,537)	-
Impact to Operating Reserve			
Net Increase in current year estimates	$ (5,937)	$ (5,937)	$ -

Change in 15% Operating Reserve			
Description	2017 Budget	2018 Projected Budget	Change
Change in O&M budget from prior year	$ 173,637	$ 178,503	$ (4,866)
Change in 15% Operating Reserve requirement	$ 26,046	$ 26,776	$ (730)