2019 Financial Report

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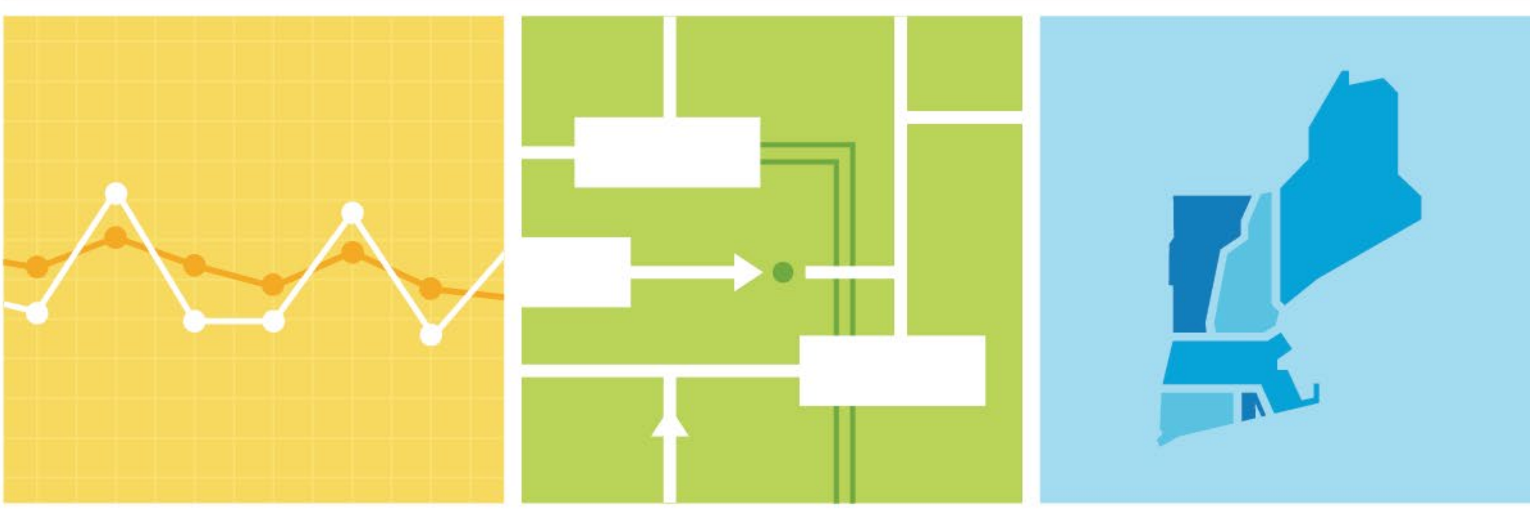

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Letter from the CEO

ISO New England is pleased to issue its 2019 Financial Report. As the not-for-profit Regional Transmission Organization for New England, the ISO measures success by our ability to deliver high-quality service within a framework of fiscal responsibility and best practices.

This document includes a summary of last year's operations and our financial position, as well as our financial statements audited by independent public accounting firm KPMG LLP. In addition to discussing the complex day-to-day operations we perform in service to the region, this report reflects expenditures for our extensive project work identified through a rigorous annual budgeting process. This process involves iterative input from New England state agencies and the New England Power Pool (NEPOOL), strong oversight from the ISO Board of Directors, and review and approval by the Federal Energy Regulatory Commission (FERC) (see www.iso-ne.com/budget). Some of these refinements and enhancements help address ongoing changes in and challenges to the region's electric power system, while others facilitate informed participation or introduce technological innovations and efficiencies that help the ISO provide even more value for the region. The ISO's annual Regional Electricity Outlook (www.iso-ne.com/reo) explores many of these issues.

Highlights of our efforts in 2019 include the successful delivery on a number of diverse, innovative, and highly complex projects such as the Energy-Storage Device project that enables electricity-storage facilities to participate in the energy and reserve markets as dispatchable resources and the deployment of an eMarket sandbox for the Offer-Caps project. Cybersecurity was a key focus for the organization in 2019: we completed work on the Identify and Access Management and Network Security projects, both of which helped to strengthen our security posture and mitigate cyber threats. We prepared for the region's first request for proposal under FERC Order 1000 for a competitively developed transmission solution for Greater Boston. With stakeholder support, we filed tariff revisions and a new agreement specific to the Order 1000 process, both of which were accepted by FERC without change. And, we put forth significant effort on the Energy-Security Initiative design and filing.

Energy security; grid modeling and forecasting of emerging technologies; Forward Capacity Market and other market reforms; administering the Greater Boston area RFP; and continued cybersecurity enhancements are key objectives for 2020.

On behalf of ISO New England, I thank the market participants, federal and state officials, and other electricity stakeholders for their participation in a productive 2019. For 2020, ISO New England has been able to maintain its reliability, markets, and planning functions as usual through the COVID-19 pandemic. However, the pandemic's greater impact on the region's economy and society are yet to be fully realized. In planning for years ahead, we will need to be both flexible and resilient in how we operate our businesses and address challenges in our rapidly evolving industry. Your collaborative spirit and support is instrumental to the ISO's mission of ensuring the reliable supply of electricity that is essential the region's prosperity and progress.

Sincerely,

Gordon van Welie

President and Chief Executive Officer

Management's Discussion and Analysis

The Company

ISO New England Inc. (ISO) is a Regional Transmission Organization (RTO) serving Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. The ISO's mission, in collaboration with its stakeholders, is to ensure that New England has reliable, competitively priced wholesale electricity through three interconnected responsibilities:

- Reliably operate New England's bulk electric power system, economically dispatching and directing the generation and flow of electricity minute-to-minute across the region's interstate high-voltage transmission lines, thereby ensuring the constant availability of electricity for consumers
- Develop and administer New England's billion-dollar competitive wholesale electricity markets that provide reliability and efficiency benefits for consumers
- Manage comprehensive, long-term bulk electric power system planning that analyzes system needs over the next 10-year period and considers and incorporates federal and state policies

On January 13, 2014, the ISO, along with several Eastern Interconnection reliability coordinators (RCs) became a member of a newly formed entity, Eastern Interconnect Data Sharing Network, Inc. (EIDSN).[1] EIDSN is a 501(c)(6) nonstock, nonprofit corporation established to, among other things, facilitate the secure, consistent, effective, and efficient sharing of important electricity transmission and operational data among and between its members and other applicable parties to help improve electricity industry operations and promote the reliable and efficient operation of the Eastern Interconnection.[2]

Current Environment

ISO New England has identified its priorities for 2020 and beyond that correspond to its three core objectives of reliable operations, efficient wholesale electricity markets, and comprehensive bulk power system planning, and its projects and initiatives for 2020 will encompass these major strategic areas. Many are specifically related to the following near-term challenges to the power system:

- Fuel-delivery systems and energy security for power system operations
- Active participation in setting and meeting regional and national reliability and cyber standards
- The integration of variable, renewable, and distributed resources as the resource mix evolves due to state policies

[1] According to the North American Reliability Corporation (NERC) a *reliability coordinator* is an entity with the highest level of authority for reliably operating the bulk electric power system, including the authority to prevent or mitigate emergency operating situations in next-day and real-time operations. The ISO has registered with NERC as an RC and is responsible for complying with NERC standards applicable to an RC.

[2] The *Eastern Interconnection* is one of two major AC power grids in North America spanning from central Canada eastward to the Atlantic coast (excluding Québec), south to Florida, and west to the foot of the Rocky Mountains (excluding most of Texas—the portion in the Electric Reliability Corporation of Texas) that, during normal system conditions, interconnects transmission and distribution infrastructure and operates at a synchronized frequency of 60 Hz average. The Eastern Interconnection connects to the Western Interconnection, the Texas Interconnection, and the Québec Interconnection generally through numerous high-voltage DC transmission lines.

The ISO will incorporate these strategic areas of focus into the following major projects and initiatives in 2020:

- Forward Capacity Market (FCM) and other market reforms:
  - Review of cost of new entry (CONE)
  - Net cone
  - Offer trigger prices
  - Dynamic delist bid threshold
  - Capacity performance payment rate
- Competitive Auctions with Subsidized Policy Resources (CASPR)
  - Integration of states policies
    - Assess market frameworks
    - Emerging industry efforts (i.e., storage and colocation)
- Energy security
  - Enhanced by the development of new products in the markets
- Impact of grid modeling and forecasting from emerging technologies, including energy-storage devices, energy efficiency, photovoltaics, and wind
- Federal Energy Regulatory Commission (FERC) Order No. 1000[3]
  - Administering the first request for proposal for a competitively developed transmission solution for Greater Boston
- Cybersecurity enhancements
  - FERC's supply-chain-risk initiative
  - Participation with national and regional entities

The ISO will fulfill these responsibilities while ensuring that its business operations are well managed, cost effective, and responsive to New England's market participants, state officials, and other electricity stakeholders.

Critical Accounting Estimates

The ISO's management team must conduct the following tasks to prepare the company's financial statements in conformity with accounting principles generally accepted in the United States:

- Make estimates and assumptions that affect the reported amounts of assets and liabilities

[3] *Third Order No. 1000 Regional Compliance Filing of ISO New England Inc. and the Participating Transmission Owners Administrative Committee*, Docket No, ER13-193-___ (May 18, 2015), http://www.iso-ne.com/static-assets/documents/2015/05/er13-196-004.pdf and http://www.iso-ne.com/static-assets/documents/2015/05/er13-193-005.pdf. FERC, *Order on Compliance Filings* (May 17, 2013), http://www.iso-ne.com/static-assets/documents/regulatory/ferc/orders/2013/may/er13_193_er13_196_5_17_13_order_on_order_1000_compliance_filings.pdf.

- Disclose contingent assets and liabilities on the date of the financial statements
- Report the amounts of revenues and expenses during the reporting period

Significant items subject to such estimates and assumptions include the useful lives of fixed assets; pension and postretirement benefits, including earnings rates, discount rates, healthcare cost trends, and reserve for employee-benefit obligations; and other contingencies.

Accounting Policies

The ISO implemented *Sarbanes-Oxley 302* (SOX 302) compliance in 2003. SOX 302 is a set of internal procedures designed to ensure accurate financial disclosure, as well as the disclosure of material information about the ISO, to its signing officers. In 2009, the ISO added a critical vendor matrix to its SOX 302 disclosure. This matrix, prepared by the ISO's vice president of Information Services and chief operating officer (COO), identifies those companies that provide very specialized goods or services to the ISO. The critical vendor matrix identifies the risk, as well as a mitigation plan for the risk, where applicable. The ISO also developed disclosure checklists, which represent the essential internal controls for maintaining financial accuracy. Department managers, senior officers, and the ISO's chief executive officer (CEO) complete these disclosure checklists quarterly. The ISO's chief financial officer (CFO) reports the results of the disclosures and matrices quarterly to the Audit and Finance Committee of the ISO's board of directors. The Audit and Finance Committee must review the SOX 302 disclosure before the release of the quarterly unaudited financial statements.

In 2010, the ISO implemented a modified *Sarbanes-Oxley 404* (SOX 404) compliance process to complement the SOX 302 procedures. For SOX 404 compliance, the ISO evaluates the control environment associated with financial reporting. To perform this evaluation, the ISO developed a principle evaluation matrix, which contains specific questions covering each of the seven principles that address the control environment component of guidance from the Committee of Sponsoring Organizations of the Treadway Commission (COSO).[4] Key individuals in the company complete the matrix annually, and the CEO and CFO review it for completeness and effectiveness. In addition, the ISO's director of Finance and Accounting annually assesses the Statement of Financial Position and the Statement of Activities to measure the risk of fraud, control, and various other risk profiles that certain accounts and activities have. The CEO and CFO review the results of the risk assessment and make recommendations for additional controls, as needed.

Tariff Recovery of Costs/Promoting Sound Governance

Each year since its inception, the ISO has filed a new tariff with FERC to recover its operating costs and fund its capital expenditure program for the subsequent year. The ISO's funding-recovery process is defined in Section IV of the *ISO New England Inc. Transmission, Markets, and Services Tariff* (ISO tariff).[5] The funding-recovery process begins with the development of the annual budgets, which ultimately become the revenue requirement collected under Section IV.A, Recovery of ISO Administrative Expenses, of the ISO tariff and the anticipated capital expenditures. In preparing the budgets, the ISO executes a rigorous process to ensure that

[4] The Committee of Sponsoring Organizations of the Treadway Commission is a joint initiative of the American Accounting Association, American Institute of Certified Public Accountants, Financial Executives International, American Association of Accountants and Financial Professionals in Business, and Institute of Internal Auditors, which develop frameworks and guidance on enterprise risk management, internal control, and fraud deterrence; see https://www.coso.org.

[5] *ISO New England Inc. Transmission, Markets, and Services Tariff* (ISO tariff), Section IV (2019), www.iso-ne.com/participate/rules-procedures/tariff.

the budgets submitted to stakeholders for review and to FERC for approval align with the ISO's initiatives and goals and are just and reasonable.

Development of the Budget

The ISO's budgets are based on business plan initiatives the ISO sets for the coming five years. Senior management begins to develop the business plan at the start of the year preceding the budget year. The ISO reviews the plan with the ISO board of directors and stakeholders in the spring and early summer before establishing the budgets. The ISO meets with and obtains feedback from the New England Power Pool (NEPOOL), New England Conference of Public Utilities Commissioners (NECPUC), New England States Committee on Electricity (NESCOE), other state officials, and other interested stakeholders.

In July of each year, the ISO's department managers submit their budgets based on the business plan. Senior managers, including the CFO and CEO, review the budgets, which are then adjusted as needed. The ISO prepares a comprehensive presentation for review and amendment by the ISO's Board Audit and Finance Committee. The presentation includes information on the budget process, new initiatives, summarized budget data, budget details, depreciation and interest rates, the capital budget (with explanations for each project), cash flow and pro forma financial projections for future years, and a comparison of cost data and services provided by other Independent System Operators and Regional Transmission Organizations.

The budgets are presented in August to the NEPOOL Budget and Finance Subcommittee for review, input, and recommendation to the NEPOOL Participants Committee, which reviews and votes on the budgets at its October meeting. During this August-to-October timeframe, the ISO solicits input on the budgets from state officials. The ISO's full board of directors then must approve the budgets in October of each year before considered complete and ready for filing with FERC.

The administrative costs budget and the capital budget recommended by the NEPOOL Participants Committee and approved by the ISO board of directors provide the basis for Section IV.A of the ISO tariff filed with FERC on or before November 1 of each year. Pursuant to Section IV.A, the ISO recovers its operating costs through the following three tariff schedules:

- Schedule 1—Scheduling, System Control, and Dispatch Service
- Schedule 2—Energy Administration Service
- Schedule 3—Reliability Administration Service

Each year during the tariff development process, department managers allocate their budgeted costs by activity, with each activity having an allocation to one, two, or all three of the tariff schedules. This process allows the ISO to categorize the applicable year's budget according to the three tariff schedules. The costs applicable to each schedule or set of activities become the revenue requirement for that schedule. To arrive at billable rates, the costs are then allocated to market participants on the basis of the billing determinants for each schedule's revenue requirements. The billing determinants are based on both volumetric and transactional units, depending on the schedule.

Because actual costs will vary from the budgeted costs, as well as the projected billing determinants, Section IV.A of the ISO tariff contains a true-up provision. The ISO records any over- or undercollection as a deferred charge or a regulatory liability, and the adjustment for the true up increases or decreases the cost recovery in a subsequent tariff filing.

Committee Activities

The stakeholder engagement the ISO follows does not end with the annual budgeting process. ISO actively engages its stakeholders year-round through a large number of focused committees. Annually, during 150 or more scheduled meetings, on average, the ISO and its stakeholders jointly participant in the following types of activities:

- New or improved wholesale electricity market initiatives
- Planning for the bulk power system
- Review of the operations of the bulk power system for the region
- Demand-resource objectives
- Financial review of the ISO operations
- Market and credit risks
- New membership
- NEPOOL Participant Committee meetings that encompass all these topics combined

In addition, the ISO's board members have expertise in financial markets, law, electric power operations, and regulation. Board members have no financial interest in any company participating in New England's wholesale electricity markets. The ISO's board and respective board committees conduct business by meeting regularly throughout the year with management to discuss emerging issues; the status of the ISO operations, both financial and physical; internal audits; strategic direction; compensation reviews; and items associated with the wholesale electricity markets, among other topics.

Culture of Compliance/Three Lines of Defense

The ISO's board and senior management promote an ethical culture and support a culture of compliance with all regulations the ISO is subject to. One way in which the ISO achieves this is through the Code of Conduct every employee and director must sign and the company's compliance handbook. The purpose of the handbook is to supplement the Code of Conduct by providing an overview of the company's "Three Lines of Defense," which seek to adhere to the following:

- Quality management principles to promote the development of business procedures and to adhere to them
- Monitoring and support programs that identify risks and provide reasonable assurance of compliance
- An annual audit plan to formally assess internal controls; compliance with governing documents; and, on occasion, compliance with specified regulatory obligations

More specifically, the ISO's first line of defense is to establish and measure controls, implement corrective actions to address process and control weaknesses, execute risk and control procedures on a daily basis, and fulfill all trainings offered companywide. The ISO actively encourages employees to use the Corrective Action/Preventative Action (CAPA) (i.e., issues management) system available to all staff, which it has enhanced since its inception more than 10 years ago to better serve its market participants and stakeholders. This system gives the entire workforce a voice and avenue to provide feedback and capture improvement opportunities for the company's processes and systems. This feedback is then reviewed and prioritized, allowing work to proceed on the most impactful projects. In addition to driving project work, the system is used for tracking and assessing enterprise risks to the organization, reporting, and senior staff's reviewing monthly those open issues with a significant risk rating.

The second line of defense is the established risk control and oversight functions. These functions include a comprehensive compliance-management system the chief operating officer/chief financial officer oversees, which includes an inventory of all FERC obligations, North American Electric Reliability Corporation (NERC), and North American Energy Standards Board (NAESB) business practice obligations, and various federal and state reporting obligations. A Security Committee discusses current and emerging issues with senior staff and other appropriate personnel. In addition, several departments address cybersecurity, which provide reports to the Security Committee:

- Cyber Security conducts 24x7 monitoring of cyber threats (among other responsibilities).
- The Critical Infrastructure Protection (CIP) and Systems Compliance Operations groups monitor compliance with NERC CIP standards.[6]

The ISO also has an internal and an external market monitor responsible for ensuring the integrity of the wholesale electricity markets. The company requires annual certification of its Code of Conduct, and it has an anonymous internet-based reporting tool anyone can use to report any issues they may see. Additionally, the ISO's legal department assists in interpreting tariff requirements for business owners.

The third line of defense includes the Internal Audit Department (IAD). The mission of the IAD is to provide independent, objective assurance and consulting services that add value and improve ISO New England business operations and, where appropriate, selected participant and vendor activities. IAD accomplishes its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, compliance, and governance processes at ISO New England.

The Internal Audit Department is responsible for the following tasks:

- Developing a flexible annual Audit Plan using an appropriate risk-based methodology, including any risks or control concerns identified by management
- Implementing the annual Audit Plan, as approved by the Audit and Finance Committee
- Performing audits of internal controls in selected areas to determine whether the controls are functioning in a reasonable manner that mitigates risk
- Performing compliance audits in selected areas to determine whether the processes examined generally conform to the requirements of the corresponding set of rules and governing documents
- Managing, coordinating and providing oversight for external audit activities, such as the SOC 1 Type 2 engagement, benefit plan audits, network vulnerability assessments, and market system certifications

Liquidity and Capital Resources

As a nonstock, nonprofit organization, the ISO has neither equity nor any accumulated reserves. The creditworthiness of the ISO is based on the ISO tariff, which allows recovery of costs, including debt service costs. To fund its working capital needs, the ISO has a $20 million line of credit provided by a bank. In addition, to support shortfall payments under the ISO New England Billing Policy (Exhibit ID of the ISO tariff),

[6] NERC, "CIP Standards," webpage (2020), https://www.nerc.com/pa/Stand/Pages/CIPStandards.aspx.

the ISO has a $4 million line of credit provided by a bank. In June 2018, the ISO refinanced the expiring lines of credit for a new three-year term, which will expire on July 1, 2021. Section IV.B, Capital Funding Arrangements, of the ISO tariff is the backstop to all the ISO's borrowings in the event of any acceleration of debt repayments.

In 2019, the ISO's five-year projection (reviewed and updated in 2019) of funding for future capital expenditures remained in place. The program includes funding for an average of $25 to $28 million in capital spending for the next five years.

The ISO reviewed many available financing options for meeting the needs of the spending program in a cost-effective manner and consequently discontinued its practice of securing new term-loan debt each year. By issuing longer-term private-placement notes, the ISO saves the cost of borrowing new money each year, as well as the cost of filing with FERC, and instills budgetary discipline in the capital expenditure program.

The ISO currently has two private-placement, fixed-rate note issuances totaling $50 million.

In 2012, the ISO issued $11 million in 12-year, private-placement, fixed-rate notes (expiring in 2024) to provide funding to support the capital project program. The additional $11 million in notes issued was a result of increased project work arising from the stakeholder process and regulations, as well as longer project-implementation lead times due to increased complexity. These notes were in addition to the then existing $39 million of private-placement, fixed-rate notes, expiring in September 2014. The $39 million of private-placement, fixed-rate notes that expired in 2014 were replaced for the same amount ($39 million); the new notes will expire in 2024.

The continued issuance of private-placement notes aligns with the ISO's philosophy of budgetary discipline and saving the cost of new borrowings each year. As the ISO places projects in service and the projects begin to depreciate, the ISO recovers the depreciation expense under Section IV.A of the ISO tariff, and the recovered expense becomes available for funding future capital spending requirements.

In 2005, the ISO secured $45.5 million of tax-exempt debt to finance its new master control center and renovate and consolidate its existing office facilities. The debt comprises multimode variable-rate civic-facility revenue bonds, which reprice weekly. The Massachusetts Development Finance Agency issued the bonds, which the ISO will be repaying over 25 years; principal repayments began in May 2007. The weighted average cost of the debt for 2018, including the direct-pay letter of credit, was 1.75%.

In 2012, the ISO secured $36 million of tax-exempt debt to finance the construction of its new backup control center (BCC). The new BCC was fully operational in May 2014. The debt comprises multimode variable-rate civic-facility revenue bonds, which reprice weekly. Connecticut Innovations Incorporated issued the bonds. Principal repayments began in November 2014, with a redemption payment of $1,350,000, in addition to the regularly scheduled principal payments because the project completed under budget. The weighted average cost of the debt for 2018, including the direct-pay letter of credit, was 1.75%.

Regulatory Update

Federal Update

A politically divided Congress has not yielded much in the way of energy policy over the past 12 months. However, several members of the New England congressional delegation have turned their attention to regional discussions regarding the ability of New England states to meet their carbon-reduction and renewable energy goals and the role of wholesale electricity markets. In the past year, FERC continued, its focus on New England's energy-security challenges and resource-adequacy mechanisms in regions with wholesale markets. In November, eight members of the New England Senate delegation, led by Senator Sheldon Whitehouse (D-RI), sent a letter to ISO New England calling on the company to take a more proactive role in changing wholesale electricity markets to promote renewable energy. The letter also called on the ISO to commit to a request made by (among other entities) the New England States Committee on Electricity (NESCOE) in 2019 that the ISO dedicate the resources and personnel necessary in 2020 to engage in a broader regional discussion about the future of states' climate-focused goals. In its response, the ISO assured the senators that the ISO had already made that commitment to NESCOE and highlighted many of the market changes designed by the ISO to help integrate renewable energy in the market. The ISO also reiterated its longstanding preference for the region to price carbon emissions through the wholesale market as a means of encouraging renewable energy growth. The ISO's response acknowledged that the New England states do not support this approach.

ISO New England met with Senator Whitehouse in February 2020 in part to discuss the broader regional conversation (led by NESCOE and the New England Power Pool) regarding how states can best meet their environmental goals. It seems likely that some members of the congressional delegation will continue their engagement on regional issues in the absence of legislative action on Capitol Hill.

Each of the relevant energy committees in Congress introduced climate-change-focused packages earlier in 2020. The House Energy and Commerce Committee released draft language moving the country toward a 100% clean energy economy by 2050 and included language mandating ISO/RTO participation for transmission owners. The House language does not including a carbon price but does allow FERC to approve a carbon-pricing regime. The Senate Energy and Natural Resources (ENR) Committee tied together into a more comprehensive package several dozen targeted bills that passed the panel last year. The Senate effort, which included several initiatives focused on investment in energy efficiency and energy-storage technologies, has been sidelined indefinitely due to an issue not germane to the ENR Committee.

Recent turnover at the commissioner level at FERC continued in the second half of 2019 and into 2020. Cheryl LaFleur departed the commission in 2019 and Commissioner Bernie McNamee has announced he will not return once his term expires in June 2020. The US Senate confirmed James Danly, FERC's General Counsel, to a commissioner's seat earlier this year, ensuring that the commission will maintain the minimum number of commissioners for a quorum after Commissioner McNamee departs later this year.

FERC continues to wrestle with the extent to which it should (or must) factor in the environmental impact of some of the new infrastructure projects that seek FERC approval. Several recent orders affecting capacity markets in PJM and New York continue to focus attention on the Minimum Offer Price Rule as a mechanism to address the impact of out-of-market revenue for new, state-sponsored capacity resources. The "resilience" docket at the commission (stemming from a 2017 US Department of Energy notice of proposed rulemaking) remains open, and the commission continues its interest in the physical and digital security of the bulk power system.

State Update

States in New England continue their efforts to determine how to meet their economy-wide carbon-reduction goals, as well as statutory targets under their Renewable Portfolio Standards. Four New England states have statutory requirements to reduce overall greenhouse gas emissions by 80% by 2050. Massachusetts, Rhode Island, Connecticut, and Maine have enacted mandates setting renewable energy production targets that will require meaningful investments in new facilities in the coming years.

To accelerate the clean-energy production necessary to meet these mandates, Massachusetts, Rhode Island, Connecticut, and Maine are working to develop new clean-energy facilities through state-driven procurements outside the wholesale electricity markets. The bulk of the new electricity is likely to be offshore wind (e.g., Vineyard Wind), which has led to proposed wind projects accounting for up two-thirds of the region's Interconnection Request Queue.[7] However, the state procurements also include large-scale hydropower (e.g., the New England Clean Energy Connect transmission line), long-term contracting for existing nuclear facilities, as well as solar photovoltaics (PV), biomass, and fuel cells. All six New England states continue individual efforts to promote battery storage, as well, through many regulatory and legislative initiatives.

State efforts to promote solar PV continue to yield significant results, and ISO New England's 10-year forecast for regional PV growth predicts that the region will have over 7,700 megawatts (MW) of PV installed by 2029 (up from 40 MW in January 2010). Ongoing state investments in energy efficiency likewise are resulting in a significant reduction in both peak demand and overall energy use in the coming years.

In 2020, for the first time, the ISO released 10-year forecasts to capture growth in both heating electrification as well as light-duty electric vehicles in New England. With regard to heating electrification (primarily heat pumps), the ISO forecasts that by 2029 roughly 1 million heat pumps will be installed in New England with an approximate 800 MW increase in load. By the end of 2029, light-duty electric vehicles are estimated to number over 515,000 regionwide and combine for an additional 400 MW.

Advancing Sustainability

As noted above, there is a focus on renewable energy, climate change, and energy security, both at the state and federal levels. ISO New England's objectivity in addressing these challenges places it in a unique role and gives it an objective, bird's-eye view of trends that could have an impact on the region's power system. The ISO's *2020 Regional Electricity Outlook* includes discussion on the following topics, among others:[8]

- Increased integration of energy-efficient resources, such as wind, PV, and other energy-storage devices
- How the electricity grid has been transforming over the past 20 years
- Challenges the region is facing with the natural gas infrastructure constraints
- Impacts of retiring power plants
- Accommodation of state-sponsored clean-energy goals

The ISO does its part in conserving energy. Its two locations (i.e., the main and backup control centers) are Leadership in Energy and Environmental Design (LEED) certified for new construction, have heating, ventilation, and air conditioning (HVAC) automation systems, are equipped with exterior LED lighting, and use timers and motion sensors for all interior common area building lighting and offices. In addition, the facilities are equipped with electric car charging stations and carpool-preferred parking spaces. Solar panels installed at the backup control center provide lower cost, green energy as a supplement to this building's electricity needs.

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[7] More information about the ISO's Interconnection Request Queue is available at https://www.iso-ne.com/system-planning/transmission-planning/interconnection-request-queue/.

[8] ISO New England, *2020 Regional Energy Outlook* (2020), https://www.iso-ne.com/about/regional-electricity-outlook.

ISO Employees, Workplace, and Communities

Employees

The ISO's organizational achievements—running competitive wholesale power markets, ensuring the ongoing reliability of the power grid, and managing comprehensive long-term planning of the bulk power system—are a testament to the talent of ISO staff. Attracting, developing, rewarding and retaining a qualified, diverse, and engaged workforce brings about the company's success when working with and for the region, government regulators, and stakeholders. The dedication and professionalism of the ISO's workforce is paramount as the company navigates the ever-evolving wholesale electricity market landscape.

Diversity and Inclusion

The ISO's workforce comprises highly educated individuals from across the globe. More than half the workforce has heightened their learning to achieve the most advanced degrees—master's, PhD, and juris doctor—predominately in the disciplines of engineering, economics, and information technology. Women represent approximately one-third of the ISO's workforce, of which nearly 25% serve in leadership positions. ISO New England honors diversity and promotes inclusion, knowing that a unique blend of backgrounds and perspectives improves problem-solving, spurs innovation, informs decision-making and makes ISO New England a place where, each day, people want to come to work.

ISO New England's pledge to uphold these values comes from the top—CEO Gordon van Welie signaled his resolute dedication to these principles. In 2019, Mr. van Welie pledged to take part in the largest CEO-driven business-commitment initiative to advance diversity and inclusion in the workplace, joining the growing coalition of over 900 committed CEOs by becoming a signatory to the *CEO Action for Diversity and Inclusion* program.[9]

In 2019 and beyond, ISO New England is implementing efforts to advance diversity and enhance inclusivity. These efforts are grounded in the organization's commitment to foster an open and trusting environment that allows for complex discussions about diversity, inclusion, and employee awareness of their own biases. Representatives from across the company will take part in the ISO's newly formed Council for Diversity and Inclusion to help inform the company's programs and platforms for building diversity and inclusion awareness. Additionally, the ISO is hosting women's focus groups to learn more about how the company can advance initiatives that bring to light the unique perspectives this group has to offer.

Attracting the Best Talent

The ISO's recruitment programs source talent from multiple pipelines in support of the company's commitment to diversity, including initiatives to attract women, minority, and veteran applicants. The ISO seeks to fill open positions and promote from within, as demonstrated by having filled more than 20% of the openings in 2019 with internal candidates.

The company's robust and competitive internship program, now in its fourteenth year, provides an additional and important talent pool of qualified candidates. The ISO receives more than 2,000 applications annually for intern openings. The program includes hands-on experiences for students in a variety of disciplines, with competitive industry compensation for their contributions to organizational goals, as well as group activities

[9] More information about the CEO Action for Diversity and Inclusion program is available at https://www.ceoaction.com/pledge/ceo-pledge/.

and learning opportunities. To date, this program has resulted in 51 former interns joining the ISO as full-time employees.

Professional Development Opportunities

The ISO provides employees with many opportunities for professional development, such as the following:

- Self-directed online skill-development programs
- Lunchtime Stanford University Executive Briefing discussions
- A customized degree program in power systems engineering
- Leadership development programs for supervisors, managers and directors
- Energy-industry-focused learning through a partnership with the Power and Energy Society

The ISO also encourages professional networking through memberships in organizations, such as the Institute of Electrical Engineering and Electronics, New England Women in Energy and the Environment, the Society for Women Engineers, and Toastmasters.

The company's Educational Reimbursement program supports employees who wish to obtain advanced degrees in their fields by providing up to $15,000 per year in tuition reimbursement. In the past year, over two dozen employees were enrolled in degree programs and received education reimbursement.

Lastly, the organization supports development through assignments among cross-functional teams, job-shadowing opportunities, and ISO-centric workshops, such as Wholesale Energy Markets 101 and A Day in the Life of a Control Room Systems Operator. The ISO curates professional experiences across a broad range of disciplines to help employees not only understand their roles but also how they fit into the broader context of the organization's mission.

Compensation, Benefits and Recognition

Competitive compensation and benefits are vital in attracting and retaining the most qualified employees. Individual employee compensation is based on a variety of internal and external factors to ensure that employees receive fair and attractive compensation that reflects their major responsibilities, experiences, and value to the organization. In addition, all employees are eligible to receive an annual incentive bonus based on both organizational results and individual contributions.

The ISO provides employees with a competitive suite of health and welfare benefits and retirement savings plans, as well as support through an Employee Assistance Plan and paid family and parental leave policies. The organization additionally supports the social, emotional, and financial well-being of its workforce through its comprehensive wellness program, hosting monthly activities and events to manage wealth and promote good health and happiness.

The ISO routinely recognizes its employees for their good work and contributions. The Service Recognition program celebrates the achievements of employment milestones, while the Spot Bonus program enables peers to recognize coworkers any time of the year for exceeding their typical responsibilities. The annual CEO Awards provide significant recognition to teams and individuals for extraordinary accomplishments in areas of excellence, innovation, and leadership. The award criteria and public acknowledgement of these accomplishments reinforce the company's commitment to these.

Retention

The ISO's strong commitment to its employees and their development is reflected in the company's low turnover rates and employees' long-standing tenure. More than half the employee population has worked at the ISO for over a decade. In addition, over the past three years, turnover has averaged approximately 7%. This relatively low turnover is likely to increase over the next five to seven years, however, because approximately one third of the staff meets the age and service criteria for retirement. In anticipation of this, the ISO launched the *DISCOVER* knowledge-transfer program, which ensures that the organization retains key institutional and industry knowledge.

The ISO Workplace

Corporate Governance

Objectivity and neutrality are central tenants for Independent System Operators. At ISO New England, these qualities are part of the company's culture protected by a number of attributes:

- Strong corporate policies against conflicts of interest
- A transparent annual budgeting process
- Intensive work to develop and document compliance with business standards and procedures that help ensure the reliable operation of the power grid

Corporate Environmental Commitment

As the New England states place increasing emphasis on environmental protection, ISO New England as a company is contributing to this effort. The ISO's environmental commitment includes green housekeeping practices; designated collection locations for recycling a variety of materials; and the decreased use of potable water, with the irrigation system using 89% less than is standard and low-flow lavatories, sinks, and showers consuming 26% less than is standard. Every year, the ISO celebrates Earth Day by providing a plant or a seed packet to workforce members.

Additional efforts to minimize the company's environmental impact include encouraging regular carpooling, with preferred parking for those opting to ride in together and easy access to the corporate fleet to travel together to stakeholder meetings, offsite trainings, and the like. Biking commuters have secured bike racks and on-site facilities for getting ready for work after their arrival. Designated preferred parking areas with charging stations are available for electric vehicles.

ISO Communities

The ISO's organization and workforce also values giving back. Staff members celebrate individual employee contributions through the *Gift of Giving* series, which features employees' charitable work. Annually, the organization supports and organizes fundraising for United Way and Community Health Plans.

In addition to planning social events and activities for employees, a team of dedicated employees organizes a variety of events supporting local charities. These events include collecting necessities for residents at the Soldiers' Home for veterans, conducting a food drive for Margaret's Pantry, and making sandwiches for Kate's Kitchen. These events enable ISO employees to get together to give back to the community in a tangible way.

Financial Data

Results of Actual Operations

Table 1 summarizes the actual amounts and percentage of total expenses for the years ending December 31, 2019, and 2018.

Table 1
Actual Amounts ($ Millions) and Percentages of Total Expenses

Year Ending December 31,	2019	2019	2018	2018
Salaries and benefits	$ 113.5	58.4%	$ 113.1	58.6%
Depreciation and amortization expense	27.1	14.0	30.2	15.6
Professional fees and consultants	17.0	8.7	15.9	8.2
Computer services	14.0	7.2	13.4	7.0
NPCC/NERC dues and expenses	6.2	3.2	5.8	3.0
Interest expense	2.3	1.2	2.3	1.2
Communication expense	2.1	1.1	2.2	1.2
Insurance expense	1.9	1.0	2.0	1.0
Building services	1.5	0.8	1.8	0.9
Information services and industry memberships	1.5	0.8	1.3	0.7
Utilities	1.3	0.6	1.3	0.7
Board of directors	1.3	0.6	1.2	0.6
Rents and leases	0.9	0.5	0.9	0.5
Administrative and other	3.7	1.9	1.6	0.8
Total	$ 194.3	100.0%	$ 193.0	100.0%

Total expenses increased by $1.3 million, or 0.7%, in 2019 over 2018. Expenses net of depreciation, amortization, and interest increased $4.4 million, or 2.7%, in 2019 over 2018. The changes primarily were the result of the following factors:

- Depreciation and amortization expense decreased $3.1 million, or 10.3%, in 2019. This decrease in expense is a result of a number of large projects, as follows, becoming fully depreciated in late 2018 or mid-2019:
  - Generation Control Application Production Part 1
  - Coordinated Transaction Scheduling
  - Wind Integration Phase II/Do-Not-Exceed (DNE) Dispatch
  - Critical Infrastructure Protection Version 5 (CIP V5) Compliance
  - Divisional Accounting

    - Forward Capacity Auction No. 10 (FCA 10)
    - Voltage Stability

  The reductions were partially offset by projects placed in service in mid-2018 or mid-2019:

    - Price-Responsive Demand
    - Energy-Storage Device Phase I
    - Competitive Auctions with Sponsored Policy Resources
    - Forward Capacity Market Pay for Performance

- Professional fees and consultants increased $1.1 million, or 6.9% in 2019. Increases were primarily in the Market Development area for work on market-based improvements to better address energy-security risks in the region and for updates to cost of new entry (CONE), net CONE, and the offer-review trigger price used in the Forward Capacity Auction. A number of other smaller changes, which largely offset these increases, occurred throughout the organization.
- Computer services increased $0.6 million, or 4.5%, in 2019, due to the following year-over-year changes:
    - Increases for existing products upon renewal of multiyear licensing and maintenance agreements, as well as year-over-year inflationary increases
    - Maintenance expense on 2018 hardware and software purchases that exceeded the original budget for new hardware and software
    - Acquisition of additional licensing for storage and retrieval appliances and license upgrades
    - Increases were partially offset by the following reductions:
        - Maintenance on information technology assets that were retired or no longer deemed necessary
        - Coterming of agreements in 2018 resulting in reduced cost in 2019
        - Other various nonrepetitive software purchases

- Administrative and other expenses increased $2.1 million, or 131.3%, in 2019. Increases include the year-over-year change related to the presentation of net periodic pension and postretirement benefit costs to comply with Financial Accounting Standards Board (FASB) accounting standards and increases for a power systems master's degree training program and travel for offsite testing and training on various new software products.

Capital Spending

The FERC-approved capital expenditure budget for 2019 was $28.0 million. Actual spending was under budget by $1,428,900. Reduced spending was the result of obtaining updated project requirements and extending certain projects into 2020. The affected projects are as follows:

- The Energy-Security Project will evaluate winter operational risks facing the region and seek to identify market mechanisms to address these concerns. This project is still in the planning phase due to FERC's granting an extension until April 15, 2020.[10] The company submitted a "long-term fuel-security mechanism" compliance filing to FERC on April 15, 2020, and is awaiting a FERC order.[11]

- The 2019 Issue-Resolution Project funding was reduced due to higher-priority projects.
- The following projects had reductions including the reallocation of funding to 2020:
  - Energy Management Platform 3.2 Upgrade Part II
  - Enterprise Application Integration Replacement

The following sections summarize the ISO's major projects in 2019, some of which are ongoing and multiyear

Energy Management Platform 3.2 Upgrade Parts I and II

The ISO's Energy Management System is currently running on an outdated version of its vendor's Energy Management Platform (EMP) that will be discontinued in 2020. To continue vendor support and ensure compatibility with the latest versions of the ISO's operating system and third-party software, the ISO must upgrade to EMP version 3.2 before November 2020. The implementation of the EMP 3.2 upgrade will be done in two parts:

- The EMP 3.2 Upgrade Part I converted and moved into the respective software all the necessary system customizations for generation and transmission management, load forecasting, network analysis, and storage-management software put into production before and concurrent with the Price-Responsive Demand project. Part I also included the initial integration and functional testing of all custom software changes completed and laid the foundation for Part II. This part the project was complete in July 2019 at a cost of $4,257,400.[12] It will be placed in service when Part II is complete in 2020.
- EMP 3.2 Upgrade Part II will include the converting/porting, integration, and testing of additional software customizations put into production after May 2018. Final product testing, business acceptance testing, and control room operator training will also take place as part of the Part II effort. The target completion date of Phase II of this project is November 2020, and the estimated total cost is $2,270,000. Both parts of this project will be put into production after the completion of Part II.

Identity and Access Management Phase II

The Access Rights and Employee Request applications perform the critical identity and access-management functions of enabling workforce members to model, request, approve, and implement access to information technology assets (servers, systems, shared drives, badged physical access, etc.). To bring the system into alignment with cybersecurity best practices and multiple corrective action/preventative action recommendations, the existing system requires new functionality.

Phase I of this project, completed in 2018, included the purchase and implementation of required hardware and software to update the current access-rights process. Phase II will continue the integration with ISO

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[10] FERC, ISO New England Inc., Notice of Extension of Time, Docket No. EL18-182-000, letter order (August 30, 2019), https://www.iso-ne.com/static-assets/documents/2019/08/el18-182-000.pdf.

[11] . ISO New England Inc., *Compliance Filing of Energy Security Improvements Addressing New England's Energy Security Problems*, Docket Nos. EL18-182-000 and ER20-___-000, FERC filing (April 15, 2020), https://www.iso-ne.com/static-assets/documents/2020/04/energy_security_improvements_filing.pdf.

[12] The EMP 3.2 Upgrade Part I project will remain in Work-In-Process and will not begin amortizing until the completion of Part II when the cost of both projects will begin amortizing.

systems and the implementation of new authorization roles and functionality designed to protect the system from unauthorized access.

The estimated total cost for Phase II of this project is $4,987,600. The target completion date is November 2020.

nGEM Software Development Part I

The nGEM Software Development project is a cofunded program among ISO New England, General Electric (GE), and two other Independent System Operators to implement the core product development for GE Grid Solutions' next Generation Market Management System (nGEM). The nGEM software-development project will enhance data-transfer technology, Day-Ahead and Real-Time Energy Market clearing engines, bidding micro services, and various software upgrades. This project is estimated to extend over two years with deliverables to be completed in stages.

Part I delivery includes enhanced data-transfer technology and the elimination of the existing vendor platform. Part II delivery will include enhancements to the day-ahead market clearing engine, bidding micro services, and replacements for the real-time market clearing engine. Deliverables for Part I are expected to be completed in the second quarter of 2020 with ISO New England funding of $3,229,100.

Energy-Storage Device Phases I and II

The Energy-Storage Device projects developed a solution that enabled emerging grid-sized electricity-storage technologies (not including pumped-storage technologies that can already fully participate in the markets) to participate in the energy and reserve markets. These technologies can now participate as dispatchable resources (when charging and discharging) while also continuing to participate in the Regulation Market under the alternative technology regulation resource construct. Several of the ISO's systems have been enhanced to accommodate for this new technology.

Phase I of the project was completed in March 2019 at a total cost of $2,914,300, while Phase II was completed in March 2020 at a total cost of $1,025,700.

CIMNET Simultaneous Feasibility Test with Data Transfer Enhancements

The CIMNET Simultaneous Feasibility Test (SFT) with Data-Transfer Enhancements project will implement SFT software enhancements and other changes to market data applications. Enhancements include the replacement of the existing platform for the SFT and the topology processing software to eliminate the frequent deployment of security patches. Enhancements will also include updating the custom software currently in place, introducing new task management, and orchestrating applications, among other improvements to the Energy Market System software. The new software will be certified and audited by a third party.

The estimated total cost for this project is $2,484,600. The target completion date is October 2020.

Energy Market Offer Caps (Order 831)

In response to FERC Order 831, the ISO filed tariff revisions to modify how offers are capped in the Day-Ahead and Real-Time Energy Markets.[13] These modifications involve four key rule changes:

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[13] FERC, *Tariff Revisions to Modify Energy Market Offer Caps in Compliance with Order No. 831*, Docket No. ER17-1565-000, letter order to the ISO approving changes (November 9, 2017); see https://www.iso-ne.com/static-assets/documents/2017/11/er17-1565-000_11-9-17_ltr_order_accept_order_831_compliance_filing.pdf, and *Revisions to*

- A resource's incremental energy offer in the energy market clearing engines must be capped at the higher of $1,000/megawatt-hour (MWh) or that resource's verified cost-based incremental energy offer.
- When calculating locational marginal prices, ISO New England must impose a hard cap of $2,000/MWh on all verified, cost-based, incremental energy offers.
- The verification process for cost-based incremental offers above $1,000/MWh should ensure that the resource's offer reasonably reflects the resources actual or expected costs.
- The ISO must allow resources to be eligible for make-whole payments in the event that a resource has a verified cost-based offer above the $2,000/MWh hard cap, or an incremental energy cost above $1,000/MWh that is not verifiable before market clearing but rather after-the-fact.

The Energy Market Offer Caps project incorporated all required system updates, enhancements, and reporting steps to comply with the commission's order. System enhancements include updates to the participant offer process, Day-Ahead and Real-Time Energy Markets, and after-the-fact capping review.

The project was completed and put into production in March 2020 with a cost of $2,119,300.

Streamline Asset Registration Phase III

ISO New England has been working to streamline the asset-registration process by improving and eliminating a labor-intensive, paper-based process that relied on participants submitting scanned, emailed, or faxed asset-registration forms and ISO staff manually entering data into multiple systems, including the Settlements Market System (SMS) and the Customer and Asset Management System (CAMS).

Earlier phases of this project included moving the functionality of asset registration from SMS to CAMS, making asset information visible to market participants. The goal of the project's third phase was to define a single source for asset data (a system of record) to maintain the data in a central repository and have the data available to other systems as needed. This project also improved data visibility and exchange through various bridges to other applications. System enhancements included modifications in user interfaces, applications, energy market settlements, data bridges, and several tables, views, packages, and triggers.

The project was completed and put into production in September 2019 with a cost of $1,957,000.

Internal Market Monitoring Data Analysis Phase II

ISO New England's Internal Market Monitoring (IMM) department performs market data analysis to identify issues that may compromise the efficiency and integrity of market outcomes. Successful analysis requires access to a large variety of market data, and this project will allow IMM market analysts to explore data across multiple markets (e.g., energy, capacity, and ancillary services) and multiple market products (e.g., physical and financial). Phase I of this project, completed in June 2018, provided a market data analysis system for Financial Transmission Rights and the Forward Reserve Market.

Offer Cap Requirements for Order No. 831, Docket No. ER19-2137-000, letter order of approved acceptance of subsequent filing for revised effective date issued to the ISO and the NEPOOL Participants Committee (August 13, 2019); https://www.iso-ne.com/static-assets/documents/2019/08/er19-2137-000_8-13-19_letter_order_accept_offer_cap_requirements.pdf.

Phase II of the project will provide the IMM access through the newly developed system from Phase I to the energy markets and Regulation Market and associated mitigation and settlement functions. This project will develop application program interfaces (APIs) in the day-ahead and real-time market systems that will provide immediate, ready-to-use data to market analysts, increasing efficiency, availability, accuracy, and timing of results.

The estimated total cost for this project is $1,933,300. The target completion date is October 2020.

2019 Forward Capacity Market Improvements

The 2019 Forward Capacity Market Improvements project addressed several market design changes that became effective for the fourteenth Forward Capacity Auction (FCA 14) in February 2020. These changes include a mitigation mechanism for demand-bid participation in the substitution auction, enhancements to the demand bid reconciliation process for the substitution auction, and inclusion of nested export-constrained capacity zones within the Northern New England export-constrained capacity zone.

Other changes addressed as part of this project, and effective for the third Annual Reconfiguration Auction for the eleventh capacity commitment period, include the following measures:

- Improvements to the significant-decrease thresholds to limit resources identified as having a significant decrease to only those resources with a material deficiency
- Modifications so that mandatory demand bids for such resources will no longer result in a negative capacity supply obligation

The project was completed and put into production in March 2020 with a cost of $1,631,600.

Markets Database Refresh

The Markets Database (MDB) is the most critical database supporting major ISO New England market systems and, therefore, keeping the MDB platform up-to-date is essential to ensure its reliability and to avoid significant service interruptions. The current MDB hardware and software are reaching their end of life, will no longer be vendor supported, and need to be updated.

MDB is a significant database that contains information needed to operate the ISO's markets, including bids and offers, market results, and clearing prices. Because MDB is critical to the functions of the markets, it is designed as a four-way redundant database with multiple market applications that depend on the MDB platform. This project will replace existing server and storage-array hardware and perform integrated regression and failover testing of the new platform for numerous applications reliant on MDB. In addition, all support and production environments (i.e., one development server, four integration servers, and four production servers) will be refreshed.

The project was completed and put into production in March 2020 with a cost of $1,598,900.

Software Development Costs

In addition to the major projects described above, the ISO incurred $2.2 million in software development costs during 2019. These costs supported a multitude of enhancements to existing software systems.

Nonproject Hardware and Software Costs

The ISO incurred $1.9 million of non-project-related hardware and software costs.

Hardware purchases include main and backup control center data center computing software and electrical wiring upgrades and storage and backup hardware to replace end-of-life appliances. Nonproject software additions include upgrades for virtual systems, various software updates to ensure that the software is within vendor-supported versions, security software to continue with efforts to improve cybersecurity and ensure compliance, and an upgrade to facilities security software systems.

Other nonproject-related capital purchases included main and backup control center conference room improvements for the replacement of outdated and broken equipment and additional personal computers, laptops, and speakers to enhance the functionality and use of these facilities. Additional purchases included new and replacement wall monitors in the Information Technology (IT) work areas for use in system monitoring of critical IT applications.

Risks

ISO New England is exposed to financial risk in four primary areas: interest rates, litigation, cybersecurity, and regulatory changes. The ISO historically has included in its annual budget two contingency funds to address unknown costs—a CEO emerging-work allowance and a board of director's contingency fund. These contingencies typically represent a combined 1.0% to 1.5% of the total amount to be recovered each year under Section IV.A of the ISO tariff. The CEO emerging-work allowance is used as part of the normal course of business, and allocations are controlled by the CFO and CEO. The board contingency fund, subject to use only through ISO board of directors' approval, has never been used. Because the ISO does not have any capital to draw on for unknown expenses, these two contingencies are important for the ISO to operate efficiently.

Interest Rates

Fluctuating interest rates can have an impact on the costs of the ISO in several ways. Specifically, the ISO earns interest on the settlement funds it collects from market participants, pays a floating interest rate on its tax-exempt bonds, and uses assumptions on interest rates to establish liabilities and costs for its pension and postretirement benefit plans.

Historically, the average float in the settlement account had been consistently higher than the outstanding principal of the tax-exempt debt and, therefore, was an effective hedge against interest-expense rates. A decrease in the settlement float will make the hedge less effective against increasing interest rates. In 2019, the settlement float decreased on average approximately 27% from 2018 levels. This decrease was primarily due to lower clearing prices in the energy markets. The increase in float and the low interest rates of the tax-exempt debt has had a minor overall impact to the hedge; the average balance of the tax-exempt-issued debt was lower than the average settlement float in 2019. However, to mitigate the risk of the uncovered hedge (i.e., the higher level of variable-rate debt compared with the settlement float), in late 2012, the ISO purchased an interest-rate cap that benefits the ISO when interest rates exceed a certain level. The interest-rate cap is a 10-year cap, which amortizes as the tax-exempt debt principal is repaid. Both interest income and interest expense rates continued to remain low in 2019, although the interest income rates were slightly higher in the first part of 2019 compared with 2018 and the latter half of 2019. The ISO regularly analyzes the interest-rate environments to ensure that its debt structure is as cost effective as possible, and it reviews all debt and funding needs.

Interest rates also are used in the discount-rate assumptions for establishing the liabilities and costs associated with the pension and postretirement plans. Lower interest rates result in increased costs for these plans when the rates filed in the tariff for recovery include using the calculated expense amount for the cost of these items. For years before 2016, the rates filed for recovery were inclusive of this approach for the pension and postretirement plans; for 2016 and forward, only the postretirement benefit plan will be affected by the change in interest rates. In 2016, the ISO implemented a level funding approach to the pension benefit plans, rather than the historical method of funding the expense amount as calculated, in accordance with the FASB's Accounting Standards Codification (ASC) for the defined benefit pension and other postretirement plan topic. The level funding approach will reduce the volatility of the pension plan expense included in the ISO tariff, while still providing reasonable assurance for sufficient funding of the pension plan.

Litigation

The ISO also has potential exposure to costs resulting from litigation. The ISO does not budget for unforeseen litigation costs during the normal budgeting process. Therefore, any material unexpected litigation that arises during the course of the year would pose a risk to the ISO's ability to operate within the approved budget.

Cybersecurity

Cybersecurity continues to be one of the most important national security priorities. The volume and sophistication of cybersecurity threats have been increasing. The ISO faces a variety of cybersecurity threats, including targeted attacks such as social engineering, phishing, and malware throughout the cyber supply chain. The ISO's systems and networks contain vast amounts of critical and confidential information pertaining to the power system grid and internal networks. Protecting these systems, networks, and data is critical. As such, the ISO continues to heavily invest in the appropriate resources to manage this risk.

Novel Coronavirus "COVID-19" Pandemic Response

The outbreak of the novel coronavirus COVID-19 quickly evolved into a pandemic having global impacts and has created significant impacts to ISO New England and the way the organization conducts business. The ISO is following the US Centers for Disease Control (CDC) guidance to avoid infection and has implemented a number of measures to combat the spread of the virus while continuing to conduct the company's mission.

The ISO maintains a certified Emergency Management and Business Continuity Program, which is responsible for the development and maintenance of the ISO's Business Continuity Plan, Pandemic Response Plan, and Framework for Emergency Response. In January 2020, the ISO's Pandemic Response Plan was activated in response to COVID-19 and has been in use since. The ISO continues to monitor and proactively follow CDC guidelines: consult with local, state and federal public health and emergency-response professionals; and maintain scheduled check-ins with business continuity team leads.

The Emergency Operations Center staff will continually assess return-to-office plans and the appropriateness of the organization's mitigations and any required new mitigations as the COVID-19 threat evolves.

Billing and Credit

The ISO is responsible for the billings associated with the wholesale electricity markets for New England's bulk power generation and transmission system. It also must ensure that proper measures are in place to mitigate participants' exposure to credit risk from transacting in the ISO-administered markets. Since its inception in 1999, the ISO has continually reviewed its Billing and Financial Assurance Policies and, since 2004, has made great strides in reducing the credit risk for market participants.[14]

In 2019, the ISO continued to modify and improve the Financial Assurance Policy (FAP):

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[14] *ISO New England Transmission, Markets, and Services Tariff*, Section 1, General Terms and Conditions: Exhibit IA, "ISO New England Financial Assurance Policy," (June 1, 2017) and Exhibit ID, "ISO New England Billing Policy," (July 1, 2017), https://www.iso-ne.com/participate/rules-procedures/tariff/.

- In March 2016, the ISO launched a project to improve the Financial Transmission Rights (FTRs) auction structure, Balance of Planning Period Auctions (BoPP). The implementation of BoPP was first vetted with FERC in a May 2011 filing, which stated BoPP was a way to increase liquidity in the FTR market, enhance price discovery, and more efficiently allocate resources.15 The ISO had been pursuing an arrangement with an exchange for several years before March 2016, which was expected to produce these same market benefits. The pursuit of the exchange arrangement ended due to regulatory hurdles that cannot be solved at this time and is uncertain for the future.

  The BoPP replacement to the exchange approach will open up a fundamentally different FTR auction structure. BoPP provides a vehicle for market participants to close out their open contracts to lock in profits or limit potential losses. It also will include a netting provision in FTR obligations to account for new monthly auctions and prevent double margining, ensuring that a market participant will not be subject to higher financial assurance than needed. Additionally, a mark-to-market methodology will be incorporated to reflect a more current value of the portfolio than exists today, along with some other improvements to valuing the collateral requirements for FTRs. The ISO submitted a FERC filing of these changes on April 20, 2017, which it subsequently withdrew. Further discussion and clarification was required with stakeholders, which took place in the latter part of 2017.

  The ISO submitted a filing on August 24, 2018, reflecting the additional stakeholder input, which resulted in some design changes to the financial assurance obligations calculations.[16] The current methodology for calculating financial assurance associated with FTRs is not well suited to this new monthly FTR auction structure, primarily because it does not provide for the netting of offsetting positions. Before this modification, FTR obligations had four components of financial assurance. These have been reduced to three, and the netting mechanism has been introduced. Additionally, the new BoPP design reflects the change in the value of the FTR at the time of the monthly auctions compared with when it was first acquired, as well as a change in the basis for the proxy value—the key input to the settlement risk financial-assurance calculation—from a percentile-based approach to a standard-deviation approach. FERC approved these changes on October 24, 2018, which were implemented in October 2019.[17]

In November 2019, the ISO submitted a filing to FERC to further improve the incentive structure provided by the noncommercial capacity's financial assurance until the capacity becomes commercial.[18] The current design of the financial-assurance requirements provides financial incentives for market participants to take the steps necessary to ensure that the capacity achieves commercial operation. Participants must provide financial assurance at a rate equal to the Forward Capacity Auction starting price multiplied by the megawatt-hours awarded through the annual FCA, which is further multiplied two more times before the start of the

[15] ISO New England Inc., *NEPOOL Participants Committee, and Participating Transmission Owners Administrative Committee; Filing of FTR Enhancements; Docket No. ER11-___-000*, FERC filing (May 13, 2011), https://www.iso-ne.com/static-assets/documents/regulatory/ferc/filings/2011/may/er11_3568_000_5_13_11_ftr_enhancements.pdf.

[16] *New England Inc. and New England Power Pool, Docket No. ER18-_____-000; Changes to ISO New England Financial Assurance Policy*, FERC filing (August 24, 2018), https://www.iso-ne.com/static-assets/documents/2018/08/er18-2293-000_changes_to_fap.pdf.

[17] FERC, *Revisions to the Financial Assurance Policy for Financial Transmission Rights, Docket No. ER18-2293-000*, letter order (October 23, 2018), https://www.iso-ne.com/static-assets/documents/2018/10/er18-2293-000.pdf.

[18] ISO New England Inc. and New England Power Pool, *Changes to ISO New England Financial Assurance Policy: Trading Financial Assurance,* Docket No. ER20-_____-000, FERC filing (November 15, 2019), https://www.iso-ne.com/static-assets/documents/2019/11/chgs_to_fap_fa_trading.pdf.

commitment period associated with the award. The FCM procures supply three years ahead through the auction process, hence the multiplier effect of three for the required financial assurance.

While the existing Financial-Assurance Policy does not pose a problem, a gap has been identified whereby a market participant can buy out of its position by having another capacity-supply resource cover its position. This can happen at the same time as the increasing collateral requirement. That is, with the market participant essentially buying out of its position, it pays another resource (or load, via the ISO-administered demand curve) to assume all or part of its capacity-supply obligation for its noncommercial capacity. In buying out of its position in this manner, the market participant can realize either a profit or a loss, relative to the financial assurance it must post (i.e., up to three times the auction award amount), even with forfeiting its required posted financial assurance. Under the current design, a participant will lose its posted financial assurance if the resource never becomes commercial.

The newly designed changes to the FAP requires a market participant that buys out of its position in an FCA and yields a profit (compared with the potential forfeited financial assurance) to increase the financial assurance held by ISO to equal the amount of profit, until the resource reaches commercial operations. Requiring the participant to cover its profit with financial assurance removes the incentive of being awarded capacity supply in an FCA as a financial transaction or a way to make money and never having to deliver the needed capacity. Large trading profits gained by shedding a capacity supply obligation (CSO) can overshadow the obligation to achieve commercial operation as cleared. A market participant would be expected to shed its CSO if it could profit by doing so, , even accounting for the loss of its financial assurance.

FERC approved this change on January 3, 2020.[19]

The ISO will continue to work closely with its participants to reduce default risk, including minimizing the settlement cycle time.

Various Market Services and Participation Data

Table 2 compares key settlement market information for the years ending 2019 and 2018 for the markets the ISO oversees.

[19] ISO New England Inc., New England Power Pool Participants Committee, *Changes to Financial Assurance Policy for Non-Commercial Capacity*, Docket No. ER20-394-000, FERC filing (January 3, 2020), https://www.iso-ne.com/static-assets/documents/2020/01/er20-394-000.pdf.

Table 2
Settlement Market Information ($ in Millions)

Key Settlement Market Data for the Years Ending [a]	2019	2018
	$ in Millions	
Energy markets		
Day-Ahead Energy	$4,010.4	$5,890.8
Real-Time Energy[b]	$116.6	$175.8
Total energy markets	$4,127.0	$6,066.6
Real-time load obligation (MWh)[c]	125,596,380	129,639,043
Net Commitment-Period Compensation (NCPC)	$30.6	$70.3
Total NCPC	$30.6	$70.3
Reserve markets		
Forward Reserve Markets, n	37.5	$41.3
Real-Time Reserve Markets	$10.0	$29.8
Total reserve markets	$47.5	$71.1
Regulation Market	$26.5	$34.9
Total Regulation Market	$26.5	$34.9
Forward Capacity Market payments	$3,400.7	$3,605.8
Financial Transmission Rights-long-term auction	$18.7	$8.7
Financial Transmission Rights--monthly auction	$16.0	$15.3
Total Auction Revenue Rights	$34.7	$24.0
Open-access transmission charges (OATT)[d]		
Regional network service /through or out	$2,102.3	$2,211.8
Blackstart	$21.3	$14.3
Volt ampere reactive capacity cost	$20.3	$19.9
Total OATT charges	$2,143.9	$2,246.0
Demand-response payments	$0.3	$1.7
Total demand-response payments	$0.3	$1.7

(a) Data shown in the table above reflect settled operational days January 1 through December 31 of the respective years.

(b) The Real-Time Energy total includes the value of the Marginal Loss Revenue Fund.

(c) The real-time load obligation shown in the table reflects load at all pricing locations in New England, including exports at the external nodes.

(d) OATT stands for the ISO's *Open-Access Transmission Tariff*, Section II of the *ISO New England Inc. Transmission, Markets, and Services Tariff*; see https://www.iso-ne.com/participate/rules-procedures/tariff/oatt.

The following measures are key indicators of the cash that clears through the ISO:

- The ISO's aggregate customer base has increased by approximately 2% year over year (i.e., 499 customers in 2019: 491 customers in 2018). The ISO's customers include generators, suppliers, publicly owned entities, transmission owners, demand-response resources, alternative resources, end users, and a few smaller groups, including data-only and provisional groups.
- The net cash cleared in 2019 was $7.0 billion, compared with $8.6 billion in 2018, which is a decrease of approximately 23%.

- Energy market transactions in dollars cleared through the ISO in 2019 decreased approximately 32% from the 2018 level.

Figure 1 shows historical market-clearing activity from 1997 to 2019.

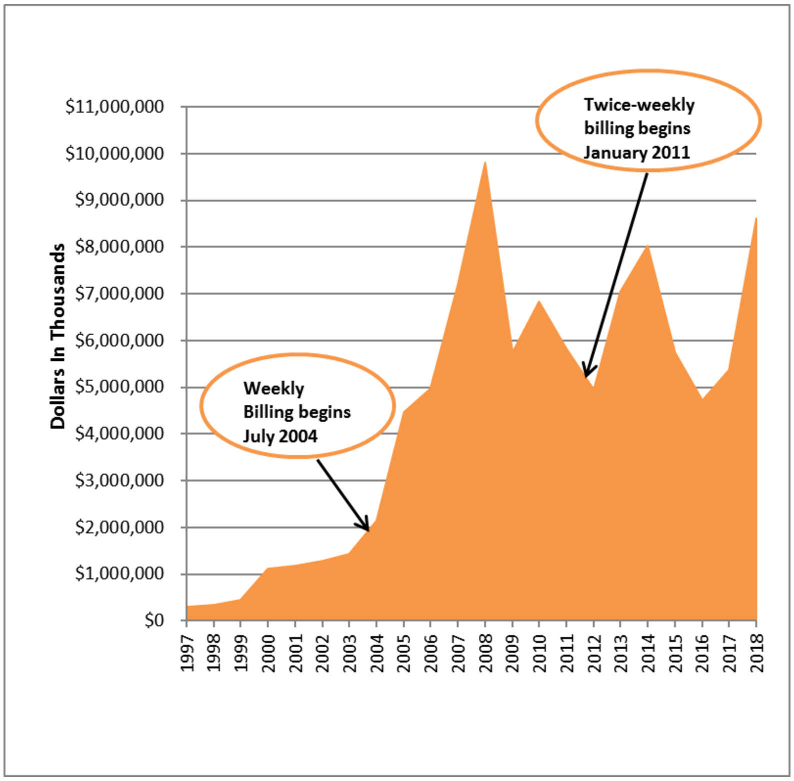

Figure 1: Annual historical market-clearing activity, 1997 to 2019 ($ thousands).

Note: Data for 1997 and 1998 are estimated.

Management's Responsibility for Financial Reporting

The management of ISO New England Inc. (ISO) is responsible for the preparation, objectivity, and presentation of the following financial statements, as well as for the integrity of these statements. These financial statements have been prepared to conform to accounting principles generally accepted in the United States and, where required, include amounts that represent management's best judgments and estimates. The ISO's management also is responsible for the preparation of other information in this annual report and for its accuracy and consistency with the financial statements.

To aid in carrying out this responsibility, we, along with all other members of management, maintain a system of internal accounting control modeled after the Committee of Sponsoring Organizations of the Treadway Commission, or the COSO framework. In the opinion of management, the overall system of internal accounting control provides reasonable assurance that the ISO's assets are safeguarded and that transactions are executed in accordance with the management's authorization and are properly recorded for the preparation of financial statements. In addition, management believes the overall system of internal accounting control provides reasonable assurance that, in the normal course of their duties, employees prevent or detect material errors or irregularities on a timely basis.

Any system of internal accounting control, no matter how well designed, has inherent limitations, including the possibility that controls can be circumvented or overridden and misstatements due to error or fraud can occur and not be detected. Also, because of changing conditions, the effectiveness of internal control can vary over time. Accordingly, even an effective system of internal control will provide only reasonable assurance about the preparation and reporting of financial statements.

The system of internal accounting control is supported by written policies and guidelines, the selection and training of qualified employees, an organizational structure that provides an appropriate division of responsibility, and a program of internal auditing. The ISO's written policies include a Code of Conduct that states management's policy on conflict-of-interest and ethical conduct. All personnel annually confirm their compliance with the Code of Conduct.

Gordon van Welie
President and Chief Executive Officer

Robert C. Ludlow
Vice President, Chief Financial and
Compliance Officer

ISO New England Inc.

Financial Statements
For the Years Ended December 31, 2019 and 2018
(With Independent Auditors' Report Thereon)

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KPMG LLP
515 Broadway
Albany, NY 12207-2974

Independent Auditors' Report

The Board of Directors
ISO New England Inc.

We have audited the accompanying financial statements of ISO New England Inc., which comprise the statements of financial position as of December 31, 2019 and 2018, the related statements of activities and cash flows for the years then ended, and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with U.S. generally accepted accounting principles; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of ISO New England Inc. as of December 31, 2019 and 2018, and the changes in its net assets and its cash flows for the years then ended in accordance with U.S. generally accepted accounting principles.

Emphasis of Matter

As discussed in note 1 to the financial statements, during the year ended December 31, 2019, ISO New England Inc. adopted Financial Accounting Standards Board Accounting Standards Update (ASU) 2016-18, *Statement of Cash Flows (Topic 230): Restricted Cash*. Our opinion is not modified with respect to this matter.

KPMG LLP

Albany, New York
March 20, 2020

ISO New England Inc.

Statements of Financial Position

As of December 31, 2019 and 2018

	2019	2018
	(In thousands)	
Assets		
Current assets:		
Cash and cash equivalents	$ 126,131	$ 48,935
Restricted cash on deposit	14,214	34,822
Security deposits	191,439	249,734
Unbilled receivables, net	32,504	32,310
Prepaid expenses and other assets	6,675	4,189
Regulatory assets	7,600	—
Noncurrent assets:		
Property and equipment in-service, net	69,387	78,826
Work in process	28,181	19,510
Right-of-use asset	1,696	—
Restricted cash on deposit	11,008	16,135
Deferred charges	1,039	1,149
Regulatory assets	76,941	61,602
Total assets	$ 566,815	$ 547,212
Liabilities and Net Assets		
Current liabilities:		
Accounts payable:		
Settlement, net	$ 112,001	$ 14,441
Administration	9,271	9,647
Deposits payable	215,929	272,656
Interest payable	422	482
Accrued compensation, current	20,326	19,765
Regulatory liability, current	2,951	9,363
Lease liability, current	943	—
Restricted cash on deposit payable	14,214	34,822
Long-term debt - current portion	3,180	3,180
Long-term liabilities:		
Pension and other postretirement benefit liability	76,790	61,602
Accrued compensation, net of current portion	3,023	3,008
Lease liability, net of current portion	753	—
Restricted cash on deposit payable, net of current portion	11,008	16,135
Regulatory liability, net of current portion	—	2,949
Long-term debt	96,004	99,162
Total liabilities	566,815	547,212
Net assets without donor restrictions	—	—
Total liabilities and net assets	$ 566,815	$ 547,212

The accompanying notes are an integral part of these financial statements.

ISO New England Inc.

Statements of Activities

For Years Ended December 31, 2019 and 2018

	2019	2018
	(In thousands)	
Changes in net assets without donor restrictions:		
Revenues:		
ISO tariff revenues	$ 193,114	$ 195,101
Under (over) collection ISO tariff revenues	151	(2,949)
Interest income	761	669
Fees and services	241	227
Total revenues without donor restrictions	194,267	193,048
Expenses:		
Salaries and benefits	113,501	113,141
Depreciation and amortization expense	27,131	30,192
Professional fees and consultants	16,953	15,918
Computer services	13,998	13,442
NPCC/NERC dues and expenses	6,159	5,820
Interest expense	2,342	2,349
Communication expense	2,092	2,249
Insurance expense	1,951	1,974
Building services	1,517	1,751
Information services and industry memberships	1,473	1,254
Utilities	1,289	1,305
Board of directors	1,274	1,207
Rents and leases	895	873
Administrative and other	3,692	1,573
Total expenses	194,267	193,048
Change in net assets without donor restrictions	—	—
Net assets without donor restrictions, beginning of year	—	—
Net assets without donor restrictions, end of year	$ —	$ —

The accompanying notes are an integral part of these financial statements.

ISO New England Inc.

Statements of Cash Flows

For Years Ended December 31, 2019 and 2018

	2019	2018
	(In thousands)	
Cash flows from operating activities:		
Change in net assets without donor restriction	$ —	$ —
Adjustments to reconcile change in net assets without donor restriction to net cash provided (used) by operating activities:		
Depreciation and amortization expense	27,273	30,335
Amortization of right to use asset	(1,696)	—
Loss on disposal	196	68
(Increase) decrease in unbilled receivable, net	(194)	796
(Increase) decrease in prepaid expenses and other assets	(2,486)	1,152
(Increase) decrease in regulatory assets	(7,751)	381
Increase (decrease) in accounts payable		
Settlement	97,560	(52,648)
Administration	965	(323)
Increase in accrued compensation	576	1,362
Increase in lease liability	1,696	—
(Decrease) increase in interest payable	(60)	43
(Decrease) increase in regulatory liability	(9,361)	2,951
Net cash provided (used) by operating activities	106,718	(15,883)
Cash flows from investing activities:		
Capital expenditures	(27,910)	(24,189)
Net cash used in investing activities	(27,910)	(24,189)
Cash flows from financing activities:		
Decrease (increase) in security deposits	58,295	(87,452)
(Decrease) increase in restricted cash on deposit payable	(25,735)	38,578
(Decrease) increase in deposit payable	(56,727)	88,715
Repayment on long-term debt	(3,180)	(3,180)
Net cash (used) provided by financing activities	(27,347)	36,661
Net change in cash, cash equivalents and restricted cash	51,461	(3,411)
Cash, cash equivalents and restricted cash at beginning of year	99,892	103,303
Cash, cash equivalents and restricted cash at end of year	$ 151,353	$ 99,892
Supplemental data:		
Amounts included in Accounts Payable - Administration related to work in process	$ 2,969	$ 4,310
Cash paid during the year for interest, net of interest capitalized	2,399	$ 2,304
Non-cash activity - Change in pension liability is offset by regulatory assets	$ 15,188	$ (3,545)

The accompanying notes are an integral part of these financial statements.

1. Summary of Significant Accounting Policies

Description of Business

ISO New England Inc. (the "Company" or "ISO") is the Regional Transmission Organization ("RTO") for New England in compliance with the requirements of the Federal Energy Regulatory Commission ("FERC"). On January 1, 2013, the ISO became the central counterparty to market transactions that flow through the ISO. The change to central counterparty was the result of a FERC rulemaking designed to afford the ISO and market participants more protection in bankruptcy. The ISO's assumption of the central counterparty role did not have a material effect on the ISO's settlement of the markets or on business operations.

The ISO's mission, in collaboration with its stakeholders, is to ensure that New England has reliable, competitively priced wholesale electricity through three interconnected responsibilities: managing the operation of the region's high-voltage power grid; administering the region's billion-dollar competitive markets for buying and selling wholesale electricity; and engaging in planning, studies, and analysis to make sure New England's electricity needs will be met over the next ten years.

The ISO is governed by an independent board of directors and is regulated by FERC. FERC's mandated or approved rules are detailed in the ISO New England Inc. Transmission, Markets, and Services Tariff (the "Tariff" or "ISO Tariff").

On January 13, 2014, the ISO, along with several Reliability Coordinators (as that term is defined by the North American Electric Reliability Corporation ("NERC")), became a member of EIDSN, Inc. ("EIDSN"). EIDSN is a 501(c)(6), nonstock, nonprofit corporation that was established to, among other things, facilitate the secure, consistent, effective, and efficient sharing of important electric transmission and operational data among its members and/or other applicable parties to help improve electric industry operations and promote the reliable and efficient operation of the bulk power system.

Basis of Accounting and Presentation

The accompanying financial statements have been prepared on an accrual basis of accounting in accordance with U.S. generally accepted accounting principles and Financial Accounting Standards Board Accounting Standards Codification (FASB ASC) Topic 980, *Regulated Operations*, and FASB ASC 958, *Not-for-Profit Entities*.

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Significant items subject to such estimates and assumptions include the useful lives of fixed assets, assumptions utilized in the accounting for employee benefit obligations such as discount rates, return on assets, fair value of investments and other contingencies.

Regulatory Accounting

The Company's financial statements are prepared in accordance with generally accepted accounting principles for rate-regulated entities. As such, regulators may permit specific incurred costs, typically treated as expenses by unregulated entities, to be deferred and expensed in future periods when it is probable that such costs will be recovered in customer rates. Incurred costs are deferred as regulatory assets when the ISO concludes that it is probable future revenues will be provided to permit recovery of the previously incurred cost. A regulatory liability is recorded when amounts that have been recorded by the ISO are likely to be refunded to customers through the rate-setting process.

Cash and Cash Equivalents

The Company considers cash on hand and short-term marketable securities with original maturities of three months or less to be cash equivalents. The cash equivalents at December 31, 2019 and 2018 were held in overnight repurchase agreements, money market accounts and also in direct and indirect obligations of the United States, with original maturities of three months or less.

Restricted Cash on Deposit

The balance of approximately $25,222,000 and $50,957,000 at December 31, 2019 and 2018, respectively, recorded as restricted cash on deposit, represents the Forward Capacity Market Forfeited Funds, the Congestion Revenue Fund, and Cluster Study Funds. The balance has a corresponding liability on the accompanying Statements of Financial Position. The restricted cash on deposit at December 31, 2019 and 2018 was held in overnight repurchase agreements and also in direct and indirect obligations of the United States of America, with original maturities of three months or less.

The following table provides a reconciliation of cash, cash equivalents, and restricted cash reported within the Statements of Financial Position that sum to the total of the same such amounts shown in the Statements of Cash Flows.

	December 31,	
	2019	**2018**
Cash and cash equivalents	$ 126,131,000	$ 48,935,000
Restricted cash on deposit	14,214,000	34,822,000
Restricted cash on deposit, net of current portion	11,008,000	16,135,000
Total	$ 151,353,000	$ 99,892,000

The cash and cash equivalents and restricted cash on deposit are recorded at fair market value and are classified as Level 1.

Accounts Receivable and Accounts Payable

In the course of bulk power transactions administered by the Company on behalf of the Market Participants ("Participants"), amounts for energy purchased and sold among Participants become payable to and receivable from such Participants. The Company summarizes and prices the energy transactions and provides an invoice or remittance advice to each Participant that summarizes the amount either receivable from or payable to each Participant twice each week.

Accounts payable on the accompanying Statements of Financial Position are segregated between (i) the amounts owed for energy transactions and transmission, for which the ISO functions as paying agent, and are included in Accounts payable as "Settlement, net," and (ii) the administrative expenses incurred by the Company in the course of operations. The reference to "Settlement, net" is used due to the nature of billing and payment for the amounts owed for energy transactions and transmission markets, and represents the Participant's net amount due, less any amounts which may have been owed to them.

The net unbilled receivables, the majority of which have been determined as a result of the settlement process, include those amounts that will be billed and included in the invoice or remittance advice to Participants on subsequent invoices issued twice per week. The balance at the end of the year primarily represents ISO Tariff revenues. The net payables and receivables for these energy transactions are settled with the Participants in the same week.

Property and Equipment in Service and Work in Process

Property and equipment in service is stated at cost, net of accumulated depreciation and amortization.

The Company capitalizes the interest and fees associated with borrowings that the Company has entered into for the acquisition of assets related to a project that has a material effect on the Company's financial position as required by FASB ASC Topic 980, Regulated Operations.

In addition, the Company capitalizes internal software development costs as required by FASB ASC Subtopic 350-40, Internal-use Software.

Depreciation and Amortization

Depreciation is generally computed using the straight-line method over an estimated useful life ranging from three years to twenty-five years (e.g., computer hardware, software and accessories – three to five years; software development costs – three to five years; vehicles – three to seven years; furniture and fixtures and machinery and equipment – seven years; building and building improvements - one to twenty-five years or remaining life of the building improvement; and building – twenty-five years). Capitalized interest and fees are amortized over the same useful life of the asset to which it pertains, principally software development costs and building. No depreciation is recorded for assets classified as work in process until the assets are placed into service (Note 3).

Leases

The Company determines whether an arrangement is a lease at the inception of the arrangement based on the terms and conditions in the contract. A contract contains a lease if there is an identified asset and the Company has the right to control the asset.

Right-of-use ("ROU") assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent the Company's obligation to make lease payments arising from the lease. Operating lease ROU assets and liabilities are recognized at the commencement date based on the present value of lease payments over the lease term. As most of the Company's leases do not provide the lessor's implicit rate; the Company uses its incremental borrowing rate at the commencement date in determining the present value of lease payments. Lease terms include options to extend the lease when it is reasonably certain those options will be exercised. The Company has not entered into any leases that contain a residual value guarantee or a variable lease payment. Leases with an initial term of 12 months or less are not recorded on the Statements of Financial Position, and lease expense is recognized on a straight-line basis over the lease term.

The Company has lease agreements with lease and non-lease components, which are accounted for as a single lease component for all asset classes. Additionally, for equipment leases, the portfolio approach is applied to account for the operating lease ROU assets and lease liabilities. In the Statements of Activities, lease expense for operating lease payments is recognized on a straight-line basis over the lease term.

Deferred Charges and Regulatory Assets and Liabilities
As a regulated entity, the Company, in appropriate circumstances, establishes regulatory assets or liabilities, and thereby defers the Statements of Activities impact of certain charges or revenues because it is probable to be collected or refunded through future customer billings. ISO-NE's financial statements are prepared in accordance with generally accepted accounting principles for rate-regulated entities, FASB ASC Topic 980, Regulated Operations.

The Company incurred costs with the purchase of land located at Sullivan Road and Helmsford Way. The cost of the land at both locations, which were deferred, are being amortized, and the current year amortization is included in the current year's filing pursuant to Section IV.A, Recovery of ISO Administrative Expenses, of the ISO Tariff. The land located at Sullivan Road is fully amortized. The remaining cost for the land located at Helmsford Way will be collected in future filings.

The following table is a detail of the deferred charges, regulatory assets and liabilities balances as presented in the accompanying Statements of Financial Position at December 31:

Deferred charges	**2019**	**2018**
Land located on Helmsford Way	$ 757,000	$ 796,000
Interest Rate Cap	282,000	353,000
	$ 1,039,000	$ 1,149,000

Regulatory assets - current	**2019**	**2018**
Asset related to pension payment	$ 7,600,000	$ -
	$ 7,600,000	$ -

Regulatory assets, net of current portion	**2019**	**2018**
Actual 2019 under collection	$ 151,000	$ -
Asset related to pension and postretirement benefit liabilities (Note 5)	76,790,000	61,602,000
	$ 76,941,000	$ 61,602,000

Regulatory liability - current	**2019**	**2018**
Actual 2017 over collection	$ -	$ 9,335,000
Actual 2018 over collection	2,949,000	-
Mark to Market Interest Rate Cap	2,000	28,000
	$ 2,951,000	$ 9,363,000

Regulatory liability, net of current portion	**2019**	**2018**
Actual 2018 over collection	$ -	$ 2,949,000
	$ -	$ 2,949,000

Income Taxes

The Company is an entity organized as a non-stock corporation under the General Corporation Law, as amended, of the State of Delaware. The Company has been recognized by the Internal Revenue Service as an organization described in Internal Revenue Code (IRC) 501(c)(3) and is generally exempt from income taxes under IRC Section 501(a). The Company has determined prior to recording any benefit in the financial statements that it is more likely than not that the tax position will be sustained upon examination by the appropriate taxing authorities, as required by the Accounting for Uncertainty in Income Taxes in FASB ASC Topic 740, *Income Taxes*. A tax position is measured at the largest amount of benefit that is greater than fifty percent likely of being realized upon settlement.

Pension and Other Postretirement Plans

The Company has two noncontributory defined benefit pension plans. The benefits are based on age, years of service and average compensation. The Company also sponsors a defined postretirement benefit health, dental and life insurance plan.

The Company records annual amounts relating to its pension and other postretirement plans based on calculations that incorporate various actuarial and other assumptions, including discount rates, mortality, assumed rates of return, compensation increases, turnover rates and healthcare cost trend rates. The Company reviews its assumptions on an annual basis and makes modifications to the assumptions based on current rates and trends when it is appropriate to do so. The Company believes that the assumptions utilized in recording its obligations under its plans are reasonable based on its experience and market conditions.

Security Deposits

The Participants are required to comply with the Financial Assurance Policy under the ISO’s Tariff. In certain cases, including non-investment grade rated Participants that meet certain criteria and for all Participants participating in the Financial Transmission Rights market, the Company’s Financial Assurance Policy requires these Participants to put in place alternate forms of financial assurance. There are a few options allowed under the Company’s Financial Assurance Policy for compliance, one of which is to post cash collateral. The collateral deposits at December 31, 2019 and 2018 were $191,439,000 and $249,734,000, respectively, and are recorded in Deposits payable on the accompanying Statements of Financial Position.

Revenue Recognition

The Company recovers its operating and debt service costs pursuant to Section IV of the ISO’s Tariff, which provides for recovery of expenses through three schedules to Section IV.A. Scheduling, System Control and Dispatch Service (Schedule 1), Energy Administration Service (Schedule 2), and Reliability Administration Service (Schedule 3) recover related costs through a pre-approved rate applied to each month’s activity. Schedules 1, 2, and 3 are subject to true-up through subsequent years’ rates, and any over or under collection are recorded as regulatory assets or regulatory liabilities and will be recovered under future filings to recover the ISO’s expenses.

In addition to the recovery of these operating and debt service costs, the Company acts as a billing agent for a number of different pass-through expenditures on behalf of the Market Participants and other regulatory bodies, including system impact study expenses, the FERC’s Annual Electric Charges, and amounts related to the annual budget of the New England States’ Committee on Electricity, each as required by the Tariff.

Concentrations
The Company's top 10 Participants represented approximately 53% or $96,679,000 and 50% or $97,476,000 in Tariff revenues for the years ended December 31, 2019 and 2018, respectively. The Company's top 10 Participants with unbilled receivable balances represented approximately 54% or $16,642,000 and 50% or $15,822,000 as of December 31, 2019 and 2018, respectively.

Liquidity Information
In order to provide additional information about liquidity, assets have been sequenced according to their nearness to conversion to cash, and liabilities have been sequenced according to the nearness of their resulting use of cash. Financial assets available for general expenditures without donor or other restrictions limiting the use, within one year of the Statements of Financial Position date, comprise the following:

	December 31, 2019	December 31, 2018
Cash and cash equivalents	$ 126,131,000	$ 48,935,000
Unbilled receivables, net	32,504,000	32,310,000
Regulatory assets	7,600,000	—
Total	$ 166,235,000	$ 81,245,000

The Company's recovery of operating and debt service cost, as described in the revenue recognition and accounts receivable and accounts payable paragraphs of this footnote, are collected in arrears, and as a result, the Company's working capital and cash flows may vary throughout the year. To manage unanticipated liquidity needs, the Company has in place a revolving credit agreement, as described within Credit Facilities (note 4); to be used as needed to cover expenses as a result of the timing of cash flows.

Fair Value of Financial Statement Instruments
In determining fair value of financial assets and liabilities, the Company uses various valuation techniques. The availability of inputs observable in the market varies from instrument to instrument and depends on a variety of factors including the type of instrument, whether the instrument is actively traded, and other characteristics particular to the transaction. For many financial instruments, pricing inputs are readily observable in the market, the valuation methodology used is widely accepted by market participants, and the valuation does not require significant management discretion. For other financial instruments, pricing inputs are less observable in the market and may require management's judgment.

We assess the inputs used to measure fair value using the following three-tier hierarchy, which indicates the extent to which inputs used are observable in the market.

Level 1 Valuation is based upon unadjusted quoted prices for identical instruments traded in active markets.

Level 2 Valuation is based upon quoted prices for identical or similar instruments such as interest rates, foreign currency exchange rates, commodity rates and yield curves, and model-based valuation techniques for which all-significant assumptions are observable in the market.

Level 3 Valuation is generated from model-based techniques that use at least one significant assumption not observable in the market. These unobservable assumptions include management's own judgments about the assumptions market participants would use in pricing the asset or liability. Valuation techniques include use of option pricing models, discounted cash flow models and similar techniques.

Reclassifications

The Company has reclassified certain amounts relating to its prior period results to conform to its current period presentation. These reclassifications resulted in an increase to salaries and benefits of $1,682,000 and a decrease of $1,682,000 to Administrative and other, due to the adoption of ASU 2017-07, *Compensation – Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*, in the accompanying Statements of Activities for the prior period.

Prior Year Disclosure

The accompanying financial statements and related notes have been revised to incorporate certain items related to the disclosures specific to the adoption of ASU 2016-14, *Not-for-Profit Entities (Topic 958): Presentation of Financial Statements of Not-for-Profit Entities* as of and for the year ended December 31, 2018. The primary changes include requiring operating expenses to be reported by both natural and functional classifications in a single location, and expanding disclosures regarding liquidity and availability of resources. As a result disclosures were enhanced with respect to additional discussion related to the Company's liquidity and availability of resources in note 1, and operating expenses have been reported by both natural and functional classifications in note 8. These disclosure omissions did not result in any changes to the amounts presented in the accompanying Statements of Financial Position, Activities or Cash Flows for the year ended December 31, 2018, and management has concluded that these disclosure omissions were not material.

Accounting Pronouncements Recently Adopted

In February 2016, the FASB issued Accounting Standards Update (ASU) 2016-02, *Leases (Topic 842)*. The new standard impacts accounting and disclosure of leases such that the Company will need to recognize a right-of-use asset and a lease liability for virtually all of its leases (other than leases that meet the definition of a short-term lease). Operating leases will result in straight-line expense (similar to current operating leases) while finance leases will result in a front-loaded expense pattern (similar to current capital leases). For public entities and not-for-profit organizations that have issued, or are a conduit bond obligor for securities that are traded, listed or quoted on an exchange or an over-the-counter market, which the Company is a conduit bond obligor, ASU 2016-02 is effective for fiscal years beginning after December 15, 2018. The Company has adopted ASU 2016-02 in 2019, and the effects of adoption have been reflected in the accompanying financial statements and related notes.

In August 2016, FASB issued ASU 2016-15, *Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments*. The new standard is intended to reduce diversity in how certain transactions are classified in the Statements of Cash Flows. For non-public entities, ASU 2016-15 is effective for fiscal years beginning after December 15, 2018. The Company has adopted ASU 2016-15 in 2019, and the effects of adoption have been reflected in the accompanying financial statements and related notes.

In November 2016, FASB issued ASU 2016-18, *Statement of Cash Flows (Topic 230): Restricted Cash*. The new standard requires that the Statements of Cash Flows explain the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents. The Company will be required to reconcile such total to amounts on the Statement of Financial Position and disclose the nature of the restrictions. For non-public entities, ASU 2016-18 is effective for fiscal years beginning after December 15, 2018. The Company has adopted of ASU 2016-18 in 2019, and the effects of adoption have been reflected in the accompanying financial statements and related notes.

In March 2017, FASB issued ASU 2017-07, *Compensation – Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*. The new standard requires that the service cost component to be broken out from other components of the net benefit cost. The Company will be required to change the disclosures to adhere to the new standard. For non-public entities, ASU 2017-07 is effective for fiscal years beginning after December 15, 2018. The Company has adopted of ASU 2017-07 in 2019, and the effects of adoption have been reflected in the accompanying financial statements and related notes.

Accounting Pronouncements Not Yet Adopted

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820) Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement.* The new standard modifies the disclosure requirements on fair value measurements in Topic 820, Fair Value Measurement. The changes will remove the need for disclosure on transfers between level 1 and 2, modify roll forward for level 3 assets to require the disclosure of transfers into and out of level 3 assets and add some additional disclosures around level 3 assets. For non-public entities, ASU 2018-13 is effective for fiscal years beginning after, December 15, 2019. The Company does not expect the adoption to have a material impact on its financial statements

In August 2017, the FASB issued ASU 2017-12, *Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities.* The new standard is intended to improve the financial reporting of hedging relationships to better portray the economic results of an entity's risk management activities in its financial statements. For non-public entities, ASU 2017-12 is effective for fiscal years beginning after December 15, 2020. The Company has not determined the impact to the financial statements in adoption of ASU 2017-12 in 2020.

2. Commitments and Contingencies

Capital and Administrative Funding Tariff

The FERC accepted the ISO's capital and administrative funding filings to recover administrative expenses for 2019 and 2018. These filings, made pursuant to Section IV of the Tariff, support the ISO's loan arrangements with various banks and note holders to fund the capital and working capital requirements of the Company.

Legal Proceedings

The Company is involved in various claims and legal proceedings of a nature considered normal to its business. The claims are in various stages and some may ultimately be brought to trial. While it is not feasible to predict or determine the outcome of these claims, it is the opinion of management that the final outcome of these claims will not materially impact the operating results of the Company.

3. Property and Equipment In-Service, Net and Work in Process

	December 31, 2019	December 31, 2018
Computer hardware, software and accessories	$ 222,275,000	$ 221,785,000
Software development costs	94,568,000	88,064,000
Furniture and fixtures	4,248,000	4,262,000
Machinery and equipment	143,000	209,000
Building and building improvements	66,531,000	66,321,000
Capitalized interest and fees	8,549,000	8,427,000
Vehicles	19,000	19,000
	396,333,000	389,087,000
Less: accumulated depreciation and amortization	(326,946,000)	(310,261,000)
Property and equipment in-service, net	**$ 69,387,000**	**$ 78,826,000**
Work in process ("WIP")	**$ 28,181,000**	**$ 19,510,000**

Costs within WIP primarily include Energy Management Platform 3.2 Upgrade Part I, nGem Software Development Part I, Identity & Access Management Phase II, Energy Market Offer Caps (Order 831), CIMNET Simultaneous Feasibility Test with Data Transfer Enhancements, Internal Market Monitoring Data Analysis Phase II, Energy Storage Device Phase II, Baseline Telemetry System Improvements, and Enterprise Application Integration Replacement which all began between 2017 and 2018 and continued into 2019. Additionally, a number of new projects began in 2019, such as 2019 Forward Capacity Market Improvements, Markets Database Refresh, Energy Management Platform 3.2 Upgrade Part II, Edge Network Redesign, Update Security Application Framework Phase II, Sub-accounts for Financial Transmission Rights Market and various other market enhancement projects that have not been placed in service as of December 31, 2019.

Depreciation and amortization expense was $27,131,000 and $30,192,000 for the years ended December 31, 2019 and 2018, respectively.

4. Credit Facilities

Revolving Credit Arrangement

In June 2015, the Company entered into a $20,000,000 revolving credit arrangement that expired on July 1, 2018. From the period of July 1, 2015 through January 14, 2018, interest accrued on the revolving credit at either Base Rate or LIBOR of which the Company had the option of selecting the 30, 60, 90, or 180-day rate. On January 15, 2018, the Company amended the agreement to include the options of selecting Overnight and Weekly LIBOR, in addition to the already existing options. Interest was paid at the earlier of the selected LIBOR term or 30 days. The Company was charged an annual fee of .10% on the unused amount on the line of credit.

In July 2018, the Company entered into a $20,000,000 revolving credit arrangement that expires on July 1, 2021, and any outstanding balance must be paid by this date. In March 2018, the Company filed under Section 204 with FERC to issue this new debt; the filing was approved in June 2018. Interest accrues on the revolving credit at either Base Rate or LIBOR of which the Company has the option of selecting the Overnight, Weekly, 30, 60, 90, or 180-day rate. Interest is paid at the earlier of the selected LIBOR term or 30 days. The Company is charged an annual fee of .075% on the unused amount on the line of credit.

The outstanding balance and weighted average interest for each of the years ended December 31, 2019 and 2018 was $0 and 0%, respectively.

The Company entered into a $4,000,000 revolving credit arrangement in June 2015 that expired on July 1, 2018. From the period of July 1, 2015 through January 14, 2018, interest accrued on the revolving credit at either Base Rate or LIBOR of which the Company had the option of selecting the 30, 60, 90, or 180-day rate. On January 15, 2018, the Company amended the agreement to include the options of selecting Overnight and Weekly LIBOR, in addition to the already existing options. Interest was paid at the earlier of the selected LIBOR term or 30 days. The Company is charged an annual fee of .10% on the unused amount on the line of credit.

In July 2018, the Company entered into a $4,000,000 revolving credit arrangement that expires on July 1, 2021, and any outstanding balance must be paid by this date. In March 2018, the Company filed under Section 204 with FERC to issue this new debt; the filing was approved in June 2018. Interest accrues on the revolving credit at either Base Rate or LIBOR of which the Company has the option of selecting the Overnight, Weekly, 30, 60, 90, or 180-day rate. Interest is paid at the earlier of the selected LIBOR term or 30 days. The Company is charged an annual fee of .075% on the unused amount on the line of credit.

The outstanding balance and weighted average interest for each of the years ended December 31, 2019 and 2018 was $0 and 0%, respectively.

The Company incurred $19,000 in debt issuance costs as a result of refinancing the revolving credit arrangement in 2018. These costs have been capitalized and are being amortized on a straight-line basis over the remaining life of the arrangement. Total amortization expense was approximately $6,000 and $7,000 for years ended December 31, 2019 and 2018, respectively.

Private Placement Debt

In November 2012, the Company entered into an $11,000,000 private placement loan, which is made up of a twelve year 3.15% senior note. Payment is due in full on November 8, 2024 with mandatory prepayments upon certain contingent events occurring and interest is accrued and paid semi-annually. This loan is included in long-term debt on the accompanying Statements of Financial Position. The fair market value of the private placement loan at December 31, 2019 was estimated at $11,486,000. The fair value is estimated using discounted cash flow analysis based on the Company's incremental borrowing rates for similar types of borrowing arrangements, which was 2.19% for December 31, 2019 are classified as Level 2.

In 2012, the Company incurred $94,000 in debt issuance costs. These costs have been capitalized and are being amortized on a straight-line basis over the term of the loan. Total amortization expense for the years ended December 31, 2019 and 2018 was approximately $9,000 for each year.

In September 2013, the Company entered into an agreement for funding of a $39,000,000 private placement loan, which is made up of a ten year 4.49% senior note. Payment is due in full on November 8, 2024 with mandatory prepayments upon certain contingent events occurring and interest is accrued and paid semi-annually. Funding for this loan was received in May 2014 and is included in long-term debt on the accompanying Statements of Financial Position. The fair market value of the private placement loan at December 31, 2019 was estimated at $43,116,000. The fair value is estimated using discounted cash flow analysis based on the Company's incremental borrowing rates for similar types of borrowing arrangements, which was 2.19% for December 31, 2019 are classified as Level 2.

In 2013, the Company incurred $180,000 in debt issuance costs. These costs have been capitalized and are being amortized on a straight-line basis over the life of the private placement loan. Total amortization expense for the years ended December 31, 2019 and 2018 was approximately $18,000 for each year.

Tax-Exempt Bonds

In February of 2005, the Company entered into tax exempt financing of $45,500,000 in the form of Multi-Mode Variable Rate Civic Facility Revenue Bonds ("Bonds"), which were issued by the Massachusetts Development Finance Agency. The proceeds of the Bonds were loaned to the Company to assist in financing and refinancing a construction project located at the Main Control Center. Principal payments of $455,000, paid quarterly, began in May 2007 with the final repayment due on February 1, 2032. The tax-exempt financing is backed by a letter of credit that the Company originally entered into in February of 2005. The letter of credit will expire on August 31, 2021 and contains an Evergreen clause that will automatically renew annually with the beneficiaries. The outstanding balance on the Bonds for each of the years ended December 31, 2019 and 2018 was $22,295,000 and $24,115,000, respectively. The par value of the Bonds approximates the fair value and is classified as Level 2.

Interest accrues quarterly on the Bonds at a weekly variable rate based upon the Securities Industry and Financial Markets Association "SIFMA" Swap Index with a weighted average of 1.44% and 1.39% for the years ended December 31, 2019 and 2018, respectively. For the years ended December 31, 2019 and 2018, the weighted average floating interest rate on the Bonds was approximately 1.44% and 1.37%, respectively. The Company is charged an annual fee of .38% paid quarterly based on the maximum amount available to be drawn under the letter of credit including principal and interest commitments. When the Company extended the letter of credit in June, 2019, there were no changes to the annual fee.

The Company incurred $374,000 in debt issuance costs in connection with the issuance of the Bonds and refinancing of letter of credit. These costs have been capitalized and are being amortized on a straight-line basis over the remaining life of the Bonds. Total amortization expense for the years ended December 31, 2019 and 2018 was approximately $15,000 each year.

In December 2012, the Company entered into tax-exempt financing of $36,000,000 in the form of Multi-Mode Variable Rate Civic Facility Revenue Bonds ("CT Bonds"), which were issued by Connecticut Innovations Incorporated. The proceeds of the CT Bonds were loaned to the Company to assist in financing a project located in Windsor, Connecticut to acquire real property, construct an office building with data center and control center, including miscellaneous property and equipment to serve as a Back-up Control Center. In November 2014, a redemption payment of $1,350,000 was made on the CT Bonds as a result of under spending on the construction of the Back-up Control Center. Principal payments of $340,000 are paid quarterly, with the first payment being made in November 2014 for $680,000 and the final repayment due in November 2039. The tax-exempt financing is backed by a letter of credit that the Company originally entered into in December 2012. The letter of credit will expire on December 31, 2021 and contains an Evergreen clause that will automatically renew annually with the beneficiaries. The outstanding balance on the CT Bonds for each of the years ended December 31, 2019 and 2018 was $27,170,000 and $28,530,000, respectively. The par value of the Bonds approximates the fair value and is classified as Level 2.

Interest accrues quarterly on the $36,000,000 tax-exempt bonds, at a weekly variable rate based upon the SIFMA with a weighted average of 1.45% and 1.39% for the years ended December 31, 2019 and 2018, respectively. For the years ended December 31, 2019 and 2018, the weighted average floating interest rate on the CT Bonds was approximately 1.45% and 1.37%, respectively. The Company is charged an annual fee of .38% paid quarterly based on the maximum amount available to be drawn under the letter of credit including principal and interest commitments. When the Company extended the letter of credit in June, 2019, there were no changes to the annual fee.

The Company incurred $557,000 in debt issuance costs as a result of financing the CT bonds. These costs have been capitalized and are being amortized on a straight-line basis over the life of the CT Bonds. Total amortization expense for the years ended December 31, 2019 and 2018 was approximately $23,000 for each year.

The Company has entered into an interest rate cap to mitigate the interest rate risks associated with the tax-exempt debt. On October 31, 2013, the Company purchased an interest rate cap for $706,000 for predetermined notional amount to lock into a derivative arrangement whereby the Company will receive a payment whenever 74% of the one-month LIBOR exceeds 2.48%. The interest rate cap is recorded as an other deferred asset on the accompanying Statements of Financial Position. The derivative arrangement is effective November 1, 2013 to February 1, 2024 with the notional amount of $32,215,000, which is amortized to zero as the floating rate debt, is repaid. The fair market value of the interest rate cap as of December 31, 2019 and 2018 was $2,000 and $28,000, respectively. The fair market values were recorded as an other asset and regulatory liability in 2019 and 2018 on the accompanying Statements of Financial Position. The fair market values are derived from third-party financial institutions and are classified as Level 2.

	December 31, 2019	December 31, 2018
Long-term debt	$ 99,465,000	$ 102,645,000
Less: applicable debt issuance cost	(281,000)	(303,000)
Total long-term debt	$ 99,184,000	$ 102,342,000

The total long-term debt at December 31, 2019 and 2018 was $99,465,000 and $102,645,000, respectively.

Principal payments on the private placement debt and tax-exempt bonds, excluding debt issuance costs, are due annually as follows:

2020	$ 3,180,000
2021	3,180,000
2022	3,180,000
2023	3,180,000
2024	53,180,000
Thereafter	33,565,000
	$ 99,465,000

Interest incurred on the revolving credit arrangement, private placement debt, and tax-exempt bonds for the years ended December 31, 2019 and 2018 was approximately $2,833,000 and $2,850,000, respectively.

5. Pension and Other Employee Benefits

The Company sponsors two defined benefit pension plans (one for union and the other for non-union employees), also referred to herein as the non-contract and contract plans, each of which is funded solely by Company contributions. Benefits are determined based on years of service and average compensation. Effective January 1, 2014, the defined benefit pension plans were closed to all employees hired or rehired on or after January 1, 2014.

The Company sponsors a postretirement benefit plan that provides medical, dental and life insurance benefits for eligible employees and their beneficiaries. The medical benefits are contributory with participants’ contributions adjusted annually, and participants are responsible for deductible and coinsurance amounts. Dental benefits are non-contributory but participants are responsible for deductible and coinsurance amounts. The life insurance benefits are non-contributory. Effective January 1, 2016, the postretirement benefit plan was closed to employees hired or rehired on or after January 1, 2016.

The Company accounts for the plans as required in FASB ASC Topic 715, Compensation – Retirement Benefits. The measurement date used to determine pension and other postretirement benefit obligations is December 31. Additionally, the Company discloses net periodic benefit cost for the defined benefit pension and other postretirement benefit plan for each annual period for which a Statements of Activities is presented as required by the Employers’ Disclosures. As required in Topic 980, *Regulated Operations*, the Company also discloses the difference in the timing of recognition of net periodic benefit cost as an expense and under rate-making regulations and rules be recognized as an asset or a liability created by the actions of the regulator.

In 2010, the Patient Protection and Affordable Care Act and the Health Care and Education Reconciliation Act (collectively, the "Health Care Acts") were signed into law by President Obama. The Health Care Acts include several provisions that may affect a company's postretirement benefit plans, including imposing an excise tax on high cost coverage, eliminating lifetime and annual coverage limits, reducing subsidies to Medicare Advantage plans, and extending coverage for adult children until age 26. In December 2019, the Setting Every Community Up for Retirement Enhancement (SECURE) Act repealed the excise tax on high cost coverage. The Company has evaluated the effects of the remaining provisions of the Health Care Acts and concluded that as of December 31, 2019, none of the provisions have a material impact on its postretirement benefit plan. The Company does not provide benefits that are actuarially equivalent to the Medicare prescription drug benefit in its postretirement benefit plan.

The following table sets forth the plans' benefit obligations, fair value of the plans' assets, and the plans' funded status:

	Pension Benefits Years Ended December 31,		Other Postretirement Benefits Years Ended December 31,	
	2019	2018	2019	2018
Change in benefit obligation:				
Benefit obligation at beginning of year	$ 212,045,000	$ 221,102,000	$ 20,612,000	$ 22,231,000
Service cost	8,776,000	10,223,000	1,282,000	1,457,000
Interest cost	8,723,000	7,798,000	858,000	738,000
Benefits paid	(5,940,000)	(5,765,000)	(923,000)	(678,000)
Amendments	-	-	-	(247,000)
Plan participants' contributions	-	-	228,000	180,000
Actuarial loss(gain)	47,212,000	(21,313,000)	3,178,000	(3,069,000)
Benefit obligation at end of year	270,816,000	212,045,000	25,235,000	20,612,000
Change in plan assets:				
Fair value of plan assets at beginning of year	151,824,000	157,965,000	19,231,000	20,221,000
Actual return on plan assets	32,732,000	(10,487,000)	3,794,000	(1,104,000)
Employer contributions	17,678,000	10,111,000	637,000	612,000
Plan participants' contributions	-	-	228,000	180,000
Benefits paid	(5,940,000)	(5,765,000)	(923,000)	(678,000)
Fair value of plan assets at end of year	196,294,000	151,824,000	22,967,000	19,231,000
Funded status at end of the year	(74,522,000)	(60,221,000)	(2,268,000)	(1,381,000)
Net amount recognized as non-current liabilities	$ (74,522,000)	$ (60,221,000)	$ (2,268,000)	$ (1,381,000)

The Company has determined that the pension liability is probable of recovery through Section IV.A. of the Tariff and has recorded a regulatory asset as of December 31, 2019 and 2018 in the accompanying Statements of Financial Position.

	Pension Benefits Years ended December 31, 2019	Pension Benefits Years ended December 31, 2018	Other Postretirement Benefits Years ended December 31, 2019	Other Postretirement Benefits Years ended December 31, 2018
Components of net periodic benefit cost:				
Service cost	$ 8,776,000	$ 10,223,000	$ 1,282,000	$ 1,457,000
Interest cost (1)	8,723,000	7,798,000	858,000	738,000
Expected return on plan assets (1)	(10,643,000)	(10,939,000)	(1,337,000)	(1,410,000)
Amortization of transition obligation (1)	-	-	-	-
Amortization of net actuarial loss (1)	3,326,000	3,590,000		
Amortization of unrecognized prior service cost(credit) (1)	1,000	2,000	(104,000)	(63,000)
Net periodic benefit cost	10,183,000	10,674,000	699,000	722,000
Amount deferred due to actions of the regulator	(789,000)	(1,247,000)	(138,000)	(151,000)
Net periodic benefit cost recognized	$ 9,394,000	$ 9,427,000	$ 561,000	$ 571,000

(1) The components of net periodic pension cost other than service cost component are included in the line item "Administrative and other" in the Statement of Activities.

	Pension Benefits Years ended December 31, 2019	Pension Benefits Years ended December 31, 2018	Other Postretirement Benefits Years ended December 31, 2019	Other Postretirement Benefits Years ended December 31, 2018
Prepaid benefit cost at beginning of year	$ 272,000	$ 835,000	$ (762,000)	$ (652,000)
Employer contributions	17,678,000	10,111,000	637,000	612,000
Net periodic benefit cost	(10,183,000)	(10,674,000)	(699,000)	(722,000)
Prepaid benefit cost at end of year	$ 7,767,000	$ 272,000	$ (824,000)	$ (762,000)

The following table sets forth the amount expected to be amortized into net periodic benefit cost over the next fiscal year ending December 31, 2020:

	Pension Benefits	Other Postretirement Benefits
Expected amortization of transition obligation	$ -	$ -
Expected amortization of net actuarial loss	4,990,000	-
Expected amortization of prior service cost(credit)	-	(104,000)

The primary economic assumptions used to value these liabilities are summarized in the following chart. These assumptions are selected as the measurement data based on prevailing economic conditions.

Weighted-average assumptions used to determine net periodic benefit cost for the following years ended:

	Pension Benefits		Other Postretirement Benefits	
	12/31/2019	12/31/2018	12/31/2019	12/31/2018
Discount rate	See Below	See Below	4.06%	3.41%
Expected long-term rate of return on plan assets	7.00%	7.00%	7.00%	7.00%
Rate of compensation increase	4.00%	4.00%	4.00%	4.00%
Health Care cost trend rates - initial	-	-	7.50%	7.75%
Health Care cost trend rates - ultimate	-	-	4.50%	4.50%
Ultimate year	-	-	2033	2033

Separate discount rates are used in the pension calculations for the non-contract and the contract plans. The December 31, 2019 discount rate for the non-contract and the contract plan was 4.19% and 4.28%, respectively. The December 31, 2018 discount rate for the non-contract and the contract plan was 3.58% and 3.69%, respectively.

Weighted-average assumptions used to determine benefit obligation for the following years ended:

	Pension Benefits		Other Postretirement Benefits	
	12/31/2019	12/31/2018	12/31/2019	12/31/2018
Discount rate	See Below	See Below	3.03%	4.06%
Rate of compensation increase prior to age 40	6.00%	4.00%	Rates that vary with age	4.00%
Rate of compensation increase for ages 40-59	4.00%	-		
Rate of compensation increase for ages 60 and after	3.00%	-		

Separate discount rates are used in the pension calculations for the non-contract and the contract plans. The December 31, 2019 discount rate for the non-contract and the contract plan was 3.19% and 3.30%, respectively. The December 31, 2018 discount rate for the non-contract and the contract plan was 4.19% and 4.28%, respectively.

A one-percentage point change in the assumed health care cost trend rates would either increase the Accumulated Post Retirement Benefit Obligation ("APBO") as of December 31, 2019, by approximately $681,000 or decrease the APBO by approximately $623,000. Additionally, a one-percentage point change in the assumed health care cost trend rates would increase or decrease the net postretirement cost as of December 31, 2019 by approximately $112,000 and $100,000, respectively. The methodology for selecting the discount rate for the respective plan is to match the plan's expected benefit payments to that of a yield curve that provides the equivalent yield on zero-coupon corporate bonds and estimate a single interest rate that produces a present value equal to the present value produced by the full yield curve as of the annual measurement date, subject to change each year.

ISO's pension plan and postretirement benefit plan weighted-average asset allocations and expected returns by asset category are as follows:

Pension and Postretirement Plan Assets

	Target Allocation	Percentage of Plan Assets at December 31		Weighted Average Expected Long-Term
	2020	2019	2018	Rate of Return - 2020
Equity Securities	54%	54%	59%	4.59%
Debt Securities	36%	36%	36%	1.36%
Real Estate	5%	5%	0%	0.40%
Other	5%	5%	5%	0.40%
Total	100%	100%	100%	6.75%

The forward-looking estimates of total return were developed using a were developed based on assumptions for each underlying component, reflecting observable inflation and interest rate information available in the fixed income markets as well as Consensus Economics forecasts. Long-term assumptions for other assets classes (i.e., equities) are based on historical results, current market characteristics and professional judgment. In setting this assumption, the ISO relied upon capital market assumptions developed by a market-leading provider of investment services to corporate pension plans.

The respective plan's investment portfolio is to be invested to provide benefits for qualified employees of the ISO. Investments are to be compatible with the liquidity requirements determined by the plan's actuary. An optimal target allocation of 60/40 between equities and fixed income investments is to be kept with an allowance of fifteen percent (15%) over/under deviation from the optimal allocation target.

The fair values of the pension plan assets at December 31, 2019 and 2018 by asset category are as follows:

	Market Value at 12/31/19	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Long-term investment strategies:				
Fixed income:				
Long Duration Corporate Bonds	$ 65,020,000	$ -	$ 65,020,000	$ -
Resinsurance Bond	3,773,000	3,773,000	-	-
U.S. High Yield Bond Funds	5,377,000	5,377,000	-	-
Total	74,170,000	9,150,000	65,020,000	-
Global (ex-U.S.) equities:				
Developed markets	23,851,000	23,851,000	-	-
Emerging markets value (actively managed)	5,454,000	5,454,000	-	-
Total	29,305,000	29,305,000	-	-
Real assets:				
U.S. real estate investment trust funds	10,058,000	10,058,000	-	-
Private real estate mutual funds	4,899,000	4,899,000	-	-
Total	14,957,000	14,957,000	-	-
Cash and cash equivalents	673,000	673,000	-	-
Total long-term investments	$ 119,105,000	$ 54,085,000	$ 65,020,000	$ -
Investments redeemable at net asset value:				
Traditional equity index funds			77,189,000	
Total			77,189,000	
Total Portfolio			$ 196,294,000	

Certain investments are measured at fair value using net asset value ("NAV") as a practical expedient and have not been classified in the fair value hierarchy.

	Market Value at 12/31/18	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Long-term investment strategies:				
Fixed income:				
Long Duration Corporate Bonds	$ 54,184,000	$ -	$ 54,184,000	$ -
Resinsurance Bond	3,795,000	3,795,000		
U.S. High Yield Bond Funds	4,596,000	4,596,000		
Total	62,575,000	8,391,000	54,184,000	-
Global (ex-U.S.) equities:				
Developed markets	18,026,000	18,026,000	-	-
Emerging markets value (actively managed)	4,527,000	4,527,000	-	-
Total	22,553,000	22,553,000	-	-
Real assets:				
U.S. real estate investment trust funds	7,547,000	7,547,000	-	-
Private real estate mutual funds	4,121,000	4,121,000	-	-
Total	11,668,000	11,668,000	-	-
Cash and cash equivalents	919,000	919,000	-	-
Total long-term investments	$ 97,715,000	$ 43,531,000	$ 54,184,000	$ -
Investments redeemable at net asset value:				
Traditional equity index funds			54,109,000	
Total			54,109,000	
Total Portfolio			$ 151,824,000	

Certain investments are measured at fair value using net asset value ("NAV") as a practical expedient and have not been classified in the fair value hierarchy.

The fair values of the other postretirement benefit plan assets at December 31, 2019 and 2018 by asset category are as follows:

	Market Value at 12/31/19	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Long-term investment strategies:				
Fixed income:				
U.S. Treasury inflation-protected	$ 1,098,000	$ 1,098,000	$ -	$ -
U.S. and global core fixed income funds	6,383,000	6,383,000	-	-
U.S. High Yield Bond Funds	684,000	684,000	-	-
Resinsurance Bond	447,000	447,000	-	-
Total	8,612,000	8,612,000	-	-
Domestic equities:				
Traditional equity index funds	8,975,000	8,975,000	-	-
Total	8,975,000	8,975,000	-	-
Global (ex-U.S.) equities:				
Developed markets	2,914,000	2,914,000	-	-
Emerging markets value (actively managed)	627,000	627,000	-	-
Total	3,541,000	3,541,000	-	-
Real assets:				
U.S. real estate investment trust funds	1,233,000	1,233,000	-	-
Private real estate mutual funds	554,000	554,000	-	-
Total	1,787,000	1,787,000	-	-
Cash and cash equivalents	52,000	52,000	-	-
Total long-term investments	$ 22,967,000	$ 22,967,000	$ -	$ -
Total Portfolio			$ 22,967,000	

Certain investments are measured at fair value using net asset value ("NAV") as a practical expedient and have not been classified in the fair value hierarchy.

	Market Value at 12/31/18	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Long-term investment strategies:				
Fixed income:				
U.S. Treasury inflation-protected	$ 1,007,000	$ 1,007,000	$ -	$ -
U.S. and global core fixed income funds	5,809,000	5,809,000	-	-
U.S. High Yield Bond Funds	603,000	603,000	-	-
Resinsurance Bond	464,000	464,000	-	-
Total	7,883,000	7,883,000	-	-
Domestic equities:				
Traditional equity index funds	6,821,000	6,821,000	-	-
Total	6,821,000	6,821,000	-	-
Global (ex-U.S.) equities:				
Developed markets	2,271,000	2,271,000	-	-
Emerging markets value (actively managed)	537,000	537,000	-	-
Total	2,808,000	2,808,000	-	-
Real assets:				
U.S. real estate investment trust funds	950,000	950,000	-	-
Private real estate mutual funds	516,000	516,000	-	-
Total	1,466,000	1,466,000	-	-
Cash and cash equivalents	253,000	253,000	-	-
Total long-term investments	$ 19,231,000	$ 19,231,000	$ -	$ -
Total Portfolio			$ 19,231,000	

Certain investments are measured at fair value using net asset value ("NAV") as a practical expedient and have not been classified in the fair value hierarchy.

The Company expects to contribute $2,400,000 to its pension plans and $440,000 to its postretirement benefit plan in 2020.

The following benefit payments, which reflect expected future service, as appropriate, are expected to be paid:

	Pension Benefits	Other Postretirement Benefits
2020	$ 9,493,000	$ 1,058,000
2021	9,217,000	1,148,000
2022	9,339,000	1,168,000
2023	9,407,000	1,299,000
2024	10,686,000	1,311,000
Years 2025-2029	63,027,000	7,630,000
Total	$ 111,169,000	$ 13,614,000

6. 401(k) Savings and Defined Contribution Plans

The Company has a 401(k) Retirement and Savings Plan open to substantially all employees. This savings plan provides for employee contributions up to specified limits. The Company matches employee contributions up to 3% of eligible compensation and provides a 50% match on the next 2% of eligible compensation. The matching contributions for the Company were $3,259,000 and $3,171,000 for the years ended December 31, 2019 and 2018, respectively.

In 2014, the Company established the ISO New England Inc. Defined Contribution Plan (the “Plan”) for new employees hired after January 1, 2014. The Company funds the contribution into the Plan based on a formula of employee’s age, service and compensation. The contributions paid by the Company were $1,039,000 and $839,000 for the years ended December 31, 2019 and 2018, respectively.

7. Leases

In February 2016, the FASB established Topic 842, *Leases*, by issuing ASU 2016-02, and certain other amendments, which requires lessees to recognize leases on-balance sheet and disclose key information about leasing arrangements. The new standard establishes a ROU model that requires a lessee to recognize a ROU asset and lease liability on the Statements of Financial Position for all leases with a term longer than 12 months. Leases will be classified as finance or operating, with classification affecting the pattern and classification of expense recognition in the Statements of Activities.

The new standard was effective for the Company on January 1, 2019. The Company used a modified retrospective transition approach in applying the new standard to all leases existing at the date of initial application. Consequently, financial information will not be updated and the disclosures required under the new standard will not be provided for dates and periods before January 1, 2019.

On January 1, 2019, the Company's incremental borrowing rate is 2.5%. The new standard provides a number of optional practical expedients in transition. The Company has elected the package of practical expedients permitted under the transition guidance within the new standard, which does not require reassessment of prior conclusions related to contracts containing a lease, lease classification and initial direct lease costs. The Company did not elect the use-of-hindsight or the practical expedient pertaining to land easements; the latter was not applicable. The new standard also provides practical expedients for an entity's ongoing accounting. The Company elected the short-term lease recognition exemption for all leases that qualify, therefore short-term leases (term of 12 months or less) are excluded from the Statements of Financial Position and accounts for non-lease and lease components in a contract as a single component for all asset classes.

The Company has operating leases for office equipment, computer hardware, and motor vehicles. The Company's leases have remaining lease terms of 1 year to 5 years. For purposes of calculating operating lease liabilities, lease terms may be deemed to include options to extend the lease when it is reasonably certain that the Company will exercise those options. The Company's lease arrangements do not contain any material restrictive covenants.

On January 1, 2019, the Company measured the right-of-use asset and lease liability at $1,144,000, which is the present value of all leases using the rate of 2.5%. The right-of-use asset is equal to the lease liability before any adjustments for accrued rent and unamortized initial direct costs, which were not reassessed because the Company elected the practical expedients.

The components of lease cost for operating leases for the years ended December 31, 2019 were as follows:

Operating lease cost	$	678,000
Short-term lease cost		281,000
Total Lease Cost	$	959,000

The operating lease cost is equal to the cash paid from operating cash flows.

Maturity of Lease Liabilities at December 31, 2019

		Operating Leases
2020	$	784,000
2021		520,000
2022		320,000
2023		125,000
2024		-
Total future undiscounted lease payments		1,749,000
Less: Interest		(53,000)
Present value of lease liabilites	$	1,696,000

The Company calculates the weighted-average remaining lease term based on the remaining lease term and the lease liability balance for each lease at the reporting date. For the year ended December 31, 2019, the Company discloses a weighted-average remaining lease term of 2.66 years for its operating leases.

The Company calculates the weighted-average discount rate based on the remaining lease payments and discount rate for each lease at the reporting date. For the year ended December 31, 2019, the Company discloses a weighted-average discount count rate 2.31% for its operating leases.

8. Functional Classification of Expenses

Operating expenses presented by natural and function classification are as follows:

	December 31, 2019		
	Program Service Expenses	Management & General Expenses	Total
Salaries and benefits	$ 97,289,000	$ 16,212,000	$ 113,501,000
Depreciation and amortization expense	26,914,000	217,000	27,131,000
Professional fees and consultants	14,994,000	1,959,000	16,953,000
Computer Services	13,014,000	984,000	13,998,000
All other expenses	20,215,000	2,469,000	22,684,000
Total expenses	$ 172,426,000	$ 21,841,000	$ 194,267,000

	December 31, 2018		
	Program Service Expenses	Management & General Expenses	Total
Salaries and benefits	$ 95,871,000	$ 17,270,000	$ 113,141,000
Depreciation and amortization expense	29,970,000	222,000	30,192,000
Professional fees and consultants	14,126,000	1,792,000	15,918,000
Computer Services	12,449,000	993,000	13,442,000
All other expenses	18,133,000	2,222,000	20,355,000
Total expenses	$ 170,549,000	$ 22,499,000	$ 193,048,000

One of the Company's primary responsibilities is to ensure the reliability of the power system for the New England area and as such, our departments are specifically designed to support that function. Those departmental costs are deemed directly identifiable to program services as summarized in the above tables. Other departments that are solely for supporting the Company, such as human resources, are categorized as management and general expenses as summarized in the above tables. For any department that is providing both program and management and general services, an analysis was performed to allocate the costs based on the time spent supporting program services or management and general, and categorized accordingly.

All expenses summarized above, except for depreciation and amortization expense are allocated in the method described above. Depreciation is allocated based on service life of an asset. Assets with 3-5 year life are primarily computer hardware and software designed for power system and are classified as program service expenses. Any asset with a life of 7 years or greater is related to equipment and building and therefore is allocated under the method described above.

9. Subsequent Events

The Company has evaluated subsequent events from the Statements of Financial Position date through, March 20, 2020, the date at which the financial statements were available to be issued, and determined that there are no items to disclose that occurred in the subsequent period.