



California ISO

2016 Budget and Grid Management Charge Rates

December 18, 2015
FINAL

Prepared by Department of Financial Planning
California Independent System Operator Corporation



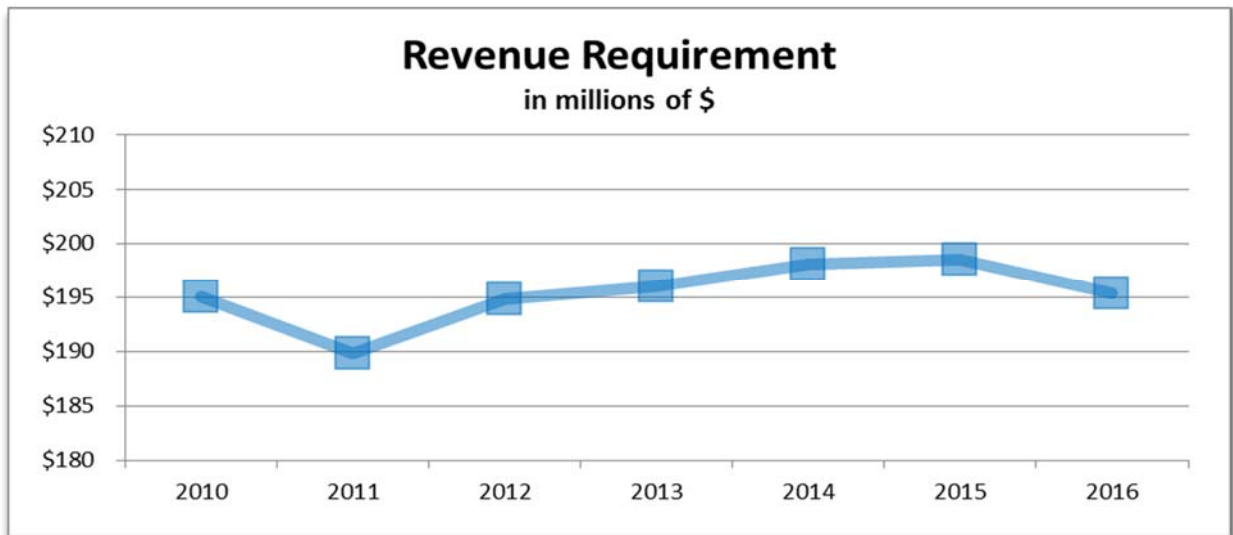
2016 Budget and GMC Rates

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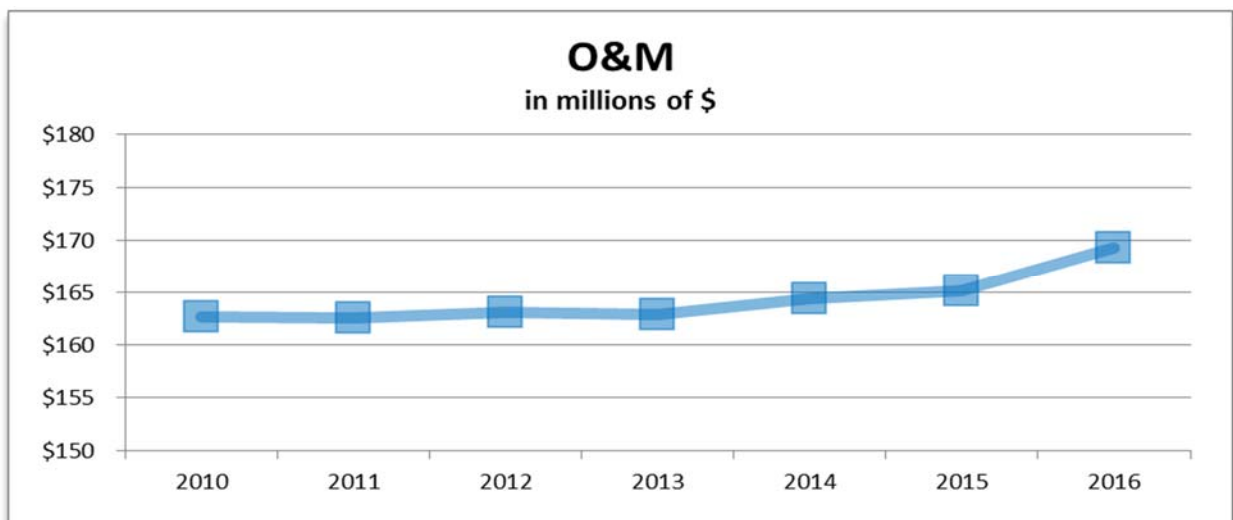
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I. 2016 REVENUE REQUIREMENT

The 2016 budget provides for a revenue requirement of \$195.3 million. Fiscal discipline remains a priority for the California Independent System Operator Corporation as evidenced by the continued stability of the revenue requirement. The 2016 revenue requirement is 18% lower than the peak in 2003. Since 2007, the revenue requirement has averaged an annual increase of only 0.3%. The ISO has absorbed several major initiatives during this time with no material impact to the revenue requirement, which included launching the new market, constructing its secure primary location and implementing a regional Energy Imbalance Market (EIM).



The Operations & Maintenance (O&M) budget is the major component of the revenue requirement. This component makes up 87% of the 2016 revenue requirement at \$169.3 million. Managing O&M is critical to keeping a stable revenue requirement. Since 2010, the annual growth rate for O&M has been limited to an increase of only 0.7%.



Components of 2016 Revenue Requirement

A summary of the 2016 revenue requirement compared to 2015 follows:

Revenue Requirement (\$ in millions)	2016 Budget	2015 Budget	\$ Change	% Change
O&M Budget	\$169.3	\$165.1	\$4.2	2.6%
Other Costs and Revenues	(10.8)	(9.4)	(1.4)	14.9%
Subtotal Net O&M	158.5	155.7	2.8	1.8%
Debt Service Including 25% Reserve	16.9	16.9	-	-%
Cash Funded Capital	24.0	30.0	(6.0)	(20.0)%
Subtotal before Reserve Adjustment	199.4	202.6	(3.2)	(1.6)%
Operating Cost Reserve Adjustment	(4.1)	(4.1)	-	-%
Total Revenue Requirement	\$195.3	\$198.5	\$(3.2)	(1.6)%
Transmission volume in TWh	242.7	248.5	(5.8)	(2.3)%
Pro-forma Bundled GMC per MWh	\$0.805	\$0.799	\$0.006	0.8%

Actual volumes in 2014 dropped to 240.3 terawatt-hours (TWh) which was primarily due to lower pump loads. Projected 2016 volumes are based on a slight growth from the 2014 actual volumes of 0.5%. The ISO projects that 2016 transmission volume will be 242.7 TWh, which results in a bundled Grid Management Charge (GMC) of \$0.805 per megawatt-hour (MWh), or an increase of \$0.006 per MWh from 2015.

The ISO recovers its revenue requirement through the unbundled 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 2016 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 2016 O&M budget of \$169.3 million is \$4.2 million greater than the 2015 O&M budget of \$165.1 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 (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 in 2009 to build a new headquarters facility in Folsom, California), and fund other capital expenditures. The total debt service to be collected in the 2016 revenue requirement (\$16.9 million) remains unchanged from 2015.

Cash funded capital included in the revenue requirement is \$24.0 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 2016 are budgeted for \$16.5 million. Significant work is anticipated for 2016, as shown on the proposed project list, and includes the need for systems development related to expanding market capabilities and integrating renewable resources

Other costs and revenues that are offsets to the revenue requirement are budgeted to increase \$1.4 million in 2016 (to \$10.8 million). These transactions include interest income, billings for generator interconnection studies, forecast fees collected from intermittent resources, path operator fees for the California-Oregon Intertie and the EIM administrative charge.

The **operating cost reserve adjustment** is a credit of \$4.1 million in 2016. 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 2015 and the difference between actual and budgeted revenues and expenses from 2014.

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 amendment changed the percentages of the System Operations and Congestion Revenue Rights (CRR) service charges, the Transmission Ownership Rights (TOR) charge, and the revenue requirement maximum. The three volumetric charges are as follows:

- Market Services charge, which makes up 27% of the revenue requirement;
- Systems Operations charge, which comprises 70% of the revenue requirement; and
- CRR Services charge, which makes up 3% of the revenue requirement.

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.

Budget Guidance

The ISO held its budget kick-off meeting with stakeholders in June 2015 with the clear intent to consider stakeholder input when building the 2016 budget. Notes from that discussion and subsequent stakeholder questions are available on the ISO website. In addition, with a firm commitment to fiscal responsibility, the ISO leadership required each division to develop an O&M budget consistent with the corporate Strategic Plan.

The combined efforts lead to the 2016 revenue requirement to come in at \$195.3 million, approximately \$7 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.

In September 2015, the ISO Board of Governors provided feedback on the preliminary budget. The ISO posted the preliminary budget along with accompanying exhibits to the ISO website for stakeholder review. The stakeholders discussed the budget during a budget workshop held on October 8, 2015, with discussion notes posted on the ISO website. Responses to written questions submitted by stakeholders after the meeting were posted on the ISO website as well.

Strategic Outlook

The ISO is steadfast in its mission to maintain the reliability of the high voltage grid that serves California and market participants throughout the West. In recent years, the ISO has been leading the effort to create power markets and grid infrastructure that efficiently uses renewable generation resources while strengthening system resiliency, all to the benefit of consumers.

At this time, the ISO grid has over 16,000 megawatts (MW) renewable generation connected to the grid, including nearly 6,500 MW of solar and 6,000 MW of wind-powered capacity.

In close coordination and collaboration with generators, utilities, transmission owners, energy regulators and diverse stakeholder groups, the ISO is busy envisioning and implementing a grid and market structure that encourages Distributed Energy Resources (DERs). Following regulatory approval (which is expected in late 2015 or early 2016) demand response electric vehicles and energy storage participation in the wholesale market will allow entrepreneurs or utilities to bundle, or aggregate DERs 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 so the West can breathe cleaner air.

Aligning with the ISO's Strategic Plan

The historic transition underway means the grid is becoming a flexible and adaptable system that will support a society and economy experiencing rapid technological advancement. The ISO is uniquely positioned to lead the transformation to improve services and enhance grid reliability. The ISO is committed to promoting growth and change while staunchly containing its own operating costs.

The 2016 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:

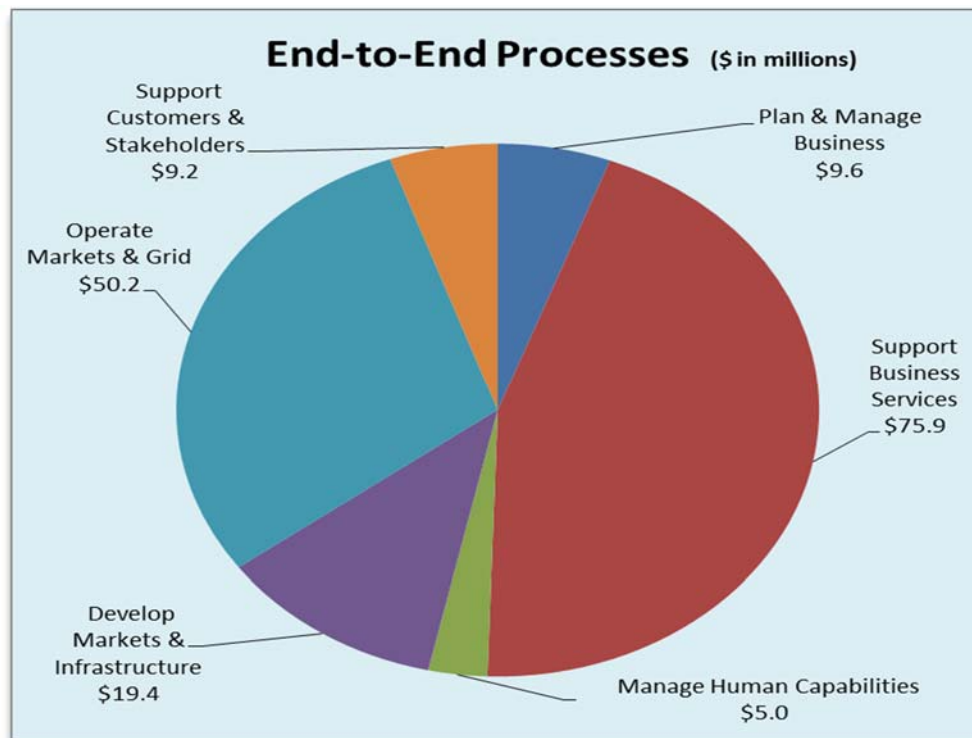
1. evolving market structures to encourage the participation of new clean energy resources, including demand response and storage;
2. ensuring that the resource fleet has the capability and flexibility to reliably meet electricity needs of our homes and businesses;
3. taking a leadership role within the state and throughout the West to ensure we use our infrastructure investments to their fullest potential to benefit consumers and the future.

The Strategic Plan articulates to staff and management our common goals while the budget explains how the corporation funds and allocates its resources to support its business plans. The 2016 budget supports the Strategic Plan goals with just the right mix of staffing, skills and financial resources to be effective and successful.

Aligning the strategic planning process more closely with budget planning provides greater transparency into the ISO's resources and associated costs for business and operational activities. Not only is the ISO vigilant in containing costs, it also places a high emphasis on managing corporate resources in a smart and prudent manner that results in increased productivity.

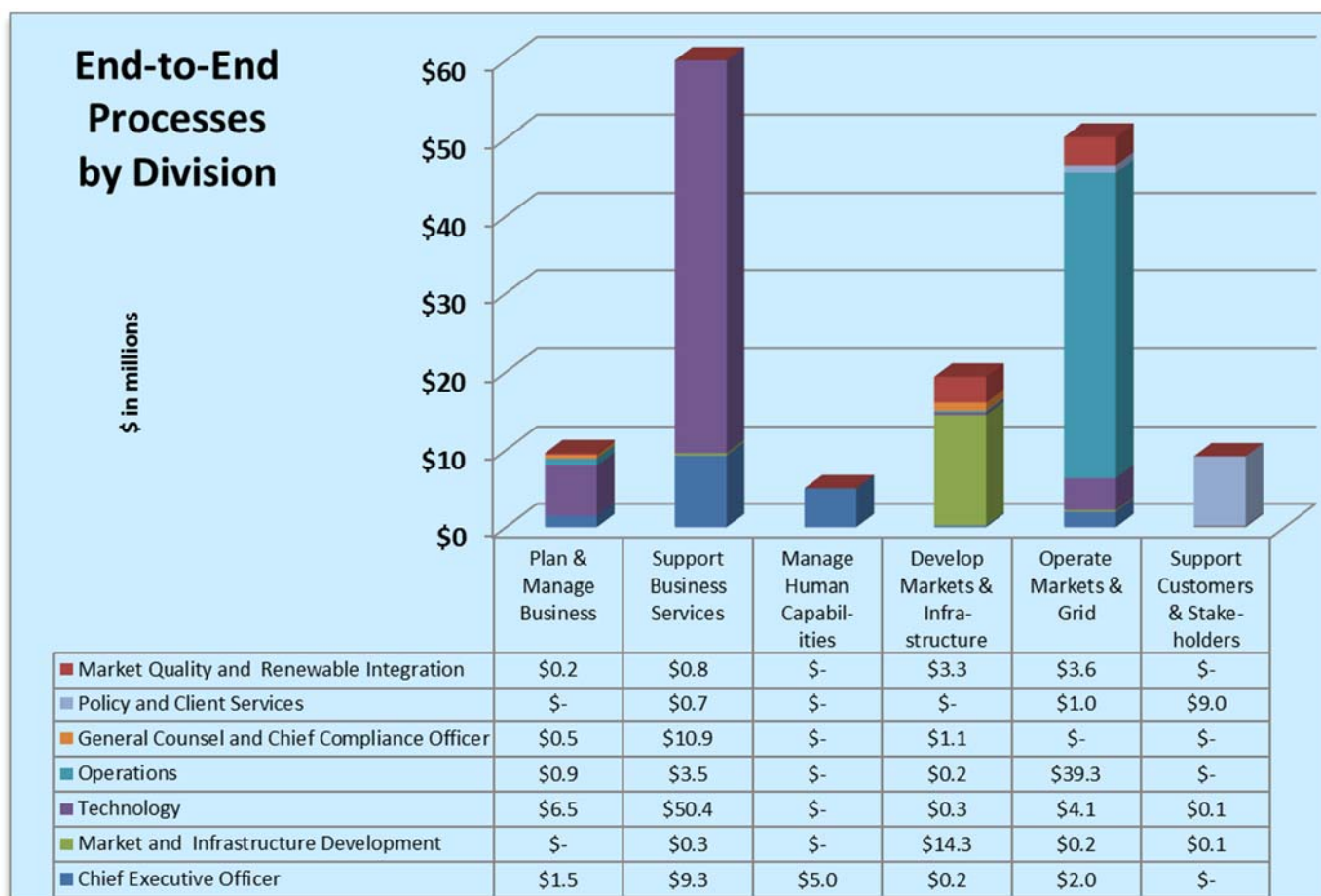
III. PROCESS VIEW

The ISO has leveraged the activity-based costing system to provide greater transparency and granularity in how the budget supports corporate business plans. Nine processes consolidated into six primary processes for this presentation were further broken down into second level activities. All employees charge time worked to second level activities. Aggregating the time reported by employees results in percentages for each of the processes (the hours used were for the first six months of 2015). Applying these hours to the 2016 budget results in costs for the six processes as shown below.



- Support customers and stakeholders — client, account and stakeholder processes, government affairs and communications;
- 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;
- Manage human capabilities — employee lifecycle, training and organizational development;
- Support business services — general, information technology, financial, legal and compliance support services; and
- Plan and manage business — strategic planning, governance, budgeting and project management.

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



The ISO Board has approved the following seven formal corporate goals.

1. Sustain improved reliability and compliance levels:

- continue to improve compliance with North American Electric Reliability Corporation and Western Electricity Coordinating Council reliability standards, and the ISO tariff by encouraging continuous self-monitoring; and,
- manage federal performance standards to levels that ensure system reliability and optimal system costs.

2. Advance clean grid agenda:

- enhance the participation of storage and aggregations of energy storage and other distributed energy;
- continue to advance demand shaping by designing a new system;
- develop a vision of the grid to achieve 50% renewable energy resources (in concert with the state's energy agencies).

3. Expand regional collaboration:

- work with industry partners and stakeholders to extend the ISO's real-time Energy Imbalance Market to non-ISO entities throughout the West.

4. Enhance market performance:

- reduce the number of price corrections and real-time congestion offset costs; and
- continue to improve the accuracy of the peak hour load forecast.

5. Improve ISO customer experience:

- enhance customer transparency and improve overall inquiry resolution times.

6. Advance corporate leadership capabilities and employee engagement:

- improve employee engagement.

7. Demonstrate fiscal responsibility:

- contain operating and maintenance expenses.

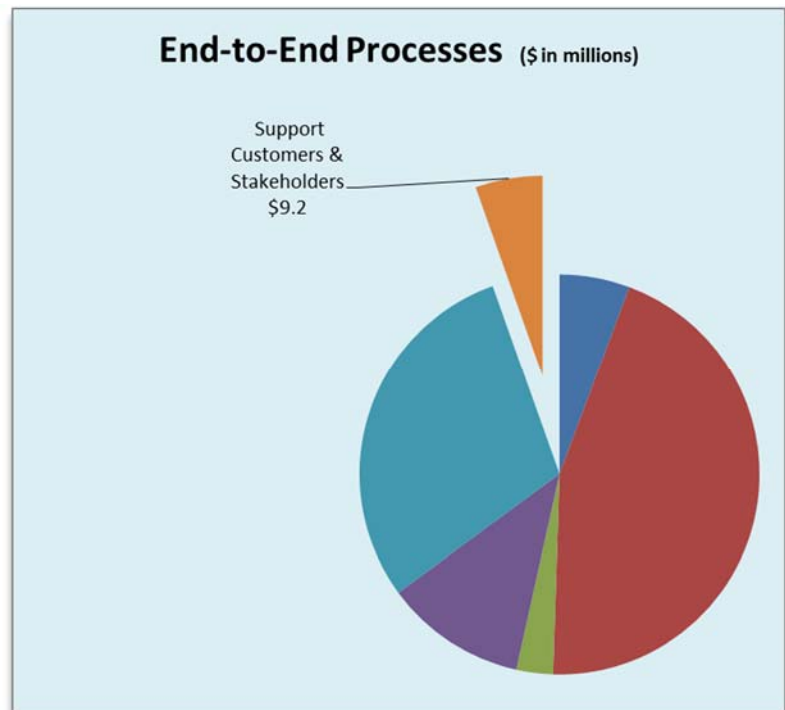
Support Customers and Stakeholders

Support Customers and Stakeholders, amounting to \$9.2 million and 36 staff, consists primarily of the efforts of the Policy and Client Services Division and elements of the Technology, Market and Infrastructure Development, Operations and General Counsel and Chief Compliance Officer Divisions.

The ISO remains firm in its commitment to provide the highest quality of service to its customers, 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 and consistent corporate information. Besides surpassing previous goals to resolve inquiries quickly and encouraging quality dialogue between the ISO and its key customers, this activity provides the framework to make improvements in the stakeholder processes as well as build proactive outreach to new market participants that, in turn, encourages their active participation in the ISO market.



Another effort includes improving government affairs activities to more effectively share ISO technical expertise and communicate advice to government and regulatory bodies to advance policies and mandates that also protect grid reliability.

Develop Markets and Infrastructure

Develop Markets and Infrastructure are two separate processes that cover ISO activities that create 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

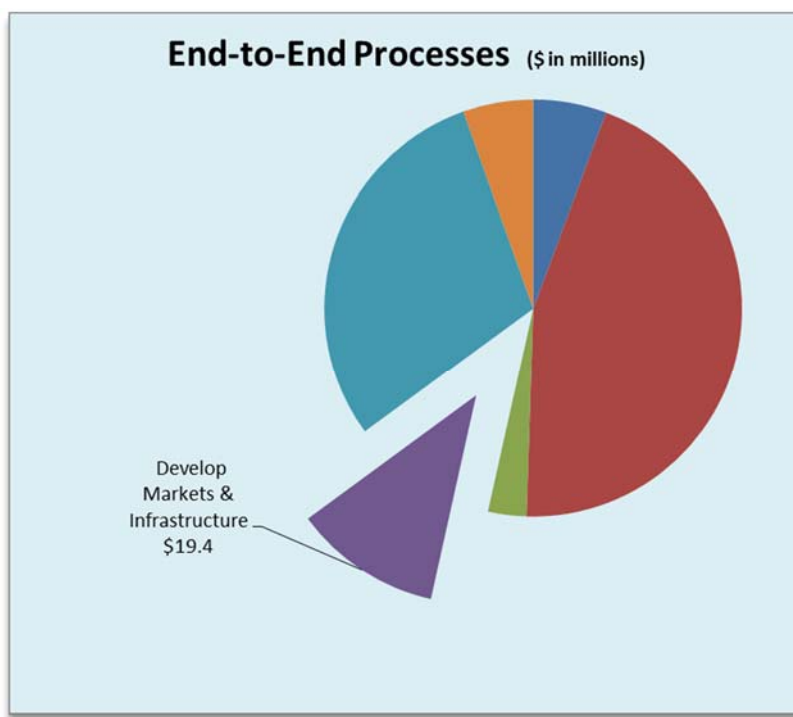
Develop markets, amounting to \$7.9 million and 25 staff, consists primarily of the efforts of the Market Infrastructure and Development, Market Quality and Renewable Integration and General Counsel and Chief Compliance Officer Divisions with elements from the Technology, Operations, and Chief Executive Officer Divisions.

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

Among the initiatives under this banner are ones that are building the business and operational framework that accommodates demand response and renewable resources in the ISO market, and includes distributed generation, energy efficiency and storage technologies participation.

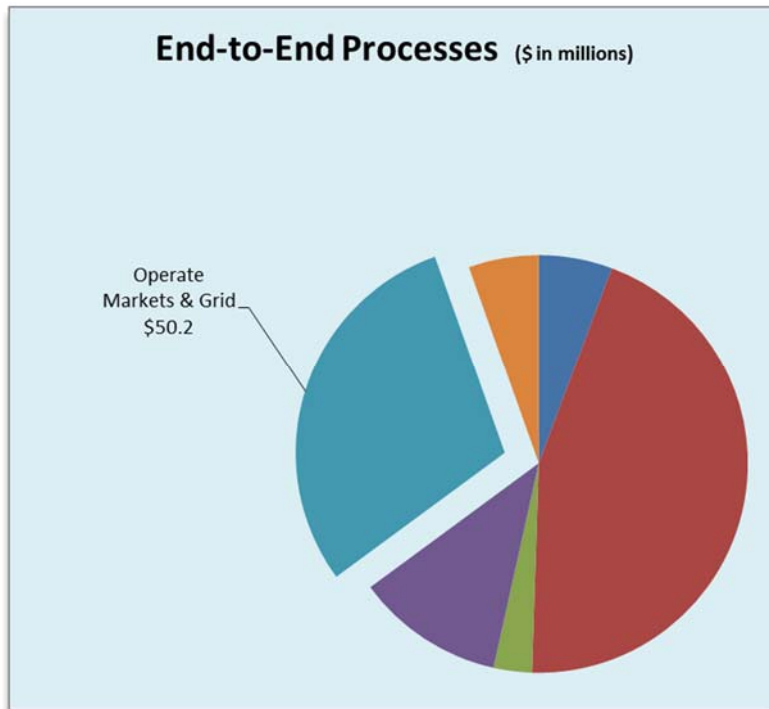
Develop Infrastructure

Develop infrastructure, amounting to \$11.5 million and 44 staff, consists primarily of the efforts of the Market Infrastructure and Development Division and elements of the Market Quality and Renewable Integration, Operations and Chief Executive Officer 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 \$13.8 million and 56 staff, is primarily comprised of functionalities of the Operations, Technology, and Chief Executive Officer Divisions with elements of the Market and Infrastructure Development and Policy and Client Services Divisions.

The ISO diligently rechecks its network modeling policies and protocols to reduce as much as possible out-of-market energy dispatches, assure

models reflect all grid constraints and produce timely and accurate prices.

Manage Markets and Grid

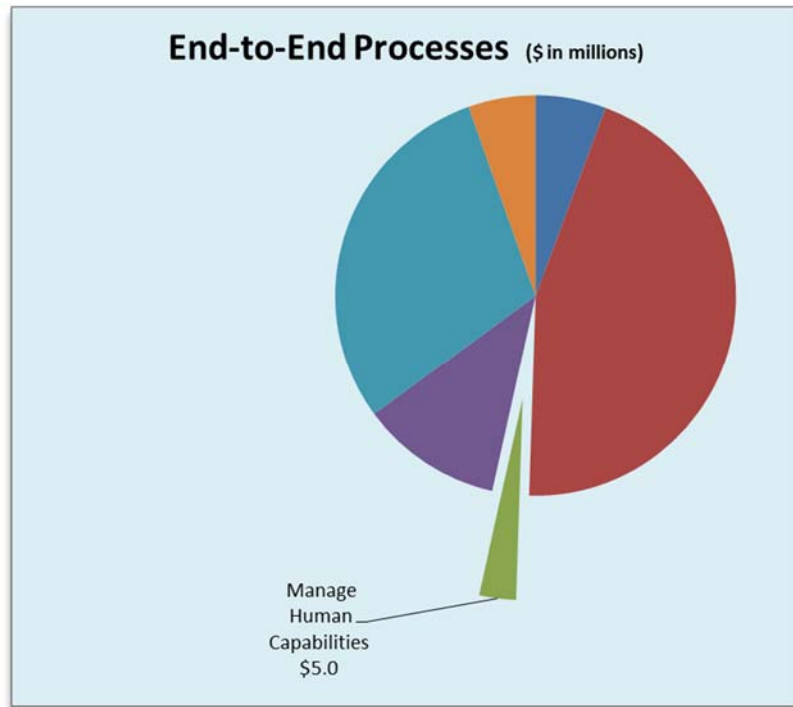
Manage Markets and Grid, amounting to \$24.1 million and 111 staff, is primarily comprised of functionalities of the Operations, Technology and Market Quality and Renewable Integration Divisions. A challenging ISO responsibility is to manage transmission and generation outages, especially those that are unplanned, as it takes well-honed grid expertise to ensure continuous flow of power to all customers. Managing the market includes executing the day-ahead market and interchange scheduling that meets all local energy needs and delivers the power at the most reasonable cost possible.

Manage Operations Support and Settlements

Manage Operations Support and Settlements, amounting to \$12.3 million and 49 staff, is mostly comprised of functionalities of the Operations and Market Quality and Renewable Integration Divisions along with elements of the Chief Executive Officer, and Technology 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 that in turn lowers the cost of doing business with the ISO. The lower cost translates into less overhead for ISO customers who can pass the savings to ratepayers.

Manage Human Capabilities

Manage Human Capabilities, amounting to \$5.0 million and 14 staff, consists of the efforts of the Chief Executive Officer 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 provides resources to support the Company'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.

Developing the next ISO generation equipped with the knowledge, skills and

expertise to meet the increasingly complex challenges of today and the future remains a top corporate priority. The budget provides resources to ensure employees not only grow in their jobs but also increase their value to the corporation.

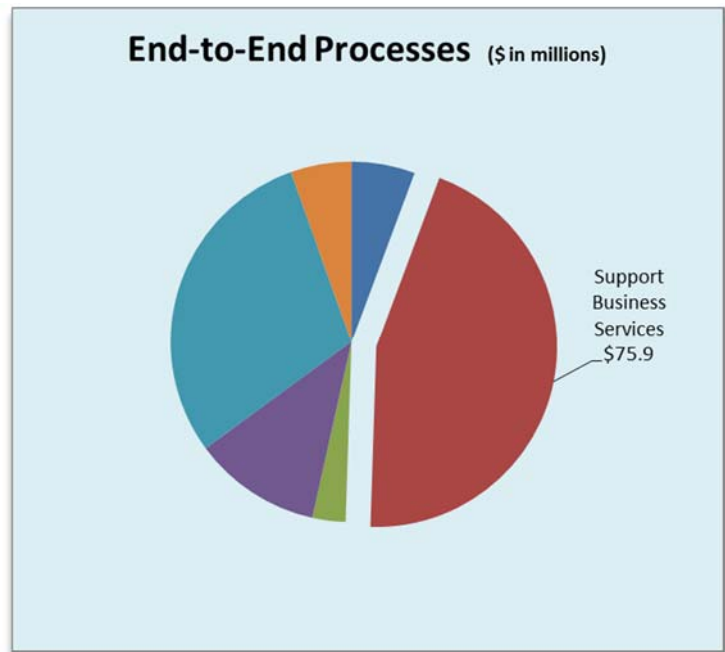
In addition, the budget provides resources to support management and employees in maintaining a high-performance and respectful workplace environment where employees are highly engaged in pursuing their highest potential as well as contributing to the success of the corporation.

Support Business Services

Support Business Services, amounting to \$75.9 million and 228 staff, is comprised primarily of functionalities of the Chief Executive Officer, Technology, Operations, General Counsel and Chief Compliance Officer and Market Quality and Renewable Integration Divisions and elements of the Market and Infrastructure Development and Policy and Client Relations Divisions.

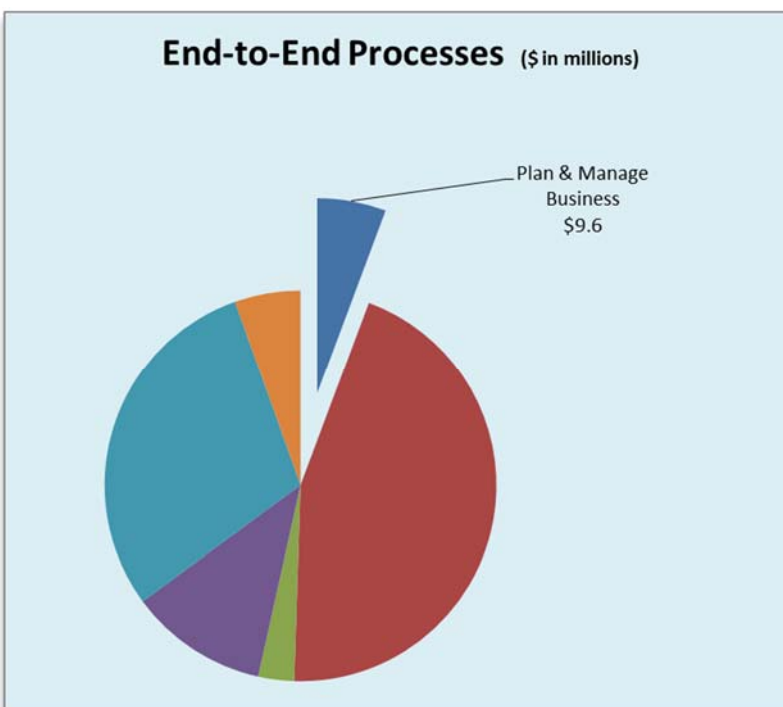
This process provides the resources to improve the ISO's ability to carry out its business duties by developing well defined, measured and controlled processes (workflow and information technology), as well as nurturing disciplined business decision making, maintaining quality assurance and efficiently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

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



Plan and Manage Business

The Plan and Manage Business process, amounting to \$9.6 million and 30 staff, consists primarily of the efforts of the Chief Executive Officer, Technology, Operations, and General Counsel and Chief Compliance Officer Divisions and elements of the Market Quality and Renewable Integration Division.

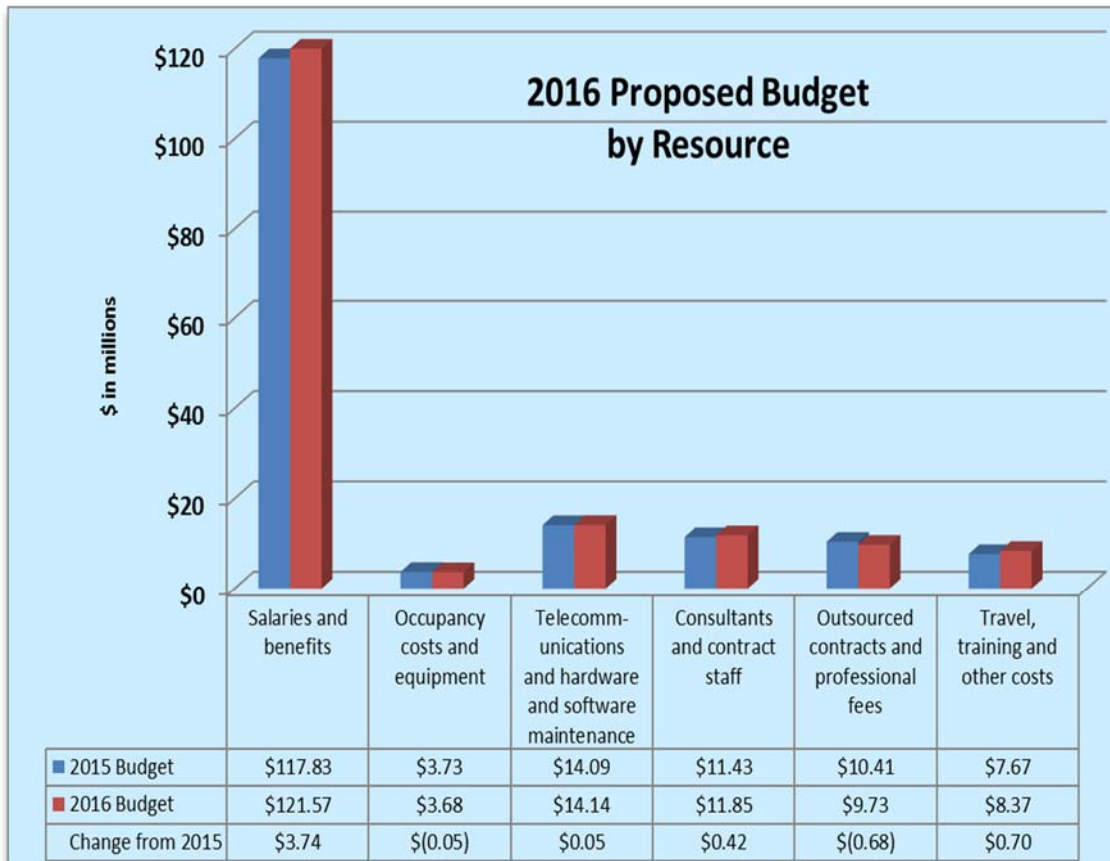


The ISO measures every process, project or policy against identified benefits. This activity finds support in part by aligning the strategic planning process with budget planning, as outlined in Section II: Aligning with the ISO's Strategic Plan.

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

IV. ISO RESOURCE UTILIZATION

This section deals with the resources used in the O&M budget to accomplish strategic objectives and goals. The 2015 budget reflects reclassifications in order for it to be comparable to the 2016 budget presentation. The chart below shows the major resource components.



Staffing

The ISO depends on its highly educated employees to operate the grid, which makes staff a critically important resource with salaries and benefits comprising 72% of the 2016 O&M budget and 71% of the 2015 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 ISO's Strategic Plan, and better reflect end-to-end business processes.

The budgeted staffing level for 2016 is 593 employees (which include eight operators in training); the staffing level remains unchanged from the budgeted 2015 staffing level.

As of the end of July 2015, there are 586 full time employees. As that equals 99% of the budgeted staffing level, the 2016 budget makes no provision for vacancies. A summary of the budgeted headcount for 2016 and 2015 is as follows.

Projected Staffing Levels	2016 Budget	2015 Budget	Change
Chief Executive Officer	52	50	2
Market and Infrastructure Development	59	59	-
Technology	187	188	(1)
Operations	202	203	(1)
General Counsel and Chief Compliance Officer	30	31	(1)
Market Quality and Renewable Integration	22	22	-
Policy and Client Services	41	40	1
Gross Headcount	593	593	-
Less Program Office Staff Included in Capital	(5)	(5)	-
Net Headcount	588	588	-

Staffing costs for 2016 are budgeted at \$121.6 million, which is an increase of \$3.7 million or 3% over \$117.8 million in 2015.

Staffing Related to Capital

As in past years, the O&M budget does not include the costs of ISO 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 Program Management Office of the Technology Division. 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 2016 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 2016 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 that qualified third-party vendors confidentially administer to gather information on competitive market pay rates. The ISO's ability to attract and retain talent with the necessary skills and knowledge links directly 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 components of compensation is as follows.

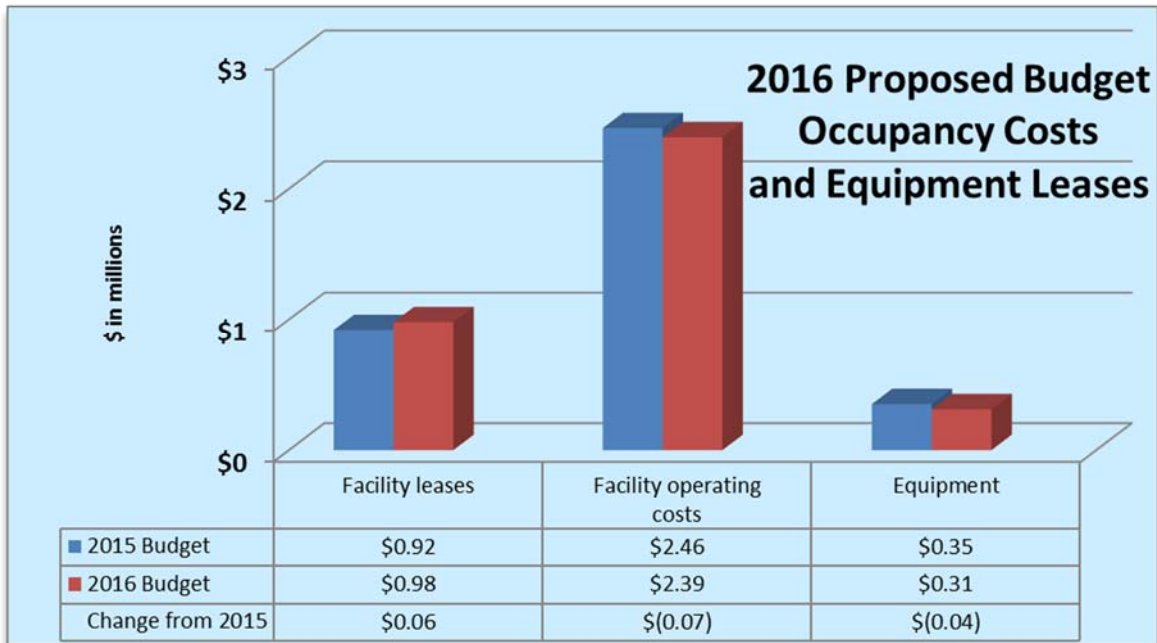
Compensation Components With Benefit Burden (\$ in millions)	2016 Budget	2015 Budget	Change
Base Compensation	\$99.4	\$96.5	\$2.9
Overtime (includes structured overtime for grid operators)	7.1	6.8	0.3
Performance Compensation	13.7	13.2	0.5
Other	1.4	1.3	0.1
Total Personnel Expense	\$121.6	\$117.8	\$3.7

To fund the benefits, employee benefits are budgeted at 35% of salary costs as summarized in the table below, which is the same as 2015. 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	13%
Retirement Benefit Plans	Retirement Savings Benefit Plan 401(k); Federal social security and Medicare; executive retirement plans; and Retiree Medical Benefit Plan	21%
Other Obligations	Administration related costs	1%
Total Burden		35%

Occupancy and Equipment Leases

Occupancy and equipment costs decreased by \$44,000, or 1%, to \$3.7 million in 2016 close to the same level in 2015. These costs make up approximately 2% of the 2016 and 2015 budget.



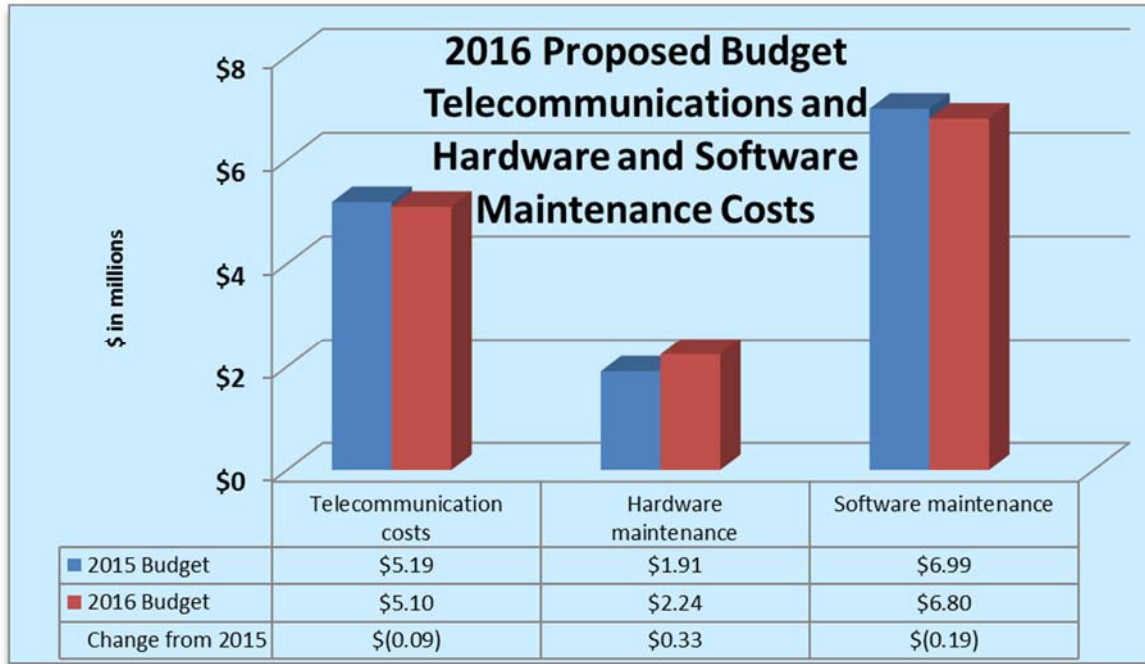
Facility leases increased by \$55,000, or 6%, to \$973,000 in 2016 from \$918,000 in 2015, which reflects lease increases at the Alhambra backup facility.

Facility operating costs decreased by \$65,000, or 3%, to \$2.4 million in 2016 from \$2.5 million in 2015 due to campus operations maintenance efficiencies.

Equipment decreased by \$34,000, or 10% to \$313,000 in 2016 from \$346,000 in 2015, due to lower planned expendable equipment purchases.

Telecommunications and Hardware and Software Maintenance Costs

Telecommunications, hardware and software maintenance costs increased \$50,000, or 0.5%, to \$14.1 million compared to \$14.0 million in 2015. These costs make up approximately 9% of the 2016 and 2015 budgets.

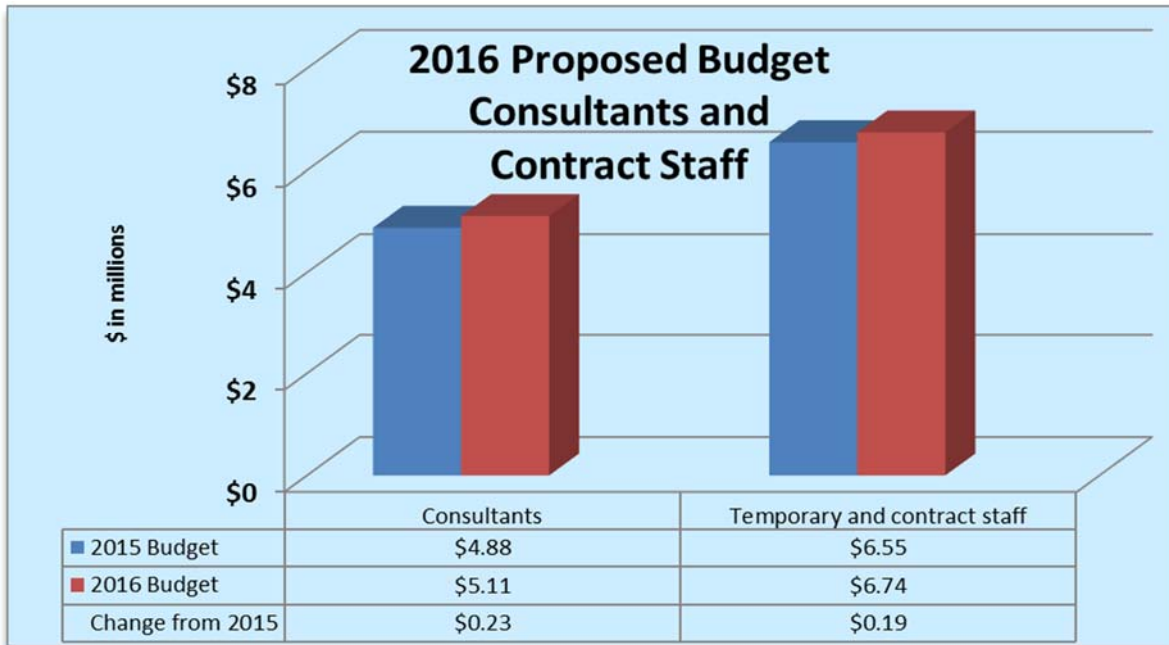


Telecommunication costs decreased \$86,000, or 2%, to \$5.1 million in 2016 from \$5.2 million in 2015. The decrease is due to improved contracted telecommunications rates as well as enhanced management of wired line and mobility services.

Hardware and software maintenance costs increased by \$136,000, or 2%, to \$9.0 million in 2016 compared to \$8.9 million in 2015. Whereas the ISO strives to control hardware and software maintenance growth and make improvements where available, it is not immune to the Technology industry's rate increases.

Consultants and Contract Staff

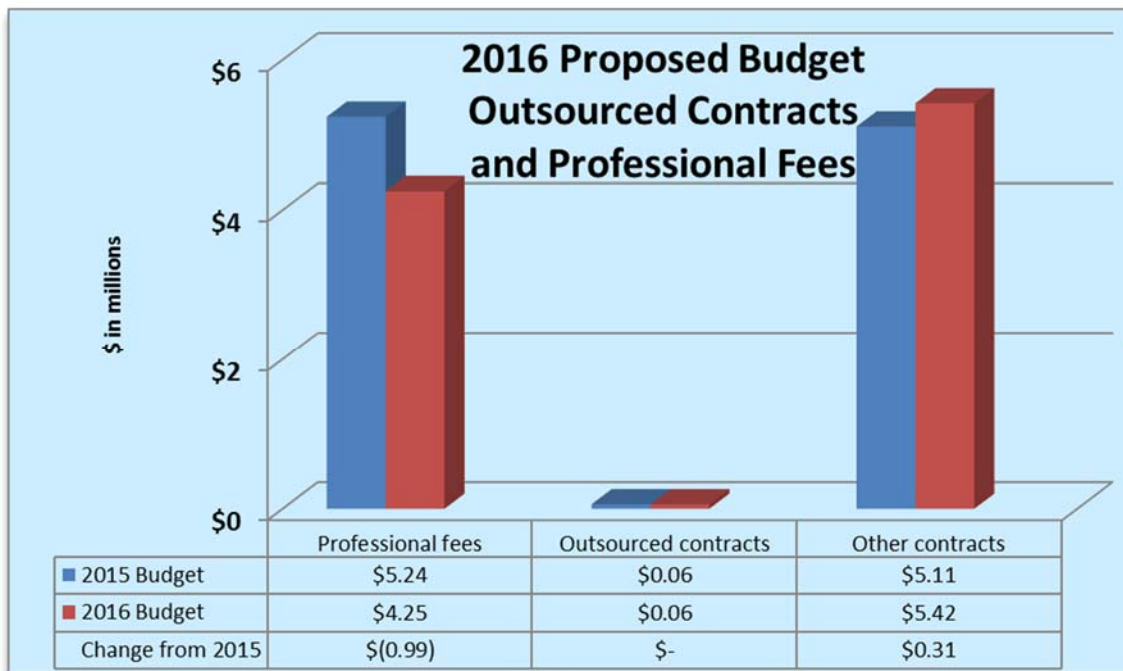
Consulting and contract staff costs increased \$448,000, or 4%, to \$11.9 million in 2016 compared to \$11.6 million in 2015. The consulting and contract staff budgets make up 7% of both the 2016 budget and the 2015 budget.



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 (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 such efforts that lead to the slight increase in the 2016 budget include resource adequacy studies, process assessments, regional coordination and integration initiatives, and the need for subject matter experts in fields such as meteorology and renewable integration.

Outsourced Contracts and Professional Fees

Outsourced contracts and professional fees decreased by \$700,000, or 7%, to \$9.7 million in 2016. The budget category makes up 6% of the 2016 budget and 6% of the 2015 budget.



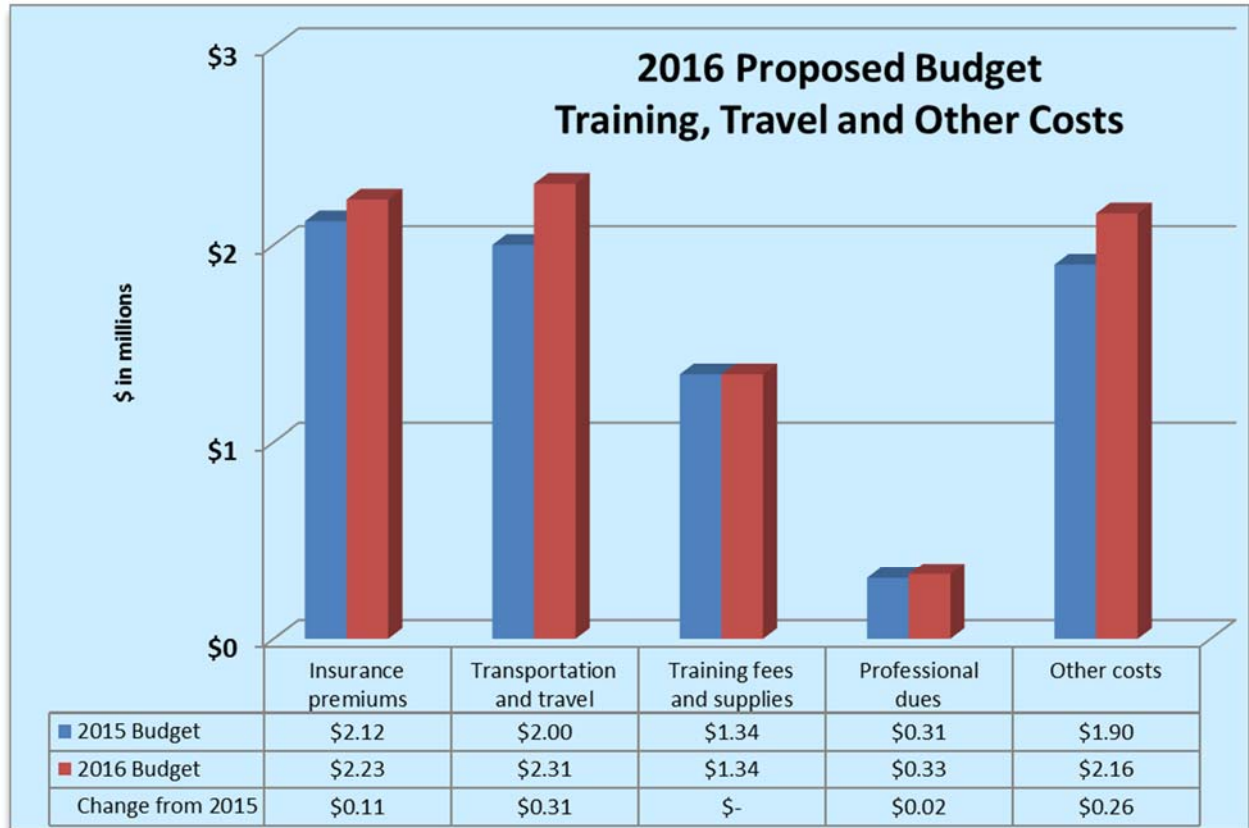
Professional fees decreased \$981,000, or 19%, to \$4.3 million in 2016 from \$5.2 million in 2015. The decrease is attributable to a reduction in the anticipated need for outside legal services in 2016.

Outsourced and other contracts combined increased \$302,000, or 6%, to \$5.5 million in 2016 from \$5.2 million in 2015. Major outsourced contracts include locational marginal price validation, weather and wind forecasting, and credit rating services. The increase reflects the substantial growth of intermittent resources projected to come on line in 2016.

Intermittent resources pay a forecasting fee to the ISO of 10 cents per megawatt of generation. Such fees are budgeted for a total of \$2.1 million in 2016. These fees received from the variable resources are included in other costs and revenues to offset the related forecasting costs.

Training, Travel and Other Costs

Training, travel and other costs increased \$700,000, or 9%, to \$8.4 million in 2016 from \$7.7 million in 2015. These costs make up approximately 5% of the 2016 and 2015 budgets.



Insurance premiums increased \$106,000, or 5%, to \$2.2 million in 2016 from \$2.1 million in 2015 primarily related to cyber security.

Transportation and travel increased \$301,000, or 16%, to \$2.3 million in 2016 (from \$2.0 million in 2015) due to increased regional activities and training.

Training fees and supplies remains unchanged at \$1.3 million.

Professional dues increased \$25,000, or 8%, over 2015 to \$335,000 in 2016 primarily in support of expanding presence in regional and national energy related associations.

Other costs (primarily bank fees, conference fees, office supplies and Board and stakeholder meeting costs) increased \$268,000, or 14%, to \$2.2 million in 2016 from \$1.39 million in 2015. The increase is attributable to additional regional and EIM activities.

Reconciliation of 2016 O&M Budget

The 2016 proposed O&M budget increased by \$4.2 million, or 2.5%, to \$169.3 million compared to \$165.1 million in 2015.

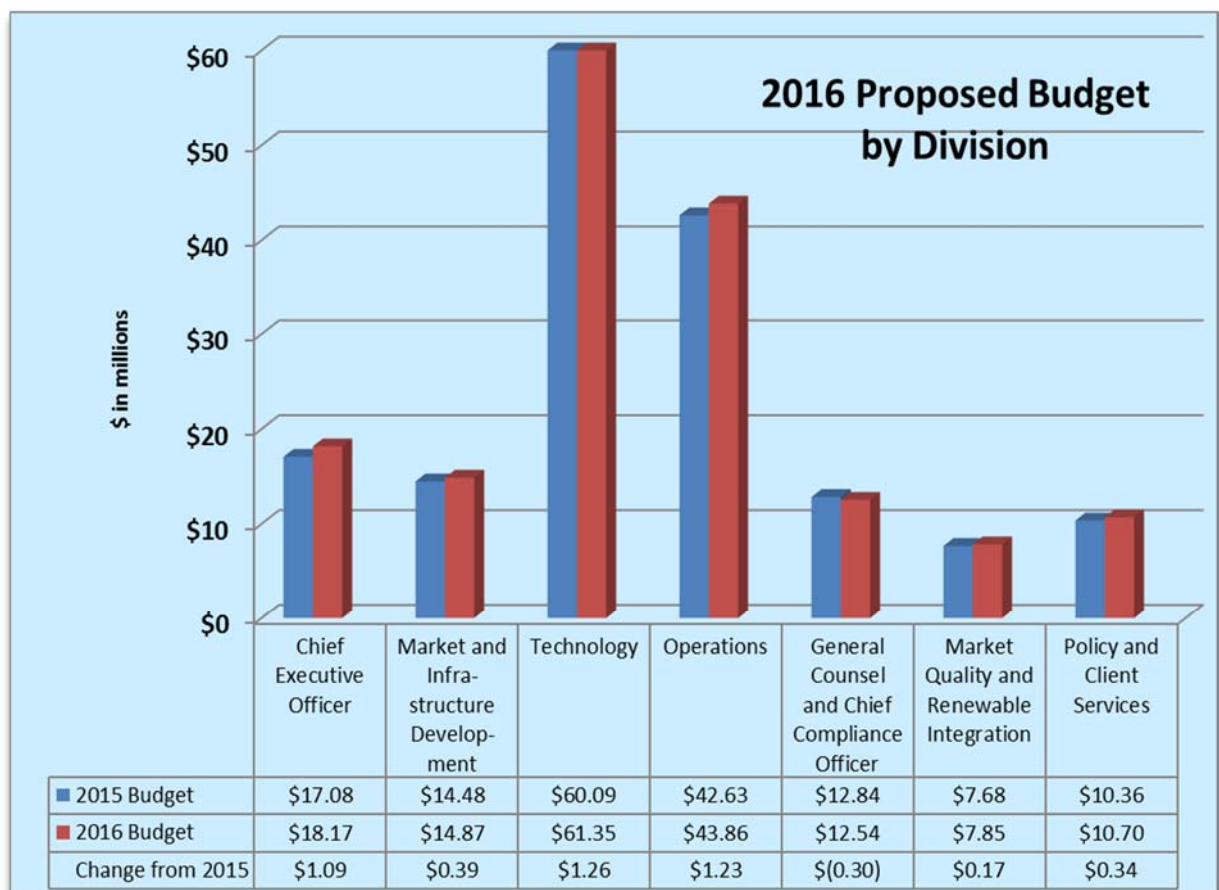
A reconciliation of the change follows (\$ in millions):

2015 O&M Budget	\$165.1
Increases in the Budget	
Merit and other compensation increases	3.4
Increase in other contracts and services	0.3
Increase in travel expenses	0.3
Increases in overtime expenses	0.3
Increase in consultants	0.3
Increase in contractors/temporary staff	0.2
Increase in office and Board costs	0.2
Increase in hardware and software maintenance contracts	0.1
Insurance premium increases	0.1
Other	0.1
Net Increases in the Budget	5.3
Decreases in the Budget	
Reduction in outside legal and audit services	(1.0)
Reduction in telephone/network and other	(0.1)
Net Decreases in the Budget	(1.1)
Proposed 2016 O&M Budget	\$169.3

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
- Policy and Client Services



The 2016 budget of \$169.3 million is \$4.2 million, or 2.5%, more than the 2015 budget of \$165.1 million. Staffing remains unchanged at 593 staff.

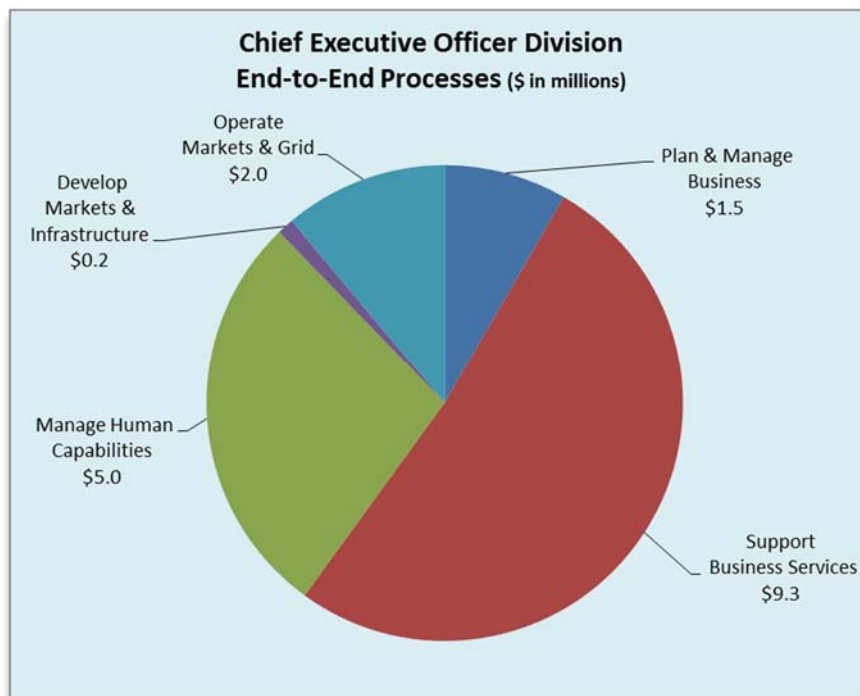
The Technology and Operations Divisions account for 36% and 26%, respectively, of the 2016 O&M budget, while the Chief Executive Officer Division comprises 11%. The Market and Infrastructure Development Division accounts for 9% of the 2016 O&M budget, while the General Counsel and Chief Compliance Officer Division accounts for 7%, the Policy and Client Services Division accounts for 6% and the Market Quality and Renewable Integration Division makes up 5%.

There were various organizational changes made during 2015 with the general ISO goal to optimize efforts, resulting in staff transfers among and within the divisions. For comparability purposes, the 2015 budget reflects reclassifications to align with the 2016 budget presentation.

Chief Executive Officer Division

The Division comprises the office of the Chief Executive Officer, Department of Market Monitoring, and the Human Resources and Finance departments.

The **Department of Market Monitoring** is active in shaping policies to help establish provisions to ensure market efficiency and mitigate the exercise of market power, especially with new market features and services that facilitate the integration of renewable resources.



The department maintains a close, watchful eye on the wholesale energy markets by monitoring participant activity to ensure rules are followed and free from non-competitive behavior, and that market results are producing effective and efficient outcomes. In 2016, the department will continue to review and provide feedback on the effectiveness of the recently launched 15-minute market and EIM.

The department will also continue to provide input on major design initiatives on products and requirements the ISO is developing to ensure sufficient flexible capacity is available to integrate increasing amounts of variable renewable energy. The department also plans on working extensively with the Market Quality and Renewable Integration Division to review and highlight the challenges associated with over-generation conditions.

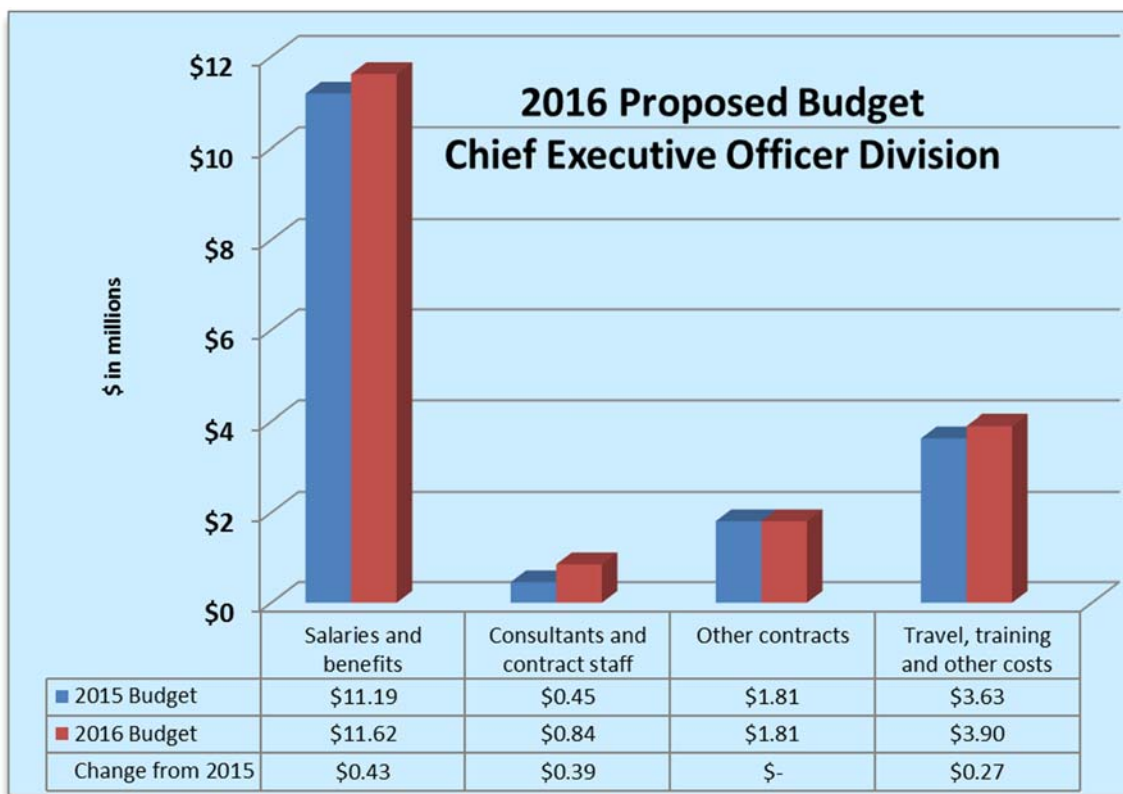
The **Finance department** consists of the Chief Financial Officer, treasury, credit, accounting, financial planning and procurement teams. It is responsible for managing ISO cash and investments, insurance, credit and collateral management, clearing of the ISO market, general accounting, internal and external financial reporting, payables

processing, financial planning and forecasting, budgeting, and administering the GMC. It also procures goods and services for the corporation by efficiently selecting vendors, negotiating corporate savings, 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 2016 budget of \$18.2 million increased by \$1.1 million, or 6%, from the 2015 budget. Staffing remained the same in 2016 at 50.



Personnel costs increased by \$421,000 primarily due to merit increases.

Consultants and contract staff increased \$397,000 primarily in support of short-term process efficiency projects in both the Human Resources department and the Department of Market Monitoring.

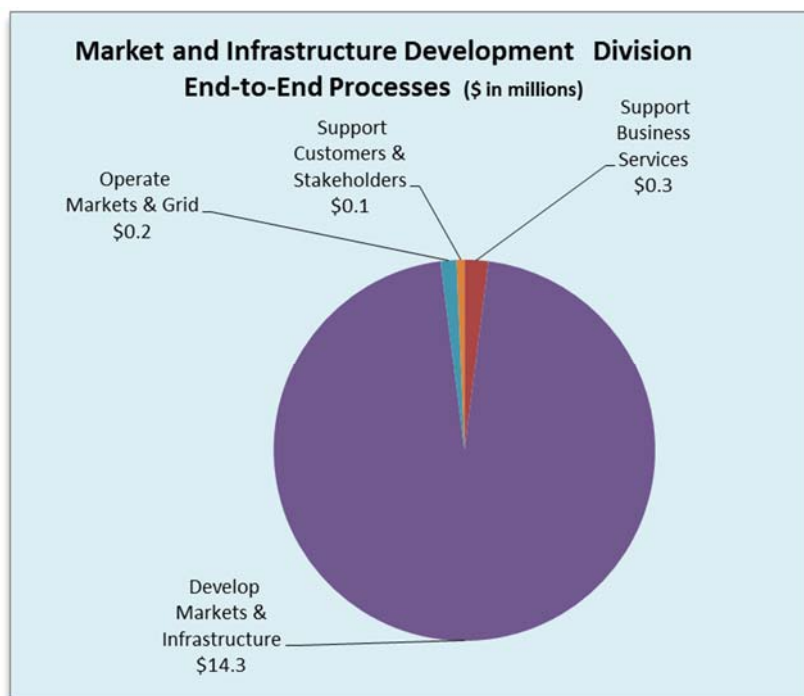
Outsourced contracts and professional fees of \$1.8 million remained at the same level as 2015.

Training, travel, and other costs increased \$275,000 primarily related to additional corporate training efforts by the Human Resources department.

Market and Infrastructure Development Division

The Market and Infrastructure Development Division grid planners develop a comprehensive 10-year forward-looking and transmission plan each year that accommodates the growth in renewable resources as well as maintain and strengthen grid reliability. In addition, Division staff performs studies for resources seeking to interconnect to the grid. The Division's economists and business analysts also play a central role in creating the policies and rules that support a robust market, and timely and efficient infrastructure development. They also negotiate, execute and track compliance with various contractual agreements between the ISO and external entities, such as generation interconnection customers.

In addition to its planning and system study duties, the Division provides subject expertise to state regulators implementing legislative mandates such as those reducing greenhouse gases and increasing demand response participation in the wholesale market.



The **Market and Infrastructure Policy department** designs enhancements to ISO policies and rules that support efficient functioning of the markets and the reliable operation of the grid as well as refining the Energy Imbalance Market processes and rules that firmly establishes an effective and transparent real-time market for non-ISO entities, which benefits the western U.S. interconnected grid.

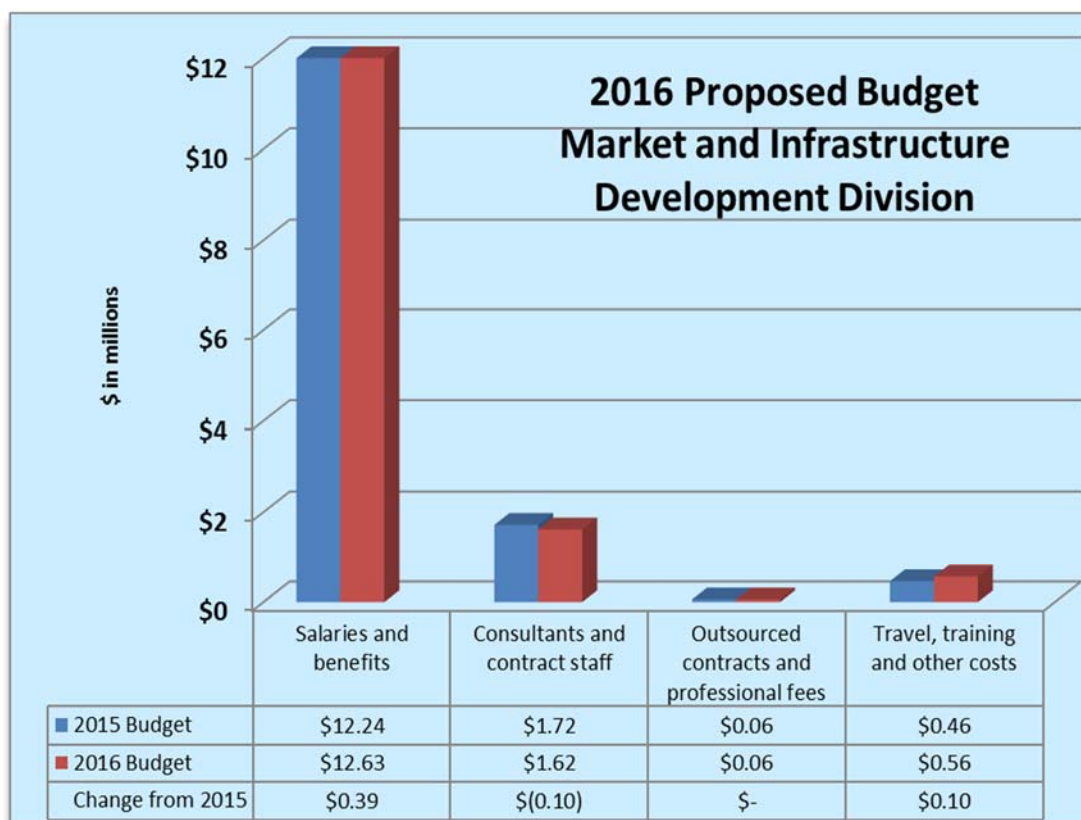
The **Infrastructure Contracts and Management department** develops and manages the contracts that support the efficient functioning of ISO markets, generator interconnections and reliable grid operations to support the industry evolution driven by state and federal policies, and technological advances. 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.

The Division is focusing a substantial amount of resources in developing the rules and mechanisms to integrate renewable resources. Related initiatives are moving forward that include meeting goals to advance distributed resources, which includes energy storage, as well as enabling demand response to participate in the wholesale market. In addition, the Division continues work on transforming the transmission planning and generator interconnection processes that substantially helps meeting state goals in shifting to a diversified generating fleet with increasing amounts of wind and solar resources. The Division will also focus on facilitating greater flexibility in contractual arrangements for ISO customers consistent with the ISO tariff, information transparency and automating manual processes.

Discussion of Proposed Budget

The 2016 budget of \$14.9 million is \$387,000, or 3%, higher than the 2015 budget of \$14.5 million. Staffing remained the same as 2015 at 59.



Salaries and benefit expenses increased by \$391,000 primarily due to merit and overtime increases.

Consulting and contract staff costs decreased by \$103,000 primarily due to contracted services for supporting the transmission competitive solicitation process now being covered by fees from participating bidders.

Outsourced contracts and professional fees remains unchanged at \$59,000.

Travel, training, and other costs increased by \$100,000 to \$562,000 primarily due to anticipated increase in regional and EIM related travel.

Technology Division

The Technology Division encompasses information technology, power systems technology, campus operations, and program management. The Division provides reliable, cost efficient and world-class services that deliver exceptional system performance and new functionalities that support corporate goals and objectives.

The Division's priorities in 2016 are as follows:

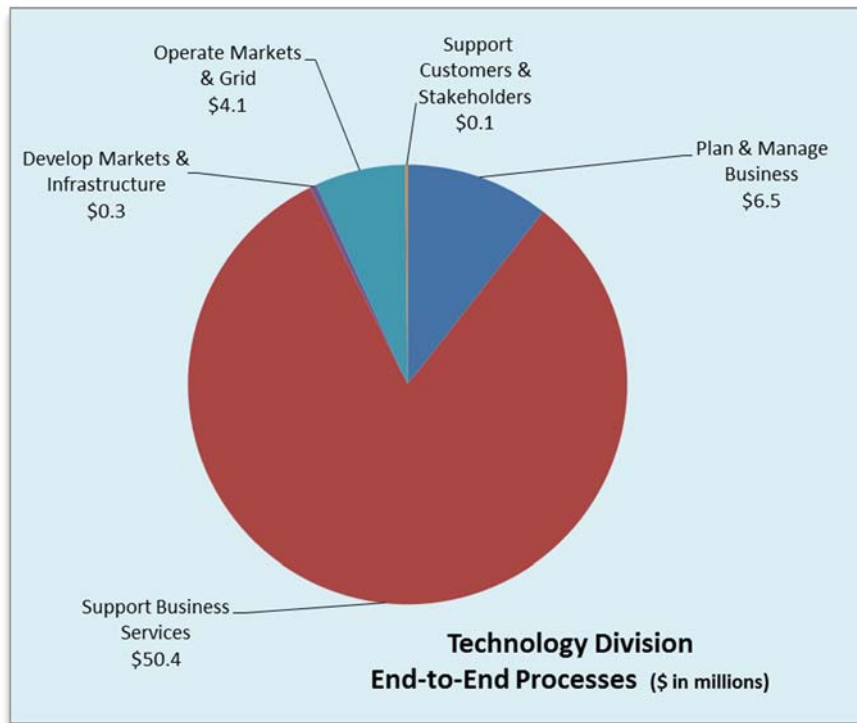
- to implement strategic initiatives by making appropriate process, procedure and system changes;
- to make incremental technology improvements, especially for market and reliability operations;
- to proactively identify system problems and fix them; and
- to predict system vulnerabilities and proactively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

The Technology Division is the foundation in supporting the many changes needed to integrate renewable resources while enabling a transparent and robust wholesale energy market and transmission system.

In the mid- to long-term future, the Division is developing plans 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 key initiatives and projects that focus on enhancing customer service and processes. Core functions include release planning, program management, business and system analysis for the Strategic Plan and the market initiatives roadmap. All Program Management Office efforts have a strong process and quality focus based on Project Management Institute and Capability Maturity Model Integration standards.

The **Power Systems and Smart Grid Technology Development department** leads the ISO effort to identify emerging technologies, which also includes better leveraging mature technologies that enhance grid efficiencies and monitoring capabilities. These technologies are critical in enabling the ISO to interconnect and manage the variability of renewable resources. It is also responsible for reviewing and approving technical requirements, software design, and tests the scheduling infrastructure business rules, integrated forward market, real-time markets, and market quality service applications.



The IT Enterprise Support and Campus Operations

department manages the service desk, desk side support of client systems, and support of all Windows servers. The group manages company buildings and infrastructure that supports a safe, efficient and comfortable work environment. Campus Operation works to minimize costs while developing best practices and maintain the ISO's 277,000 square foot Folsom

building that sits on 27 acres and the 31,000 square foot Alhambra facility. The team is responsible for physical security at both the Folsom and Alhambra campuses.

The **Infrastructure Engineering and Network Operations department** responsibilities go to systems engineering and administration, database engineering and storage administration, network and data center operations including change, problem, and asset management.

The **Security, Architecture and Model Management and Quality department** is involved in enterprise model management, information security, software quality and information technology architecture.

The **Business Solutions department** identifies and readies for deployment software solutions. Key functions include product management, software development, customer relationship management, vendor management, and production support for corporate and enterprise applications. Its work includes developing software applications that supports all ISO internal customers, from every division of the ISO, all enterprise applications and most applications that interact with external customer interactions. The scope does not include those applications provided by the Power Systems organizations. In 2016, Business Solutions will contribute to most of the efforts on the ISO capital project list as well as keeping the business running.

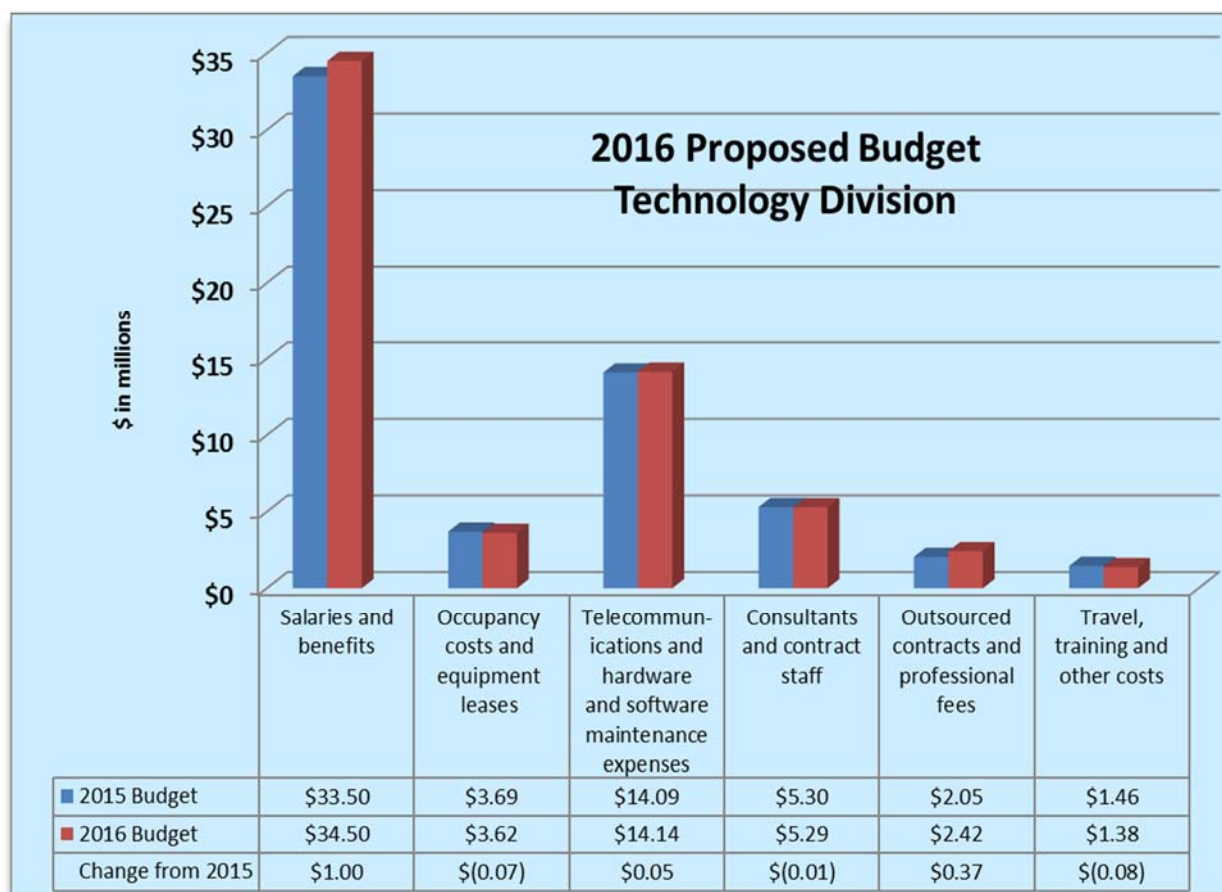
The **Power System Technology Operations department** is responsible for providing information technology support for Operations. In addition, it develops and supports critical cyber assets and real-time systems required to keep operations going. Key functions include product management, software design, and production support for real-time and operations applications. The department will maintain high availability, robustness, reliability, and resilience to all Operation needs from the Division while

making sure all releases, patching, upgrade enhancements smoothly transition to production without disrupting operations.

In 2016, the Division will focus on implementation initiatives, including modifications required from policy initiatives such as resource adequacy and demand response programs. In addition, the Division will be making enhancements to the forecasting system.

Discussion of Proposed Budget

The 2016 budget of \$61.4 million is an increase of \$1.3 million, or 2%, over the 2015 budget of \$60.1 million. Staffing decreased by 1 to 187 compared to 2015.



Salaries and benefit expenses increased \$1.0 million, which is primarily due to merit increases.

Occupancy costs and equipment leases decreased by \$70,000 to \$3.6 million in 2016 from \$3.7 million in 2015 primarily due to campus operations maintenance efficiencies.

Telecommunication costs decreased \$87,000 to \$5.1 million in 2016 from \$5.2 million in 2015. The reduction is due to enhanced management of wired line and mobility services as well as negotiating a new provider agreement. The telecommunication savings are offset by an increase of \$136,000 in hardware and software maintenance costs in which the budget went from \$8.9 million in 2015 to \$9.0 million in 2016. The

ISO strives to control hardware and software maintenance growth and make improvements where available, however it is not immune to the Technology industry's rate increases.

Consulting and contract staff costs remained at the same level in 2015 at \$5.3 million. Outsourced contracts and professional fees increased \$369,000 to \$2.4 million in 2016 primarily due to increased integration of fee for service technology.

Travel, training, and other costs decreased \$78,000 to \$1.4 million primarily due to a decline in training and travel requests.

Operations Division

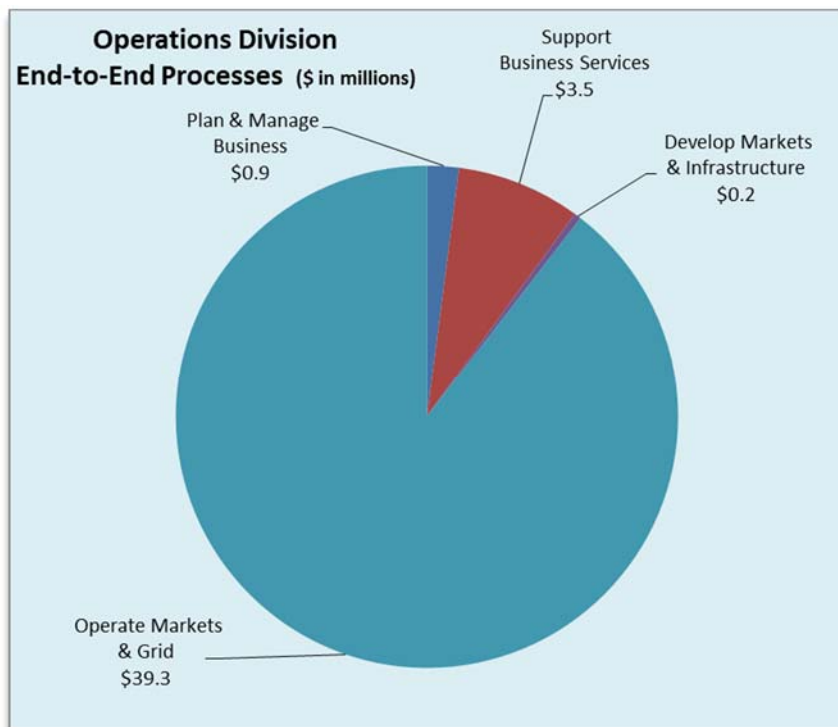
The Operations Division's mission is operating the bulk electric system and energy markets with a high degree of reliability. It is comprised of System Operations, Operations Engineering Services, Regional Operations Initiatives, Market Services, Market Settlement Quality and Control and Business Operations and Planning departments.

The bulk electric system is evolving quickly to accommodate rising amounts of renewable and distributed resources interconnecting to the grid, as well as managing energy imports and exports.

In addition, the Division's operating engineers use advanced tools to proactively manage system characteristics and generation fleet changes, and variable renewable resources. The ISO control center, which boasts award-winning geospatial technology and advanced visualization capabilities, provides system operators with a granular view of grid conditions and provides the capability to identify potential problems and solve them in advance of real time. The Systems Operations department operates the Integrated Forward Market and the real-time market to deliver the most cost effective energy to consumers in California and the West while maintaining grid reliability.

The professionals staffing 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 facilitate efficient markets in complex environments while evolving the grid to meet policy goals.

The **System Operations department**, which includes the Operational Readiness business unit, helps to fulfill goals established by company initiatives and ensures system operator readiness in the areas of change management, procedure maintenance and development, and system operator training. The department functions include maintaining a simulation training program, facilitating operations change initiatives and training, outlining a systematic approach to training development and administration, and cultivating a strategic information development program.



The **Operations Engineering Services** department directly supports engineering and technical operational planning services to System Operations. 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 that support the department.

The **Regional Operations Initiatives** department works with state, regional and national entities to balance policy direction with operational capabilities to achieve implementable solutions. This team 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 changes.

The **Market Services** department works with the ISO participants to maintain the parameters of all resources used in the markets, oversees resource interconnections, manages the network model, assures the accuracy of real-time and revenue metering, and resolves settlement disputes. Among its most important responsibilities is implementing market software and technology enhancements that produce transparent, consistent and efficient operations and settlements as well as working to reduce the settlement timeline to achieve greater market efficiencies.

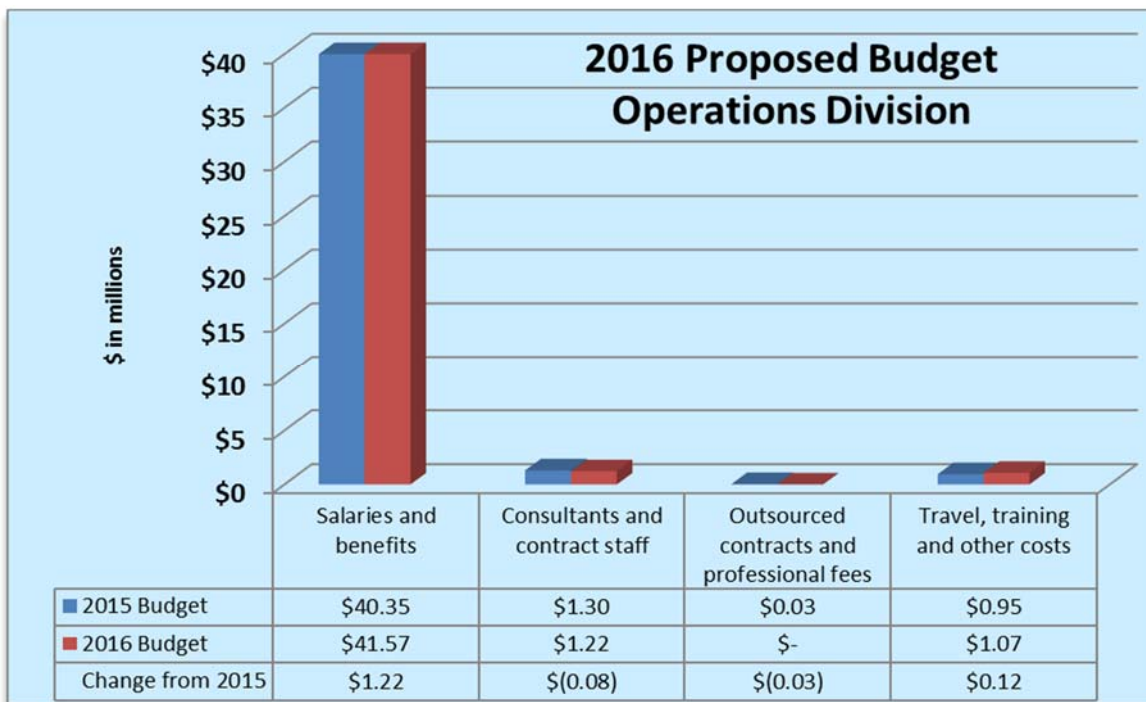
The **Market Settlement Quality and Control** department manages the Rules of Conduct program, which includes providing oversight of certain market participant behaviors.

The **Business Planning and Operations** department manages and maintains the end-to-end business processes and works across the organization on developing and implementing process improvement projects, while instilling a culture of that supports continuous improvement and quality efforts. Department staff also works with ISO officers to develop company goals and ensures that the corporate dashboard properly reports all associated tracking metrics. The department is also responsible for maturing the incident management and business continuity program. This entails using best

practices to ensure that all ISO business units have business continuity plans and that the incident management plans, which are tested each year, meet expectations.

Discussion of Proposed Budget

The 2016 budget of \$43.9 million increased by \$1.2 million, or 3%, from the 2015 budget of \$42.6 million while staffing remained the same as 2015 at 202.



Salaries and benefit costs increased \$1.2 million to \$41.6 million primarily due to merit increases.

Consulting and contract staff costs decreased by \$78,000 to \$1.2 million in 2016 primarily due to a decline in short-term Business Planning and Operations projects.

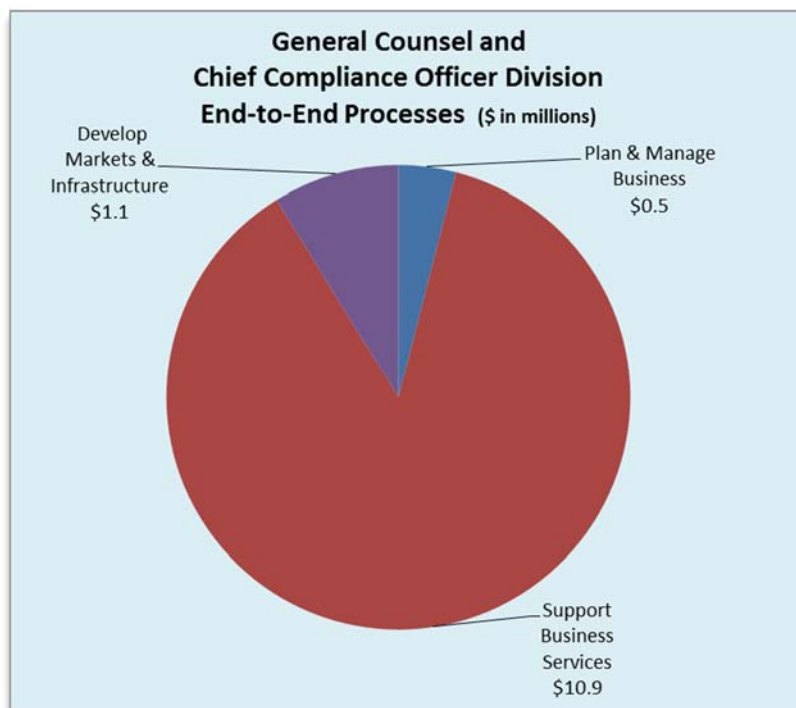
Outsourced contracts and professional fees decreased by \$29,000 primarily related to internal system improvements.

Transportation, training and other costs increased \$120,000 in 2016 to \$1.1 million primarily related to increased training, regional integration and EIM related travel.

General Counsel and Chief Compliance Officer Division

The General Counsel and Chief Compliance Officer Division comprises the legal department, corporate compliance, internal audit, corporate business operations, and the corporate secretary.

This Division provides high quality legal counsel to all business units, as well as ensuring compliance with the rules and regulations that govern the ISO. The Division's expertise is integral in resolving complex matters affecting all areas of the company's business. It represents the organization in regulatory and legal proceedings to protect the ISO's interests and helps ensure that the company can meet its objectives while maintaining compliance with the tariff and other legal requirements.



Deputy General Counsel – Regulatory oversees all legal and regulatory functions, and advises on and provides support for all regulatory matters throughout the department.

Assistant General Counsel – Regulatory oversees legal and regulatory functions, including tariff amendments, state and federal regulatory matters, and litigation. The lawyers in this area work closely with policy development teams to create market, transmission and operations services,

energy products and features that conform to existing tariffs, and work in parallel with other legal and business units as well as stakeholders to draft and file tariff additions and modifications.

The **Assistant General Counsel – Tariff** is primarily responsible for all tariff-related activities including stakeholder processes, drafting tariff amendments, interpretations and advising on tariff compliance assessments and investigations. The lawyers in this area are also responsible for all interconnection related work and regulatory contracts.

Assistant General Counsel – Legal oversees state and federal court litigation, appellate work, dispute resolution and other adversarial proceedings; it also advises the corporate compliance team regarding mandatory standards, investigations and regulatory audits. The lawyers in this area also advise the company on vendor contracts, intellectual property, finance, tax, corporate governance, ethics, and human resources issues.

Federal Regulatory Affairs department is responsible for managing regulatory relationships with the Federal Energy Regulatory Commission and other federal agencies as needed. The department also provides advice and counsel on federal regulatory issues and works with internal business units to obtain regulatory approval of initiatives.

The **Paralegal and Office Administration department** provides paralegal, administrative and technical assistance to the legal department and assists in supporting the Human Resources department on immigration matters.

The **Corporate Compliance department** assesses and 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 the business units to test the effectiveness of internal controls to minimize the risk of non-compliance. It promotes a corporate culture of compliance in support of all laws, regulations and corporate policies.

The **Internal Audit department** is responsible for developing and implementing the annual internal audit plan and conducting audits to evaluate the effectiveness of management practices and controls. The department also has the responsibility for facilitating the ISO's enterprise risk activities and provides briefings to management and the Board of Governors on the enterprise risks, risk response and status of mitigation plans.

The **Corporate Business Operations department** is responsible for developing and implementing the corporate records management program as well as developing the Strategic Plan and associated long-term performance goals.

The **Assistant Corporate Secretary** coordinates Board related matters that include all Board of Governor meetings and materials, all Board committee meetings and materials (including those for the Market Surveillance Committee and Energy Imbalance Market Transitional Committee), as well as other Board communications. This department is also responsible for maintaining the official corporate record and overseeing Board compensation.

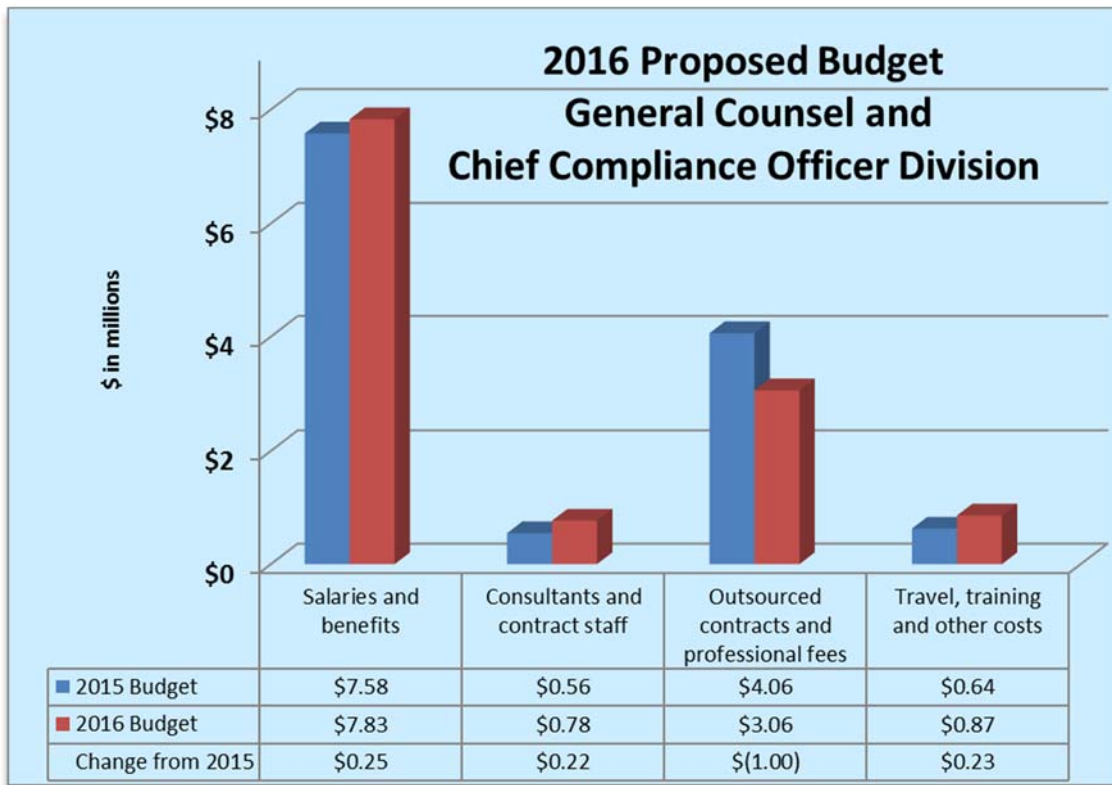
Discussion of Proposed Budget

The 2016 budget of \$12.5 million decreased by \$298,000, or 2%, from the 2015 budget of \$12.9 million. Staffing decreased by one to 31 for 2016.

Salaries and benefit costs increased by \$248,000 to \$7.8 million in 2016 primarily due to merit increases.

Consultants and contract staff increased by \$225,000 to \$783,000 in support of additional regional coordination and integration initiatives.

Professional fees decreased by \$1.0 million to \$3.1 million in 2016 primarily due to the General Counsel and Chief Compliance Officer's goal to reduce the use of outside legal services where possible.



Travel, training and other costs increased by \$198,000 primarily due to EIM and other regional initiatives.

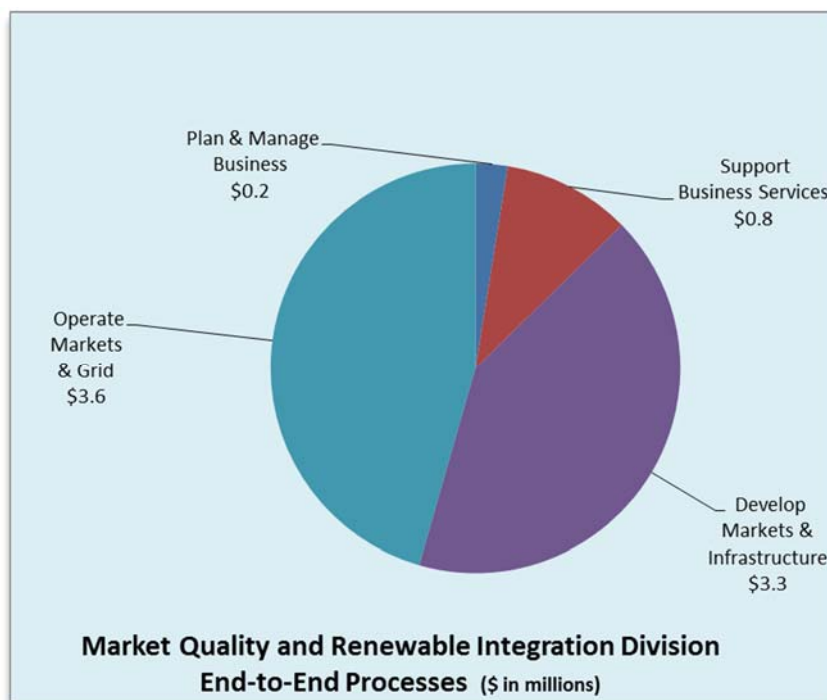
Market Quality and Renewable Integration Division

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. In support of new EIM, the Division performs assessments and quantifies benefits.

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 met 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. In 2016, the focus for the Division will be 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, and identifies systemic issues and then develops solutions to address them. The department is also responsible for supporting policy development and implementing new market designs. In addition, 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. The 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 daily market results for quality. The department is also responsible for price corrections as well as identifying and addressing root causes of erroneous prices and other market quality issues. New in 2016, the department will also be responsible for the automated process of producing and determining default energy bids and associated costs.

The **Short Term Forecasting department** produces accurate short-term forecasts for load and variable energy resources such as wind and solar generation. New in 2016, the department will also be responsible for producing forecasts for the real-time EIM, which serves consumers in six western states.

Discussion of Proposed Budget

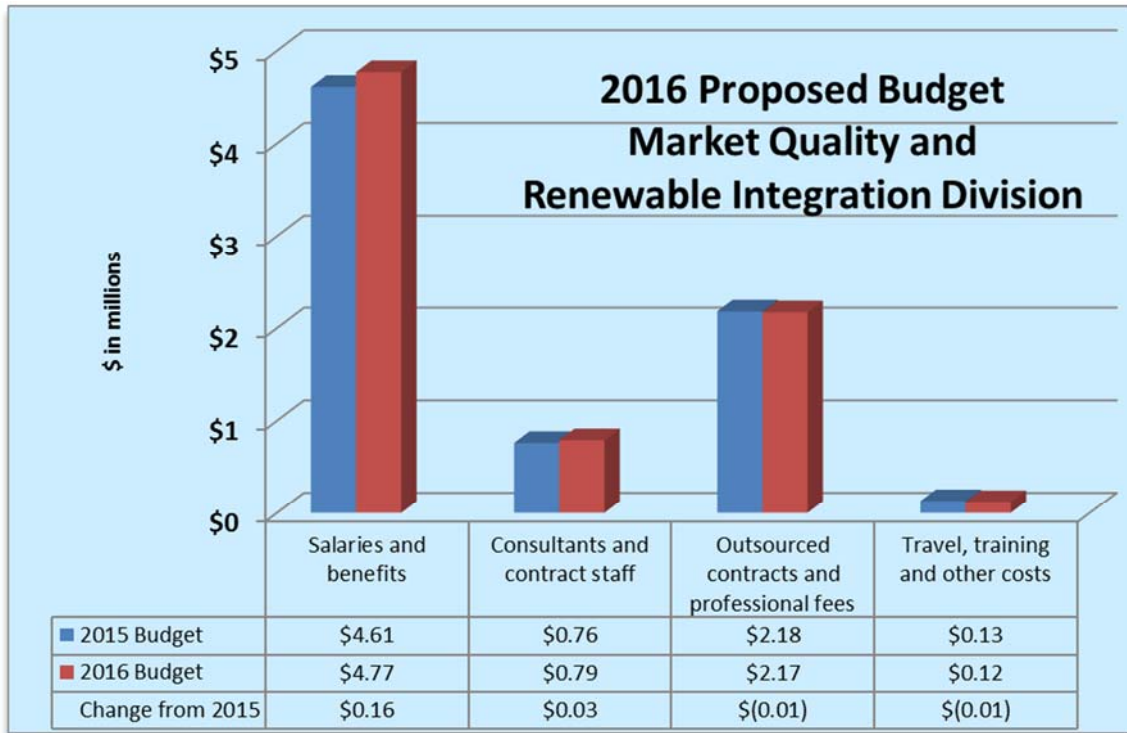
The 2016 budget of \$7.9 million increased by \$181,000, or 2%, from the 2015 budget of \$7.7 million. Staffing remained 22 in 2016.

Personnel costs increased in 2016 by \$166,000 to \$4.8 million primarily due to merit increases.

Consultants and contract staff increased in 2016 by \$30,000 to \$786,000 primarily due to additional short-term regional integration and coordination initiatives.

Outsourced contracts and professional fees remained at the same level in 2015 at \$2.2 million.

There was a small increase of \$20,000 in the other categories.



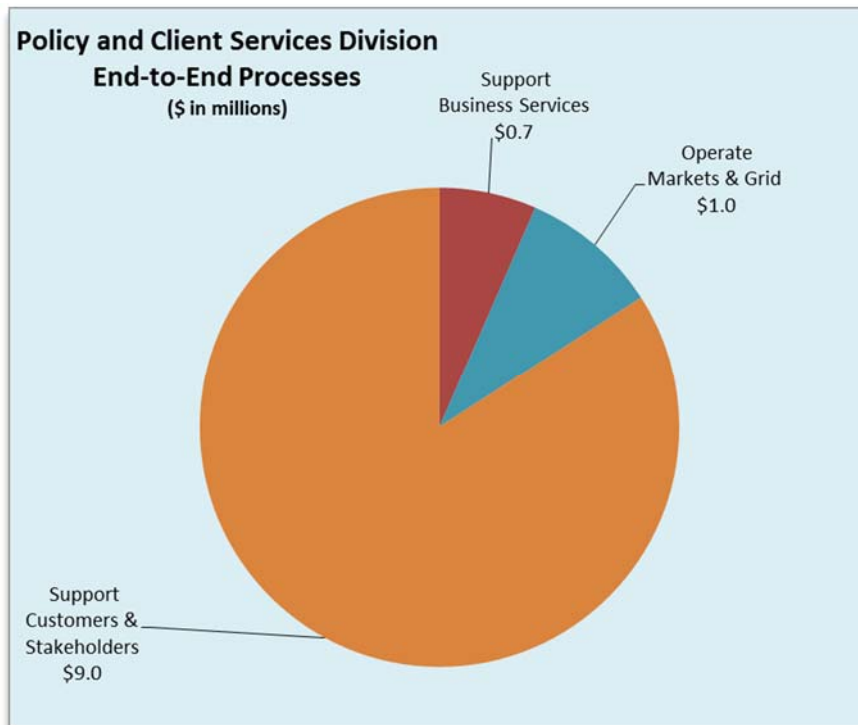
Policy and Client Services Division

The Policy and Client Services Division builds high quality collaborative relationships with a wide variety of stakeholders, regulators, state officials, and environmental and consumer groups to effectively represent ISO positions. It strives for excellence by providing timely and accurate information for public dissemination, fosters value-added customer service, anticipates and addresses issues in a timely manner, and advances company objectives that benefit retail consumers and the electric industry. The Division collaborates with other ISO business units to reach its goals, quickly resolve wholesale market customer issues, and improve communications with stakeholders.

The Division facilitates integrating renewable resources by clearly presenting ISO advice, analyses and grid needs to technical and non-technical audiences. This includes producing fact sheets, corporate brochures and info graphics that transform highly technical grid terms and concepts into simple language that supports better reading comprehension and retention. Other activities include coordinating and consulting with state and federal agencies, state and federal lawmakers, and the governors' offices to help shape regulatory policies that preserve or enhance grid reliability.

The Division also updates and manages the Business Practice Manuals, which explains underlying ISO tariffs and are critical in providing stakeholders and customers the

details they need to interconnect and operate renewable facilities, as well as be an effective energy market participant.



The **Communications and Public Relations department** oversees internal and external communication activities that include producing printed, digital, social media and video materials. The department is responsible for all Web communications and website management, as well as employee 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 **Strategic Alliance department** focus is supporting the corporate initiative that promotes regional coordination and cooperation across the West, including the expansion of the ISO's real-time EIM, 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 are at a crossroads and face new needs caused by renewable development and various initiatives promoting regional transmission planning. This department leads activities aimed at meeting these needs while maintaining and increasing value to all affected parties, including existing entities served by the ISO. Strategic Alliances lends assistance to entities seeking alternative forms of participation with the ISO. The 2016 regional initiatives build on efforts from 2015 to further the development of the EIM that began serving participating utilities in the West in the fall 2014.

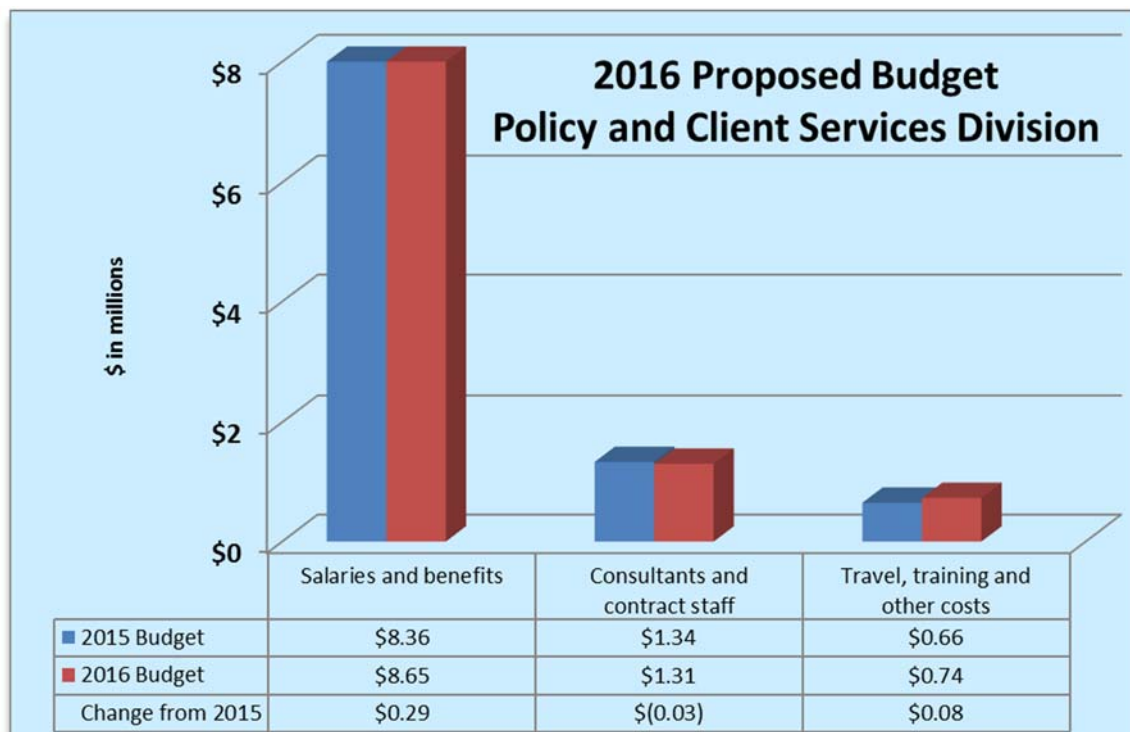
The **External Affairs departments** (federal, state, regional and regulatory) oversee interactions with state and federal legislators, governors' offices, and federal and state agencies regarding matters that could affect the reliability or economics of the ISO grid and energy markets. This effort includes building and maintaining relationships with regulatory agencies such as the California Public Utilities Commission, the California Energy Commission, and the California Air Resources Board, as well as monitoring and managing federal legislative and regulatory matters that could influence ISO practices and policies. The departments also work with legislatures to advise and educate lawmakers on policies that could affect the power system.

The **Regional Integration department** provides management and expert staff to a new effort that supports transmission owners' interest in or seeking entry as 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 making any needed changes to the ISO tariff and procedures. The department works closely with ISO executives and management to develop strategies for the successful integration of new business partners and serves as an external spokesperson and provides the principal expertise to support interfaces between the ISO and policy makers of integration partners.

The **Customer Service and Stakeholder Affairs department** is the primary business contact between the ISO and its clients and stakeholders, which includes a program to support new participants. Web-based resources, links to trade associations, and staff support to resolve newcomer issues is making it easier and seamless for entities to navigate and realize the full benefits of participating in the ISO markets.

Discussion of Proposed Budget

The 2016 budget of \$10.7 million reflects a \$341,000, or 3%, increase over the 2015 budget of \$10.4 million. Staffing increased by one to 41.



Salaries and benefit costs increased \$292,000, primarily due to merit and overtime increases.

Consultants and contract staff at \$1.3 million in 2016 remained similar to 2015.

Travel, training, and other costs increased by \$73,000 primarily related to more regional initiatives planned in 2016.

VI. DEBT SERVICE

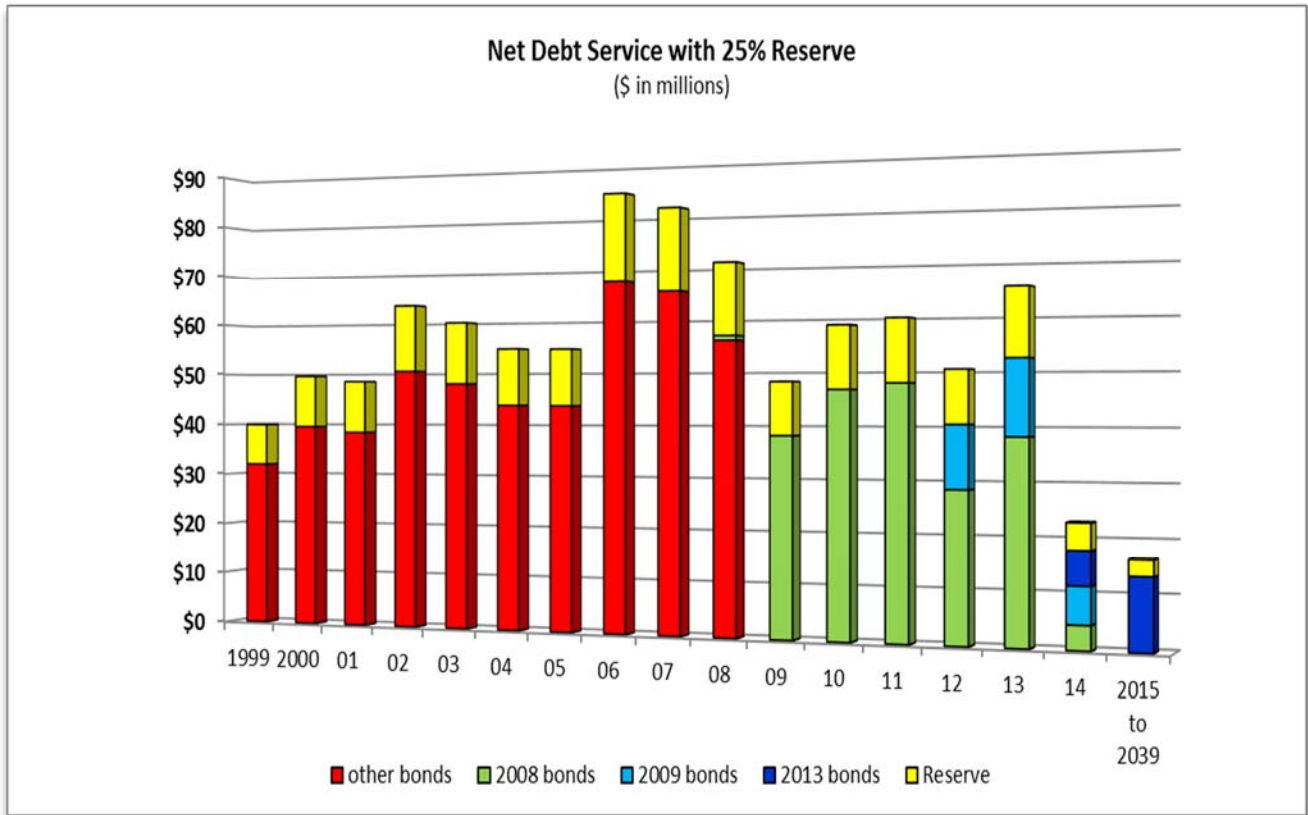
Debt service budgeted for inclusion in the 2016 revenue requirement includes the principal and interest payments due on the Series 2013 bonds and the 25% debt service reserve. The total equals the sum of the semiannual interest payment due in August of the budget year, the principal and semiannual interest 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 2016 and 2015 contained in the revenue requirement is as follows.

Debt Service (\$ in millions)	2016 Budget	2015 Budget	Change
Principal payments	\$4.6	\$4.5	\$ 0.1
Interest payments	8.9	9.0	(0.1)
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. The future amortization schedule of the 2013 bonds is listed below.

Amortization Schedule for 2013 Bonds (\$ in millions)	Principal	Interest	Total
2016	\$4.5	\$9.0	\$13.5
2017	4.6	8.8	13.4
2018	4.8	8.7	13.5
2019	5.0	8.5	13.5
2020	5.2	8.2	13.4
2021-2039	163.3	89.4	252.7
Total	\$187.4	\$132.6	\$320.0

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



VII. CAPITAL / PROJECT BUDGET AND CASH-FUNDED CAPITAL

The 2016 capital and project budget of up to \$16.5 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, authorizes individual projects within the approved budget. The Board must approve any increases in the approved budget.

The cash-funded capital collected via the revenue requirement is \$24.0 million with the excess, after utilization of the remaining bond proceeds, to be 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. Future capital project budgets are estimated to be in the range of \$20 million per year and paid for from several sources as shown in the chart below. In recent years, bond funds have been the primary source; however, as bond funds are exhausted, the cash funded capital reserves will become the primary source.

Supplemental Board Approved Projects

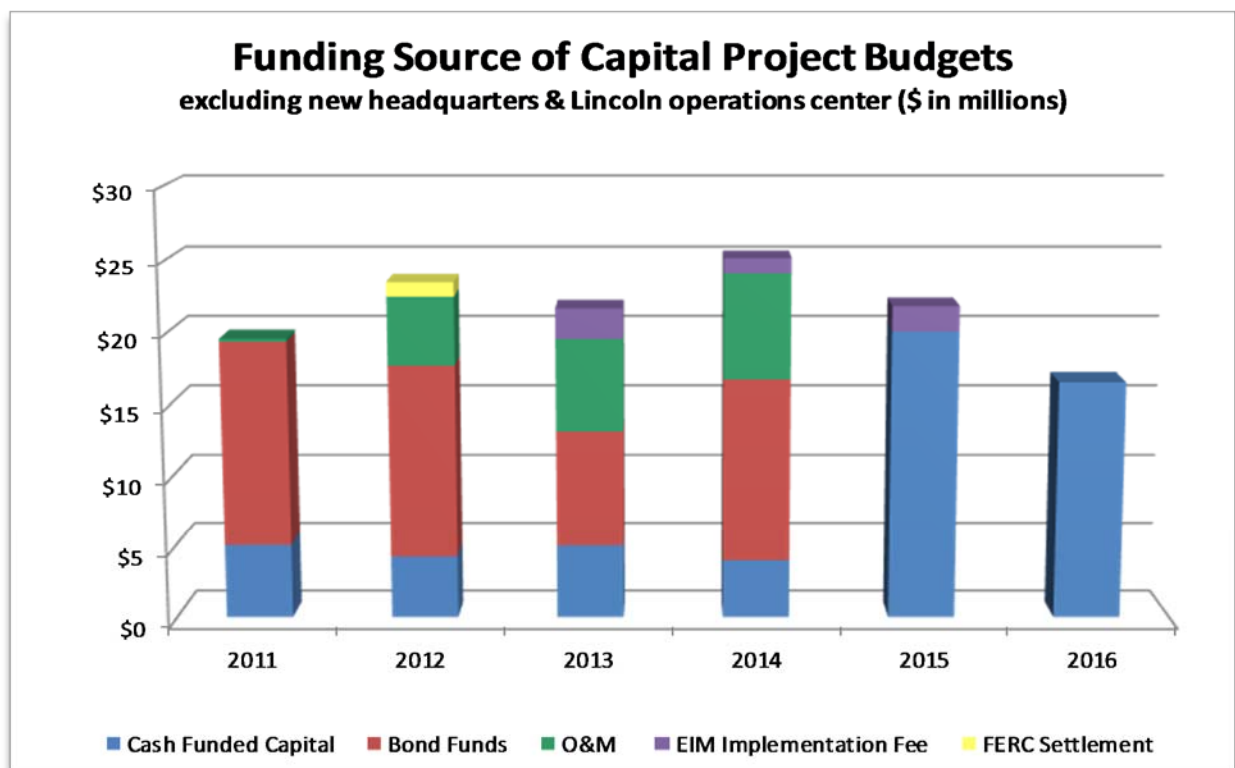
The Federal Energy Regulatory Commission (FERC) approved the EIM tariff on June 19, 2014. Full implementation began November 1, 2014. The ISO entered into the following FERC approved implementation agreements:

Entity	Implementation Fee (\$ In thousands)	Date Approved by FERC	Participation Effective (financially binding) Date
PacifiCorp	\$2,563	June 28, 2013	November 1, 2014
Nevada Energy	\$1,100	June 13, 2014	December 1, 2015
Puget Sound Energy	\$ 750	May 19, 2015	Fall 2016
Arizona Public Service	\$ 970	July 31, 2015	Fall 2016

The ISO has entered into implementation agreements with PacifiCorp and NV Energy as the first steps enabling them to participate in the western Energy Imbalance Market. PacifiCorp began participating on November 1, 2014. The date for NV Energy to begin full participation is set for December 1, 2015. Meanwhile, two other utilities, Puget Sound Energy and Arizona Public Service announced their intentions to enter the market in the fall of 2016. The participants reimburse all project costs related to joining the EIM. With the new additions, the EIM will encompass eight states.

The first EIM participant, PacifiCorp, announced in April 2015 that it was considering joining the ISO as a full Participating Transmission Owner (PTO). If this utility decides to join, any associated fees and implementation timelines will be determined at that time.

In June 2015, the ISO Board of Governors approved the construction of a new back-up control center in Lincoln, California (Lincoln Operations Center or “LOC”). The new facility will replace the current back-up center in Alhambra, California. The planned go-live date for the LOC is the fourth quarter 2016. The approved budget of \$30.4 million will be funded entirely from capital reserves on-hand; therefore, no additional debt financing will be required. Capital reserves come from two sources: 1) remaining bond proceeds from the 2013 bonds, and, 2) cash funded capital collected as part of the annual revenue requirement. Furthermore, there is no negative impact to the revenue requirement and resulting GMC rates. In fact, in addition to the planned security, site, technology, and network improvements, the Lincoln operations center project should result in approximately \$1.2 million in annual savings to the annual O&M budget. Those savings are primarily due to the elimination of lease payments, common area maintenance costs, wired network savings, and other workforce efficiencies such as travel, training, and scheduling.



Capital / Project Budget Development Process

The 2016 project prioritization process runs from July 2015 through October 2015. The program 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 listing.

During the budgeting process, combining the Information Technology roadmap items with the strategic projects scheduled for the following year results in an initial master

listing. A prioritization and ranking process determines preliminary project cut-off when the project list exceeds the available budget. The following chart shows the criteria for ranking projects. The ISO website contains the full ranking criteria schedule.

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

The following are the business and financial case criteria:

- 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 listing provides an indication of the projects proposed for initiation during 2016. 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.;

Before funding approval, a review is made of all projects on the final 2016 proposed list, including further consideration of project need, a cost-benefit analysis and completion of a project plan. Specifically, the Corporate Management Committee reviews and approves all projects considered for funding in 2016. The 2016 priorities may change depending on developments during the remainder of 2015. The actual projects completed during 2016 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.

Proposed Projects for 2016	Amount
Market and Operational Excellence	
Implement enterprise model management systems phase 3c	Large
Operations and market services enhancements 2016	Large
Enhancement to voltage stability analysis (VSA) 1. To include renewable variability and 2. Integration into the market (closed loop) 3.Real time path total transfer capability (TTC) calculator	Large
Commitment cost enhancements phase 3	Medium
Flexible ramping market product	Medium
Market quality system (MQS) redesign	Medium
Post market consolidation/demand response system (DRS)	Medium
Post market consolidation/operational meter analysis and reporting (OMAR) replacement phase 3	Medium
Storage and aggregated distributed energy resources (DER)	Medium
Two tier allocation real time bid cost recovery (BCR)	Medium
BAL 003 frequency response enhancement	Small
Bid cost recovery (BCR) enhancements for variable energy resources (VER)	Small
Bidding rules enhancements	Small
Contingency modeling enhancements - transmission	Small
Convergence bidding/tie pricing enhancements	Small
Energy imbalance market (EIM) year 1 Phase 2	Small
Forecasting system improvements phase 2	Small
Mixed integer programming (MIP) engine performance improvements	Small
Phase shifter modeling in market application (Energy management network application - EMNA)	Small
Real time dispatch (RTD) Local market power mitigation (LMPM) improvements	Small
Reducing time gap between real time pre dispatch (RTPD) running time and binding interval	Small
Reliability services phase 1B	Small
Remedial action schemas (RAS) special protection system (SPS) modeling in market applications - Phase 1	Small
Total	\$10,905,000

Enhance the Technology Foundation	
Miscellaneous hardware & third party software purchase including network and turret phone system replacements	Large
Energy costs and index calculator phase II	Medium
Multi-active operations implementation	Medium
Resource interconnection management system (RIMS) enhancements	Small
Upgrade market clearing to Oracle eBusiness suite version 12.2.4	Small
Total	\$4,170,000

Focus on Customer Service and Other Costs	
Program office internal labor	Medium
Campus operations annual budget	Small
Initialization funding for capital projects	Small
Market participant operations transparency project	Small
Technology pilots and demonstrations	Small
Total	\$1,425,000
Total Proposed Projects for 2016	\$16,500,000

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 2016 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 REVENUES

Other costs and revenues for 2016 is budgeted at \$10.8 million, \$1.4 million higher than 2015 primarily due to fees from the new EIM. EIM administrative charges of 19 cents per MW of load and generation are projected to be \$2.5 million in 2016, which is an increase of \$900,000 over 2015. Intermittent resource forecasting fees of 10 cents per MW of generation are budgeted at \$2.1 million, the same amount as 2015. The fees offset the forecasting costs for each resource incurred by the ISO that is included in O&M. Fees for completing studies of large generator interconnection projects (LGIP) requests increased \$400,000 from 2015 to \$1.8 million in 2016. The increase reflects the volume of work estimated for 2016. A small increase in other miscellaneous fees is budgeted to be \$100,000 over 2015. The California-Oregon intertie path operator fees and interest earnings are anticipated to remain at the same levels as 2015. The details of this category are as follows:

Other Costs and Revenues (\$ in millions)	2016 Budget	2015 Budget	Change
Intermittent Resource (wind and solar) Forecasting Fees	\$2.1	\$2.1	\$ -
California-Oregon Intertie Path Operator Fees	2.0	2.0	-
Interest Earnings	2.0	2.0	-
Large Generation Interconnection Fees	1.8	1.4	0.4
Energy Imbalance Market Administrative Charges	2.5	1.6	0.9
Scheduling Coordinator Application and Other Fees	0.4	0.3	0.1
Total	\$10.8	\$9.4	\$1.4

To better reflect the billing determinant volumes underlying the EIM fee, the ISO proposed to split the EIM administrative charge into two components: an EIM market services charge and an EIM system operations charge. The new EIM charges will be a percentage of the respective GMC charges as follows: The EIM market services charge is 61% of the GMC market services charge and the EIM system operations charge is 45% of the GMC system operations charge. As the rate formula is a percentage, the charges will change based on the current respective GMC rates. The percentage is subject to adjustment based upon the triennial cost of service study. The proposal was approved by the Board in March and by FERC on October 26, 2015; rates were effective on November 4, 2015.

EIM Administrative Charges	GMC Service Charges	EIM Charge % of GMC Service Charge	GMC Service Charge Rates	EIM Charge Rates
Market Services	Market Services	61%	\$0.0850	\$0.0519
System Operations	System Operations	45%	\$0.2979	\$0.1341

IX. OPERATING COST RESERVE ADJUSTMENT

The operating cost reserve adjustment is a reduction or offset to the ISO revenue requirement for 2016. 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 previous year and the difference between budgeted revenues and expenses in prior years. For 2016, the ISO forecasts a credit from the operating reserve account of \$4.1 million. A summary of the adjustment is below.

Operating Cost Reserve Adjustment (\$ in millions)	2016 Budget	2015 Budget	Change
Increase/(decrease) in 15% reserve for O&M budget	\$(0.6)	\$ (0.1)	\$(0.5)
25% debt service collection from prior year	3.4	3.4	-
True-up of actual to forecast revenues and other expenses	1.3	(0.7)	2.0
Over-collection of 2009 debt service on refinancing in 2013	-	1.5	(1.5)
Total	\$4.1	\$4.1	\$ -

The calculation of the 15% change is as follows.

Change in 15% Operating Reserve (\$ in millions)	2016 Budget	2015 Budget	Change
Change in O&M budget from prior year	\$169.3	\$165.1	\$4.0
Percentage	15%	15%	-
Increase in Operating Reserve requirement	\$25.4	\$24.8	\$0.6

X. UNBUNDLED GRID MANAGEMENT CHARGE CALCULATIONS

The ISO recovers its costs through separate GMC charges to market participants. The design originally approved in 2011 provides for three service categories and five associated fees and charges. The rate design (updated in 2014 and effective January 1, 2015) consisted of changes in two cost categories: the system operations and CRR services charges, a change in the rate for the TOR charge and an increase in the revenue requirement maximum to \$202 million. The Board approved the update July 2014. FERC approved the update December 18, 2014. The ISO derives the rate by dividing the recoverable costs for the category by the estimated billing determinants.

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.

Calculation of Fee Revenue

Fees and Charges	Rate	Estimated Volumes	Estimated Revenue (\$ in thousands)
Bid Segment Fees	\$0.005	58,074,478	\$290
Inter-SC Trade Fees	1.00	2,320,578	2,321
SCID Fees (monthly)	1,000	216	2,592
TOR Fees	0.24	2,812,708	675
CRR Auction Bid Fees	1.00	849,313	849
Total			\$6,727

Calculation of Service Category Rates

Component	Market Services	System Operations	CRR Services	Total
Allocation of Revenue Requirement (\$ in thousands)				
Total Revenue Requirement				\$195,343
Adjust for (over) /under collection of 2014 rates	(\$477)	\$1,682	(\$864)	341
Remaining to allocate				195,002
Percentages	27%	70%	3%	100%
% allocation of costs	52,651	136,501	5,850	195,002
Combined costs	52,174	138,183	4,986	195,343
Deduct Fee Revenue				
Bid Segment Fees	290	-	-	290
Inter-SC Trade Fees	2,321	-	-	2,321
SCID Fees	2,592	-	-	2,592
TOR Fees	-	675	-	675
CRR Auction Bid Fees	-	-	849	849
Total Fees	5,203	675	849	6,727
Calculation of Recoverable Costs				
Costs Less Fees	\$46,971	\$137,508	\$4,137	\$188,616
Estimated Volumes				
Volumes	552,606,979	467,310,533	838,190,699	
Deduct Exceptions				
Less grandfathered supply	-	5,694,000	-	
Adjusted Volumes	552,606,979	461,616,533	838,190,699	
Resulting Rates	\$0.0850	\$0.2979	\$0.0049	

Summary of GMC Costs and Rates

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

Charge Code	Service Category or Fee	2016 Budget	2015 Budget	\$ Variance	% change
4560	Market Service Charge	\$47.0	\$48.3	(\$1.3)	-2.7%
4561	Systems Operations Charge	137.5	138.7	(1.2)	-0.9%
4562	CRR Services Charge	4.1	5.1	(1.0)	-19.6%
4515	Bid Segment Fees	0.3	0.3	-	0.0%
4512	Inter-SC Trades Fees	2.3	2.6	(0.3)	-11.5%
4575	SCID Fees	2.6	2.4	0.2	8.3%
4563	TOR Charges	0.7	0.6	0.1	16.7%
4516	CRR Auction Bid Fees	0.8	0.5	0.3	60.0%
Total		\$195.3	\$198.5	(\$3.2)	-1.6%

Comparison of Rates (\$ per unit)

Charge Code	Service Category	2016 Rate	2015 Rate	\$ Variance	Comments
4560	Market Service Charge	\$0.0850	\$0.0876	(\$0.0026)	3% lower costs projected for 2016
4561	Systems Operations Charge	\$0.2979	\$0.2978	\$0.0001	1% lower volume projected for 2016
4562	CRR Services Charge	\$0.0049	\$0.0059	(\$0.0010)	5% lower volume and 20% lower costs projected for 2016

The rates for bid segment fees, inter-SC trade fees, SCID fees, TOR charges and CRR auction bid fees are fixed.