**MINUTES OF THE REGULAR JOINT MEETING
OF THE
NYPA AND CANAL AUDIT COMMITTEE**

December 11, 2019

Table of Contents

Minutes of the regular meeting of the New York Power Authority and Canal Corporation's Audit Committee held at the Clarence D. Rappleyea Building, 123 Main Street, White Plains, New York, at approximately 8:00 a.m.

The following Members of the Audit Committee were present:

Eugene Nicandri, Chairman
John R. Koelmel
Tracy McKibben
Dennis Trainor

Anthony Picente, Jr. – Excused

Also in attendance were:

Gill Quiniones	President and Chief Executive Officer
Justin Driscoll	Executive Vice President and General Counsel
Joseph Kessler	Executive Vice President and Chief Operations Officer
Adam Barsky	Executive Vice President and Chief Financial Officer
Kristine Pizzo	Executive Vice President and Chief Human Resources & Administrative Officer
Soubhagya Parija	Senior Vice President and Chief Risk Officer
Robert Piascik	Senior Vice President and Chief Information Officer
Angela Gonzalez	Senior Vice President – Internal Audit
Yves Noel	Senior Vice President – Strategy and Corporate Development
Karen Delince	Vice President and Corporate Secretary
Joseph Gryzlo	Vice President and Chief Ethics and Compliance Officer
Daniella Piper	Vice President – VP Digital Transformation/Chief of Staff
Sundeep Thakur	Controller
Lorna Johnson	Senior Associate Corporate Secretary
Sheila Quatrocci	Associate Corporate Secretary
Lori DeMichele	Board Travel Specialist
Scott Heiser	Lead Audit Partner – KPMG
Chris Davanzo	Audit Manager – KPMG
Rebecca Lieberman	Audit Manager – KPMG

Chairman Eugene Nicandri presided over the meeting. Corporate Secretary Delince kept the Minutes.

Introduction

   Chairman Nicandri welcomed committee members and senior staff to the meeting. He said the meeting had been duly noticed as required by the Open Meetings Law and called the meeting to order pursuant to section B(4) of the Audit Committee Charter.

1. <u>**Adoption of the Proposed Meeting Agenda**</u>

Upon motion made by member John Koelmel and seconded by member Tracy McKibben, the agenda for the meeting was adopted.

2.   <u>**Motion to Conduct an Executive Session**</u>

Mr. Chairman, I move that the Audit Committee conduct an executive session to discuss the financial and credit history of a particular corporation (pursuant to section 105f of New York Public Officers Law). On motion made by member Tracy McKibben and seconded by member John Koelmel, an Executive Session was held.

3.   <u>**Motion to Resume Meeting in Open Session**</u>

Mr. Chairman, I move to resume the meeting in Open Session. Upon motion made by member John Koelmel and seconded by member Tracy McKibben, the meeting resumed in Open Session.

Chairman Nicandri said no votes were taken during the Executive Session.

4.   <u>**CONSENT AGENDA**</u>

On motion made by member John Koelmel and seconded by Member Tracy McKibben, the Consent Agenda was approved.

a.   <u>**Approval of the Minutes of the Regular Meeting held on July 9, 2019**</u>

On motion made and seconded, the Minutes of the Committee's Regular Meeting held on July 9, 2019 were approved.

5.   **DISCUSSION AGENDA:**

    a. **New York Power Authority and Canal Corporation:**

       i. **2019 Internal Audit Update**

Ms. Angela Gonzalez, Senior Vice President of Internal Audit, provided an update of the Authority and Canal Corporation's 2019 Internal Audit ("IA") status (Exhibit 5a i-A). She said that IA had a very productive year. They accomplished some major key departmental initiatives and ended the year in a strong position. Also, IA will be completing its Internal Audit Plan by the end of the year.

Internal Audit Scorecard as of November 27, 2019

The Internal Audit Scorecard is a first attempt at presenting a snapshot of the audits IA has been working throughout the whole year. The landscape of the Scorecard is in four parts, three of which are directly aligned to IA's brand objectives: Operational Excellence; Value and Impact and Staff Excellence. IA also tracks its compliance with the Institute of Internal Standards.

Operational Excellence

- Audit Plan Percentage – measures effectiveness at completing the Audit Plan.

IA measures the percentage of the Audit Plan that is complete. To date, IA has completed 90% of the Internal Audit Plan, with approximately five reports to be completed by the end of the year. IA is on track to complete the Plan by the end of the year.

- Audit Deliverables with Opinions – measures the level of opinions provided to management.

IA have been internally benchmarking audit deliverables that have opinions. IA have completed 56% reports and is in the process of completing an additional five reports that have opinions provided to management; therefore, IA will meet this metric.

- Fieldwork to Report Issuance – measures time to issue an audit report from the end of fieldwork.

In 2018 it took about four weeks to complete audit reports. To date, it has gone down to 3 weeks; therefore, IA is taking less time to complete audit reports. IA continues to improve on this metric.

- Budget to Actual Hours – measures how well IA budgets audits and manages the budget.

To date, 51% of IA's projects either met or were within the budget threshold of 10%. 49% were over budget. IA will continue to work towards increasing this percentage.

- Average Project Cycle – measures audit cycle from audit start to report issuance.

The average audit project cycle is 12 weeks which is a combination of IA's traditional approach and using the Agile process.   Next year, when IA will be fully using Agile, it expected that the audit project cycle will be 10 – 11 weeks.

- Transformation Initiatives – measures status of IA's strategic initiative.

IA is on track with its transformation initiatives – Branding, Agile, Data Analytics, GRC, and Innovation.

Value and Impact

- High and Medium Observations identified in 2019 – measures valuable insights for risk areas to management.

High (approx. 12%) and medium (approx. 60%) observations were identified in 2019.

- Recommendation closed by Years – measures closure of open recommendations by year.

92% of the 2018 recommendations have been closed, to date; one was extended; 6 to be completed. These are tracking to be closed by the end of the year.

- Recommendations Implemented by Action Plan Due Date – measures timeliness of closing open recommendations.

In 2018, 83% of IA's recommendations were implemented by the Action Plan's due dates. Therefore, few observations were extended or overdue.

In 2019, 46% of IA's recommendations were implemented by the Action Plan's due dates. Some items will be due in 2020.

- Recommendations Overdue – measures open recommendations not closed by the due date and not extended.

Very few observations were extended or overdue.

- Recommendations with Due Date Extensions – measures the frequency of due date extension requests.

Action plans closed within the due date or at the extension due date.

Staff Excellence

- Client Surveys Average Score – measures customer survey scores from audit projects.

  Client surveys average score through Q3 was 7.8. This is an improvement over 2018 scores. Client surveys responses have been increasing over time, indicating that IA's clients are of the view that IA is helping them in a positive way.

  IA has a very professional group on staff. IA's staff certifications have increased as more staff are getting advanced degrees; the average audit experience is about ten years.

Audit Standards

Internal Audit completed an external Quality Assurance and Improvement Program (QAIP) whereby the Institute of Internal Auditors conducted an assessment to determine IA's compliance with the Institute of Internal Auditors' standards and they were in agreement with the standards that IA complied or did not comply with.

ii. <u>**2020 Internal Audit Plan**</u>

Ms. Angela Gonzalez, Senior Vice President of Internal Audit, provided an update of the Authority and Canal Corporation's 2020 Internal Audit Plan (Exhibit 5a ii-A) and requested the Committee's approval of the Audit Plan.

Ms. Gonzalez said that the proposed 2020 Audit Plan is fully developed and reflects the following:

- A defined and risk-scored Audit Universe aligned by business unit.

- Audit projects in the plan are a subset of the Audit Universe entities selected based on audit risk ranking, last audit date, IA resources.

- The audit plan has been aligned to the Top Enterprise Risks as identified by Risk Management and NYPA's current strategic themes.

- Emerging risks will be given appropriate consideration and the audit plan will be adjusted as business needs change.

- Key stakeholder input from Executive Management and various Risk Management and Business Units.

Proposed NYPA and Canal Corporation 2020 Audit Plan Coverage

- 44 projects are included in the Proposed NYPA 2020 Audit Plan

  - The number of audit projects included in the 2020 Audit Plan is based on actual audit project hours collected in 2019. This data showed that audit projects take an average of 420 hours to complete which is the baseline data for 2019. Audit project hours in prior years were based on an estimate of 400 hours per audit project.

  - Audit projects were budgeted using 450 hours for the majority of NYPA's audit projects (i.e. some audit projects were budgeted more/less hours, as needed). Based on internal staff hours available for the Audit Plan of 16,750 hours, 1,100 contingency hours will be available for special projects. In addition, Internal Audit is requested to execute two to three special projects during the year.

- 6 projects are included in the Proposed Canal Corporation 2020 Audit Plan

  - Executing six audits per year for Canal Corporation has been consistent, given the longer time needed to implement Internal Audit's recommendations, other than year one of the integration.

  - Based on internal staff hours available for the audit plan, 2,325 hours were budgeted for Canal Corporation's audit projects based on 450 hours per audit project for the majority of these projects.

On motion made by member John Koelmel and seconded by member Tracy McKibben, the 2020 Internal Audit Plans for NYPA and Canal Corporation were unanimously approved.

    iii.   **2020 Internal Audit Budget**

      Ms. Angela Gonzalez, Senior Vice President of Internal Audit, provided highlights of the Authority and Canal Corporation's 2020 Internal Audit budget (Exhibit 5a iii-A).

      On motion made by member John Koelmel and seconded by member Tracy McKibben the 2020 Internal Audit Budget was unanimously approved.

b. **New York Power Authority Audit Plan Update - KPMG**

Mr. Scott Heiser, KPMG's Lead Audit Partner, presented KPMG's Plan for the 2020 Financial Statement Audit (Exhibit 5b-A).

Mr. Heiser outlined the client service team for the engagement. He introduced Rebecca Lieberman and Chris Davanzo, the managers working on the account this year, both of whom have worked in the industry for several years. He added that, despite the mandatory rotation, the underlying team is the same as in prior years, therefore, there is continuance in the engagement team for the audit. He also outlined KPMG's planned audit approach for the year-end audit.

Risk Assessment

Relevant factors affecting Risk Assessment

KPMG considered the relevant qualitative and quantitative factors affecting its risk assessment, including, but not limited to, size, complexity, exposure to losses, measurement uncertainty, possible significant contingent liabilities, and related party transactions.

Significant Risk

Management Override of Controls

Management is in a unique position to perpetrate fraud because of management's ability to manipulate accounting records and prepare fraudulent financial statements by overriding controls that otherwise appear to be operating effectively. Although the level of the risk of management override of controls will vary, the risk is nevertheless present in all entities. KPMG designed procedures to address this fraud risk.

Other Significant Audit Areas

Significant audit areas include Revenue recognition; Long-term debt; Investments; and Capital assets.

Significant estimates include Asset Retirement Obligations; Derivative Valuations; Pension and Post-Retirement Obligations; and Investments.

Audit Strategy

Involvement of Others

As part of its audit, KPMG will continue to involve specialists to help in the testing of the valuation of investments and derivatives as well as the actuarial data and assumptions used to form the pension and post-retirement obligations valuations.

Audit Procedures

- Perform analytical reviews of activities and changes in balances on net position, as well as statements of revenues, expenses and cash flows.

- Test journal entries as well as closing and post-closing journal entries.

- Review transactions with related parties and also getting an understanding of management's processes to identify related parties.

- Review minutes of the Board of Trustees and selected committees to see if there are transactions or events going on that will have an impact on the audit.

- Conferring with the legal department and outside counsel regarding litigation matters to determine financial statement impact, if any.

Newly Effective Accounting Standards

The timeline for new GASB statements has been issued. NYPA's management is currently going through the process of determining which statements are applicable and the significance of those statements.

GASB Statement No. 87 – Leases
The new GASB 87 accounting standard (Leases) was discussed with management earlier this year. Due to its significant undertaking, KPMG has started, and will continue, the process of evaluating those agreements that are applicable to the new standard.

Supplemental Communications

Materiality in the context of the Audit
KPMG will apply materiality in the context of the preparation and fair presentation of the consolidated financial statement.

KPMG Independence quality controls
KPMG maintains a comprehensive system of quality controls designed to maintain its independence and to comply with regulatory and professional requirements.

6. **Next Meeting**

Chairman Nicandri said that the next regular meeting of the Audit Committee would be held at the Clarence D. Rappleyea Building in White Plains, New York on March 26, 2020 at a time to be determined.

Closing

Upon motion made by member Dennis Trainor and seconded by member Tracy McKibben, the meeting was adjourned by the Chairman at approximately 9:09 a.m.

Karen Delince

Karen Delince
Corporate Secretary

EXHIBITS

For

Audit Committee

Minutes

December 11, 2019

Table of Contents

Executive Summary

Internal Audit Scorecard - As of 11/27/2019

Operational Excellence

*Metric	Progress/Comments	Status
Audit Plan Percentage Complete (1)	86%	On Track
50% of Audit Deliverables have Opinions (1)	56% to date	Completed
Fieldwork to Report Issuance	3.1 Weeks	On Track
Budget to Actual Hours (% of projects that met the budget threshold of 10%)	51%	N/A
IA Average Project Cycle Time (Excludes Ongoing Projects)	12 Weeks	On Track
Transformation Initiatives – Branding (2)	In Progress	On Track
Transformation Initiatives - Agile (2)	In Progress	On Track
Transformation Initiatives – Data Analytics (2)	In Progress	On Track
Transformation Initiatives - GRC (2)	In Progress	On Track
Transformation Initiatives – Innovation (2)	In Progress	On Track

Value and Impact

*Metric	Progress/Comments		Status
% High & Medium Risk Observations Identified in 2019	High = 12% (9/77) Medium = 60% (46/77)		N/A
% of IA Recommendations Closed by Years	**2018** = 93% (95/102)	**2019** = 45% (35/77)	On Track
% of IA Recommendations Implemented by Action Plan Due Date - 2018 and 2019	**2018** = 83% (85/102)	**2019** = 38% (29/77)	N/A
% of Total High vs Total Open Observations	16% (8/50)		N/A
% of Recommendations Overdue	2% (1/50)		N/A
% of Recommendations with Due Date Extensions	6% (3/50)		N/A
% of Data Analytics Completed on Audit Projects	50%		Completed

Audit Standards

Metric	Progress/Comments	Status
External Quality Assurance Assessment Remediation Status (3)	In progress	On Track
Yearly QAIP IIA Standards Internal Assessment	Completed	Completed

Staff Excellence

*Metric (4)	Progress/Comments	Status
Client Surveys Average Score (through Q3)	Average 7.8	On Track
Staff Obtain 40 CPE and/or Training Hours Per Year	50% (9/18)	On Track
% Staff Certifications	67%	N/A
% Staff Advanced Degrees	44%	N/A
Average Years of Audit Experience	10 Years	N/A

Key
- On-Track (green)
- Delayed (yellow)
- Metric Not Achieved/Item Not Completed (red)
- Not Started (grey)
- Completed (blue)

(1) See Appendix A
(2) See Appendix C
(3) See Appendix D
(4) Annual Metric

*Note: See Appendix E for metric definitions.

NEW YORK STATE OF OPPORTUNITY. | NY Power Authority | Canal Corporation

Appendix

Appendix A – 2019 Audit Plan Status

➤ 2019 Audit Plan Status:

  ➤ 43 deliverables have been issued associated with 50 audit projects as of 11/27/19 reaching 86% audit plan completion. Total 2019 deliverables for NYPA and the Canal Corporation will be 50 reports and memos*.

  ➤ The remaining seven audits are in various stages of reporting and are on track to be issued by the end of December.

Audit Phase – Status

- Not Started
- Planning
- Fieldwork
- Reporting in Progress
- Reports Issued

Report Ratings

- Good
- Satisfactory
- Needs Improvement
- Unsatisfactory
- Not Rated

% of Audit Deliverables with Opinions

- Good
- Satisfactory
- Needs Improvement
- Unsatisfactory
- Not Rated
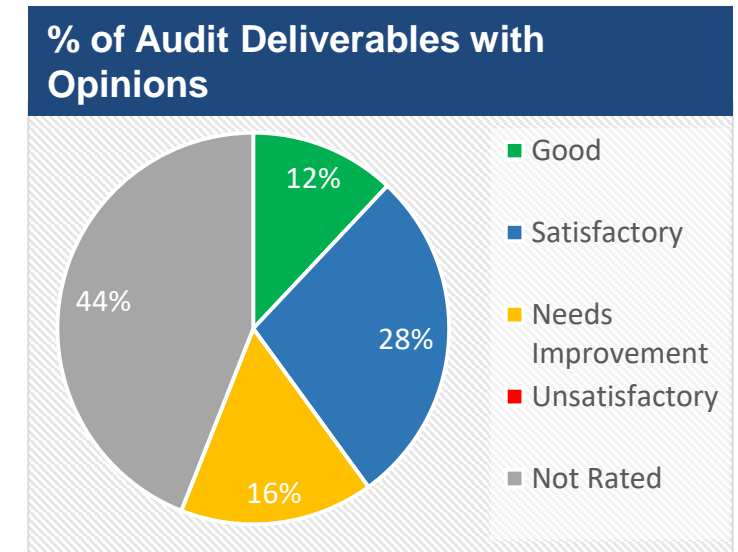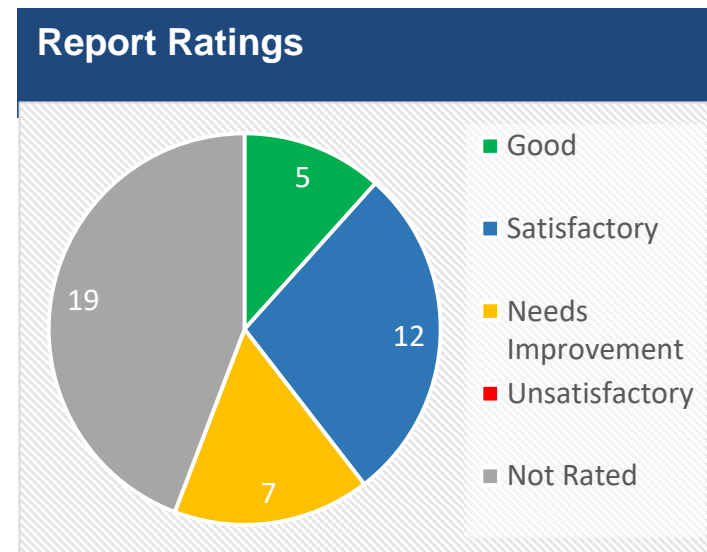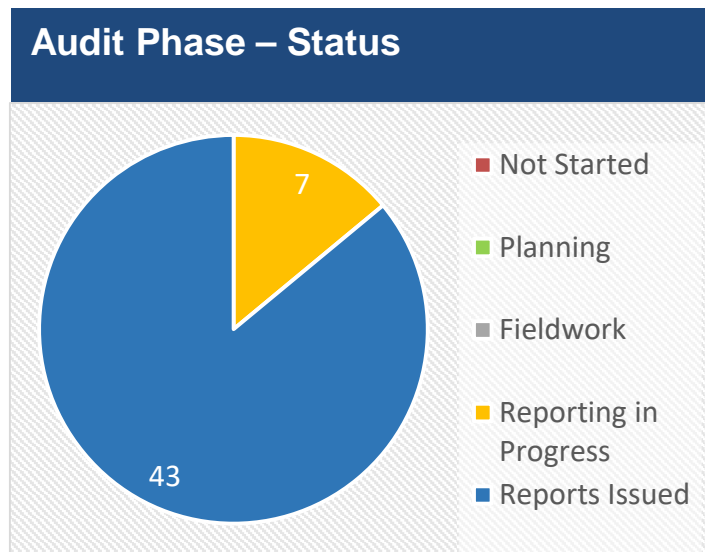
NOTE: * See Appendix B for details.

Appendix B – 2019 Internal Audit Plan

Ref	Entity	Audit Project Number	Audit	Business Unit	Audit Type	Report Rating	Date Issued
			Deliverable Issued: 43				
1	NYPA	2019-AS-22	ES-C2M2 Maturity Assessment	Information Technology	Assessment	N/A	3-12-19
2	NYPA	2019-AU-15	Build Smart – EO88 Program	Commercial Operations	Audit	Good	3-22-19
3	NYPA	2019-AS-06	ISO 55001 Framework Compliance	Utility Operations	Assessment	N/A	3-22-19
4	NYPA	2019-AU-01	Recharge NY Customer Compliance (D&M)	Commercial Operations	Audit	N/A	3-26-19
5	NYPA	2019-AU-35	Employee Data Protection	Human Resources and Shared Services	Audit	Needs Improvement	3-28-19
6	NYPA	2019-AU-08	Market Forecasting Services	Commercial Operations	Audit	Good	3-29-19
7	NYPA	2019-AU-02	Commercial Operations Construction Projects	Commercial Operations	Audit	Satisfactory	4-1-19
8	NYPA	2019-AU-26	Lockout/Tagout Compliance	Utility Operations	Audit	Satisfactory	4-18-19
9	NYPA	2019-AV-13	IT Vendor Management	Information Technology	Advisory	N/A	4-30-19
10	NYPA	2019-AU-07	Site Operations and Maintenance	Utility Operations	Audit	Satisfactory	5-7-19
11	NYPA	2019-AU-21	Third Party Contract Audit – O'Brien & Gere/ Dewberry Energy	Human Resources and Administration	Audit	Good	5-16-19
12	NYPA	2019-QIR-51	Drones Use Program (NYPA and Canals)	Utility Operations	QIR	N/A	5-23-19
13	NYPA	2019-AU-39	Background Checks	Human Resources and Administration	Audit	Satisfactory	5-24-19
14	NYPA	2019-AU-50	Third Party Contract Audit – Wendel Energy Services	Human Resources and Administration	Audit	Good	6-6-19
15	NYPA	2019-AU-16	Customer Revenues – NIA, Flynn, BG, SENY, STL, RNY, Canals	Business Services	Audit	Satisfactory	6-7-19
16	NYPA	2019-AU-23	Crisis Management (NYPA and Canals)	Utility Operations	Audit	Satisfactory	6-21-19
17	NYPA	2019-AV-28	Budgeting	Business Services	Advisory	N/A	6-26-19
18	NYPA	2019-AU-32	Western NY Customer Compliance Audit (D&M)	Commercial Operations	Audit	N/A	6-28-19
19	NYPA	2019-AU-24	Identity Access Management	Information Technology	Audit	Needs Improvement	7-3-19
20	NYPA	2019-AS-19	Vendor Management Governance	Human Resources and Administration	Assessment	N/A	7-9-19
21	NYPA	2019-AS-05	Sensor Deployment Roadmap	Utility Operations	Assessment	N/A	7-15-19
22	NYPA	2019-AU-03	Energy Trading and Hedging	Commercial Operations	Audit	Needs Improvement	8-13-19
23	NYPA	2019-AU-04	Utility Operations Construction Projects	Utility Operations	Audit	Satisfactory	8-14-19
24	NYPA	2019-QIR-52	LPGP LEM	Utility Operations	QIR	N/A	8-29-19
25	NYPA	2019-AU-12	Generation Bid Pricing	Commercial Operations	Audit	Good	9-6-19
26	NYPA	2019-AU-29	Cloud Governance	Information Technology	Audit	Needs Improvement	9-16-19
27	NYPA	2019-AU-20	Human Resources Operations: Recruiting, Hiring and Onboarding	Human Resources and Administration	Audit	Satisfactory	9-16-19

Appendix B – 2019 Internal Audit Plan

Ref	Entity	Audit Project Number	Audit	Business Unit	Audit Type	Report Rating	Date Issued
28	NYPA	2019-AV-41	Sustainability Program	Legal Affairs	Advisory	N/A	9-23-19
29	NYPA	2019-AS-18	Physical Security (NYPA and Canals)	Utility Operations	Assessment	N/A	9-24-19
30	NYPA	2019-AU-31	Ethics & Compliance Program (NYPA and Canals)	Legal Affairs	Audit	Satisfactory	9-25-19
31	NYPA	2019-AS-10	OSI PI Expansion Implementation	Utility Operations	Assessment	N/A	10-17-19
32	NYPA	2019-AU-14	Power Systems Operations and Energy Control Center	Utility Operations	Audit	Satisfactory	10-17-19
33	NYPA	2019-AU-33	IT Project Management Office (PMO)	Information Technology	Audit	Needs Improvement	10-18-19
34	NYPA	2019-AS-11	Business Continuity Planning	Utility Operations	Assessment	N/A	10-31-19
35	NYPA	2019-AS-34	IT Service Management (ITSM) Implementation	Information Technology	Assessment	N/A	11-12-19
36	NYPA	2019-AV-60	Fuel Planning Operations	Commercial Operations	Advisory	N/A	11-19-19
37	NYPA	2019-AU-58	Customer Digital Experience (CDEx)–Account Center	Commercial Operations	Audit	Satisfactory	11-19-19
38	NYPA	2019-AU-30	Bid to Bill System Implementation	Commercial Operations	Audit	N/A	11-22-19
39	NYPA	2019-AV-59	NERC CIP Low Impact Readiness Assessment	Utility Operations	Advisory	N/A	11-25-19
40	Canals	2019-AU-42-C	Asset Maintenance	Engineering & Maintenance	Audit	Needs Improvement	4-17-19
41	Canals	2019-AU-49-C	Inventory & Warehousing	Engineering & Maintenance	Audit	Satisfactory	4-17-19
42	Canals	2019-AS-43-C	Public Safety	Engineering & Maintenance	Assessment	N/A	8-20-19
43	Canals	2019-AU-47-C	Canals Permit Management Follow-up	Administrative Services	Audit	Needs Improvement	11-27-19
Reporting – Fieldwork Complete: 7							
44	NYPA	2019-AU-36	Knowledge Management	Human Resources and Administration	Audit		
45	NYPA	2019-AU-37	Wireless Networks	Information Technology	Audit		
46	NYPA	2019-AU-38	External Compliance Reporting (NYPA and Canals)	Legal Affairs	Audit		
47	NYPA	2019-AU-40	Technology Change Release Management	Information Technology	Audit		
48	NYPA	2019-QIR-53	Project and Business Development	Commercial Operations	QIR		
49	Canals	2019-AU-46-C	Recruiting, Hiring and Onboarding	Administrative Services	Audit		
50	Canals	2019-AU-45-C	Third Party Contracts	Administrative Services	Audit		
Fieldwork in Progress: 0							
Audit Planning in Progress: 0							
Planning Not Started: 0							

Appendix C – Internal Audit Transformation Highlights

BRANDING

- Revised vision and mission has been developed for Internal Audit including brand objectives (Valuable Insights, Customer-Focused, Staff Excellence).

- Internal Audit has completed a pitchbook and identified the stakeholders that will participate in developing video clips to communicate brand.

- Communication of brand will be launched in 2020 through various methods (video clips, news articles, lunch and learns).

DELIVERY

Agile Project Methodology

- Successfully executed 17 audits using Agile project methodology (34% of plan projects). Audit teams are maturing in their Agile project execution and have developed enhancements to the process for more efficiencies.

- Developed Director and Manager (Product Owner and Scrum Master) coaching capabilities to execute Agile audits.

- Transitioning from external Agile coach to internal Agile coaches. Audit Managers are receiving Agile Coach training and on-the-job training to ensure the methodology is executed consistently and maintain process sustainability.

- Implementing portfolio management practices (audit project intake processes) and formalizing Audit Liaison Program to collect business information to enhance audit planning.

- Developed configurable teams to execute 2020 audit plan.

- Internal Audit is on track to fully use the Agile methodology in 2020.

NEW YORK STATE OF OPPORTUNITY. | NY Power Authority | Canal Corporation

Appendix C – Internal Audit Transformation Highlights – cont'd

GRC Automation

- The audit project functionality of the GRC system went live on October 24, 2019. Internal Audit is piloting six projects in GRC and staff are working in the system to complete these audit projects. The majority of staff have been trained to use the system since they were involved in testing its functionality.

- Phase 2 started the week of 11/4/19 and involves the development of roles, configuration of the audit universe, audit plan, timekeeping, observation management and reporting. The development of roles and configuration for the audit universe will be completed by 12/31/19. Timekeeping, observations management and reporting will be completed in Q1 2020.

- The risk module is tracking to go live in early December and go live for the functionality scheduled for 12/31/19 is on track.

Data Analytics

- To date, 20 out of 40 (50%) of 2019 audit projects have been identified where data analytics could be applied and have been completed.

- The Data Analytics team leveraged IT's Data Quality Analyzer (DQA) tool which has some data analytics capabilities to build data analytics scripts.

- Using the DQA tool, analysis has been completed for:
    - ProCards: The team met with the business regarding exceptions identified.(e.g. duplicates). The business validated there were no exceptions.
    - T&E: The team reviewed expenses over policy limits and duplicate payments. The business validated there were no exceptions.

- Based on the scripts developed, the team found refinements are needed. The DQA tool has some data analytics capabilities, however, is designed more to analyze for data quality. The tool helped to get started in building data analytics scripts, however, Internal Audit will be reviewing data analytics tools in 2020 to continue building scripts and move towards continuous auditing.

- Staff are increasing their use of Tableau within their audit projects. All staff now have Tableau licenses and training for those staff, other than the Data Analytics team, will take place in 2020.

Appendix C – Internal Audit Transformation Highlights – cont'd

Quality Assurance Improvement Program

- The external quality assurance assessment was conducted by the Institute of Internal Auditors (IIA) in Q3 2019 to determine Internal Audit's compliance with the IIA standards. Internal Audit received the highest rating "Generally Conforms" with the IIA standards. Gaps and continuous improvement items within the standards were identified for remediation. See Appendix D for details.

- The QAIP team has been working on the gap and continuous improvement items found from the IIA's external quality assessment. Focus has been on the gap items and the majority of them have been completed to date. The remaining gap and continuous improvement items will be completed by Q2 2020.

INNOVATION

- The Innovation Team has focused on developing methods to increase auditor efficiencies, collaboration and gather staff ideas. The team completed the following:

  - Operationalized timesheets to capture staff time charged to audit projects, departmental initiatives and administration and developed reporting. This assisted with developing departmental metrics.
  - Provided audit specific helpful hints, how-to videos and process flows within the department's SharePoint site.
  - Created a mechanism in SharePoint to gather ideas from staff for improvements and efficiencies and reviewed for consideration. Some ideas were implemented within Internal Audit's audit process based on need and practicality.

TALENT (STAFF EXCELLENCE)

- Various trainings were either provided externally to staff, brought in-house or offered through NYPA throughout 2019 such as the NYISO Market, Advanced Excel, Tableau, and HR team building and collaboration training.

- Several staff are pursuing various certifications such as the CIA, CPA and CISA or advanced degrees.

Appendix D – 2019 External Quality Assurance Assessment Remediation Status

IIA Standard #	STANDARD DESCRIPTION	GAP/ IMPROVEMENT OPPORTUNITY	GAP OR IMPROVEMENT OPPORTUNITY DESCRIPTION	STATUS
1311	Internal Assessments	GAP	Conduct an Internal Quality Assessment (QA) annually.	Completed
1312	External Assessments	GAP	Conduct an external QA every five years.	Completed
1320 1311	Reporting on the QAIP	GAP	Communicate internal and external assessment results.	In Progress
1311	Internal Assessments	GAP	Develop a balanced scorecard and report results during the periodic reporting process to the Audit Committee.	Completed
1000	Purpose, Authority and Responsibility	Improvement Opportunity	Update the IA Charter and obtain CAE and Audit Committee approvals.	In Progress
1000 2060	Purpose, Authority and& Responsibility Reporting to Senior Management and the Board	Improvement Opportunity	Implement a checklist including Required Communications of the CAE to the Audit Committee.	In Progress
1210	Proficiency	Improvement Opportunity	Consider developing IA staff in specialized areas of the energy industry.	In progress
1210	Proficiency	Improvement Opportunity	Consider use of technology-based audit.	In Progress
1210	Proficiency	Improvement Opportunity	Consider other data analysis techniques and Computer Assisted Audit Techniques (CAATS) to better evaluate data and identify problems.	In Progress
2240	Engagement Work Program	Improvement Opportunity	Document supervisory review of the Audit Program to evidence approvals.	In Progress
2410 2411	Criteria for Communicating	Improvement Opportunity	Incorporate limitations on the distribution of deliverables in the report.	In Progress
2450	Overall Opinions	Improvement Opportunity	Include a section in the report for description of any scope limitations.	In Progress
1300	Quality Assurance and Improvement Program	Improvement Opportunity	Update QAIP documentation in policy. Develop the QAIP program. Perform the 2020 Internal QA. Present final 2020 Internal Annual QAIP report to the Audit Committee.	In Progress
2050	Coordination and Reliance	Improvement Opportunity	Provide an Assurance Map that describes coverage of risk between IA and other providers of assurance for NYPA.	In Progress

Appendix E - Metric Definitions

Operational Excellence	
Audit Plan Percentage Complete	Measures effectiveness at completing the audit plan.
Audit Deliverables have Opinions	Measures the level of opinions provided to management.
Fieldwork to Report Issuance	Measures time to issue an audit report from the end of fieldwork.
Budget to Actual Hours	Measures how well IA budgets audits and manages the budget.
IA Average Project Cycle Time (Excludes Ongoing Projects)	Measures audit cycle from Audit Start to Report Issuance.
Transformation Initiatives – Branding, Delivery – Agile, Data Analytics, GRC, Innovation	Measures status of IA strategic initiative.

Value and Impact	
High and Medium Observations identified in 2019	Measures valuable insights for risk areas to management.
Recommendations Closed by Years	Measures closure of open recommendations by year.
Recommendations Implemented by Action Plan Due Date	Measures timeliness of closing open recommendations.
Total High vs. Total Open Observations	Measures high risk observations identified by Internal Audit.
Recommendations Overdue	Measures open recommendations not closed by the due date and not extended.
Recommendations with Due Date Extensions	Measures the frequency of due date extension requests.
% of Data Analytics Completed on Audit Projects	Measures staff use of data analytics on audit projects identified for analytics.

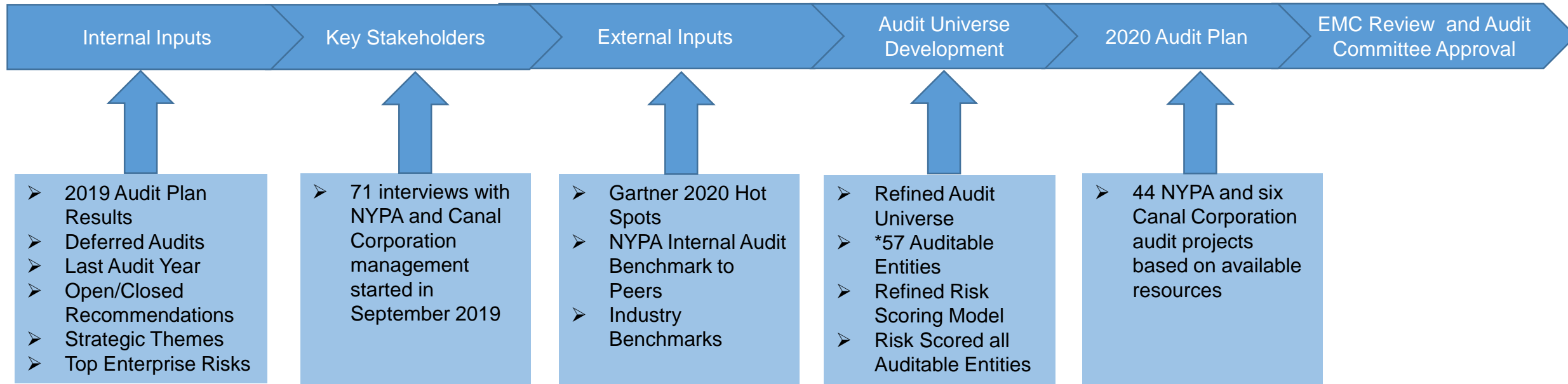| Staff Excellence	
Client Surveys Average Score	Measures customer survey scores from audit projects.
Staff Obtain 40 CPE and/or/Training Hours Per Year	Measures staff CPE and/or training hours received within the year.
% Staff Certifications	Measures staff with industry certifications.
% Staff Advanced Degrees	Measures staff with advanced degrees.
Average Years of Audit Experience	Measures average years of staff experience.

Executive Summary

<u>Annual Audit Plan</u>

The proposed 2020 Audit Plan is fully developed and reflects the following:

➢ A defined and risk-scored Audit Universe aligned by business unit.

➢ Audit projects in the plan are a subset of the Audit Universe entities selected based on audit risk ranking, last audit date, IA resources.

➢ The audit plan has been aligned to the Top Enterprise Risks as identified by Risk Management and NYPA's current strategic themes.

➢ Emerging risks will be given appropriate consideration and the audit plan will be adjusted as business needs change.

➢ Key stakeholder input from Executive Management and various Risk Management and Business Units.

➢ Internal Audit requests that the Audit Committee approve the 2020 NYPA and Canal Corporation Internal Audit Plan.

Risk Assessment Process (NYPA and Canal Corporation)

Internal Inputs	Key Stakeholders	External Inputs	Audit Universe Development	2020 Audit Plan	EMC Review and Audit Committee Approval

Internal Inputs
- ➤ 2019 Audit Plan Results
- ➤ Deferred Audits
- ➤ Last Audit Year
- ➤ Open/Closed Recommendations
- ➤ Strategic Themes
- ➤ Top Enterprise Risks

Key Stakeholders
- ➤ 71 interviews with NYPA and Canal Corporation management started in September 2019

External Inputs
- ➤ Gartner 2020 Hot Spots
- ➤ NYPA Internal Audit Benchmark to Peers
- ➤ Industry Benchmarks

Audit Universe Development
- ➤ Refined Audit Universe
- ➤ *57 Auditable Entities
- ➤ Refined Risk Scoring Model
- ➤ Risk Scored all Auditable Entities

2020 Audit Plan
- ➤ 44 NYPA and six Canal Corporation audit projects based on available resources

*See Slide 4 for details.

Audit Universe Refinement

➢ In 2018, Internal Audit developed the first risk-scored Audit Universe that identified 237 audit entities for the NYPA and Canal Corporation (205 NYPA, 32 Canal Corporation) based on historical analysis of previous audit activity, an assessment of risks within business operations and applying a risk scoring model. Audit entities were identified and risk-scored at the project level.

➢ In 2019, the Audit Universe has been refined and the number of entities has been reduced from 237 to 57 to align risk scoring at the NYPA and Canal Corporation departmental level instead of the project level. Current audit projects within the Audit Universe are mapped to each of these departmental entities. (See Appendix A – Slides 17 – 24 for details). This also aligns with the design of the Audit Universe for the audit module within the GRC system.

➢ The breakdown of the audit entities by risk are as follows: (See Appendix B - Slides 26 - 27 for details)

| NYPA Audit Entities		Canal Corp. Audit Entities	
High Rated:	10	High Rated:	1
Medium Rated:	26	Medium Rated:	2
Low Rated	17	Low Rated:	1
Total	53	Total	4

Audit Universe Cycle

➢ Audit projects included in each year's plan will continue to touch upon the high-rated and medium-rated entities within the coverage period of the five-year cycle considering last year audited, business need, strategic initiatives and degree of change. Low-rated entities will be included on an as needed basis in alignment with Gartner Audit Leadership Council benchmarks or as risks within these entities change.

➢ Internal Audit will continue to use the five-year cycle to cover audit entities within the Audit Universe as follows:

Audit Entity	Coverage Period in Months	Coverage Period in Years
High	12 to 24 Months	1-2 years
Medium	24 to 48 Months	2-4 years
Low	48 to 60 Months	4-5 years

Proposed NYPA 2020 Audit Plan Coverage

2020 Planned Activities

44 projects in the Proposed NYPA 2020 Audit Plan*

- Audits
- Assessments
- Advisory

2% · 9% · 89%
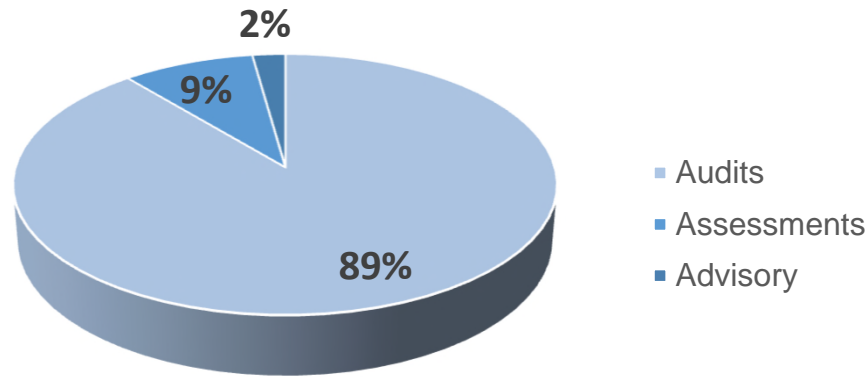
Comparison to Prior Years

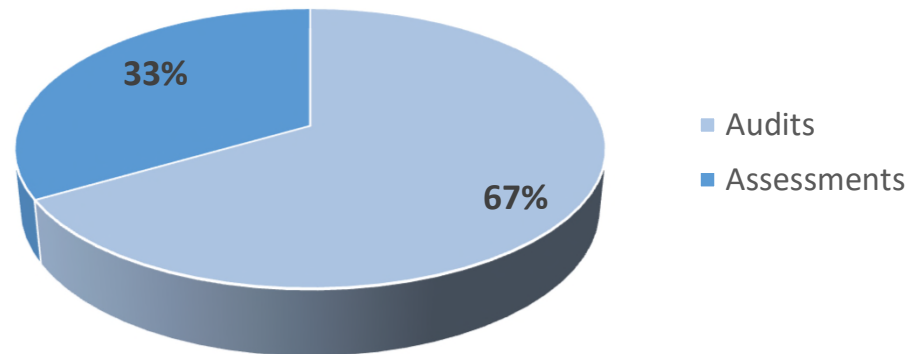|	2020 Plan	2019 Actual	2018 Actual
Assessments	4	8	4
Audits	39	28	37
Advisory	1	5	6
Quick Impact Review	-	3	N/A
Total	44	44	47

➢ Audits, Assessments and Advisory audit projects for 2020 are based on open positions filled by the end of Q1/Q2 2020. Co-source partner will supplement staff as needed until open positions are filled and provide subject matter expertise (See Slide 7 for details).

➢ The number of audit projects included in the 2020 audit plan is based on actual audit project hours collected in 2019. This data showed that audit projects take an average of 420 hours to complete as of 11/15/19 which is baseline data for 2019. Audit project hours in prior years were based on an estimate of 400 hours per audit project.

➢ Audit projects were budgeted using 450 hours for the majority of NYPA audit projects (i.e. some audit projects were budgeted more/less hours as needed) equating to 15,650 hours. Based on internal staff hours available for the audit plan of 16,750 (See Slide 7), 1,100 contingency hours will be available for special projects. On the average, Internal Audit is requested by the business to execute two to three special projects during the year.

*See Appendix C for the Proposed 2020 Audit Plan (Slides 29-43) and Appendix D – Supporting Information for Q1 Audit Projects (Slide 48).

Proposed Canal Corporation 2020 Audit Plan Coverage

2020 Planned Activities

6 projects in the Proposed 2020 Audit Plan*

■ Audits
■ Assessments

Comparison to Prior Years

	2020 Plan	2019 Actual	2018 Actual	2017 Actual (1st Year)
Assessments	2	1	3	3
Audits	4	5	3	11
Total	6	6	6	14

➤ Executing six audits per year for the Canal Corporation has been consistent year over year given the longer time needed to implement Internal Audit recommendations, other than year one of the integration.

➤ Based on internal staff hours available for the audit plan (See Slide 8 for details), 2,325 hours were budgeted for Canal Corporation audit projects based on 450 hours per audit project for the majority of these projects.

*See Appendix C for Proposed 2020 Audit Plan (Slides 45-46) and Appendix D – Supporting Information for Q1 Audit Projects (Slide 48).

Proposed NYPA 2020 Audit Plan Resource and Audit Type Allocation

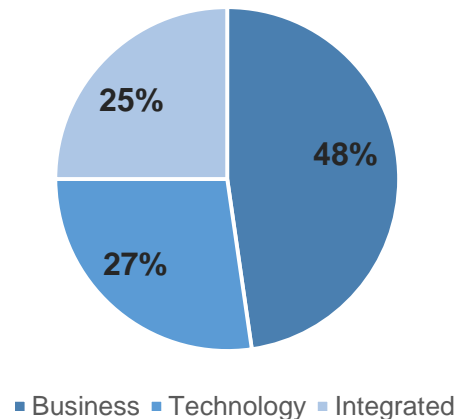| 44 projects are included in the Audit Plan based on Resource Availability		
Resource Allocation	**Business**	**Technology**
Internal Staff Hours Available for Audit Plan (1)	*11,950	*4,800
Budgeted Third Party Hours (2)	300	2,950
Total Resources Available for 2020 Audit Plan	12,250	7,750

(1) Internal staff hours available include all open positions filled by the end of Q1/Q2 2020 equating to 1,500 audit hours. (See Appendix E – Audit Plan Internal Resource Capacity).

(2) Third party co-source business hours are for subject matter expertise. Third party co-source hours for technology are for some staff augmentation for technology audits (IT and OT) and to cover the increase in integrated audits.

* Rounding included

Types of Audits – 2020

25%
48%
27%

■ Business ■ Technology ■ Integrated

Increase in technology and integrated audits are due to coverage for operations technology areas and strategic system implementations.

Integrated audits allow Internal Audit to look at business and technology controls in coordination to provide full view of processes leading to increased efficiencies and value of audits.

Types of Audits – 2019

11%
21%
68%

■ Business ■ Technology ■ Integrated
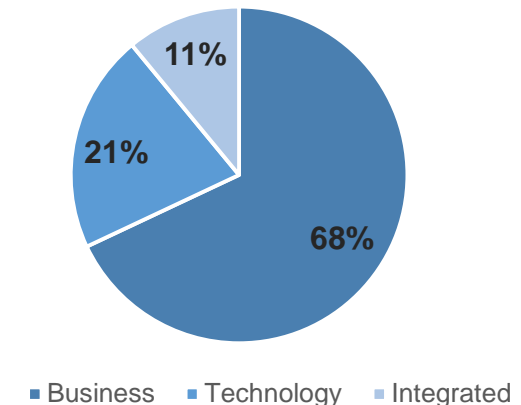
Proposed Canal Corporation 2020 Audit Plan Resource and Audit Type Allocation

## 6 projects are included in the Audit Plan based on Resource Availability

Resource Allocation

	Business	Technology
Internal Staff Hours Available for Audit Plan (1)	2,325	0
Budgeted Third Party Hours (2)	0	225
Total Resources Available for 2020 Audit Plan	2,325	225

From audit activities in 2017 - 2019 and refinement of the Canal Corporation Audit Universe, 2020 audits will focus on key business operations areas as follows:

- Five out of six audit projects (83%) will review key support operations for budgeting, real property and fleet management. One area included in these five projects is for continued audit coverage for business areas from 2017 (i.e. vendor payment accruals). Audit coverage has focused on asset maintenance over the last three years. One audit project is integrated, covering a system implementation (17%).

- To complete the 2020 Audit Plan and establish resources to cover audits for the Canal Corporation, Internal Audit has one open position and will allocate one staff member to these audit projects and additional staff as needed.

- Internal Audit continues to move towards developing NYPA expertise for Canal Corporation business operations and processes and to use co-source resources when needed.

(1) Audit Plan hours include full year available audit hours for the open position for Canal Corporation audits (i.e.1,200) and 50% of available audit hours for a current staff auditor.

(2) Co-source hours allocated are for technology hours needed. (See Appendix E – Audit Plan Internal Resource Capacity).

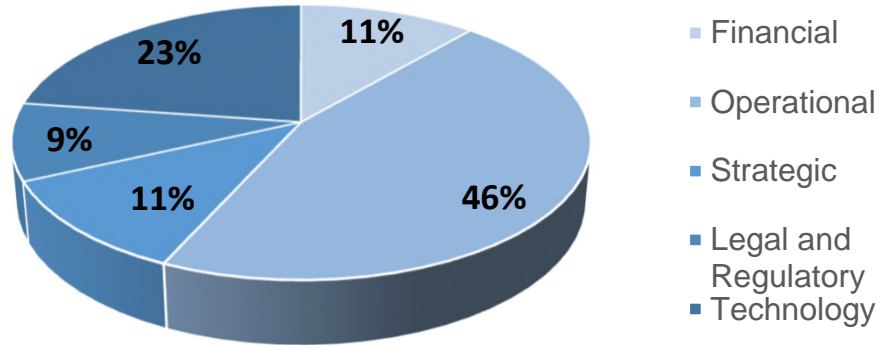### Types of Audits
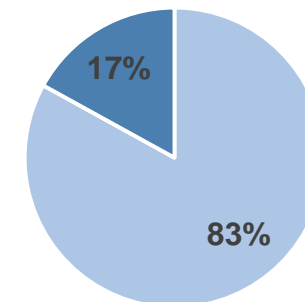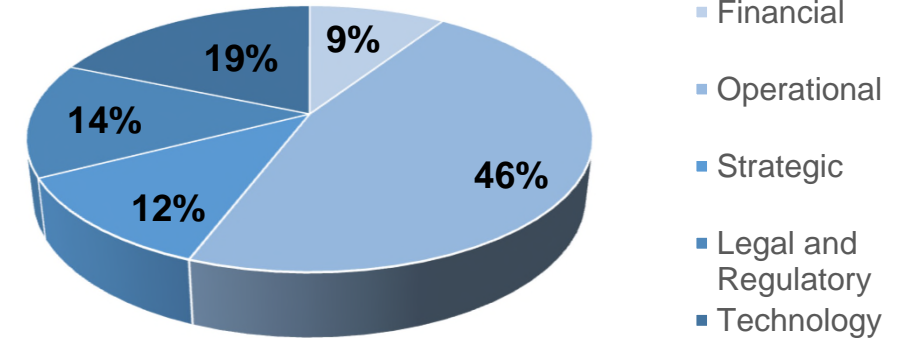

17% 83%

■ Business ■ Technology ■ Integrated

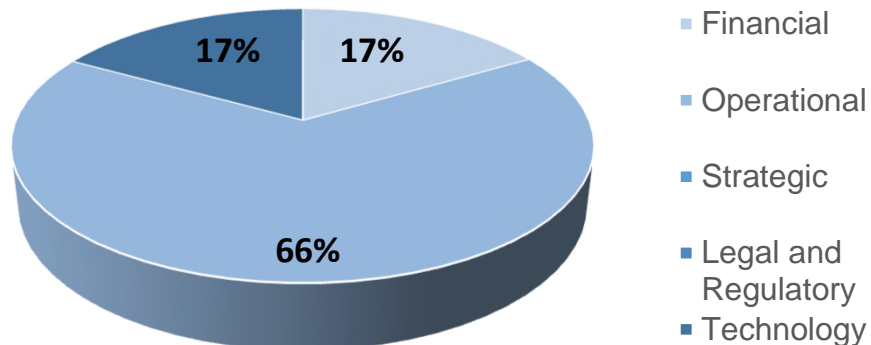# Proposed NYPA and Canal Corporation 2020 Audit Plan Risk Category Allocation

2020 NYPA Plan Allocation by Risk Category

- Financial
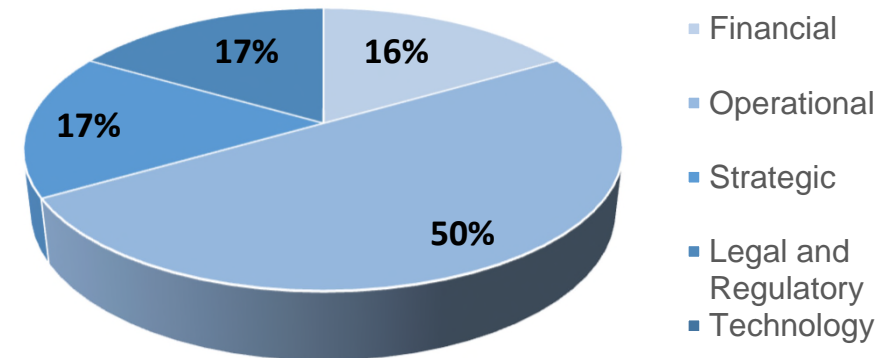- Operational
- Strategic
- Legal and Regulatory
- Technology

2019 NYPA Plan Allocation by Risk Category

- Financial
- Operational
- Strategic
- Legal and Regulatory
- Technology

2020 Canal Corp. Plan Allocation by Risk Category

- Financial
- Operational
- Strategic
- Legal and Regulatory
- Technology

2019 Canal Corp. Plan Allocation by Risk Category

- Financial
- Operational
- Strategic
- Legal and Regulatory
- Technology

2020 Audit Plan

➢ The allocation of 2020 audit projects by risk category does not materially deviate from the 2019 actual allocation.

➢ Relatively same audit coverage percentage for operational risk for NYPA due to continued support of strategic initiatives in the Utility Operations business unit for compliance with ISO 55001 standards and an increase in coverage for technology risk due to strategic initiatives supporting digitization. For the Canal Corporation, an increase in operational risk audit coverage is due to focus on operational areas not reviewed in prior years.

Proposed NYPA 2020 Audit Plan – Alignment

70% of the projects in the Audit Plan directly align to either a Strategic Theme, Top Enterprise or Emerging Risk (See Appendix D for list of projects)

Top Enterprise Risk	# of Projects
Attract & Retain Qualified Workforce	2
Commodity Market Volatility	1
Critical Infrastructure	11
Customer Energy Choices	5
Cyber Security	7
Disruptive Innovation	1
Hydro Flow Volumes*	0
Regulatory & Legislative Environment*	0
Sustained Low Energy Prices	1
Workforce Health & Safety	1

Strategic Theme	# of Projects
Affordable & Reliable Clean Electron Supply	1
Customer Flexibility **	0
Electrification	1
Energy Efficiency	1
Enterprise Digitization	8
Workforce Development	1

Top Emerging Risk	# of Projects
Data Governance	2
Third Party Risk	2

Note: *Audit projects for audit entities covering the Hydro Flow Volumes and Regulatory & Legislative Environment risks were covered in 2018 and 2019.

** Audit projects for the Customer Flexibility Strategic Theme will be covered as customer flexibility projects are initiated.

Proposed 2020 Canal Corporation Audit Plan - Alignment

67% of the projects in the Audit Plan align to the Top Canal Corporation Enterprise Risks	
Top Enterprise Risks	**2020 Audit Plan Coverage**
Attract and Retain Qualified Workforce	*None
Critical Infrastructure	Real Property Maximo System Implementation
Organizational Integration and Practices	Vendor Management Fleet Management Operations
Public Health and Safety	*None

* **Note:** Audit projects related to Attract and Retain Qualified Workforce and Public Health and Safety risks were covered in the Canal Corporation 2019 Audit Plan.

Internal Audit Transformation Priorities and Key Departmental Initiatives

Branding
- ➤ Internal Audit will launch video clips and news articles in Q1 2020.
- ➤ Planning for site visits during 2020 will take place in Q1 2020.
- ➤ Lunch and Learn presentations at the sites will be developed in Q1 and held throughout 2020. Targeting seven site visits throughout the year. See slide 13 for Branding Timeline.

Delivery
- ➤ Agile: Continue Agile maturity. See slide 14 for details of the Agile Transformation Roadmap.
- ➤ Data Analytics: See slide 15 for details of the Data Analytics Transformation Roadmap.
- ➤ GRC Automation: Operationalize use of the new system, work towards increased efficiency and enhanced audit and metrics reporting.
- ➤ QAIP: Continue working through external quality assessment recommendation items.

Innovation
- ➤Innovation team will work on updating the department's SharePoint site for various items such as:
  - ➤Develop a Discussion Board to allow staff to post questions, receive alerts and find out tips internally.
  - ➤Create audit specific helpful hints, how-to videos and process flows.
- ➤ The team will continue to research and present innovative ideas for improved efficiencies.

Talent
- ➤ Staff Development:
  - ➤ Continue to support staff certification.
  - ➤ Continue to enhance and monitor development plans for each team member to reach their development goals.
  - ➤ In-house training for key audit topics (i.e. critical thinking, risk-based auditing, utility industry specific training).

NEW YORK STATE OF OPPORTUNITY. | NY Power Authority | Canal Corporation

Branding Timeline – 2020 Rollout

Quarters	January - March	March - June	July – September	October - December
Launch Video Clips	◆			
Develop and Plan Internal Audit Site Visits	◆			
Develop and rollout News Articles on NYPA's intranet site	◆			
Deliver Lunch and Learns at Sites		★	★	★ ◆

Rollout Phase	Proposed Milestone	Proposed Due Date
	Launch Video Clip	1/31/2020
	Develop and determine timeline for the IA Site Visits	2/28/2020
	Develop and roll out news articles on internal NYPA intranet site	3/31/2020
	Deliver Lunch and Learns (target seven site visits)	9/30/2020

Deliverable ☆
Key Milestone ◆

NEW YORK STATE OF OPPORTUNITY. | NY Power Authority | Canal Corporation

Agile Transformation Roadmap

	Y2 - 2019	Y3 - 2020	Y4 - 2021
	Q1 - Q4	Q1 - Q4	Q1 - Q4

Internal Audit Leadership

◆ 34% of Audit Plan projects used the Agile Methodology
◆ Ensured all IA staff worked on an Agile Audit

◆ 100% of Audit Projects using Agile Methodology

◆ 100% of Audit Projects using Agile Methodology

- Roll-out of Agile IA in 2019
- Support Agile IA Training / Develop IA Staff

◆ Agile IA Transformation Complete

- Established Stable Audit Teams
- Supported Agile IA Procedures roll-out and training
- Developed onboarding process for SMEs and guest auditors joining audit teams
- Finalized the overall Agile operating model
- Updated Project Evaluation forms to include Agile competencies
- Define Portfolio Management (Audit Project Intake Process, Audit Liaison Process)*
- Develop configurable teams operating model for 2020*

- Drive Agile IA Transformation
- Support Agile Training & Coaching
- Continue to Scale Agile Model

- Refine and roll out updated formats for Observations Sheets (POV) and Final Report
- Introduce and use Agile tools, leveraging the larger Agile transformation efforts
- Continuously improve the operating model and conduct maturity assessment

- Continuously improve the operating model
- Conduct maturity assessment

Internal Audit Staff

Wave 2: Scale

- Identified lessons learned from 2018 pilot teams and apply to future audits
- Trained new audit teams to execute in Agile
- Executed Agile IA Procedures and continued training
- Establish Scrum Master and Product Owner Communities of Practice (COPs)
- Conducted quarterly retrospectives, capture lessons learned and determine continuous improvement items
- Conducted maturity assessment
- Develop Product Owner and Scrum Master capabilities through coaching and mentoring*
- Identified, mentored and transitioned from external coach to IA staff as Agile Coaches*

Wave 3+: Mature

- Define titles to Agile role mapping and career paths with HR
- Train new Stable Audit Teams and new hires to execute in Agile
- Conduct quarterly (or bi-annual) retrospectives, capture lessons learned and determine continuous improvement items
- Update Agile procedures and operating model

* In progress and Ongoing

Data Analytics Transformation Roadmap

	Y2 - 2019		Y3 - 2020		Y4 - 2021	
	Q1 – Q2	Q3 – Q4	Q1 - Q2	Q3 - Q4	Q1- Q2	Q3 - Q4

Internal Audit Leadership

◆ Continuous Auditing   ◆ Continuous Auditing   ◆ Continuous Monitoring

• Continuous Audit Strategy

- Supported several business processes with data analytic reports
- Leveraged Data Quality Analyzer (DQA) tool provided by IT to build data analytics scripts

- Mature continuous auditing efforts outlined by Internal Audit's Data Analytics team
- Identify additional scripts to be used in supporting continuous auditing efforts
- Identify and implement a new data analytics tool

- Build advanced analytics by using data across disciplines through the Data Hubs built by IT

• Continuous Monitoring Strategy

- Provide repeatable scripts to stakeholders for self-monitoring and give guidance for monitoring practices

Internal Audit Staff

Phase 2: Script Creation & Data Assessment

- Discussed with NYPA stakeholders the opportunity to share resources, leverage knowledge and support to operationalize analytics
- All Internal Audit staff obtained Tableau Licenses
- Built data analytics skills through scheduled bi-weekly Tableau lunch and learns
- Trained two Internal Audit staff in using DQA tool to develop scripts
- Increased use of data analytics for audit projects
- Partnered with Digital Analytics to establish data extraction methodologies
- Created scripts for selected processes and develop related standards

- Continue to work with NYPA stakeholders to share resources, leverage knowledge and support to operationalize analytics
- Continue to partner with Digital Analytics to establish data extraction methodologies
- Continue to create scripts for selected processes and develop related standards

Phase 3: Mature Data Analytics

- Further mature the data analytics strategy through ongoing script creation and refinement
- Train additional Internal Audit staff to use Tableau and other data analytics tools

NEW YORK STATE OF OPPORTUNITY. | NY Power Authority | Canal Corporation

Appendix A – NYPA & Canal Corporation Audit Universe

Appendix A - NYPA Audit Universe

UTILITY OPERATIONS	AUDIT ENTITY RISK RATING	LAST AUDIT
AUDIT ENTITIES		
Environmental Health & Safety (EH&S)	M	
Lockout/Tagout Compliance		2019
Environmental Health & Safety Program (NYPA & Canals)*		2018
Occupational Health & Safety Training Program		2016
Operations Support Services - Project & Operations Portfolio Management	H	
Utility Operations Construction Projects (Non-LEM)		2019
Sensor Deployment Roadmap		2019
Communications Backbone Program		2019
Moses - Adirondack Smart Path Reliability Project		--
Project Management Operations (Cycle)		2016
LPGP LEM		2019
Niagara LEM		2019
Transmission LEM		2016
Canals Operations Portfolio Management		--
Operations Support Services - Operational Performance & Reporting	M	
Operational Performance & Reporting		--
Operations Support Services - Technical Training	L	
Technical Training		2016
Operations Support Services - Engineering & System Planning & Analysis	M	
Engineering Operations		--

UTILITY OPERATIONS	AUDIT ENTITY RISK RATING	LAST AUDIT
AUDIT ENTITIES		
Asset Performance Management	M	
GE Asset Performance Management Implementation (APM)		--
Maximo Asset Management Application Review		2018
OSI PI Expansion Implementation		2019
Data Splice Post Implementation		--
Enterprise Resilience - Reliability Standards & Compliance	M	
NERC CIP Support		2019
NERC Compliance Operations & Planning Standards		--
Technical Compliance Management Audits		--
FEMA Reimbursement		--
Enterprise Resilience - Quality Assurance & Code Compliance	M	
Quality Assurance and Code Compliance		2015
Enterprise Resilience - Business Continuity Program	M	
Business Resiliency		2019
Enterprise Resilience - Physical Security & Crisis Management	M	
Physical Security (NYPA & Canals)*		2019
Crisis Management (NYPA & Canals)*		2019
Public Safety (Canals)*		2019
Enterprise Resilience - EH&S Compliance Audit	L	
EH&S Compliance Audit Program		--

* See Slide 24 – Canal Corporation Shared Service audit coverage to date.

NEW YORK STATE OF OPPORTUNITY. | NY Power Authority | Canal Corporation

Appendix A - NYPA Audit Universe

UTILITY OPERATIONS	AUDIT ENTITY RISK RATING	LAST AUDIT
AUDIT ENTITIES		
Technology & Innovation - Strategic Operations	H	
AGILe Strategic Initiative		2018
ISO 55001 Framework Compliance		2019
Digital Worker		--
ISO 55001 Audit Remediation Follow-up		--
Technology & Innovation – iSOC	H	
Integrated Smart Operations Center (ISOC)		2018
Technology & Innovation - R & D	L	
Research & Technology Development		2016
Power Supply (All Regions)	H	
Site SCADA Systems (NIA, BG, STL, SENY)		2018
Inventory & Warehousing: NIA, STL, BG, SENY		2016
Union Labor Relations		--
Operations Technology Disaster Recovery (DR)		2018
Vegetation Management		2018
Dam Safety (BG, STL, NIA, Jarvis, Canals) *		2018
Drones Use Program (NYPA & Canals)*		2019
Operations Technology Operating System Security		--
Operations Technology Configuration Management		--
Operations Technology Data Base Security		--
Site Operations & Maintenance (Central, Northern, Western, 500 MW, SENY, SCPP)		2019
Power System Operations and Energy Control Center		2019
Capital Asset Management (Canals)		--
St. Lawrence SCADA System Upgrade		--

* See Slide 24 – Canal Corporation Shared Service audit coverage to date.

Appendix A - NYPA Audit Universe

COMMERCIAL OPERATIONS	AUDIT ENTITY RISK RATING	LAST AUDIT
AUDIT ENTITIES		
Clean Energy Solutions - Economic Development	H	
Recharge NY Customer Compliance Audit (D&M)		2019
Western NY Customer Compliance Audit (D&M)		2019
Customer Energy Solutions Program		2018
North Country Economic Development Plan Compliance		--
Western NY Power Proceeds Program		2016
Northern NY Power Proceeds Program		2018
Customer Data Protection		2018
Muni/Coop Regulation		2017
Business Power Allocations Compliance		2018
SENY Customer Contract Compliance		2018
Customer Digital Experience (CDEx)		2019
Clean Energy Solutions - Engineering and Construction Management	M	
Commercial Operations Construction Projects		2019
Clean Energy Solutions - Business Development	M	
Clean Energy Business and Market Development		--
Build Smart EO88		2019
Clean Energy Solutions Pricing		--
Customer Credit (Customer Financing)		2017
Marketing Operations		--

COMMERCIAL OPERATIONS	AUDIT ENTITY RISK RATING	LAST AUDIT
AUDIT ENTITIES		
Clean Energy Solutions - Market Services & Business Controls	M	
Marketing Forecasting Services		2019
Energy Settlements		--
Customer Meter to Cash		2016
Generator Meter to Cash		2017
Bid to Bill System Implementation		2019
Unforced Capacity (UCAP) & Transmission Congestion Charge (TCC) Services & Trading		--
Energy Efficiency Accounting		--
New York Energy Manager Strategy, Customer and Management Reporting		--
New York Energy Manager - Business Processes		2018
Project and Business Development	M	
Project and Business Development		2019
Licensing Operations		2015
EVolve Program		--
Energy Resource Management	M	
Energy Trading and Hedging		2019
Generation Bid Pricing		2019
Fuel Operations Hedging and Purchasing		2016
Hydro Forecast Process		2017
HTP Operations and Billing		2017
Astoria II Project Agreement		--
Dodd Frank Compliance		2018

Appendix A - NYPA Audit Universe

BUSINESS SERVICES	AUDIT ENTITY RISK RATING	LAST AUDIT
AUDIT ENTITIES		
Business Services – Controller	H	
Accounts Payable		2014
Customer Revenues NIA, Flynn, BG, SENY, STL, RNY, Canals		2019
P-Card (NYPA & Canals)*		2017
Customer Revenue - Hydro Billing		2018
Lease Accounting		--
Indirect Expenses - Cost Allocations		--
Payroll (NYPA & Canals)*		2018
Non-Work Time Benefits		--
Financial Accounting & Reporting		2016
Non-Purchase Order (Non-PO) Process		2018
Disposal of Personal Property		2015
Transmission Cost of Service		2017
Direct Expenses Allocations		2017
Manual Check Processing		--
Past Due Receivables		2016
PCI Compliance (LockBox & Website)		2017
Expense Authorization Procedure (EAP)		2018
Deferred Asset Accounting		2017
Travel Expenses		2018
SAP Transformation – HANA		--
Work Breakdown Structure (WBS) Code Governance		2018
Capital Asset Management		2018
Finance & Administration (NIA, STL, CEC, WPO)		2016
Revenue Requirements		--
Financial Data Protection		--
Electronic Data Interchange (EDI)		--
Derivative Accounting		--
Business Services - Business Controls	L	
Business Controls Management		--

BUSINESS SERVICES	AUDIT ENTITY RISK RATING	LAST AUDIT
AUDIT ENTITIES		
Business Services – Budgets	M	
Budgeting		2019
Business Services – Treasury	M	
Treasury Operations		2018
Counterparty Credit		--
Investments and Investment Income		--
Treasury Workstation System Implementation		--
Credit Rating Review		--
Credit Profile Management		--
Business Services - Enterprise Portfolio Management (EPM)	L	
Enterprise Portfolio Management		2018
Business Services – Finance	M	
Financial Planning & Analysis		--
Generation & Transmission Customer Rate Development		--
Risk Management - Operational Risk	M	
Energy Commodity Risk Management System Implementation		2018
Fraud Risk Management		--
Counterparty/Credit Risk Management		--
Energy Commodity Risk Management		--
Risk Management - Insurance Risk Management	L	
Insurance Risk Management (NYPA and Canals)		--
Risk Management - Enterprise Risk Management	L	
Enterprise Risk Program		--

* See Slide 24 – Canal Corporation Shared Service audit coverage to date.

Appendix A - NYPA Audit Universe

INFORMATION TECHNOLOGY	AUDIT ENTITY RISK RATING	LAST AUDIT
AUDIT ENTITIES		
Critical Services: Infrastructure	H	
Operating System Security (NYPA & Canals)		2017
Database Security (NYPA & Canals)		--
Telecommunications		2017
Data Center Operations		2018
Network Administration (NYPA & Canals)		2018
Remote Access		2018
Virtualized Computing		2018
Active Directory Review		--
Intranet/Extranet Administration		--
Microsoft Office 365		--
Storage Systems Management		--
System Storage Infrastructure Upgrade		--
Wireless Networks		2019
IT Resiliency	M	
IT Disaster Recovery (DR)		2018
IT Disaster Recovery Tests		--
Product Development & Data Integration	M	
IT Project Management Office (PMO)		2019
SAP Basis Administration		2018
Systems Development Lifecycle (SDLC) Governance		2018
Data Governance & Protection Program		--
SAP Business Application Review (FI, CO, HCM, MM)		--
SAP Business Warehouse		--
SAP CHARM		--
SharePoint Management		--

INFORMATION TECHNOLOGY	AUDIT ENTITY RISK RATING	LAST AUDIT
AUDIT ENTITIES		
Strategy & Planning	M	
IT Vendor Management		2019
IT KPI and Metric Development		--
Architecture & Engineering	M	
Enterprise Architecture Management		--
Future State Enterprise Architecture Readiness Assessment		2015
Critical Services: Cyber Security	H	
IT Incident Response		2014
Cloud Governance		2019
Cyber Security Policy Compliance		2018
Cyber Security Roadmap		2018
Threat and Vulnerability Management		2018
ES - C2M2 Maturity Assessment		2019
Identity Access Management		2019
Email Security (NYPA & Canals)		--
Encryption Key Certificate Management		--
Mobile Device Security		2018
Unstructured Data Review		--
Intrusion Detection/Protection Management		--
Cyber Readiness/Maturity (including NIST CSF)		--
Critical Services: Service Delivery	M	
Technology Change & Release Management		2019
IT Demand Management		2017
Help Desk Management		--
IT Production Support Management		-
IT Service Management (ITSM) Implementation		2019
Software License Management		--
IT Asset Management		--

Appendix A - NYPA Audit Universe

HUMAN RESOURCES & ADMINISTRATION	AUDIT ENTITY RISK RATING	LAST AUDIT
AUDIT ENTITIES		
Strategic Supply Management	H	
Supply Chain Management (NYPA & Canals)		--
Vendor Management Governance		2019
Strategic Supply Management (NYPA & Canals)		-
Ariba Application Review		2018
Supplier Diversity Program		2015
NYS Procurement Report Review		2016
Strategic Supply Management (SSM) Operating Model		2018
Non-Construction Third Party Contract Audits		2019
Human Resources - Project Planning & Development	L	
NYPA Operations Improvement		--
Human Resources	H	
Transitional Position Utilization		2017
Contingent Staffing Vendor Compliance		2018
Employee Relations		--
Background Checks		2019
Employee Data Protection		2019
Human Resources Operations: Recruiting, Hiring and Onboarding		2019
Succession Planning (NYPA & Canals)		--
Retention Programs (NYPA & Canals)		--
Compensation		2015
Medical & Dental Benefits Administration		2018
Post Retirement Benefits (OPEB)		2017
Pension Plan Management		--
Success Factors Application Review		2018
FMLA Compliance		--
Workers Compensation & Disability		--
Recruiting Hiring & Onboarding (Canals)*		2019

HUMAN RESOURCES & ADMINISTRATION	AUDIT ENTITY RISK RATING	LAST AUDIT
AUDIT ENTITIES		
Knowledge Management- Digital Warehouse	M	
Digital Warehouse		2015
Knowledge Management		2019
Enterprise Shared Services - Real Estate	L	
OSC Audit Remediation Follow-up		2017
Facility Management		--
Fleet Management Operations – Cars		2018
WPO LEM		--
Real Estate Management		--
Canals OSC Audit*		2017
Civil Rights & Inclusion	L	
Diversity and Inclusion Program		--
Corporate Communications	L	
Media Relations (NYPA & Canals)		--
Social Media		2018
Video and Photography Services		2018

*See Slide 24 – Canal Corporation Shared Service audit coverage to date.

Appendix A - NYPA Audit Universe

LEGAL AFFAIRS	AUDIT ENTITY RISK RATING	LAST AUDIT
AUDIT ENTITIES		
Public and Regulatory Affairs - Environmental Justice	L	
Environmental Justice		--
Open Data Compliance		--
Public, Governmental and Regulatory Affairs		--
Sustainability Program		2019
Public and Regulatory Affairs - Community and Government Relations	L	
Contributions, Sponsorships and Events		2017
Event Management		--
Public and Regulatory Affairs - Legislative and Regulatory Affairs	L	
Contract Governance		2016
Legislative and Regulatory Affairs		--
Intellectual Property		--
Office of Ethics & Compliance	L	
External Compliance Reporting (NYPA & Canals)*		2019
Energy Information Administration Report 923 Compliance		2017
Ethics & Compliance Program (NYPA & Canals)*		2019
Public Authority Law (PAL) Compliance		2015
Corporate Secretary Office	L	
Board Reporting		--
Corporate Governance – Committees		--

EXECUTIVE OFFICE	AUDIT ENTITY RISK RATING	LAST AUDIT
AUDIT ENTITIES		
Digital Transformation Office	M	
Digital Transformation Office (DTO)		--
Enterprise Program Management		--
CORPORATE STRATEGY		
Organizational Performance - Enterprise Excellence	L	
Performance Management (Enterprise)		--
Strategy	M	
Strategic Plan Governance and Execution		2016
Large Scale Renewable Program		--

*See Slide 24 – Canal Corporation Shared Service audit coverage to date.

Appendix A – Canal Corporation Audit Universe

CANAL CORPORATION	AUDIT ENTITY RISK RATING	LAST AUDIT
AUDIT ENTITIES		
Administrative Services	M	
Canals Permit Management		2019
Budgeting and Forecasting		--
Pension/Other Post Retirement Benefits		--
Workers Compensation & Disability		--
Vendor Payment Accruals Follow-up (Canals)		2018
Real Estate		--
Medical and Dental Benefits Administration		--
Compensation and Benefits		--
Employee Labor & Relations		--
Fleet Management Operations		--
Cash Management		--
Third Party Contracts		2019
Vendor Management		--
Technical Services	M	
User Access Management		2017
Canals Non-SAP Applications and Infrastructure		2017
Application Production/ Infrastructure Support		--
CIMS System		--
Maximo System Implementation		--
Policy & Program Development /Community Economic Development /Public Affairs	L	
Grants and Sponsorships		2018
Community Settlements		--

CANAL CORPORATION	AUDIT ENTITY RISK RATING	LAST AUDIT
AUDIT ENTITIES		
Engineering & Maintenance	H	
Inventory & Warehousing		2019
Asset Maintenance		2019
Embankment Management		--
Dam Safety Canals Follow-up		2018
O&M Expenses		--
Waterways Safety Program		--
Physical Asset Verification		2017
Training		--

CANAL CORPORATION	LAST AUDIT
SHARED SERVICES AUDITS	
Environmental Health & Safety Program (NYPA & Canals)	2018
Physical Security (NYPA & Canals)	2019
Crisis Management (NYPA & Canals)	2019
Public Safety (Canals)	2019
Dam Safety (BG, STL, NIA, Jarvis, Canals)	2018
P-Card (NYPA & Canals)	2017
Payroll (NYPA & Canals)	2018
Recruiting Hiring & Onboarding (Canals)	2019
Canals OSC Audit	2017
External Compliance Reporting (NYPA & Canals)	2019
Ethics & Compliance Program (NYPA & Canals)	2019

NEW YORK STATE OF OPPORTUNITY. | NY Power Authority | Canal Corporation

Appendix B – Audit Universe Entities by Risk Rating

Appendix B – Audit Universe Entities by Risk Rating

DEPARTMENT	NEW AUDIT ENTITY	RISK RATING H-M-L
Clean Energy Solutions	Clean Energy Solutions - Economic Development	H
Strategic Supply Management	Strategic Supply Management	H
Human Resources	Human Resources	H
Critical Services: Cyber Security	Critical Services: Cyber Security	H
Critical Services: Infrastructure	Critical Services: Infrastructure	H
Business Services	Controller	H
Operations Support Services	Project Management & Operations Portfolio Management	H
Technology & Innovation	Strategic Operations	H
Technology & Innovation	iSOC	H
Power Supply (All Regions)	Power Supply (All Regions)	H
Canal Corporation	Engineering & Maintenance	H
Total High Entities		**11**
Clean Energy Solutions	Clean Energy Solutions - Engineering and Construction Management	M
Clean Energy Solutions	Clean Energy Solutions - Business Development	M
Clean Energy Solutions	Clean Energy Solutions - Market Services & Business Controls	M
New York Energy Manager	New York Energy Manager	M
Project and Business Development	Project and Business Development	M
Energy Resource Management	Energy Resource Management	M
Knowledge Management- Digital Warehouse	Knowledge Management- Digital Warehouse	M
Architecture & Engineering	Architecture & Engineering	M
Critical Services: Service Delivery	Critical Services: Service Delivery	M
IT Resiliency	IT Resiliency	M
Product Development & Data Integration	Product Development & Data Integration	M
Strategy & Planning	Strategy & Planning	M
Digital Transformation Office	Digital Transformation Office	M
Strategy	Strategy	M
Business Services	Budgets	M
Business Services	Treasury	M
Business Services	Financial Planning	M

Appendix B – Audit Universe Entities by Risk Rating

DEPARTMENT	NEW AUDIT ENTITY	RISK RATING H-M-L
Risk Management	Operational Risk	M
Environmental Health & Safety (EH&S)	Environmental Health & Safety (EH&S)	M
Operations Support Services	Operational Performance & Reporting	M
Operations Support Services	Engineering & System Planning & Analysis	M
Asset Performance Management	Asset Performance Management	M
Enterprise Resilience	Reliability Standards & Compliance	M
Enterprise Resilience	Quality Assurance & Code Compliance	M
Enterprise Resilience	Business Continuity Program	M
Enterprise Resilience	Physical Security & Crisis Management	M
Canal Corporation	Admin Services	M
Canal Corporation	Technical Services	M
Total Medium Entities		**28**
Human Resources	HR Project Planning & Development	L
Enterprise Shared Services - Real Estate	Enterprise Shared Services - Real Estate	L
Civil Rights & Inclusion	Civil Rights & Inclusion	L
Corporate Communications	Corporate Communications	L
Public & Regulatory Affairs	Environmental Justice	L
Public & Regulatory Affairs	Community and Government Relations	L
Public & Regulatory Affairs	Legislative and Regulatory Affairs	L
Office of Ethics & Compliance	Office of Ethics & Compliance	L
Corporate Secretary Office	Corporate Secretary Office	L
Organizational Performance	Enterprise Excellence	L
Business Services	Business Controls	L
Business Services	Enterprise Portfolio Management (EPM)	L
Risk Management	Insurance Risk Management	L
Risk Management	Enterprise Risk Management	L
Operations Support Services	Technical Training	L
Enterprise Resilience	EH&S Compliance Audit	L
Technology & Innovation	R & D	L
Canal Corporation	Policy & Program Development /Community Economic Development /Public Affairs	L
Total Low Entities		**18**
Total Audit Universe Entities (NYPA & Canal Corp.)		**57**

Appendix C –
Proposed 2020 NYPA Internal Audit Plan

Appendix C – Proposed 2020 NYPA Internal Audit Plan

	Business Unit	Department	Audit Entity	Audit Project Name	Audit Type	Risk Rating	Risk Description	Preliminary Scope	Risk Category	Timing
Commercial Operations										
		Clean Energy Solutions	Clean Energy Solutions - Economic Development			H				
1				Recharge NY Customer Compliance Audit (D&M)	Audit		Recharge NY program customers may not comply with their capital investment and job creation commitments.	Recurring customer audits for the NYPA Clean Energy Solutions department to support the compliance program.	Legal & Regulatory	Q1
2				Western NY Customer Compliance Audit (D&M)	Audit		Western NY program customers may not comply with their capital investment and job creation commitments.	Recurring customer audits for the NYPA Clean Energy Solutions department to support the compliance program.	Legal & Regulatory	Q1
3				Customer Digital Experience (CDEx)	Audit		Lack of effective system implementation, project management and business process controls can result with inadequate system design, project delays, cost overruns, poor system performance and user dissatisfaction.	Review implementation activities to ensure the CDEx – Account Center has proper business requirements including controls, system configuration, interfaces, systems and user acceptance testing, system security and overall project management.	Strategic	Q3
		Clean Energy Solutions	Clean Energy Solutions - Business Development			M				
4				Clean Energy Solutions Pricing	Audit		Models used to develop the pricing for energy efficiency projects and financing are not sound, have inaccurate inputs and assumptions, and do not work as intended.	Ensure controls exist to ensure the soundness of the models used to price energy efficiency projects and financing.	Operational	Q1
5				Customer Credit (Customer Financing)	Audit		Customers default on financing provided by NYPA and are not collecting payments for financing provided.	Ensure controls exist ensure that NYPA is financing creditworthy customers and that protections are put in place in case of default.	Operational	Q3
		Clean Energy Solutions	Clean Energy Solutions - Market Services & Business Controls			M				
6				Bid to Bill System Implementation	Audit		Lack of effective system implementation, project management and functionality including business controls has not been designed for Capacity and Energy settlements can result with inadequate system design, project delays, cost overruns, poor system performance and user dissatisfaction.	Review implementation activities to ensure the Bid to Bill system has proper business requirements including controls, system configuration, interfaces, systems and user acceptance testing, system security and overall project management.	Operational	Ongoing

Appendix C – Proposed 2020 NYPA Internal Audit Plan

	Business Unit	Department	Audit Entity	Audit Project Name	Audit Type	Risk Rating	Risk Description	Preliminary Scope	Risk Category	Timing
Commercial Operations										
7				Unforced Capacity (UCAP) & Transmission Congestion Charge (TCC) Services & Trading	Audit		Capacity and TCC trading activities are not aligned to NYPA business needs and risk appetite (e.g. Operational, Market). Trading is not recorded completely and accurately in the operational and risk systems.	Controls exist to ensure that trading of UCAP and TCC are aligned with NYPA's objectives and are captured completely and accurately in the operational and risk systems.	Operational	Q3
	New York Energy Manager	**New York Energy Manager**				**M**				
8				New York Energy Manager Strategy, Customer and Management Reporting	Audit		Customer energy efficiency data is not captured completely and accurately. Reporting to customers and management is inaccurate and incomplete. Proper security controls are not in place for the platform used to manage NYEM data.	Controls exist to protect the integrity of the data and the completeness and accuracy of customer and management reporting.	Strategic	Q2
	Project and Business Development	**Project and Business Development**				**M**				
9				EVolve Program	Assessment		Failure to properly launch and implement the EVolve initiative may result in program goals and objectives not achieved, inefficient use of resources and reputational risk to NYPA.	Review the mission, goals and objectives of the program and assess against current status and implementation. Verify measurement and reporting of key performance indicators and attainable short, medium and long term targets. Determine investment in the program has achieved the benefits desired.	Strategic	Q4
Human Resources & Administration										
	Strategic Supply Management	**Strategic Supply Management**				**H**				
10				Supply Chain Management (NYPA & Canals)	Assessment		Management has not identified supply chain risks including the unavailability of necessary equipment/services for NYPA operations which may cause disruption to the business. In addition, strategies or actions have not been developed to mitigate and manage these risks and reduce vulnerability and ensure continuity.	Review the internal and external supply chain risks identified by management and determine whether all risks have been properly considered for the organization. Review actions implemented to mitigate these risks and determine whether these actions are effective and demonstrate compliance with the NERC CIP 013 standard.	Legal & Regulatory	Q2

Appendix C – Proposed 2020 NYPA Internal Audit Plan

	Business Unit	Department	Audit Entity	Audit Project Name	Audit Type	Risk Rating	Risk Description	Preliminary Scope	Risk Category	Timing
	Human Resources & Administration									
11				Ariba Application Review	Audit		The efficiencies expected from the implementation have not fully materialized, the system functionality is not used to its full potential, and users/vendors are dissatisfied.	Determine for the modules for Supplier Information & Performance Management (SIPM), Sourcing, Contract Lifecycle Management and Catalog Management within Ariba are functioning as intended, if business objectives have been met, efficiencies gained, metrics for success are tracked, system performance is adequate, organizational change management is effective and users are satisfied. Also, verify if additional changes or manual work around processes were necessary after go live.	Operational	Q1
	Human Resources	**Human Resources**				**H**				
12				Succession Planning (NYPA & Canals)	Audit		Significant workforce retirements or an increasing number of key staff exiting NYPA could lead to business disruptions, knowledge loss and critical skills shortages.	Review processes and controls associated with NYPA's Succession Planning and Retention Programs. Confirm that development plans for key personnel are consistently executed. Verify that performance measures related to Succession and Retention Programs are accurately implemented.	Operational	Q3
13				Pension Plan Management	Audit		Data (e.g. inputs, assumptions, projections) used to determine the pension plan liability are not complete, accurate and reported correctly.	Controls exist to ensure data used to determine the pension plan liability are complete and accurate and are reported correctly.	Financial	Q2

Appendix C – Proposed 2020 NYPA Internal Audit Plan

	Business Unit	Department	Audit Entity	Audit Project Name	Audit Type	Risk Rating	Risk Description	Preliminary Scope	Risk Category	Timing
Information Technology										
		Critical Services: Cyber Security	Critical Services: Cyber Security			H				
14				Threat and Vulnerability Management	Audit		Ineffective cyber threat and vulnerability management processes and tools can lead to systems compromise, degradation, and unavailability.	Review the processes and security tools in place to detect and address cyber threats to NYPA systems as well as managing vulnerabilities within these systems including vulnerability monitoring and analysis, patch management and malware protection. OT would be covered under the NERC CIP compliance program.	Technology	Q3
15				Intrusion Detection/Intrusion Protection Management	Audit		The intrusion detection and protection tools are not configured to prevent system compromise or data loss.	Assess the configuration of the intrusion detection and protection systems (IDS/IPS) to determine they are configured to security best practices. Review policies and procedures for keeping the IDS/IPS up to date.	Technology	Q1
		Critical Services: Service Delivery	Critical Services: Service Delivery			M				
16				Software License Management	Audit		Software license violations or non-compliance can lead to potential fines and penalties by software vendors. Violations can also lead to reputational damage to NYPA.	Review software license management processes including compliance with license requirements. Areas of review included are policies and procedures; inventories and license compliance, utilization, cost management, and distribution, retirement and reuse of licenses.	Technology	Q3

Appendix C – Proposed 2020 NYPA Internal Audit Plan

	Business Unit	Department	Audit Entity	Audit Project Name	Audit Type	Risk Rating	Risk Description	Preliminary Scope	Risk Category	Timing
Information Technology										
		Critical Services: Infrastructure	Critical Services: Infrastructure			H				
17				Database Security (NYPA & Canals)	Audit		Failure to have effective security, configuration, monitoring and standardized procedures for Oracle and SQL databases can lead to unauthorized access, compromised data integrity and unavailability.	Assess the effectiveness of controls for Oracle and SQL database security. Areas of review will include logical access, system administration, process governance, responsibilities, operating procedures, continuity of operations, and monitoring. Audit coverage is for IT.	Technology	Q2
18				Network Administration (NYPA & Canals)	Audit		Lack of effective network administration processes and controls can result with poor network design, network instability, unauthorized access, and unavailability which can significantly impact NYPA's operations.	Assess the network design (WAN/LAN), redundancy, configurations, network device security, version currency, system management, monitoring and logging, system integrity, compliance with technical NYPA policies and standards, network performance, and segregation of duties. Audit coverage would be for the Operations Technology and Canals networks.	Technology	Q3
19				Active Directory Review	Audit		Ineffective administration of NYPA and Canals Active Directory and its underlying technology could result in confidential data and system compromise. In addition, staff, contractors and consultants may have unauthorized access to systems beyond the requirements needed for their job responsibilities.	Evaluate the Active Directory infrastructure supporting the Microsoft Windows operating system within NYPA and Canals to determine proper security design for integrated, single sign-on to provide access to its servers and workstations. Verify proper configuration and global security settings have been established in accordance with policies, procedures and security best practices.	Technology	Q1
20				Microsoft Office 365	Audit		Lack of proper security controls for the Office 365 cloud solution can lead to unauthorized access to sensitive data, system compromise and potentially damaging NYPA's reputation.	Evaluate the proper security controls were implemented for the Office 365 cloud solution where NYPA files will be stored and may be accessed by any NYPA device.	Technology	Q1
		IT Resiliency	IT Resiliency			M				
21				IT Disaster Recovery Tests	Advisory		Lack of testing the disaster recovery plan could result in delays in recovering systems that support NYPA operations in the event of a disruption.	Attend and observe each scheduled disaster recovery test, validate the plan was executed, final report was accurate and issues are effectively resolved.	Technology	Ongoing

Appendix C – Proposed 2020 NYPA Internal Audit Plan

	Business Unit	Department	Audit Entity	Audit Project Name	Audit Type	Risk Rating	Risk Description	Preliminary Scope	Risk Category	Timing
Information Technology										
		Product Development & Data Integration	Product Development & Data Integration			M				
22				Data Governance & Protection Program	Assessment		Lack of proper controls in place to ensure data is accurate, complete, properly controlled and consistently understood could result in business decisions made using inaccurate information and loss of critical data.	Evaluate the controls governing NYPA data to ensure it is protected from compromise and maintains a high level of quality in accordance with NYPA's policies and procedures and industry standards.	Operational	Q2
Executive Office										
		Digital Transformation Office	Digital Transformation Office			M				
23				Enterprise Program Management	Assessment		Project management practices may be inconsistent and lead to inefficiencies and financial impact such as cost overruns, delays and inefficient use of resources. Project management functions may not be aware of projects executed within the organization which can impact the delivery of projects as expected.	Evaluate the existing project management functions within NYPA and determine any handoffs between functions, overlaps and inefficiencies in processes. Evaluate best practices to develop project management practices at the program level to implement enterprise program management for the organization.	Operational	Q1
Business Services										
		Business Services	Treasury			M				
24				Treasury Workstation System Implementation	Audit		Lack of effective system implementation, project management and business process controls can result with inadequate system design, project delays, cost overruns, poor system performance and user dissatisfaction.	Review implementation activities to ensure the Treasury Workstation system has proper business requirements including controls, system configuration, interfaces, systems and user acceptance testing, system security and overall project management.	Operational	Ongoing

Appendix C – Proposed 2020 NYPA Internal Audit Plan

	Business Unit	Department	Audit Entity	Audit Project Name	Audit Type	Risk Rating	Risk Description	Preliminary Scope	Risk Category	Timing
Business Services										
25				Credit Profile Management	Audit		Inadequate monitoring and managing of NYPA's credit profile may increase borrowing costs for the organization and may have a negative impact on NYPA's financial health.	Validate the adequacy of controls over NYPA's credit profile management process, including, but not limited to the following: • Ratios required to monitor and maintain NYPA's financial health are identified and monitored regularly and inputs used to calculate these ratios are appropriate. • Monthly analysis on NYPA's financial health is performed and reported to the appropriate individuals on a periodic basis. • Annual meetings with rating agencies are conducted appropriately. • Periodic meetings with banks to discuss NYPA's financial health and impacts are conducted appropriately.	Operational	Q2
	Business Services	**Controller**				**H**				
26				Accounts Payable	Audit		Inadequate controls to manage Accounts Payable (AP) activities can lead to misstatements in financial reporting. Specifically: • AP entries not properly recorded in the general ledger. • Transactions are not properly authorized, recorded, disbursed timely to take advantage of available discounts. • Transactions are not recorded within the correct accounting period.	Review procedures, processes and controls over the processing of vendor invoices, approvals, payments, wire transfers and access controls over SAP. Verify compliance with Business Meals and Travel Policies.	Financial	Q1
27				Payroll (NYPA & Canals)	Audit		Ineffective or inefficient payroll processing activities could result in incorrect, improper or unauthorized payments to employees.	Confirm the adequacy and effectiveness of controls over payroll processing for NYPA and Canals using ADP, including but not limited to, timekeeping, master file updates, policy enforcement, exceptions, processing and approvals for various payroll related activities including flex time, overtime and other payroll related exceptions.	Operational	Q1
28				Non-Work Time Benefits	Audit		Non-work time benefits are not appropriate, or not accounted for completely, accurately and timely.	Controls exist to ensure that non-work time benefits are appropriate and are accounted for completely, accurately and timely.	Operational	Q1

Appendix C – Proposed 2020 NYPA Internal Audit Plan

	Business Unit	Department	Audit Entity	Audit Project Name	Audit Type	Risk Rating	Risk Description	Preliminary Scope	Risk Category	Timing
	Business Services									
29				Finance & Administration (NIA, STL, CEC, WPO)	Audit		Misaligned administrative processes within the region could lead to inefficiencies or ineffective controls over financial and Human resources functions, resulting in the following: • Exceeding budget amounts due to lack of proper planning and inadequate controls to monitor department costs. • Processing of unauthorized or inadequately supported payroll. • Processing of overtime payments without adequate authorization and non-compliance with overtime policy. • Processing of unauthorized AP disbursements due to inadequate controls, non-compliance with policy and procedures, lack of management oversight. • Inaccurate accounting of property items in the general ledger. • Inaccurate or unauthorized petty cash disbursements. • Unauthorized access to SAP could result in fictitious transactions processed and inaccurate financial data and records.	Review procedures, processes and controls over budget monitoring, accounts payable, payroll, travel and living expenses, and human resources activities. Verify compliance with established NYPA policies and procedures.	Financial	Q2
	Business Services	**Finance**				**M**				
30				Generation & Transmission Customer Rate Development	Audit		Inaccurate or inadequate customer pricing and rate development may negatively impact NYPA's customer revenue.	Review the adequacy and effectiveness of controls associated with NYPA's rates development and modification process for business, governmental, municipal and cooperatives customers to ensure appropriateness of rates charged to customers, including but not limited to, the rate case management cycle, and models used to calculate customer rates.	Financial	Q2
	Risk Management	**Operational Risk**				**M**				
31				Energy Commodity Risk Management System Implementation	Audit		Lack of effective system implementation, project management and business process controls can result with inadequate system design, project delays, cost overruns, poor system performance and user dissatisfaction.	Review implementation activities to ensure the Energy Commodity Risk Management system (Allegro and Ascend) have proper business requirements including controls, system configuration, interfaces, systems and user acceptance testing, system security and overall project management.	Operational	Ongoing

Appendix C – Proposed 2020 NYPA Internal Audit Plan

	Business Unit	Department	Audit Entity	Audit Project Name	Audit Type	Risk Rating	Risk Description	Preliminary Scope	Risk Category	Timing
Business Services										
		Risk Management	Insurance Risk Management			L				
32				Insurance Risk Management (NYPA and Canals)	Audit		Lack of effective insurance risk management processes could result in assets and personnel not adequately protected and insured. Additionally, NYPA can potentially incur significant financial loss as a result of claims and incidents.	Evaluate the controls associated with insurance risk management processes to mitigate potential loss of value for NYPA and Canals assets, including personnel by providing optimal protection against the risks of accidental loss, analysis, marketing, loss control and negotiation related to the following: property, liability, group insurance and workers' compensation and the owner controlled insurance program.	Operational	Q4
Utility Operations										
		Environmental Health & Safety (EH&S)	Environmental Health & Safety (EH&S)			M				
33				Environmental Health & Safety Program (NYPA & Canals)	Audit		An inadequately designed EH&S Program can lead to non-compliance with applicable laws and regulations and result in fines, penalties, unsafe work conditions for employees/contractors and negatively impact NYPA's and Canals' reputation.	Determine the effectiveness of NYPA's EH&S program to ensure adequate controls are in place to comply with applicable EH&S regulations to address legal and regulatory risks for NYPA and Canals. In addition, validate that controls are in place to identify, remediate, monitor, escalate and report EH&S issues appropriately and in a timely manner. Also, ensure OSHA and other regulatory reporting requirements are met.	Legal & Regulatory	Q1

Appendix C – Proposed 2020 NYPA Internal Audit Plan

	Business Unit	Department	Audit Entity	Audit Project Name	Audit Type	Risk Rating	Risk Description	Preliminary Scope	Risk Category	Timing
Utility Operations										
		Operations Support Services	Project Management & Operations Portfolio Management			H				
34				Utility Operations Construction Projects (Non-LEM)	Audit		Failure to effectively implement project management controls for construction activities can lead to poor quality and the inability to coordinate production control, shop operations, maintenance, manufacturing engineering, safety, environmental and quality departments to meet customer demand and grid reliability. In addition, untimely percentage complete and overpayment may result.	Verify governance and controls are in place throughout the duration of a construction project from initiation through project completion to determine appropriate management oversight has been implemented to mitigate risks of poor quality construction, not meeting timely project percentage completion and overpayment. Evaluate project activities for compliance to Project Management and OPMG policies and procedures.	Operational	Q2
35				Communications Backbone Program	Audit		Failure to follow established NYPA project management policies and procedures during the implementation of the Communication Backbone could lead to fraud, waste and abuse of NYPA funds and resources, operational failure, and security vulnerabilities. It can also lead to the backbone not supporting NYPA's long term strategic goals and objectives.	Assess compliance to NYPA's project management policies and procedures. Validate project activities are appropriately managed and project milestones and status are reported to relevant management on a periodic basis. Determine that project objectives and requirements are met by reviewing the project plan and progress to date and project costs are tracked against budget. Review configurations to confirm proper security controls have been implemented.	Strategic	Ongoing

Appendix C – Proposed 2020 NYPA Internal Audit Plan

	Business Unit	Department	Audit Entity	Audit Project Name	Audit Type	Risk Rating	Risk Description	Preliminary Scope	Risk Category	Timing
Utility Operations										
36				Transmission LEM	Audit		Inefficient or ineffective project management activities could result in suboptimal use of resources, projects do not meet objectives or are delivered with poor quality, cost overruns, project delays and reporting data is inaccurate leading to poor business decisions.	Ensure management has identified project risks and follow adequate project management procedures to ensure projects are on time, within budget and project deliverables have quality. Verify management is aware of projects status and can verify percentage complete, and significant vendors or contractors are performing in accordance with contract terms. Verify the accuracy of project activity reports. Ensure appropriateness of financial management activities including compliance with procurement, cost estimation, quality assurance plan, accounting policies and procedures and budget to actual analysis is maintained.	Strategic	Q3

Appendix C – Proposed 2020 NYPA Internal Audit Plan

	Business Unit	Department	Audit Entity	Audit Project Name	Audit Type	Risk Rating	Risk Description	Preliminary Scope	Risk Category	Timing
Utility Operations										
		Asset Performance Management	Asset Performance Management			M				
37				GE Asset Performance Management Implementation (APM)	Audit		Inefficient and ineffective project implementation to transition to the GE Predix cloud solution for asset performance modeling of NYPA Fossil and Hydro Generation assets can lead to inability to meet Smart G&T and Asset Management strategic initiatives and objectives such as reducing cost, improving availability and reliability, and managing risk of G&T assets, cost overruns and inefficient use of NYPA resources. Inadequate security controls to protect NYPA's data within the cloud solution can lead to potential data and system compromise, vulnerabilities and damage to NYPA's reputation.	Assess compliance to NYPA's project management policies and procedures and project activities are appropriately managed, monitored, and project milestones and status are reported to relevant management on a periodic basis. Determine that project objectives and requirements are met by reviewing the project plan and progress to date and project costs are tracked against budget. Determine that the proper security controls have been implemented for transition to the GE Predix cloud solution. Determine that GE has provided NYPA SOC 1 reports demonstrating they have implemented the proper business controls as well as security controls to ensure NYPA's data is protected and secure within this cloud solution. Verify that NYPA staff have reviewed these reports including any user considerations and how they will be addressed.	Operational	Ongoing
38				Data Splice Post Implementation	Audit		Lack of effective application implementation, project management and business process controls can result with inadequate application design, project delays, cost overruns, poor application integration, poor performance, and user dissatisfaction.	Review application implementation activities to ensure the Data Splice technology has proper business requirements including controls, configuration, interfaces, systems and user acceptance testing, system security and overall project management.	Technology	Q3

Appendix C – Proposed 2020 NYPA Internal Audit Plan

	Business Unit	Department	Audit Entity	Audit Project Name	Audit Type	Risk Rating	Risk Description	Preliminary Scope	Risk Category	Timing
Utility Operations										
		Enterprise Resilience	Reliability Standards & Compliance			M				
39				FEMA Reimbursement	Audit		NYPA is not reimbursed for the expenses incurred for mutual assistance support provided to other utilities within the US or its commonwealths/territories to enhance the reliability of their power grid, potentially incurring financial loss.	Processes and controls exist to ensure that expenses are appropriate, well-documented and submitted timely and accurately to FEMA and/or other utilities (with whom NYPA has existing MOUs) and ensure controls exist to verify timely collection of all reimbursements. In addition, confirm that these process and controls have been formalized, standardized and are repeatable to ensure all expenses are appropriately captured, submitted, and reimbursed for future power grid restoration/enhancement support provided by NYPA to other utilities within the US or it commonwealths/territories.	Financial	Q1
		Technology & Innovation	Strategic Operations			H				
40				Digital Worker	Audit		Inefficient and ineffective project implementation of the Digital Utility Worker Program may lead to inability to meet NYPA's Asset Management strategic initiatives and objectives for digitization of the grid, potential cost overruns, and inefficient use of NYPA resources. Inadequate security controls can lead to unauthorized access, potential system compromise of technologies used which can impact operations.	Assess compliance to NYPA's project management policies and procedures and project activities are appropriately managed, monitored, and project milestones and status are reported to relevant management on a periodic basis. Determine that project objectives and requirements are met by reviewing the project plan and progress to date and project costs are tracked against budget. Determine the adequacy of security controls and verify that project objectives and requirements are met.	Operational	Q3

Appendix C – Proposed 2020 NYPA Internal Audit Plan

	Business Unit	Department	Audit Entity	Audit Project Name	Audit Type	Risk Rating	Risk Description	Preliminary Scope	Risk Category	Timing
Utility Operations										
		Technology & Innovation	**Strategic Operations**			**H**				
41				ISO 55001 Audit Remediation Follow-up	Audit		Non-compliance with required objectives could result in loss of the ISO 55001 certification and impact asset maintenance activities. KPIs that are not adequately defined and monitored could result in uninformed business decisions.	Validate that ISO 55001 audit non-conformities and observations have been remediated and addressed appropriately. In addition, ensure that asset management related KPIs (level 1 and 2) are adequately defined, tracked, and reported and are measured against all six asset management objectives.	Operational	Q2
		Power Supply (All Regions)	**Power Supply (All Regions)**			**H**				
42				Site SCADA Systems (NIA, BG, STL, SENY)	Audit		Failure to manage the SCADA systems at the sites can result in the system's inability to detect operational failures, send alerts and potentially allow unauthorized access to the system.	Review SCADA system configurations for the NIA, BG, STL and SENY sites to ensure they are in accordance with vendor recommended specifications, validate any configuration changes were made in accordance with Operations Technology's change management procedures, evaluate SCADA user access and cybersecurity controls, and assess whether the SCADA systems are physically secure. All sites will not be audited at once and will be rotated each time this audit is performed.	Operational	Q4

Appendix C – Proposed 2020 NYPA Internal Audit Plan

	Business Unit	Department	Audit Entity	Audit Project Name	Audit Type	Risk Rating	Risk Description	Preliminary Scope	Risk Category	Timing
Utility Operations										
43				Inventory & Warehousing: NIA, STL, BG, SENY	Audit		Inadequate controls over purchasing and warehousing activities may lead to, but are not limited, to the following: • Excessive costs of purchased goods and services. • Fraudulent purchases may be made and/or theft of materials and supplies. • Goods and services may be purchased on unacceptable terms, prices and quality. • Poor initial planning and estimation resulting in excessive change orders. • Purchases may be made from unauthorized vendors. • Purchase of goods and services that are not needed. • Inaccurate/incomplete inventory records. • Lack of spare parts. • Loss of a major or sole supplier. • Non-compliance with NYPA policies and procedures. • Incorrect or obsolete materials in stock, inventory stock-out, and/or delays in procurement.	Review processes, policies, procedures and controls associated with purchasing and warehousing activities to ensure consistent application of controls for purchasing goods and materials at the sites, effective management of inventory to meet the plant's operational needs and compliance with NYPA's policies and procedures.	Operational	Q1
44				Operations Technology Operating System Security	Audit		Failure to implement effective security, configuration, monitoring and standardized procedures for operating systems used by Operations Technology (i.e. Windows, AIX and Linux) can lead to unauthorized access, system compromise and unavailability.	Review the controls over the Windows, AIX and Linux operating system (OS) environments including evaluating processes and standards for OS administration, logical access, process consistency, system monitoring, change control, and continuity of operations. Also, review configuration settings against defined policies and industry best practices.	Technology	Q3

**Appendix C –
Proposed 2020 Canal Corporation Internal Audit Plan**

Appendix C – Proposed 2020 Canal Corporation Internal Audit Plan

	Business Unit	Department	Audit Entity	Audit Project Name	Audit Type	Risk Rating	Risk Description	Preliminary Scope	Risk Category	Timing
Canal Corporation										
			Admin Services			M				
1				Budgeting and Forecasting	Audit		Failure to forecast financial information leading to inadequate allocation of resources to new and existing initiatives. Canals does not appropriately or sufficiently allocate capital that will enable the Canals system to operate and be maintained safely.	Review the adequacy and effectiveness of the current budgeting process for both the operating and capital budget and determine who is responsible for budgeting decisions, how departments monitor budgets throughout the year (i.e. KPIs), how items within the budgets are prioritized and approvals are in place. In addition, review the adequacy and effectiveness of operating controls associated with the long-range financial plan and ongoing operating forecasts including quality control procedures and disclosure of assumptions used. Review procedures, processes and controls over the preparation and monitoring of the O&M and capital budgets. Verify compliance with established policies and procedures.	Operational	Q1
2				Vendor Payment Accruals Follow up (Canals)	Audit		Inadequate management of vendor payments and associated accruals could lead to late vendor payments and misstatement of the Canals balance sheet.	Ensure controls over the processing of manual accounting entries in SAP are adequate and working effectively, and validate the completeness and accuracy of accruals. Follow up on the prior audit observations noted by IA and KPMG and validate that action plans have been implemented and appropriately mitigate the risks.	Financial	Q1

Appendix C – Proposed 2020 Canal Corporation Internal Audit Plan

	Business Unit	Department	Audit Entity	Audit Project Name	Audit Type	Risk Rating	Risk Description	Preliminary Scope	Risk Category	Timing
Canal Corporation										
			Admin Services			M				
3				Real Property	Assessment		Unauthorized disposal of real property could lead to regulatory scrutiny and/or the impairment of NYPA's and Canals' reputation.	Evaluate the controls established for managing real property owned, leased or otherwise under Canals control to ensure land interests are appropriately protected and that disposition of disputes such as encroachment issues are consistently resolved in the best interest of Canals. Review the process for disposing of land and ensure compliance with New York State disposal requirements.	Operational	Q3
4				Vendor Management	Assessment		Inadequate vendor, service provider, consultant or contractor selection and/or performance could lead to inefficiencies within Canals, confusion or conflict with its customers, performance delays or quality deficiencies, potential litigation against Canals or impairment to Canals' reputation.	Evaluate vendor management practices across Canals including governance, vendor selection and sourcing, maintaining relationships and evaluating vendor performance. Determine if management has considered an entity-wide vendor management approach and if actions have taken place in this direction.	Operational	Q3
5				Fleet Management Operations	Audit		Ineffective management and use of fleet vehicles and equipment can lead to waste, abuse, and damage to NYPA's and Canals' reputation.	Evaluate the adequacy of fleet operations, policies, procedures, and systems including acquisition, maintenance and disposal of fleet vehicle equipment. Assess the management and use of the fleet fuel cards and expenses.	Operational	Q2
			Technical Services			M				
6				Maximo System Implementation	Audit		Lack of effective system implementation can lead to original business objectives not meet, poor system performance, inefficiencies and user dissatisfaction.	Determine that the Maximo application business requirements have been implemented and are functioning as intended. Determine if business objectives have been met, efficiencies gained, system performance is adequate, organizational change management is effective and end user acceptance testing has been performed. In addition, confirm that a process has been established to ensure all asset information that is currently housed in CIMS is accurately and completely transferred into Maximo.	Technology	Ongoing

Appendix D – Supporting Information

Appendix D – Proposed NYPA and Canal Corporation Q1 Projects

Q1 projects were selected to align to either management requests or to minimize impact to NYPA functions working on strategic initiatives:

Area	Project
Operational	• Clean Energy Solutions Pricing • Bid to Bill System Implementation (Ongoing) • Ariba Application Review • Enterprise Program Management • Treasury Workstation System Implementation (Ongoing) • Payroll (NYPA & Canals) • Non-Work Time Benefits • Energy Commodity Risk Management System Implementation (Ongoing) • Inventory & Warehousing: NIA, STL, BG, SENY • GE Asset Performance Management Implementation (APM) (Ongoing) • Budgeting and Forecasting (Canals)
Strategic	• Communications Backbone Program (Ongoing)
Financial	• Accounts Payable • FEMA Reimbursement • Vendor Payment Accruals Follow-up (Canals)
Legal and Regulatory	• Recharge NY Customer Compliance Audit (D&M) • Western NY Customer Compliance Audit (D&M) • Environmental Health & Safety Program (NYPA & Canals)
Technology	• Intrusion Detection/Intrusion Protection Management • Active Directory Review • Microsoft Office 365

Appendix D – Plan Alignment to Strategic Themes

Strategic Themes	Projects
Affordable & Reliable Clean Electron Supply	• Transmission LEM
Electrification	• EVolve Program
Energy Efficiency	• Clean Energy Solutions Pricing
Enterprise Digitization	• Customer Digital Experience (CDEx) • Bid to Bill System Implementation • New York Energy Manager Strategy, Customer and Management Reporting • Data Governance & Protection Program • Communications Backbone Program • GE Asset Performance Management Implementation (APM) • Data Splice Post Implementation • Digital Worker
Workforce Development	• Succession Planning (NYPA & Canals)

Appendix D - Plan Alignment to Top Enterprise Risks

Top Enterprise Risk	Projects
Attract and Sustain Qualified Workforce	• Succession Planning (NYPA & Canals) • Non-Work Time Benefits
Commodity Market Volatility	• Energy Commodity Risk Management System Implementation
Critical Infrastructure	• IT Disaster Recovery Tests • Insurance Risk Management (NYPA & Canals) • Utility Operations Construction Projects (Non-LEM) • Communications Backbone Program • Transmission LEM • GE Asset Performance Management Implementation (APM) • Data Splice Post Implementation • Digital Worker • ISO 55001 Audit Remediation Follow-up • Site SCADA Systems (NIA, BG, STL, SENY) • Inventory & Warehousing: (NIA, STL, BG, SENY) • Real Property (Canals) • Maximo System Implementation (Canals)
Customer Energy Choices	• Recharge NY Customer Compliance Audit (D&M) • Western NY Customer Compliance Audit (D&M) • Customer Digital Experience (CDEx) • Clean Energy Solutions Pricing • New York Energy Manager Strategy, Customer and Management Reporting

NEW YORK STATE OF OPPORTUNITY. | NY Power Authority | Canal Corporation

Appendix D - Plan Alignment to Top Enterprise/Emerging Risks

Top Enterprise Risk	Projects
Cyber Security	• Threat and Vulnerability Management • Intrusion Detection/Intrusion Protection Management • Database Security (NYPA & Canals) • Network Administration (NYPA & Canals) • Active Directory Review • Microsoft Office 365 • Operations Technology Operating System Security
Disruptive Innovation	• EVolve Program
Sustained Low Energy Prices	• Unforced Capacity (UCAP) & Transmission Congestion Charge (TCC) Services & Trading
Workforce Health & Safety	• Environmental Health & Safety Program (NYPA & Canals)

Top Emerging Risk	Projects
Data Governance	• Bid to Bill System Implementation • Data Governance & Protection Program
Third Party Risk	• Supply Chain Management (NYPA & Canals) • Ariba Application Review

NEW YORK STATE OF OPPORTUNITY. | NY Power Authority | Canal Corporation

Appendix E – Audit Plan Internal Audit Resource Capacity

Appendix E - Audit Plan Internal Resource Capacity (NYPA and Canal Corporation)

	# of Days	# of Hours
Total Available Time (1)	3,176	23,820
Continuous Improvement (Reinvest in IA processes) (2)	(392)	(2,940)
Available Resource Time	2,784	20,880
Professional Services - Client Support Hours (3)	(240)	(1,800)
Hours Available for NYPA and Canal Corporation Audit Plan	2,544	19,080

(1) Hours assume filled open positions by the end of Q1/Q2 2020 and excludes Non-Audit Time: training, vacation/sick/holidays, administrative time

(2) Continuous Improvement Hours include: GRC system administration, QAIP program development and maintenance, data analytics

(3) Client Support Hours include: Audit Liaison program, participation in committees/work groups, policies/procedures review, special reviews

Internal Audit Plan Approval Request

➢ Internal Audit requests the Audit Committee to approve the 2020 New York Power Authority Audit Plan.

Internal Audit Plan Approval Request

➢ Internal Audit requests the Audit Committee to approve the 2020 Canal Corporation Audit Plan.

Audit Committee Update

2020 Internal Audit Budget
NYPA and Canal Corporation

12/11/2019

Proposed 2020 Internal Audit Budget

	2020 Budget	2019 Budget	2019 Actual (as of 11/30/19)	Explanation
Payroll and Benefits*	$3,545,600	$2,917,003	$3,210,029	Reflects full year of FTE costs for staff level at budget time.
Software – Data Analytics Extraction Tool	$0	$8,000	$0	
Software Maintenance	$75,000	$0	$0	Cost of Maintenance for the GRC tool. Total $150,000 split with Risk Management.
Training & Professional Fees	$94,700	$95,600	$67,855	40 hours professional development per staff member as per IIA best practice. Professional Fees for staff members.
Travel Expenses	$36,800	$38,900	$22,868	
Books & Publications	$9,500	$0	$0	Added to Internal Audit's budget for 2020. Prior years budgeted through Digital Warehouse.
Miscellaneous Office	$25,600	$12,000	$9,124	Internal Audit site visits for lunch and learns. Department off-site staff training meeting in 2020.
Audit Consulting	$1,680,000	$2,300,000	$1,881,812	Reduction in co-source costs with hired positions, less hours for departmental transformation initiatives for those operationalized.
Total	$5,467,200	$5,371,503	$5,191,688	

*Payroll and co-source support costs will change to reflect reallocation of cost as open positions are filled. The overall budget will remain substantially the same.

Internal Audit Budget Approval Request

➢ Internal Audit requests the Audit Committee to approve the 2020 Internal Audit Budget.

KPMG

New York Power Authority Report to the Audit Committee

Audit plan and strategy for the year ending December 31, 2019

December 11, 2019

Introduction

To the Audit Committee of the New York Power Authority

We are pleased to have the opportunity to meet with you on December 11, 2019 to discuss our audit of the consolidated financial statements of the New York Power Authority (the Authority) as of and for the year ending December 31, 2019.

The audit of the consolidated financial statements, prepared in accordance with U.S. generally accepted accounting principles (GAAP), will be conducted under the standards of U.S. generally accepted auditing standards (GAAS) and the standards applicable to financial audits contained in Government Auditing Standards issued by the Comptroller General of the United States.

We plan to issue the auditor reports on the consolidated financial statements of the New York Power Authority (the Authority) as of and for the two-year period ended December 31, 2019. Other planned audit deliverables include a report on Internal Control Over Financial Reporting and Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with Government Accounting Standards as of December 31, 2019, and a report on Investment Compliance as of December 31, 2019.

This document, which outlines our risk assessment and planned audit strategy, is being provided to you in advance of the meeting to allow you sufficient time to consider the key matters and formulate your questions.

We believe the contents of this document should provide a good platform for our discussions when we do meet. We will be pleased to elaborate further on matters covered in this document at the meeting.

Contents

Client service team

Marie Zimmerman
Lead Audit Partner, State of New York
mezimmerman@kpmg.com

Scott Heiser
Lead Audit Partner
sheiser@kpmg.com

Caroline Garcia
Engagement Quality Control Reviewing Partner
cmgarcia@kpmg.com

Marilyn Farley
Tax Partner
mfarley@kpmg.com

Grace Kachigian
Lead Audit Senior Manager
gkachigian@kpmg.com

Shy Joseph
Tax Manager
shyjoseph@kpmg.com

Chris Davanzo
Rebecca Lieberman
Audit Managers
cdavanzo@kpmg.com
rlieberman@kpmg.com

Subcontractors

Katigbak CPA, PLLC
Minority-Owned Business

Long Island Financial Management Services
Women-Owned Business

Audit Staff
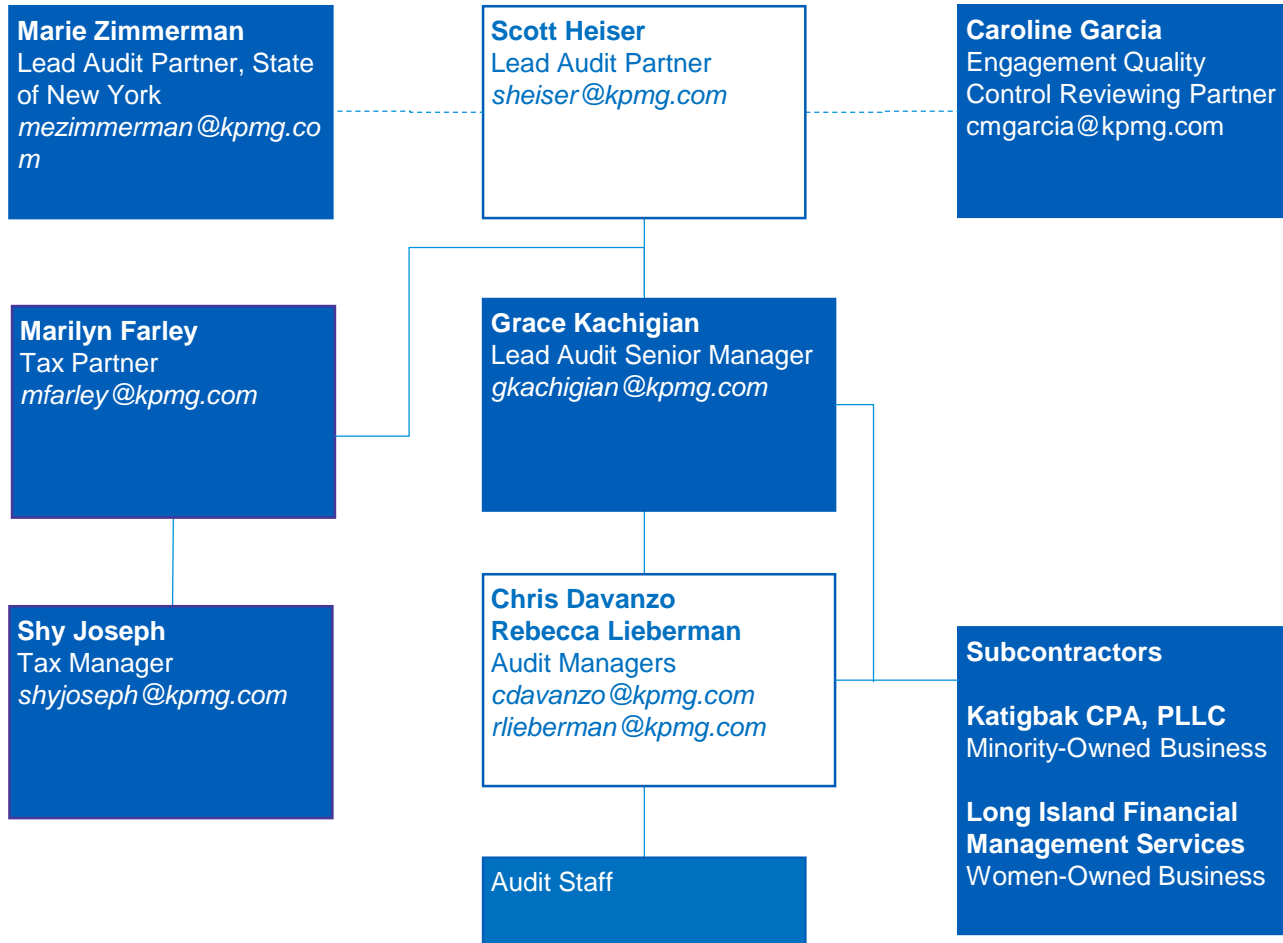
Team members with continuity are designated in blue.

Planned timeline

— Debrief on audit process
— Plan audit approach for upcoming year-end audit
— Identify key members of the engagement team, including specialists

— Meetings with management to discuss key issues
— Assessment of business processes and high-level controls
— Identify specific and pervasive financial statement fraud risks and assess the effect on the audit plan
— Perform risk assessment procedures and identify risks
— Assessment of audit risk and planning of substantive audit procedures
— Determine audit strategy and identify critical accounting matters
— Plan Audit Procedures

6-30-2019

3-31-2020

— Complete control testing for relevant process level and entity-level controls, where applicable
— Perform remaining substantive audit procedures
— Review financial statement disclosures
— Evaluate results of audit procedures including control deficiencies and audit misstatements identified
— Obtain written representation from management
— Present audit results to the Audit Committee and perform required communications
— Issue audit reports on consolidated financial statements
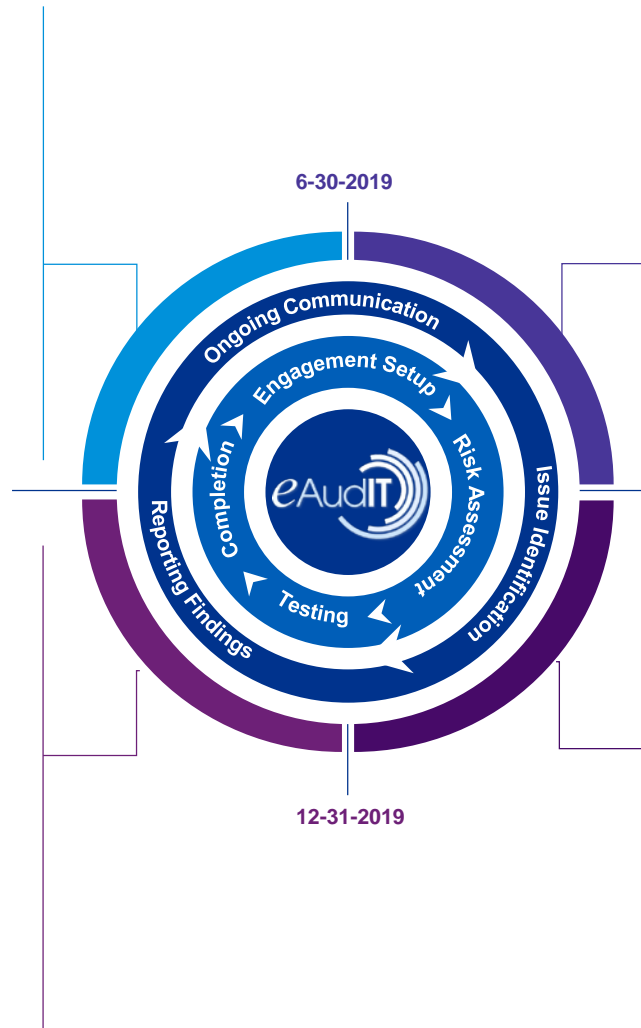
9-30-2019

— Finalize planned audit approach
— Perform walkthroughs of NYPA processes
— Test NYPA's entity-wide and monitoring controls
— Evaluate design of selected key controls at NYPA
— Test operating effectiveness of selected key controls at NYPA
— Perform interim substantive procedures
— Evaluation of interim results and establish plan for performance of substantive audit procedures
— Perform / send year-end confirmations (e.g. legal, debt, cash, investments, and derivatives)
— Conduct management interviews related to fraud risk
— Present 2019 Audit Plan to the Audit Committee

12-31-2019

3

Risk assessment

Significant risk	Susceptibility to	
	Error	Fraud
Risk of management override of controls – Management is in a unique position to perpetrate fraud because of management's ability to manipulate accounting records and prepare fraudulent financial statements by overriding controls that otherwise appear to be operating effectively. Although the level of risk of management override of controls will vary from entity to entity, the risk nevertheless is present in all entities.	**N**	**Y**

Other significant audit matters	Susceptibility to		Relevant factors affecting our risk assessment:
	Error	Fraud	
Estimates include the following: — Asset Retirement Obligation — Derivative Valuations — Pension and Post Retirement Obligations — Investments	**Y**	**N**	KPMG considered the relevant qualitative and quantitative factors affecting our risk assessment, including, but not limited to, size, complexity, exposure to losses, measurement uncertainty, possible significant contingent liabilities, and related party transactions
Significant audit areas included the following: — Revenue recognition — Long term debt — Investments — Capital Assets	**Y**	**N**	

Y = Yes   **N** = No

Audit strategy

Involvement of others

Audit of consolidated financial statements	Plan to involve?	Extent of planned involvement
Internal Audit	Y	Inquiries of Internal Audit, Review Internal Audit Plan, and Review results of Internal Audits performed
KPMG Risk Analytics Valuation Specialists	Y	Testing the valuation of Derivative Instrument selections
KPMG National Pricing Desk	Y	Testing the valuation of Investments
KPMG Actuarial Specialists	Y	Testing the actuarial data and assumptions used to form the OPEB valuations

Y = Yes   **N** = No

Other audit procedures

— Analytically review the consolidated statements of net position, statements of revenues, expenses, and changes in net position, and statements of cash flows

— Review journal entries throughout the year, if deemed necessary, as well as closing and post-closing entries

— Review controls designed and implemented to address risk of management override of controls

— Review transactions with related parties

— Review financial statement disclosures for appropriateness and completeness

— Review minutes of Board of Trustees and selected committees

— Send legal letters to external attorneys to determine litigation exposure and assess financial statement impact, if any

— Review developments in financial reporting, laws, accounting standards, corporate governance, and other related matters

— Review significant communications with regulators, if any

Newly effective accounting standards

Recent accounting pronouncements	Effective for years ending December 31	
	2019	**2020**
GASB Statement No. 84 – Fiduciary Activities	✓	
GASB Statement No. 87 - Leases		✓
GASB Statement No. 88 – Certain Disclosures Related to Debt, including Direct Borrowings and Direct Placements	✓	
GASB Statement No. 89 – Accounting for Interest Cost Incurred before the End of a Construction Period		✓
GASB Statement No. 90 – Majority Equity Interests	✓	

Supplemental communications

Contents	Page
Audit Fees	9
Materiality – Materiality in the Context of an Audit	10
Required communications and other matters – Responsibilities	11
Independence	14
Required communications and other matters – inquiries	17

Audit fees

	2019 estimated
Audit of the consolidated financial statements for the New York Power Authority as of and for the two-year period ended December 31, 2019	$382,000
Other Reports (included in the fees above): Report on Internal Control Over Financial Reporting and Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with Government Accounting Standards as of December 31, 2019 Report on Investment Compliance as of December 31, 2019	
Total fees	**$382,000**

The following reports will be billed separately:

- Report on Compliance with Requirements That Could Have a Direct and Material Effect on Each Major Program and on Internal Control over Compliance in Accordance with Uniform Guidance (formerly OMB Circular A-133), if applicable

- Revenue Bonds issuance consent and comfort letter, if applicable

Materiality in the context of an Audit

We will apply materiality in the context of the preparation and fair presentation of the consolidated financial statements, considering the following factors:

Professional standards require that we exercise professional judgment when we consider materiality and its relationship with audit risk when determining the nature, timing, and extent of our audit procedures, and when evaluating the effect of misstatements.

Information is material if its misstatement or omission could reasonably be expected to influence the economic decisions of users taken on the basis of the consolidated financial statements.

Judgments about materiality are made in light of surrounding circumstances and are affected by the size or nature of a misstatement, or a combination of both.

Judgments about matters that are material to users of the consolidated financial statements are based on a consideration of the common financial information needs of users as a group. The possible effect of misstatements on specific individual users, whose needs may vary widely, is not considered.

Judgments about the size of misstatements that will be considered material provide a basis for

a) Determining the nature and extent of risk assessment procedures;

b) Identifying and assessing the risks of material misstatement; and

c) Determining the nature, timing, and extent of further audit procedures.

Responsibilities

Management responsibilities – Financial statements	— Fairly presenting the consolidated financial statements, including disclosures in conformity with U.S. GAAP — Adjusting the consolidated financial statements to correct material misstatements and affirming in the representation letter that the effects of any uncorrected misstatements aggregated by us are immaterial, both individually and in the aggregate, to the consolidated financial statements taken as a whole
Management responsibilities – ICFR	— Design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error

Management responsibilities – Other	— To provide us with:
	  1) access to all information of which management is aware is relevant to the preparation and fair presentation of the consolidated financial statements, such as records, documentation, and other matters;
	  2) additional information that we may request from management for the purpose of the audit; and
	  3) unrestricted access to persons within the Authority from whom we determine it necessary to obtain audit evidence
	
	— Identifying and ensuring that the Authority complies with laws and regulations applicable to its activities, and for informing us of any known material violations of such laws and regulations
	
	— Providing us with a letter confirming certain representations made during the audit, that includes but is not limited to management's:
	  1) disclosure of all significant deficiencies, including material weaknesses, in the design or operation of internal controls that could adversely affect the Authority's financial reporting
	  2) acknowledgement of their responsibility for the design, implementation, and maintenance of internal controls to prevent and detect fraud

Audit Committee responsibilities	— Oversight of the financial reporting process and internal control over financial reporting (ICFR) — Oversight of the establishment and maintenance by management of programs and controls designed to prevent, deter, and detect fraud

The financial statement audit does not relieve management or the Audit Committee of their responsibilities.

Responsibilities (continued)

Management and the Audit Committee responsibilities	— Setting the proper tone and creating and maintaining a culture of honesty and high ethical standards — Ensuring that the Authority's operations are conducted in accordance with the provisions of laws and regulations, including compliance with the provisions of laws and regulations that determine the reported amounts and disclosures in the Authority's consolidated financial statements.
KPMG – Audit objectives	— Forming and expressing an opinion about whether the consolidated financial statements that have been prepared by management with the oversight of the Audit Committee are prepared, in all material respects, in accordance with U.S. GAAP
KPMG responsibilities – Audit	— Performing the audit in accordance with U.S. GAAS and that the audit is designed to obtain reasonable, rather than absolute, assurance about whether the consolidated financial statements as a whole are free from material misstatement — Performing an audit of consolidated financial statements includes consideration of ICFR as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Authority's ICFR
KPMG responsibilities – Other information in documents containing financial statements	— The auditors' report on the consolidated financial statements does not extend to other information in documents containing audited consolidated financial statements, excluding required supplementary information — Our responsibility is to make appropriate arrangements with management or the Audit Committee to obtain information prior to the report release date and to read the other information to identify material inconsistencies with the audited consolidated financial statements or misstatement of facts — Any material inconsistencies or misstatement of facts that are not resolved prior to the report release date, and that require revision of the other information, may result in KPMG modifying or withholding the auditors' report or withdrawing from the engagement — Communicate any procedures performed relating to the other information and the results of those procedures

Responsibilities (continued)

KPMG responsibilities – Communications	— Communicating significant matters related to the financial statement audit that are in our professional judgment, relevant to the responsibilities of the Audit Committee in overseeing the financial process. U.S. GAAS does not require us to design procedures for the purpose of identifying matters to communicate to the Audit Committee — Communicating if we suspect or identify noncompliance with laws and regulations exist, unless matters are clearly inconsequential — Communicating to management and the Audit Committee in writing all significant deficiencies and material weaknesses in internal control identified during the audit, including those that were remediated during the audit and reporting to management in writing all deficiencies noted during our audit that, in our professional judgment, are of sufficient importance to merit management's attention. The objective of our audit of the consolidated financial statements is not to report on the Authority's internal control — Conducting the audit in accordance with professional standards and complying with the rules and responsibility of the Code of Professional Conduct of the American Institute of Certified Public Accountants and the official standards of relevant CPA Societies, and relevant state boards of accountancy — Communicating to the Audit Committee circumstances, if any, that affect the form and content of the auditors' report — Communicating if we plan to withdraw from the engagement and the reasons for the withdrawal — Communicating to the Audit Committee if we conclude no reasonable justification for a change of the terms of the audit engagement exists and we are not permitted by management to continue the original audit engagement — When applicable, we are also responsible for communicating particular matters required by law or regulation, by agreement with the Authority, or by additional requirements applicable to the engagement — Communicating if we have identified or suspect fraud involving: (a) management, (b) employees who have significant roles in internal control, (c) others, when the fraud results in a material misstatement in the financial statements, and (d) other matters related to fraud that are, in our professional judgment, relevant to the responsibilities of the Audit Committee — Communicating significant findings and issues arising during the audit in connection with the Authority's related parties — Communicating conditions and events, considered in the aggregate, that raise substantial doubt about the Authority's ability to continue as a going concern for a reasonable period of time

KPMG independence quality controls

KPMG maintains a comprehensive system of quality controls designed to maintain our independence and to comply with regulatory and professional requirements.

— Submission of all worldwide engagements through Sentinel, a KPMG independence and conflict checking system (includes services for/relationships with the audit client, its affiliates, and its affiliated persons)

— Tracking partner rotation requirements using PRS (Partner Rotation System), the firm's automated partner rotation tracking system

— Automated investment tracking system used by all KPMG member firms (KICS)

— Training and awareness programs, including a required annual independence training deployed globally and trainings specific to interactions with public officials and government entities

— Annual independence confirmation required for all existing partners and employees and for all new individuals who subsequently join the firm

— Compliance testing programs

— Formal disciplinary policy and process

— Annual reporting to the Finance and Audit Committee regarding independence

Independence of mind and appearance

— Independence consists of independence of mind and in appearance. Independence in appearance is the avoidance of circumstances that would cause a reasonable and informed third party who has knowledge of all relevant information, including safeguards applied, to reasonably conclude that the integrity, objectivity, or professional skepticism of the firm or members of the audit engagement team is compromised.

— Close personal relationships between firm personnel and audit client personnel can impact the appearance of independence or an auditor's independence of mind.

Breaches of independence

— KPMG policies regarding breaches of independence:

- For any breaches of the Independence rules, as soon as practicable KPMG will:

- Assess the impact of the breach

- Identify the actions performed or to be performed to address the consequences of the breach

- Communicate in writing and discuss the breach and actions to address the breach with the Finance and Audit Committee

- Obtain concurrence from the Finance and Audit Committee on the auditor's conclusion regarding the breach (i.e. that the actions taken satisfactorily address the consequences of the breach and the impact of the breach on KPMG's objectivity and impartiality with respect to the audit)

- Document the details of the breach, the actions described above and the result

Required inquiries

The following inquiries are required in accordance with AU-C 260:

Audit Committee inquiries	— Is the Audit Committee aware of matters relevant to the audit, including, but not limited to, violations or possible violations of laws and regulations?
	— What are the Audit Committee's views about fraud risks in the Authority?
	— Does the Audit Committee have knowledge of fraud, alleged fraud, or suspected fraud affecting the Authority?
	— Who is the appropriate person (Audit Committee chair or full committee) for communication of audit matters during the audit?
	— How are responsibilities allocated between management and the Audit Committee?
	— What are the Authority's objectives and strategies and related business risks that may result in material misstatements?
	— Are there any areas that warrant particular attention during the audit and additional procedures to be undertaken?
	— Is the Audit Committee aware of any significant communications with regulators?
	— What are the Audit Committee's attitudes, awareness, and actions concerning (a) the Authority's internal controls and their importance in the entity, including oversight of effectiveness of internal controls, and (b) detection of or possibility of fraud?
	— Is the Audit Committee aware of any developments in financial reporting, laws, accounting standards, corporate governance, and other related matters?
	— Have there been any actions taken based on previous communications with the auditor?

Questions?

KPMG

kpmg.com/socialmedia