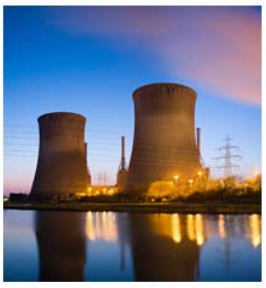
NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

2020 Business Plan and Budget

Final

August 7, 2019

RELIABILITY | RESILIENCE | SECURITY

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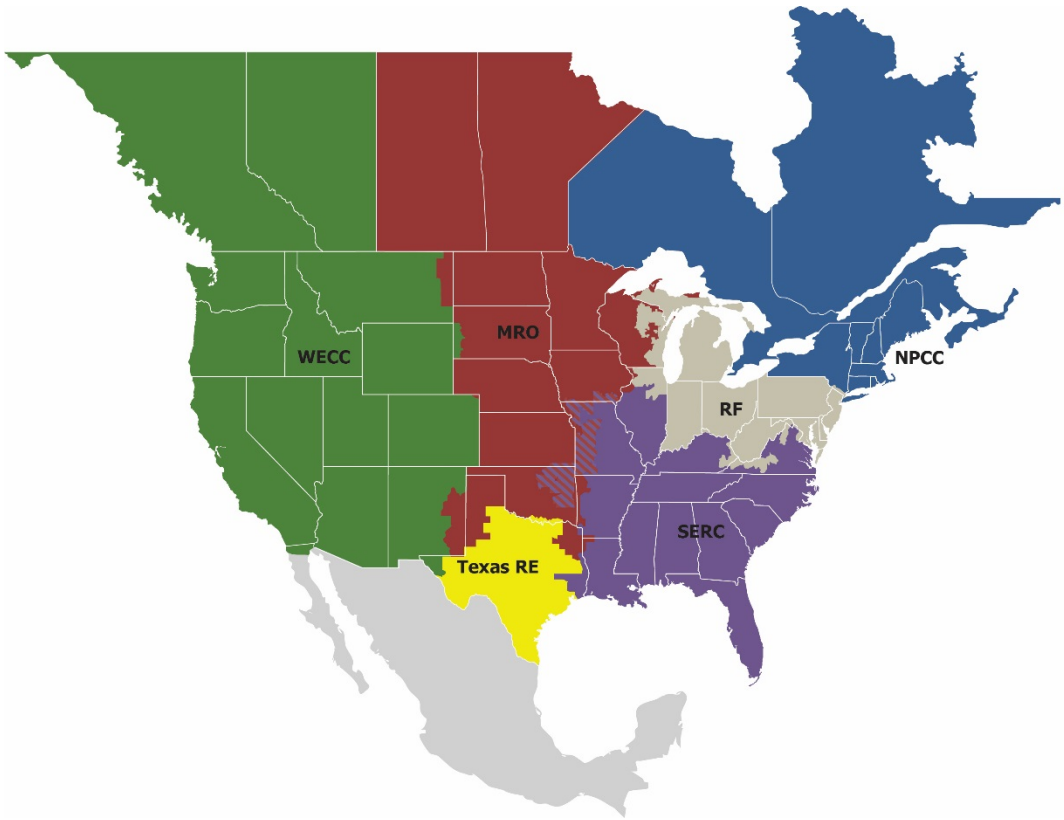
Preface

Electricity is a key component of the fabric of modern society and the Electric Reliability Organization (ERO) Enterprise serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of the North American Electric Reliability Corporation (NERC) and the six Regional Entities (REs), is a highly reliable and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

Reliability | Resilience | Security
Because nearly 400 million citizens in North America are counting on us

The North American BPS is divided into six RE boundaries as shown in the map and corresponding table below. The multicolored area denotes overlap as some load-serving entities participate in one Region while associated Transmission Owners/Operators participate in another.



MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
Texas RE	Texas Reliability Entity
WECC	Western Electricity Coordinating Council

About NERC

Overview

NERC is a not-for-profit entity organized under the New Jersey Nonprofit Corporation Act. NERC's area of responsibility spans the continental United States and portions of Canada and Mexico. Entities under NERC's jurisdiction are the users, owners, and operators of the BPS[1]—a system that serves the needs of nearly 400 million people, includes installed electricity production capacity of approximately 1.1M megawatts, operates 469,842 circuit miles of high-voltage transmission (100 kV and above), and is comprised of assets worth more than one trillion dollars.

Electric Reliability Organization

The Federal Energy Regulatory Commission (FERC) certifies and has oversight of NERC as the ERO within the United States to establish and enforce NERC Reliability Standards for the U.S. portion of the BPS, pursuant to Section 215 of the Federal Power Act (FPA). As of June 18, 2007, FERC granted NERC the legal authority to enforce Reliability Standards with all U.S. users, owners, and operators of the BPS and made compliance with those standards mandatory and enforceable. Section 215 also requires that the organization certified by FERC as the ERO seek recognition with relevant authorities in Canada and Mexico. In 2005, the U.S. Department of Energy (DOE) and Canadian federal and provincial governments agreed to bilateral principles for a consistent, continent-wide reliability regulatory framework under a non-governmental institution (the ERO) designed to function on an international basis. To date, NERC has memoranda of understandings (MOUs) with eight Canadian provinces[2] and the National Energy Board of Canada in furtherance of this framework, and Mexico is in the process of implementing such a framework after a historic restructuring of Mexico's electricity industry and reforms of the country's regulatory framework were enacted in 2013 and 2014. NERC is working with the Mexican regulator, *Comísion Reguladora de Energía* (CRE) and the Mexican system and market operator, *CENACE*, under a MOU signed in 2017, to ensure that, as Mexico implements its new authorities, they will be consistent with the framework in Canada and the United States and support continent-wide reliability and security.

Membership and Governance

A 12-member Board, comprised of 11 independent trustees and NERC's president and chief executive officer (CEO) serving as the management trustee, governs NERC. The Board has formed several committees to facilitate oversight of the organization in the areas of finance and audit, governance and human resources, compliance, technology and security, nominations and enterprise-wide risk.

Membership in NERC is open to any person or entity that has an interest in the reliability of the North American BPS. Membership is voluntary and affords participants the opportunity to engage in the governance of the organization through election to the Member Representatives Committee (MRC).[3] More than 500 entities and individuals are members of NERC. NERC, its members, and each applicable BPS owner, operator, and user must comply with the NERC *Rules of Procedure* (ROP).

[1] NERC's standards, compliance, and enforcement activities are focused on the Bulk Electric System (BES), which is comprised of certain BPS facilities.

[2] British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, and Nova Scotia.

[3] The MRC comprises voting representatives elected from the 12 membership sectors. The MRC elects the independent trustees and, along with the Board, votes on amendments to the bylaws. The MRC also provides policy advice and recommendations to the Board on behalf of stakeholders with respect to annual budgets, business plans, and other matters pertinent to the purpose and operation of the organization.

Scope of Oversight

As the international, multijurisdictional ERO in North America, NERC:

- Proposes, supports the development of, monitors compliance with, and enforces mandatory Reliability Standards for the North American BES, subject to regulatory oversight and approvals from FERC in the United States and applicable authorities in Canada;
- Conducts near-term and long-term reliability assessments of the North American BPS;
- Certifies BPS operators as having and maintaining the necessary knowledge and skills to perform their reliability responsibilities;
- Maintains situational awareness of events and conditions that may threaten BPS reliability;
- Coordinates efforts to improve physical and cyber security for the BPS of North America;
- Conducts detailed analyses and investigations of system disturbances and unusual events as well as measuring ongoing system trends to determine root causes, uncovering lessons learned, and issuing relevant findings as advisories, recommendations, guidelines, and essential actions to the industry to mitigate and control risks to reliability; and
- Identifies and prioritizes risks to reliability and uses a broad toolkit to mitigate and control risks to reliability, including the potential need for new or modified Reliability Standards, improved compliance monitoring and enforcement methods, or other initiatives.

Delegated Authorities

In executing its responsibility, NERC delegates certain authorities to regional reliability entities (Regional Entities or the Regions) to perform aspects of the ERO functions described through delegation agreements. FERC has approved delegation agreements between NERC and the six Regional Entities. These agreements describe the authorities delegated and responsibilities assigned to the Regional Entities in the United States to address, among other things: (1) developing regional Reliability Standards; (2) monitoring compliance with and enforcement of Reliability Standards (both North American-wide and regional); (3) registering owners, operators, and users of the BES and certifying reliability entities (Reliability Coordinators [RCs], Balancing Authorities [BAs], and Transmission Operators [TOPs]); (4) assessing reliability and analyzing performance; (5) training and education; (6) event analysis and reliability improvement; and (7) situational awareness and infrastructure security. NERC expects Regional Entities whose territories and geographic footprints extend into Canadian provinces and Mexico to perform equivalent functions in those jurisdictions.

The Florida Reliability Coordinating Council (FRCC) has also performed certain reliability obligations under a delegation agreement with NERC. On February 27, 2019, NERC, jointly with FRCC and SERC, filed a petition with FERC for approvals needed to dissolve the FRCC Regional Entity (FRCC RE), including FRCC transferring the FRCC registered entities to the jurisdiction of SERC. FERC issued an order granting the requested approvals on April 30, 2019. Registered entities transferred to SERC's jurisdiction on July 1, 2019 and, under the current schedule, FRCC will wind down its regional entity operations by August 31, 2019.

ERO Enterprise Model and Transformation

The collective network of leadership, experience, skills, and technologies shared among NERC and the Regional Entities is referred to as the ERO Enterprise. The ERO Enterprise is a collaborative organization with distinct roles between NERC and the Regional Entities. The ERO Enterprise strives for consistency where necessary, but recognizes that each Regional Entity addresses reliability in unique ways based on its own challenges and stakeholder needs; the model enables innovative and distinctive approaches to address these unique reliability risks and challenges locally. As the ERO Enterprise continues to mature,

the organization is working on a transformation initiative to further leverage resources, enhance communication and collaboration, and ensure grid reliability. A set of declarations was established in 2019, marking a new commitment across the ERO Enterprise:

- The ERO Enterprise commits to work together as one team and honor each of our roles.
- The ERO Enterprise commits to listen, to actively support ERO Enterprise activities, and to eliminate unnecessary duplication of work.
- The ERO Enterprise commits to collaborate in developing clear and consistent guidance across the ERO Enterprise.
- The ERO Enterprise commits to be an information, knowledge, and resource sharing ERO Enterprise.
- The ERO Enterprise commits to develop and share harmonized messages across ERO Enterprise communications.
- The ERO Enterprise supports innovation and initiative and the sharing of best practices across the ERO Enterprise.

NERC has unique responsibilities to oversee program areas, set qualifications and expectations for the performance of delegated activities, and assess, train, and give feedback to corresponding Regional Entity programs. NERC and the Regional Entities also coordinate activities to identify, prioritize, and address risks to reliability. The Regional Entities have a mirrored set of responsibilities within the ERO Enterprise model, providing input into the overall development of each ERO program area, providing training and development to meet ERO qualifications, and ensuring delegated responsibilities are completed. Regional Entities also have an obligation to meet professional standards of independence and objectivity and provide the best available expertise for addressing regional risks.

NERC and the Regional Entities are continually refining their individual and collective operating and governance practices in support of strategic and operational goals and objectives that are designed to ensure the ERO fulfills its statutory obligations. This collaboration is done while acknowledging the unique differences across the regions, and the different corporate and governance responsibilities of each entity.

Statutory and Regulatory Background

NERC's authority as the ERO in the United States is based on FPA Section 215, as added by the Energy Policy Act of 2005,[4] and FERC's regulations and orders issued pursuant to Section 215. In Canada, NERC's authorities are established by the memoranda of understanding and regulations previously mentioned.

Funding

FPA Section 215 and FERC's regulations specify procedures for NERC's funding in the United States. NERC's annual business plan and budget (BP&B) is subject to FERC approval in the United States and, once approved, NERC's annual funding is provided primarily through assessments to load-serving entities. These assessments are allocated on a net-energy-for-load (NEL) basis. Equivalent funding mechanisms are provided in Canada, subject to the specific laws and regulations of each province. The Regional Entities' funding requirements are addressed separately in their respective BP&Bs, which must be reviewed and approved by NERC and FERC. The U.S. assessments for the Regional Entity budgets are included in the overall NERC assessments to load-serving entities.

[4] Section 215 of the FPA, 16 United States C. 824o.

Introduction and Executive Summary

TOTAL RESOURCES (in whole dollars)	2020 Budget	U.S.	Canada	Mexico
Statutory FTEs	213.38			
Non-statutory FTEs	-			
Total FTEs	**213.38**			
Statutory Expenses	$ 78,711,127			
Non-Statutory Expenses	$ -			
Total Expenses	**$ 78,711,127**			
Statutory Fixed Asset Additions	$ 4,706,349			
Non-Statutory Fixed Asset Additions	$ -			
Total Fixed Asset Additions	**$ 4,706,349**			
Statutory Funding of Reserves	$ (650,083)			
Non-Statutory Funding of Reserves	$ -			
Total Working Capital Requirement	**$ (650,083)**			
Net Proceeds from Financing Activities	**$ (760,442)**			
Total Statutory Funding Requirement	$ 82,006,951			
Total Non-Statutory Funding Requirement	$ -			
Total Funding Requirement	**$ 82,006,951**			
	TOTAL	**US**	**CANADA**	**MEXICO**
Statutory Funding Assessments	**$ 72,011,373**	**$ 65,130,829**	**$ 6,655,929**	**$ 224,615**
Non-Statutory Fees	**$ -**	**$ -**	**$ -**	**$ -**
NEL	**4,590,769,783**	**4,066,914,561**	**509,829,755**	**14,025,467**
NEL%	**100.00%**	**88.59%**	**11.11%**	**0.31%**

Strategic and Operational Planning

ERO Enterprise strategic and operational planning involves multiple steps and processes:

- **Reliability Issues Steering Committee (RISC)** – The RISC holds a biennial Reliability Leadership Summit to review and discuss new and emerging risks to the BPS. Resulting from this summit is the *ERO Reliability Risk Priorities* report (RISC report) that provides a summary of these BPS risks.
- ***ERO Enterprise Long-Term Strategy*** – The long-term strategy discusses key challenges and strategic focus areas for the ERO Enterprise over the next five to seven years. The long-term strategy is reviewed on a periodic basis to identify any needed adjustments. The RISC report, among other sources, is used to gauge the need for updates to the long-term strategy.
- **ERO Enterprise BP&Bs** – The ERO Enterprise is transitioning away from the use of the *ERO Enterprise Operating Plan* by replacing it through updates to the *ERO Enterprise Long-Term Strategy* and additional information in the BP&Bs. The narratives in each BP&B set the specific annual activities, resources, and resource allocation in support of ERO Enterprise operations. The BP&Bs are prepared, reviewed, and approved annually for NERC and each of the Regional Entities.
- **ERO Work Plan Priorities** – NERC and each Regional Entity may create annual work plan priorities that summarize the most critical goals and objectives for the year. In many cases, these work plan priorities are also used for individual, departmental, and company performance measurement.[5]

Reliability Risks and the RISC Report

The most recent Reliability Leadership Summit, which is sponsored by the RISC, was held on March 14, 2019. The purpose of the summit was to bring industry leaders together to coordinate and agree on critical risks to the BPS. A key message from the summit is that risks to the BPS have generally remained the same from the previous summit with only one new risk identified: Critical Infrastructure Interdependencies. After the summit, an Emerging Risks Survey was distributed to various organizations and stakeholders to rank the risks in terms of likelihood and impact. The risks are as follows:

- Cyber Security Vulnerabilities
- Critical Infrastructure Interdependencies
- Changing Resource Mix
- Extreme Natural Events
- Physical Security Vulnerabilities
- Protection System Complexity
- Human Performance and Skilled Workforce
- Loss of Situational Awareness
- Resource Adequacy and Performance
- Bulk Power System Planning

These risks are continuing to be reviewed by the RISC in preparation for an updated RISC report later in 2019. The long-term strategy will also be updated later in 2019 to reflect certain items previously in the operating plan and to ensure alignment with the above risks and associated criticality.

[5] *ERO Work Plan Priorities* for 2019 were approved by the Board in February 2019. NERC management and the Board will evaluate annual work plan priorities each year.

ERO Enterprise Operating Plan and Goals

While the organization is transitioning away from the existing *ERO Enterprise Operating Plan*, the goals of the operating plan are still relevant to much of the work being performed across the ERO Enterprise. In many cases, NERC and the Regional Entities will discuss departmental goals that align with the operating plan during this transition period. The following goals are in the last version of the operating plan and will be incorporated into the *ERO Enterprise Long-Term Strategy* and/or each entity's BP&B going forward.

- Risk-Responsive Reliability Standards
- Objective, Risk-Informed Compliance Monitoring, Mitigation, Enforcement, and Entity Registration
- Reduction of Known Reliability Risks
- Identification and Assessment of Emerging Reliability Risks
- Identification and Reduction of Cyber and Physical Security Risks
- Effective and Efficient Operations

Ongoing Focus on Effectiveness and Efficiency

NERC and the Regional Entities continue to collaborate to improve effectiveness and efficiency, evaluate resources, and leverage combined skillsets to improve ERO Enterprise activities and control costs. This collaboration and resulting efficiencies can be found in a number of areas. In 2019, the near-term focus was on the following:

- **Stakeholder Engagement** – As the ERO Enterprise has matured, a future state of stakeholder engagement is needed to (1) pivot quickly and refocus resources rapidly; (2) bring multi-disciplined teams together to develop complete solutions; (3) leverage scarce talent to solve problems and maximize return; and (4) work collaboratively to solve problems. A Stakeholder Engagement Team has been formed to review the existing NERC technical committee structure, drawing upon the experience of successfully enhanced Regional Entity committee models, and develop recommendations to improve the effectiveness and efficiency of the committees.
- **Compliance Monitoring and Enforcement Program (CMEP)** – NERC and the Regional Entities are concentrating on the following areas: (1) efficiency in data gathering and analysis tools, especially through the implementation of the Align application; (2) continued implementation of risk-based compliance monitoring; (3) outreach and education describing how the ERO Enterprise executes its compliance monitoring responsibilities; and (4) identifying ways to further streamline the resolution of minimal risk noncompliance. For more information on Align, see the Align Project page on the NERC website.
- **Standards Efficiency** – NERC is continuing the project to evaluate NERC Reliability Standards using a risk-based approach to identify potential efficiencies through retirement or modification of Reliability Standard Requirements. For more information, see the Standards Efficiency Review page on the NERC website.

Additional information on long-term and ongoing effectiveness and efficiency goals can be found in the *ERO Enterprise Long-Term Strategy*.

2020 Business Plan and Budget Summary

NERC and the Regional Entities use the planning processes discussed above to guide the development of their respective BP&Bs, evaluating their projected workloads and determining resource levels and allocation required to complete necessary tasks and meet their statutory obligations. In this BP&B document, *Exhibit A – Application of NERC Section 215 Criteria,* summarizes the major activities NERC proposes to undertake in 2020 and the approved FPA Section 215 criteria applicable to such activities.[6]

Budget Reporting Format and Presentation Changes

NERC and the Regional Entities' budgets are comprised of both operating and fixed asset (capital) costs. Operating costs generally include personnel, contractor support, consulting, meetings and travel, office space, software licensing, communications, and other customary services to support office operations. Fixed asset costs primarily reflect investments in equipment and software to support operations, including investments in the development of software applications and infrastructure to facilitate improved business processes and efficiency. These operating and fixed asset costs, as well as corresponding funding, are shown in a Statement of Activities and Fixed Asset Expenditures report, which is provided at both the total entity and departmental levels. These reports include funding and expenses for the current budget year and prior budget year to show year-over-year changes.

Workshop and Event Fees

Starting with its 2020 budget, NERC will no longer include workshop or event fees as a revenue funding line item, but instead account for this income in meeting expenses as an offset to costs. This supports the goal of providing a total budget amount (and annual budget percentage increase) that more closely reflects the amount of annual revenues required from assessments. In this 2020 BP&B, the 2019 workshop funding line has been removed and meeting expenses have been restated for comparable reporting.

Organizational Changes

In late 2018, NERC management went through an organizational assessment involving various program areas and re-characterized several positions and departments. The changes had no effect on the total full-time equivalents (FTEs), and the net cost impact of these movements was immaterial; however, the changes affect 2020 versus 2019 budget comparisons at the departmental level for several areas. Therefore, certain departmental budget reports have been consolidated for more comparable reporting.

Continuing Education Program

The expenses for program activities and funding from testing fees for the System Operator Certification program, which is addressed by ROP Section 600 and governed by the Personnel Certification and Governance Committee (PCGC), are budgeted to NERC's Personnel Certification department. The Continuing Education (CE) program for System Operators, addressed by ROP Section 902, has historically not been governed by the PCGC, and the associated program activities and testing fee funding has been budgeted to NERC's Training and Education department. In 2019, as part of the effectiveness and efficiency efforts to evaluate NERC's committee structure discussed above, NERC and members of the Stakeholder Engagement Team evaluated and are proposing, subject to Board and FERC approval, to move the governance of the CE program and budget to the PCGC (which may require amendments to the NERC Bylaws and ROP). As a result, the 2020 budget reflects the anticipated move of CE program expenses and funding from the Training and Education budget to the Personnel Certification budget.

Reclassifications

From time to time, the organization will evaluate accounting policies and classifications and make changes. NERC's 2020 budget reflects an evaluation and resulting reclassification of certain expenses

[6] North American Electric Reliability Corporation, Order on Compliance, 143 FERC ¶ 61,052 (2013).

between departments or expense categories. Most notably, a number of software maintenance and support expenditures classified as Consultants and Contracts have been reclassified to the Software Licenses and Support line item under Office Costs. This is reflected as an increase in Office Costs and decrease in Consultants and Contracts expenses accordingly.

Statement of Activities and Fixed Asset Expenditures Report Changes

Beginning with the 2020 BP&Bs, NERC and the Regional Entities are implementing format revisions to the presentation of the Statement of Activities and Fixed Asset Expenditures report. These revisions are to ensure that NERC and the Regional Entities report information consistently from new accounting standards (e.g., leasing standards and right-of-use assets), provide enhanced transparency of financing activity (e.g., debt borrowing, leased-financed asset purchases, and principal payments), if applicable, and streamline sections of the report related to non-cash expenses (primarily depreciation and amortization). The goal of the new format is to improve the effectiveness of the report to the reader and to provide a total budget amount that more closely reflects the amount of annual revenues required from assessments and other funding sources. One of the more notable format revisions is that the reports will no longer show an expense item for depreciation and an equal and offsetting credit for depreciation in fixed asset activity (which resulted in depreciation having no impact on funding requirements or actual results).

As a result of these changes, in this 2020 BP&B document the 2019 budget has been restated to reflect the new reporting format when comparing 2020 to 2019 to show the year-over-year budget changes on a comparable basis. As such, depreciation expense has been removed from the 2019 operating expense budgets and projections, and the equal credit of depreciation expense has been removed from the 2019 fixed asset activity budgets and projections.

Overview of 2020 Budget and Funding Requirements

NERC's 2020 expense and fixed asset budget is approximately $83.4M, which represents an increase of approximately $3.6M (4.5%) from the 2019 budget. Total expenses are increasing approximately $3.6M (4.8%) over 2019. The total fixed asset budget is approximately $4.7M, a decrease of $72k (1.5%) from 2019. Approximately $8.8M (10.5%) of NERC's 2020 budget is related to CRISP, with the majority of the CRISP budget funded by participating utilities, with a small portion funded through assessments.

NERC's proposed 2020 assessment is approximately $72.0, which represents an increase of $3.1M (4.5%) from 2019. Factors contributing to the difference between the proposed budget increase and the proposed assessment increase include debt (capital financing) assumptions and other funding, such as from CRISP. Additionally, the allocation of assessments to Canadian entities will reflect the final determination and allocation of certain compliance and enforcement costs to Canadian entities pursuant to *NERC's Expanded Policy on Allocation of Certain Compliance and Enforcement Costs*.

ROP Section 1107.2 specifies that penalties received from July 1 through the following June 30 will offset U.S. assessments in the subsequent budget period. In 2015, the Board and FERC approved the creation of the Assessment Stabilization Reserve, which was established to narrow the gap between annual budget and assessment percentage changes that result from year-to-year variations in penalty collections. This reserve is funded with penalty funds and surplus operating reserves. The actual amount of the contribution, as well as releases from the fund to reduce assessments, are determined as part of NERC's BP&B process. For 2019, the assessment included a $550k transfer from the Assessment Stabilization Reserve. Management believes that due to reduced debt service, increased interest income, and a surplus of working capital, a release of funds from the Assessment Stabilization Reserve is not necessary in 2020.

The following table provides a high-level year-over-year comparison of the major categories of expenses, total budget, and FTEs.

Statement of Activities and Fixed Asset Additions 2019 and 2020 Budgets
STATUTORY

	2019 Budget	2019 Projection	Variance 2019 Projection v 2019 Budget Over(Under)	2020 Budget	Variance 2020 Budget v 2019 Budget Over(Under)	% Over (Under)
Funding						
ERO Funding						
NERC Assessments	$ 68,883,995	$ 68,883,995	$ -	$ 72,011,373	$ 3,127,378	4.5%
Assessment Stabilization Reserve - Penalties	550,000	550,000	-	-	(550,000)	
Third-Party Funding (CRISP)	7,486,353	7,338,907	(147,446)	7,814,577	328,224	
Testing Fees	1,790,000	1,715,000	(75,000)	1,735,000	(55,000)	
Services & Software	40,000	40,000	-	60,000	20,000	
Miscellaneous	-	260	260	-	-	
Interest & Investment Income	185,000	544,854	359,854	386,000	201,000	
Total Funding (A)	**$ 78,935,349**	**$ 79,073,016**	**$ 137,668**	**$ 82,006,951**	**$ 3,071,602**	**3.9%**
Expenses						
Personnel Expenses	$ 43,952,190	$ 44,389,285	$ 437,095	$ 46,598,160	$ 2,645,970	6.0%
Meeting Expenses	3,185,400	3,433,050	247,651	3,323,250	137,850	4.3%
Operating Expenses, excluding Depreciation	27,724,893	28,581,088	856,195	28,533,094	808,200	2.9%
Other Non-Operating	214,171	139,971	(74,200)	256,623	42,452	19.8%
Total Expenses (B)	**$ 75,076,655**	**$ 76,543,395**	**$ 1,466,740**	**$ 78,711,127**	**$ 3,634,472**	**4.8%**
Fixed Asset Additions, excluding Right of Use Assets (C)	**$ 4,778,000**	**$ 3,847,990**	**$ (930,010)**	**$ 4,706,349**	**$ (71,651)**	**-1.5%**
Total Budget (=B+C)	**$ 79,854,655**	**$ 80,391,385**	**$ 536,730**	**$ 83,417,476**	**$ 3,562,821**	**4.5%**
FTEs	**204.92**	**202.16**	**(2.76)**	**213.38**	**8.46**	**4.1%**

Key Budget Assumptions

Key assumptions used in the development of NERC's 2020 budget include the following:

- **A net increase to headcount of 9 (8.46 FTEs).** This reflects an increase of 7 additional positions for the E-ISAC directly and 3 positions in corporate areas in support of the E-ISAC long-term strategy. This also reflects an increase of 2 corporate support positions resulting from contractor conversions for critical roles (increase in personnel costs and reduction in consultants and contracts expenses, with a slight savings). This increase of 12 positions is offset by a decrease of 3 positions in the rest of NERC operations, resulting in a net increase of 9 positions. A 6.0% reduction to FTEs (vacancy rate) is applied to account for attrition and hiring delays, which is the same as 2019. FTEs by department are discussed later in this section.
- **Investment for the third year of the E-ISAC long-term strategy.** While the FTE increase for the E-ISAC discussed above accounts for the majority of the budget increase for E-ISAC, the strategy also calls for investment in technology, including new tools for data management, continued investment in E-ISAC portal enhancements, and contractors for overall technology support. The E-ISAC long-term strategy is discussed further below.
- **Investments in technology and tools.** This includes funding for the last year of development for the Align Project (also referred to as ALIGN or the CMEP Technology Project), planned enhancements to the Centralized Organization Registration ERO System (CORES), and maintenance and enhancements to a suite of data management tools for grid performance analysis. These projects and tools are discussed further below.
- **Market-based compensation for personnel and medical and dental benefit plan costs**. Personnel costs are increasing $2.6M (6.0%), which reflects (1) the addition to headcount discussed above, (2) a 3.0% increase over actual 2019 base salaries for merit adjustments and, as directed by the Board, up to 0.5% for equity and market adjustments, and (3) anticipated increases for medical and dental benefit plan costs. Executive and staff compensation and benefits are established based on guidelines established by the Board's Corporate Governance

and Human Resources Committee (CGHRC) and the results of market compensation and benefit studies, most recently completed in late 2017. Medical and dental premium cost estimates are based on market data provided by the company's benefits consultant. No other changes to retirement or other benefit plans have been assumed for 2020.

E-ISAC Long-Term Strategy

Over the past several years the E-ISAC has focused on improving its technical and analytical capabilities with the goal of becoming the electricity industry's leading, trusted source for analysis and sharing of security information. Significant support from the Electricity Subsector Coordinating Council (ESCC), the ESCC Members Executive Committee (MEC), the DOE, and other stakeholders have helped the E-ISAC provide the industry with unique insights, leadership, and coordination on security matters. For more information on the E-ISAC, see the E-ISAC website.

At the request of the Board and under the guidance of the ESCC and MEC, executive leadership of the E-ISAC developed the *E-ISAC Long-Term Strategic Plan*, which was approved by the MEC on April 24, 2017 and accepted by the Board on May 11, 2017. This long-term strategic plan includes a five-year resource plan to transform the E-ISAC into a world-class intelligence collecting and analytical capability for the electricity industry. To implement this vision, the E-ISAC is undertaking a deliberate growth strategy that increases both staff and technical resources. Based on industry and stakeholder feedback, the 2020 BP&B includes the third year's recommended resource and technology additions related to this strategy, primarily related to watch operations, analytical capabilities, and engagement. See the *Electricity Information Sharing and Analysis Center* section of Section A for further information.

Align and CORES Projects

Since 2014, NERC has been working closely with the Regional Entities to evaluate and implement strategic investments in tools that will replace the current three CMEP and Registration data applications used among NERC and the Regional Entities with single, common applications, known as Align for CMEP and CORES for Registration.

The objectives and benefits of the Align project include (1) a single common portal and experience for registered entities; (2) improved integration of and access to data, as well as increased analytics; and (3) standardized business processes and consistent application of the CMEP, resulting in increased productivity and reduced application costs across the ERO Enterprise. There will be a release in 2019 that will support self-reporting, self-logging, enforcement, and mitigation. There will be two more releases in 2020, the final development year, which will support Compliance Assurance activities. For more information, see the Align Project page on the NERC website.

CORES similarly creates consistent Regional Entity and registered entity processes and improves data maintenance, including capturing data elements to be integrated with the Align application. Additionally, registered entities are able to directly manage their registration needs. The initial release of CORES is scheduled by the end of 2019, with further enhancements planned for 2020. For more information, see the CORES Technology Project page on the NERC website.

Data Management Technology and Tools

NERC is responsible for the collection, management, and analysis of data related to the performance of BPS operations. The tools used to collect and manage the data for these analyses include the Generating Availability Data System (GADS), Transmission Availability Data System (TADS), Demand Response Availability Data System (DADS), Reliability Assessment Data System (RADS), the Balancing Authority Submittal Site (BASS), as well as data management tools related to the areas of misoperations, event analysis, and situational awareness. NERC also recently developed a software tool for the collection of

wind data for GADS as a result of a ROP Section 1600 data request.[7] NERC is also working to develop a link between performance and event analysis data to enhance its ability to conduct effective event analyses, as well as to identify key areas for trend analyses across multiple databases. As the grid evolves, the ability to collect and the quality and integration of data become increasingly important, requiring continued investment in enhancements to and maintenance of the suite of data management tools. NERC also continues to develop technology applications for the collection of new data under Section 1600 data requests. This includes the collection of Geomagnetic Disturbance (GMD) data, as directed by FERC Order 830 and approved by the Board on August 16, 2018. Additionally, NERC expects to work with industry on a Section 1600 data request for the collection of data for solar energy storage associated with solar and wind generation, as well as event reporting for solar and wind generation. For more information, see the *Reliability Assessment and Performance Analysis* section of Section A.

Fixed Asset (Capital) Budget and Capital Financing

NERC's 2020 fixed asset budget is approximately $4.7M, which represents a decrease of $72k from 2019. This decrease is primarily due to reduced spending on ERO Enterprise software projects. The fixed asset budget for 2020 includes:

- Capital ERO Enterprise and NERC software development and enhancements, including the final development year for Align, as well as enhancements to CORES, the E-ISAC Portal, and the GADS, TADS, and DADS database systems;
- Information Technology equipment, including hardware servers, storage, disaster recovery, and network devices, as well as an upgrade to the video wall in the NERC Atlanta office situational awareness room; and
- Leasehold improvements for office and meeting space enhancements for the NERC Atlanta office.

A detailed breakdown by category is provided in Table B-12 – Fixed Assets.

Approximately $2.0M of the $4.7M in fixed asset expenditures is related to the planning, design, and implementation of software applications supporting ERO Enterprise tools. Of the $2.0M, approximately $1.8M relates to the final development year of the Align application.[8] The remaining $200k is for planned enhancements to CORES after the initial release in 2019. The 2020 budget assumes that this $2.0M expenditure will be financed through the capital financing program described in and put in place as part of NERC's 2014 BP&B. Further information regarding capital financing can be found in *Exhibit C – Capital Financing*.

Program Budget and FTE Comparisons

The following table shows a 2020 versus 2019 total budget comparison by program area. The amounts reflect all direct and indirect departmental costs, including fixed asset costs. Costs incurred for general and administrative and other overheads are considered indirect and are allocated to the statutory departments based on the ratio of that department's budgeted FTEs to total budgeted statutory FTEs.

[7] In accordance with ROP Section 1600, NERC may request data or information from registered entities that is necessary to meet NERC's obligations under Section 215 of the FPA.

[8] The total capital expenditure for Align is expected to be approximately $5.0–6.0M, with work spanning from 2017 through 2020.

2020 versus 2019 Total Budget by Program

Total Budget	2019 Budget	2020 Budget	Increase (Decrease)	
Reliability Standards	$ 6,676,078	$ 8,249,572	$ 1,573,494	23.6%
CMEP*	20,801,651	19,017,673	(1,783,978)	-8.6%
RAPA*	13,232,197	13,122,303	(109,893)	-0.8%
Event Anlaysis	5,299,268	4,733,857	(565,411)	-10.7%
Situation Awareness	4,296,209	4,256,006	(40,203)	-0.9%
Personnel Certification	1,043,763	1,738,288	694,525	66.5%
Training and Education	1,179,862	1,014,986	(164,876)	-14.0%
NERC Budget, excluding E-ISAC	**$ 52,529,028**	**$ 52,132,685**	**$ (396,342)**	**-0.8%**
E-ISAC (non-CRISP)	$ 18,281,920	$ 22,488,636	$ 4,206,716	23.0%
E-ISAC (CRISP)	9,043,707	8,796,155	(247,552)	-2.7%
Total E-ISAC Budget	**$ 27,325,627**	**$ 31,284,791**	**$ 3,959,164**	**14.5%**
Total Budget	**$ 79,854,655**	**$ 83,417,476**	**$ 3,562,821**	**4.5%**

**Includes key technology application costs, including Align, CORES, and data management tool enhancements.*

The primary areas of increase are in E-ISAC, Reliability Standards, and Personnel Certification. The E-ISAC increase reflects the additional staff related to the E-ISAC long-term strategy discussed above. Also as discussed above, the increases in Reliability Standards and Personnel Certification are a result of the department and position reorganization and the movement of the CE program, respectively.

The decrease in CMEP is the result of the reduction or reallocation of FTEs to other program areas, which also results in lower allocations of indirect costs and fixed assets from Administrative Services to the CMEP departments. Similarly, the decrease in Event Analysis is due to the reallocation of FTEs as a result of the reorganization, and the Training and Education decrease reflects the movement of the CE program to Personnel Certification.

The following table presents a 2020 versus 2019 comparison of budgeted FTEs by department and reflects 2020 personnel additions, interdepartmental transfers of previously budgeted positions, and attrition assumptions. The number of FTEs represents the number of employees employed full time during the year, plus the number of employees employed part time (less than full schedule) or during a portion of the year, converted to a full-time basis. Headcount represents the total number of personnel employed at any point in time. NERC's 2020 personnel budget is based upon a targeted headcount, associated compensation and benefit costs, and an assumed vacancy rate. The vacancy rate accounts for attrition and for variations from the budget assumptions on the timing of new hires.

2020 versus 2019 FTEs by Department

FTEs*	2019 Budget	2020 Budget	Increase(Decrease)	
Reliability Standards	14.57	17.86	3.29	22.6%
CMEP	39.01	33.84	(5.17)	-13.3%
RAPA	25.38	23.50	(1.88)	-7.4%
Event Anlaysis	11.28	9.40	(1.88)	-16.7%
Situation Awareness	5.64	5.64	-	0.0%
Personnel Certification	1.88	2.82	0.94	50.0%
Training and Education	1.88	1.88	-	0.0%
Administrative Programs	67.68	74.26	6.58	9.7%
NERC FTEs, excluding E-ISAC	**167.32**	**169.20**	**1.88**	**1.1%**
E-ISAC (non-CRISP)	33.84	41.36	7.52	22.2%
E-ISAC (CRISP)	3.76	2.82	(0.94)	-25.0%
Total E-ISAC FTEs	**37.60**	**44.18**	**6.58**	**17.5%**
Total FTEs	**204.92**	**213.38**	**8.46**	**4.1%**

**Reflects 2020 additions and transfers between departments, anticipated timing of 2020 hires, and assumes 6% attrition in all programs*

The Administrative Programs encompass a number of necessary support functions, including Information Technology, Legal and Regulatory, Finance and Accounting, and Human Resources and Administration. It also includes General and Administrative functions, which include the CEO, the Chief Reliability Officer (CRO), and their support staff, as well as Policy & External Affairs staff. For FERC and external reporting purposes, these programs are allocated as indirect expenses to the operating areas on a per FTE basis.
For 2020, NERC is budgeting an increase of 10 positions in support of the E-ISAC long-term strategy, which includes 7 positions in the E-ISAC and 3 in Administrative Programs. NERC is also budgeting for an increase of an additional 2 positions in Administrative Programs resulting from contractor conversions (increase in personnel costs and reduction in consultants and contracts expenses, with a slight savings) for critical roles related to the Align application and audio video and facility security coordination. There will also be a decrease of 3 open positions in the remaining NERC departments. This results in a total net increase of 9 positions (8.46 FTEs after application of the 6% attrition factor) in 2020. The table above reflects the addition, reduction, and reallocations of staff. Currently, the proposed eliminations of 3 open positions are in the Compliance Assurance department. Overall resource allocations are subject to continual strategic evaluation.

The 2020 organizational chart can be found in Appendix 1. The difference between the number of positions reflected and total FTEs is due to assumptions regarding vacancy rates and timing of new hires.

Reserves

NERC is proposing an overall reserve budget of $8.8M across all categories of reserves. This represents a decrease of $247k (2.9%) from the total reserve amounts included in NERC's 2019 budget. The reserve categories are as follows:

- **Future Obligation Reserve** – Includes funding that has been received to satisfy future obligations under lease, credit, loan, or other agreements to which the company is a party. This reserve is budgeted to be $1.6M for 2020.
- **System Operator Certification Reserve** – Includes surplus funding from operator certification and testing fees that are above incurred expenses and shall be used solely to support operator testing and certification needs. The 2020 System Operator Certification Reserve is budgeted at $442k and comprised primarily of existing funds.
- **CRISP Reserve** – Represents funds dedicated to support CRISP. These reserves are established pursuant to a CRISP budget agreed to and funded entirely by utilities participating in CRISP. These reserves have no impact on assessments and are segregated from other reserves pursuant to the terms of the CRISP agreements. The CRISP reserves are projected to be $500k in the 2020 budget.
- **Operating Contingency Reserve** – Includes both general working capital funds resulting from day to day operations, and additional funds for contingencies that were not anticipated. NERC's current policy on Operating Contingency Reserves requires a reserve target of 3.5–7.0%, except as otherwise approved by the Board after review and recommendation by the Board Finance and Audit Committee (FAC). This percentage is calculated against NERC's total budget for operating and capital expenditures, less those costs related to CRISP and System Operator Certification, each of which has a separate reserve category. NERC is proposing to use $650k of the Operating Contingency Reserve for funding for the 2020 budget, resulting in an assumed Operating Contingency Reserve of approximately $4.7M, which is 6.5% of total budgeted operating and fixed asset (capital) costs.
- **Assessment Stabilization Reserve** – To date, this reserve has been funded entirely by previously received penalties and is projected to have a balance of $1.5M as of January 1, 2020. For the 12 months ended June 30, 2019, NERC collected no penalties. For purposes of the company's 2020 BP&B, NERC is not currently proposing any release of Assessment Stabilization Reserve funds to offset U.S. assessments. The Assessment Stabilization Reserve will be used to reduce U.S. assessments in one or more future periods in the applicable year's BP&B, subject to review and approval by the Board and FERC.

The following table is a statement of activities and fixed asset expenditures comparing the 2019 budget, 2019 projection, and 2020 budget.

Statement of Activities and Fixed Asset Additions 2019 and 2020 Budgets

STATUTORY

	2019 Budget	2019 Projection	Variance 2019 Projection v 2019 Budget Over(Under)	2020 Budget	Variance 2020 Budget v 2019 Budget Over(Under)	% Inc 2020 over 2019
Funding						
ERO Funding						
NERC Assessments	$ 68,883,995	$ 68,883,995	$ -	$ 72,011,373	$ 3,127,378	**4.5%**
Assessment Stabilization Reserve - Penalties	550,000	550,000	-	-	(550,000)	
Total NERC Funding	**$ 69,433,995**	**$ 69,433,995**	**$ -**	**$ 72,011,373**	**$ 2,577,378**	
Third-Party Funding (CRISP)	$ 7,486,353	$ 7,338,907	$ (147,446)	$ 7,814,577	$ 328,224	
Testing Fees	1,790,000	1,715,000	(75,000)	1,735,000	(55,000)	
Services & Software	40,000	40,000	-	60,000	20,000	
Miscellaneous	-	260	260	-	-	
Interest & Investment Income	185,000	544,854	359,854	386,000	201,000	
Total Funding (A)	**$ 78,935,349**	**$ 79,073,016**	**$ 137,668**	**$ 82,006,951**	**$ 3,071,602**	**3.9%**
Expenses						
Personnel Expenses						
Salaries	$ 33,810,276	$ 34,326,066	$ 515,790	$ 35,462,611	$ 1,652,335	
Payroll Taxes	2,044,880	1,978,045	(66,835)	2,113,486	68,606	
Benefits	4,673,208	4,839,986	166,779	5,420,461	747,254	
Retirement Costs	3,423,826	3,245,187	(178,639)	3,601,601	177,776	
Total Personnel Expenses	**$ 43,952,190**	**$ 44,389,285**	**$ 437,095**	**$ 46,598,160**	**$ 2,645,970**	**6.0%**
Meeting Expenses	**$ -**					
Meetings & Conference Calls	$ 1,001,400	$ 1,180,636	$ 179,236	$ 1,112,250	$ 110,850	
Travel	2,184,000	2,252,414	68,414	2,211,000	27,000	
Total Meeting Expenses	**$ 3,185,400**	**$ 3,433,050**	**$ 247,651**	**$ 3,323,250**	**$ 137,850**	**4.3%**
Operating Expenses, excluding Depreciation						
Consultants & Contracts	$ 15,043,318	$ 15,579,153	$ 535,835	$ 12,435,902	$ (2,607,416)	
Office Rent	3,335,058	3,305,058	(30,000)	3,450,468	115,410	
Office Costs	6,506,917	6,921,753	414,835	10,052,374	3,545,456	
Professional Services	2,757,600	2,666,131	(91,469)	2,511,600	(246,000)	
Miscellaneous	82,000	108,993	26,993	82,750	750	
Total Operating Expenses, excluding Depreciation	**$ 27,724,893**	**$ 28,581,088**	**$ 856,195**	**$ 28,533,094**	**$ 808,200**	**2.9%**
Total Direct Expenses	**$ 74,862,484**	**$ 76,403,424**	**$ 1,540,940**	**$ 78,454,504**	**$ 3,592,020**	**4.8%**
Indirect Expenses	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	
Other Non-Operating Expenses	**$ 214,171**	**$ 139,971**	**$ (74,200)**	**$ 256,623**	**$ 42,452**	**19.8%**
Total Expenses (B)	**$ 75,076,655**	**$ 76,543,395**	**$ 1,466,740**	**$ 78,711,127**	**$ 3,634,472**	**4.8%**
Change in Net Assets (=A-B)	**$ 3,858,694**	**$ 2,529,622**	**$ (1,329,072)**	**$ 3,295,824**	**$ (562,870)**	
Fixed Asset Additions, excluding Right of Use Assets (C)	**$ 4,778,000**	**$ 3,847,990**	**$ (930,010)**	**$ 4,706,349**	**$ (71,651)**	**-1.5%**
Total Budget (=B+C)	**$ 79,854,655**	**$ 80,391,385**	**$ 536,730**	**$ 83,417,476**	**$ 3,562,821**	**4.5%**
Change in Working Capital (=A-B-C)*	**$ (919,306)**	**$ (1,318,368)**	**$ (399,063)**	**$ (1,410,525)**	**$ (491,219)**	
FTEs	**204.92**	**202.16**	**(2.76)**	**213.38**	**8.46**	**4.1%**

* *Refer to Table B-1 for a complete analysis of the Working Capital and Operating Reserve balance.*

As mentioned previously, one of the changes to the Statement of Activities and Fixed Asset Expenditures report is related to providing enhanced transparency of financing activity (e.g., debt borrowing, leased-financed asset purchases, and principal payments). As discussed above, NERC has a capital financing program for major software development projects that benefit the ERO Enterprise. Additionally, NERC has a lease program for certain IT equipment.

Financing activity affects cash flow and annual assessments, which is shown as part of the Operating Reserve and Assessment Analysis (see Table B-1). Beginning in 2020, NERC will report financing activity in a new section on the Statement of Activities and Fixed Asset Expenditures report, which allows for a total budget that more closely reflects the amount of annual revenues required from assessments. This section and its effects are shown below for the 2020 budget; variance reporting for 2020 and future budgeting will be shown in this format.

Statement of Activities and Fixed Asset Additions 2020 Budget

STATUTORY

	2020 Budget
Funding	
ERO Funding	
NERC Assessments	$ 72,011,373
Assessment Stabilization Reserve - Penalties	-
Total NERC Funding	**$ 72,011,373**
Third-Party Funding (CRISP)	$ 7,814,577
Testing Fees	1,735,000
Services & Software	60,000
Miscellaneous	-
Interest & Investment Income	386,000
Total Funding (A)	**$ 82,006,951**
Expenses	
Personnel Expenses	
Salaries	$ 35,462,611
Payroll Taxes	2,113,486
Benefits	5,420,461
Retirement Costs	3,601,601
Total Personnel Expenses	**$ 46,598,160**
Meeting Expenses	
Meetings & Conference Calls	$ 1,112,250
Travel	2,211,000
Total Meeting Expenses	**$ 3,323,250**
Operating Expenses, excluding Depreciation	
Consultants & Contracts	$ 12,435,902
Office Rent	3,450,468
Office Costs	9,102,374
Professional Services	2,511,600
Miscellaneous	82,750
Total Operating Expenses, excluding Depreciation	**$ 27,583,094**
Total Direct Expenses	**$ 77,504,504**
Indirect Expenses	**$ -**
Other Non-Operating Expenses	**$ 306,623**
Total Expenses (B)	**$ 77,811,127**
Change in Net Assets (=A-B)	**$ 4,195,824**
Fixed Asset Additions, excluding Right of Use Assets (C)	**$ 4,706,349**
Financing Activity	
Loan or Financing Lease - Borrowing (-)	$ (1,338,000)
Loan or Financing Lease - Principal Payments (+)	1,477,558
Net Financing Activity (D)	**$ 139,558**
Total Budget (=B+C+D)	**$ 82,657,034**
Change in Working Capital (=A-B-C-D)	**$ (650,083)**
FTEs	**213.38**

Projections for 2021–2022

Management is currently developing preliminary operating and fixed asset projections for 2021 and 2022. Significant assumptions considered in preparing these projections include:

- No increase in total FTEs over the 2020 budget, except for E-ISAC long-term strategy impacts;
- Personnel and benefit cost increases are consistent with 2020 assumptions;
- Meeting and travel costs are reduced due to anticipated savings from more onsite meetings as a result of Atlanta office modifications;
- Fixed asset expenditures are decreasing due to the completion of the development of the Align and CORES applications; savings for application costs (i.e., software licenses, maintenance, and support) will be realized in future Regional Entity budgets as they transition from their legacy CMEP systems to the centralized tools;
- There will be continued investment in enhancements to and maintenance of the suite of data management tools to support advanced analytics;
- Debt service repayment obligations in connection with the company's Capital Financing Program are consistent with the projected IT applications capital forecast; and
- E-ISAC budget increases in 2021 and 2022 will represent the vast majority of projected increases in the total NERC budget. The current budget projections for E-ISAC, including CRISP, for 2021 and 2022 are $34.6M and $37.4M, respectively. These increased budget projections are primarily driven by planned headcount additions and strategic program initiatives.

Currently, NERC projects a total budget increase versus the prior year of 4.5% in 2020, 2.8% in 2021, and 4.0% in 2022. Assessments are budgeted to increase 4.5% in 2020 and projected to increase 5.6% in 2021 and 5.9% in 2022, excluding any release of Assessment Stabilization Reserve funds. The assessment increase for 2020 does not include any proposed release from the Assessment Stabilization Reserve. The budget and assessment increases for 2020 and 2021 are projections that will be refined as those budgets are finalized.

Statement of Activities and Fixed Asset Additions
2020 Budget & Projected 2021 and 2022 Budgets

	2020 Budget	2021 Projection	$ Change 21 vs 20	% Change 21 vs 20	2022 Projection	$ Change 22 vs 21	% Change 22 vs 21
Funding							
ERO Funding							
NERC Assessments	$ 72,011,373	$ 76,048,625	$ 4,037,251	5.6%	$ 80,562,249	$ 4,513,624	5.9%
Assessment Stabilization Reserve - Penalties	-	-	-	0.0%	-	-	0.0%
Total NERC Funding	**$ 72,011,373**	**$ 76,048,625**	**$ 4,037,251**	**5.6%**	**$ 80,562,249**	**$ 4,513,624**	**5.9%**
Third-Party Funding	$ 7,814,577	$ 7,847,311	$ 32,734	0.4%	$ 8,059,943	$ 212,632	2.7%
Testing Fees	1,735,000	1,735,000	-	0.0%	1,735,000	-	0.0%
Services & Software	60,000	60,000	-	0.0%	60,000	-	0.0%
Miscellaneous	-	-	-	0.0%	-	-	0.0%
Interest & Investment Income	386,000	386,000	-	0.0%	386,000	-	0.0%
Total Funding (A)	**$ 82,006,951**	**$ 86,076,936**	**$ 4,069,985**	**5.0%**	**$ 90,803,192**	**$ 4,726,256**	**5.5%**
Expenses							
Personnel Expenses							
Salaries	$ 35,462,611	$ 37,771,413	$ 2,308,802	6.5%	$ 40,122,984	$ 2,351,571	6.2%
Payroll Taxes	2,113,486	2,219,024	105,538	5.0%	2,324,317	105,293	4.7%
Benefits	5,420,461	6,116,708	696,247	12.8%	6,832,331	715,623	11.7%
Retirement Costs	3,601,601	3,842,989	241,388	6.7%	4,088,796	245,806	6.4%
Total Personnel Expenses	**$ 46,598,160**	**$ 49,950,135**	**$ 3,351,975**	**7.2%**	**$ 53,368,428**	**$ 3,418,293**	**6.8%**
Meeting Expenses							
Meetings & Conference Calls	$ 1,112,250	$ 1,015,950	$ (96,300)	-8.7%	$ 1,015,950	$ -	0.0%
Travel	2,211,000	2,186,000	(25,000)	-1.1%	2,186,000	-	0.0%
Total Meeting Expenses	**$ 3,323,250**	**$ 3,201,950**	**$ (121,300)**	**-3.7%**	**$ 3,201,950**	**$ -**	**0.0%**
Operating Expenses, excluding Depreciation							
Consultants & Contracts	$ 12,435,902	$ 12,494,816	$ 58,914	0.5%	$ 12,486,108	$ (8,708)	-0.1%
Office Rent	3,450,468	3,551,445	100,977	2.9%	3,742,205	190,760	5.4%
Office Costs	10,052,374	10,381,480	329,106	3.3%	10,606,350	224,870	2.2%
Professional Services	2,511,600	2,477,221	(34,379)	-1.4%	2,456,600	(20,621)	-0.8%
Miscellaneous	82,750	82,750	-	0.0%	82,750	-	0.0%
Total Operating Expenses, excluding Depreciation	**$ 28,533,094**	**$ 28,987,712**	**$ 454,618**	**1.6%**	**$ 29,374,013**	**$ 386,301**	**1.3%**
Total Direct Expenses	**$ 78,454,504**	**$ 82,139,796**	**$ 3,685,293**	**4.7%**	**$ 85,944,391**	**$ 3,804,594**	**4.6%**
Indirect Expenses	**$ -**	**$ -**	**$ -**	**0.0%**	**$ -**	**$ -**	**0.0%**
Other Non-Operating Expenses	**$ 256,623**	**$ 345,667**	**$ 89,044**	**34.7%**	**$ 337,641**	**$ (8,026)**	**-2.3%**
Total Expenses (B)	**$ 78,711,127**	**$ 82,485,463**	**$ 3,774,337**	**4.8%**	**$ 86,282,032**	**$ 3,796,568**	**4.6%**
Change in Net Assets (=A-B)	**$ 3,295,824**	**$ 3,591,472**	**$ 295,648**	**9.0%**	**$ 4,521,160**	**$ 929,688**	**25.9%**
Fixed Asset Additions, excluding Right of Use Assets (C)	**$ 4,706,349**	**$ 3,274,349**	**$ (1,432,000)**	**-30.4%**	**$ 2,874,349**	**$ (400,000)**	**-12.2%**
Total Budget (=B+C)	**$ 83,417,476**	**$ 85,759,813**	**$ 2,342,337**	**2.8%**	**$ 89,156,381**	**$ 3,396,568**	**4.0%**
FTEs	**213.38**	**220.90**	**7.52**	**3.5%**	**228.42**	**7.52**	**3.4%**

Reliability Standards and Power Risk Issue Strategic Management

NERC has an Engineering and Standards department that consolidates NERC's technical resources together and provides engineering services to support the overall needs of the organization. Two groups in this department are focused specifically on the development and improvement of Reliability Standards: the Reliability Standards group and the Power Risk Issues and Strategic Management (PRISM) group.

Reliability Standards and Power Risk Issue Strategic Management (in whole dollars)	2019 Budget	2020 Budget	Increase (Decrease)
Total FTEs	14.57	17.86	3.29
Direct Expenses	$ 3,059,581	$ 3,865,292	$ 805,710
Indirect Expenses	3,208,828	4,206,476	997,648
Other Non-Operating Expenses	-	-	-
Fixed Asset Additions	407,669	177,804	(229,864)
TOTAL BUDGET	$ 6,676,078	$ 8,249,572	$ 1,573,494

Background and Scope

The Reliability Standards program carries out the ERO's statutory responsibility to develop, adopt, obtain approval of, and modify (as and when appropriate) mandatory NERC Reliability Standards (both continent-wide standards and regional reliability standards) to assure the BES is planned, operated, maintained, and secured to minimize risks of cascading failures, avoid damage to major equipment, or limit interruptions of the BPS. The purpose of the Reliability Standards group is to deliver high-quality risk-based Reliability Standards, facilitate continent-wide industry engagement, and support regulatory filings.

The overarching purpose of the PRISM group is to leverage in-house expertise on Reliability Standards and standards development to implement cross-cutting efforts among NERC functions and NERC standing and technical committees. Particular emphasis is placed on developing NERC's positions on emerging technologies and the over-arching effect of these technologies on Reliability Standards. Further, this group gauges the responses to address reliability risks and works towards monitoring risk mitigation. Additionally, this group provides in-house training on Reliability Standards to effectuate a consistent view of the meaning and purpose of the standards and their relationship with the various work products of the committees and subcommittees. The PRISM group also conducts statistical analysis around the results of standards to identify potential weaknesses, redundancies, and overall necessity.

Stakeholder Engagement and Benefit

NERC manages the work of over 200 industry contributors who serve on the Standards Committee, subgroups, and other project teams for the development of Reliability Standards. As part of the standard development process, industry technical experts scope, draft, and review new or revised Reliability Standards for approval by the industry ballot body, adoption by the Board, and filing with regulatory authorities in the United States and Canada. NERC standards staff provide project management and leadership to develop solutions necessary to address reliability risks identified through the Reliability Risk Management Process (RRMP). These solutions may include the development of or modifications to Reliability Standards, in which standards staff (1) conduct outreach activities; (2) facilitate drafting teams, including assisting teams in maintaining adherence to the development process in the *Standard Processes*

Manual; (3) provide drafting support; and (4) ensure that the quality of documents produced is appropriate for approval by industry and the Board.

Additionally, federal, state, and provincial regulatory authorities, the Board, Regional Entities, and many industry stakeholders have expressed interest in the identification of costs incurred from implementing Reliability Standards compared to risks they address. These elements are considered by requesting industry feedback on costs throughout the standard development or revision process.

The PRISM group has significant interaction with stakeholder groups, including the NERC Planning Committee (PC), Operating Committee (OC), Critical Infrastructure Protection Committee (CIPC), the Standards Committee, and their subcommittees. The purpose of this engagement is to be apprised of all activities within the committee meetings and work plans to drive a cross-cutting approach to addressing standards-related issues. As Standard Authorization Requests (SARs) and Requests for Interpretations (RFIs) are developed, this group ensures the process to address these items is coordinated and efficient.

Tools and Technology

The main tool used by the Reliability Standards program is NERC's Standards Balloting and Commenting System (SBS). This system provides a seamless user interface for balloting and submitting comments on Reliability Standards under development. NERC's annual budget accounts for ongoing maintenance and any necessary enhancements for this system.

Key Efforts Underway

NERC ensures that the Reliability Standards Development Plan (RSDP) is effectively executed and that Reliability Standards are focused on and mitigate significant risks to BES reliability. The Reliability Standards group's key activities include:

- **Focusing on the selection of projects undertaken.** Resources are expended on issues determined to be a reliability risk through the RRMP. The Reliability Standards group applies broad project management skills to implement a variety of solutions to a reliability concern. An effective solution to an identified reliability risk may be a Reliability Standard, or it may be a guideline, information request, training, NERC Alert, technical conference, research, or a combination of these or other tools.
- **Addressing FERC directives and responding to FERC orders** through standard development projects, as necessary. Each project determines whether: (1) the directive will be complied with as issued; (2) there is another equally effective way to address the concern that fostered the directive; or (3) there is technical justification that resolution of the directive is no longer needed, including whether the directive has been overcome by other events, processes, or advances in technology.
- **Standards Efficiency Review.** In 2018, NERC and industry began a comprehensive review of the Reliability Standards to measure their effectiveness and ability to mitigate the risks to the reliability and security of the BPS as compared to the industry burden for their implementation. One outcome of this review was the need to retire or enhance requirements based on operational experience. This includes an analysis of reliability risk, particularly emerging risks, and cost effectiveness. In 2019, projects were initiated to address the results of this review to retire or modify Reliability Standards. For more information, see the Standards Efficiency Review page on the NERC website.
- **Facilitating smooth transition to new standards**. This includes working with other NERC program areas and the Regional Entities to develop guidelines, webinars, and other activities to support auditor and industry training for new standards.

Key efforts underway for the PRISM group include:

- Completing NERC position documents for Distributed Energy Resources (DER), Interconnection Reliability Operating Limits (IROL) and System Operating Limits (SOL), and Battery Storage;
- Developing statistical analysis around misoperations data to identify trends and discrete areas for improvement;
- Developing statistical analysis around BAL standards and the effects of frequency response within the four interconnections; and
- Conducting Reliability Standards training for NERC staff to enable consistent understandings.

2020 Goals and Deliverables

In 2020, the Reliability Standards group will continue the key activities discussed above by addressing potential improvements to standards, any new directives issued by FERC, as well any reliability risks identified through RRMP or by the RISC for which a Reliability Standard is part of the solution. Additionally, staff will work with industry to determine whether there is a need to make further improvements to the standards through periodic reviews that include: (1) a measured review of the content of standards, considering whether the requirements could more effectively mitigate risks to the BPS; (2) whether the standards are results-based and drafted with high quality; (3) whether the standards are concise or if the number of requirements could be reduced; and (4) whether compliance expectations are clear. The PRISM group will continue Reliability Standard training efforts for NERC staff, expand analysis for the efficacy of standards and emerging technologies affecting the BPS, and coordinate with the RISC on alignment of identified risks and mitigating activities.

Future Plans

As emerging technologies that are interconnected at scale continue to provide challenges and uncertainties to BPS reliability, standards alignment with the effects of these technologies is critical. This includes battery storage, DER, the proliferation of electric vehicles, cyber implications on system design, operations, and restoration, and systemic risks from interdependencies among gas, electric, and communications systems. NERC has access to increasing amounts of data that must be leveraged to quantitatively determine the efficacy of standards with respect to these emerging risks, and must continually evaluate approaches to ensure that standards are developed appropriately with respect to the commensurate cross-cutting influence and expertise available.

Resource Requirements

Personnel

The 3.29 increase in FTEs from the 2019 budget to the 2020 budget is a result of the department and position reorganization discussed in the *Introduction and Executive Summary*.

Consultants and Contracts

The $40k for Consultants and Contracts expenses in 2020 is for SBS maintenance and enhancements. A detailed breakdown of 2019 and 2020 budgeted expenses is shown in *Exhibit B – Consultant and Contractor Costs*.

Statement of Activities and Fixed Asset Additions
2019 Budget & Projection, and 2020 Budget
RELIABILITY STANDARDS AND POWER RISK ISSUE STRATEGIC MANAGEMENT

	2019 Budget	2019 Projection	Variance 2019 Projection v 2019 Budget Over(Under)	2020 Budget	Variance 2020 Budget v 2019 Budget Over(Under)
Funding					
ERO Funding					
NERC Assessments	$ 6,598,401	$ 6,598,401	$ -	$ 8,203,710	$ 1,605,309
Assessment Stabilization Reserve - Penalties	$ 58,793	58,793	-	-	(58,793)
Total NERC Funding	**$ 6,657,194**	**$ 6,657,194**	**$ -**	**$ 8,203,710**	**$ 1,546,516**
Third-Party Funding	$ -	$ -	$ -	$ -	$ -
Testing Fees	-	-	-	-	-
Services & Software	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Interest & Investment Income	18,884	58,805	39,921	45,862	26,978
Total Funding (A)	**$ 6,676,078**	**$ 6,715,999**	**$ 39,921**	**$ 8,249,572**	**$ 1,573,494**
Expenses					
Personnel Expenses					
Salaries	$ 2,031,580	$ 2,392,427	$ 360,847	$ 2,622,756	$ 591,176
Payroll Taxes	134,348	143,283	8,935	165,506	31,158
Benefits	297,782	326,946	29,164	416,307	118,525
Retirement Costs	224,171	249,568	25,397	290,052	65,881
Total Personnel Expenses	**$ 2,687,881**	**$ 3,112,223**	**$ 424,342**	**$ 3,494,622**	**$ 806,740**
Meeting Expenses					
Meetings & Conference Calls	$ 63,000	$ 49,903	$ (13,097)	$ 59,800	$ (3,200)
Travel	220,000	220,000	-	220,000	-
Total Meeting Expenses	**$ 283,000**	**$ 269,903**	**$ (13,097)**	**$ 279,800**	**$ (3,200)**
Operating Expenses, excluding Depreciation					
Consultants & Contracts	$ 50,000	$ 50,000	$ -	$ 40,320	$ (9,680)
Office Rent	-	-	-	-	-
Office Costs	38,200	45,700	7,500	50,050	11,850
Professional Services	-	-	-	-	-
Miscellaneous	500	2,000	1,500	500	-
Total Operating Expenses, excluding Depreciation	**$ 88,700**	**$ 97,700**	**$ 9,000**	**$ 90,870**	**$ 2,170**
Total Direct Expenses	**$ 3,059,581**	**$ 3,479,827**	**$ 420,245**	**$ 3,865,292**	**$ 805,710**
Indirect Expenses	**$ 3,208,828**	**$ 3,950,525**	**$ 741,697**	**$ 4,206,476**	**$ 997,648**
Other Non-Operating Expenses	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Total Expenses (B)	**$ 6,268,409**	**$ 7,430,352**	**$ 1,161,942**	**$ 8,071,768**	**$ 1,803,359**
Change in Net Assets (=A-B)	**$ 407,669**	**$ (714,353)**	**$ (1,122,022)**	**$ 177,804**	**$ (229,864)**
Fixed Asset Additions, excluding Right of Use Assets (C)	**$ 407,669**	**$ 384,235**	**$ (23,434)**	**$ 177,804**	**$ (229,864)**
Total Budget (=B+C)	**$ 6,676,078**	**$ 7,814,586**	**$ 1,138,509**	**$ 8,249,572**	**$ 1,573,494**
FTEs	**14.57**	**16.56**	**1.99**	**17.86**	**3.29**

Compliance Assurance and Organization Registration and Certification

Compliance Assurance and Organization Registration and Certification (in whole dollars)	2019 Budget	2020 Budget	Increase (Decrease)
Total FTEs	25.85	21.62	(4.23)
Direct Expenses	$ 6,576,310	$ 5,881,314	$ (694,996)
Indirect Expenses	5,693,082	5,092,050	(601,031)
Other Non-Operating Expenses	-	-	-
Fixed Asset Additions	1,675,025	1,318,736	(356,288)
TOTAL BUDGET	$ 13,944,416	$ 12,292,101	$ (1,652,315)

Background and Scope

Compliance Assurance

NERC's Compliance Assurance group works collaboratively with the Regional Entities to ensure effective implementation of risk-based compliance monitoring under the CMEP across the entire ERO Enterprise. This program ensures that Regional Entities monitor registered entities for compliance according to their own specific facts and circumstances, including the entity's inherent risks, evaluation of controls in place to mitigate the inherent risks, and other factors, such as risk elements and entity performance. Additionally, the risk-based compliance monitoring approach allows for the appropriate allocation of resources to the issues that pose a higher level of risk to the reliability of the BPS.

The CMEP provides for Regional Entities to develop customized compliance oversight plans (COPs) for each registered entity that identify: (1) the standards or requirements to be monitored; (2) the monitoring processes (tools) to be used by the Regional Entities, including compliance audits, self-certification, and spot checking; and (3) the interval of monitoring. NERC and the Regional Entities ensure that inherent risk assessments (IRAs) for registered entities begin with a consistent framework and that Regional Entities' implementation of the CMEP coalesce around effective and efficient practices, ensuring comprehensive data management procedures that address data reporting requirements, integrity, retention, security, and confidentiality.

The Compliance Assurance group's responsibilities include but are not limited to the following major activities and functions:

- Oversight of the Regional Entities' implementation of the risk-based compliance monitoring program and NERC ROP in North America;
- Development and execution of the annual CMEP Implementation Plan (IP);
- Oversight of the use of necessary compliance-related processes, procedures, IT platforms, tools, and templates;
- Development and delivery of education and training for ERO Enterprise staff;
- Training and outreach activities for the Critical Infrastructure Protection (CIP) Reliability Standards and subsequent enhancements to support industry compliance and security;

- Coordination with the Reliability Standards group to assist in the smooth transition of standards from development to enforceability, providing feedback on risks seen in the field that are not addressed by a standard, as well as information on where a standard is too broad; and
- Support for Regional Entity and industry committees, working groups, and task forces, such as the ERO Compliance Monitoring Group (NERC and Regional Entity collaboration group), NERC Compliance and Certification Committee (CCC), and NERC CIPC.

Organization Registration and Certification

Organization Registration (Registration) identifies and registers BPS users, owners, and operators that are responsible for performing specified reliability functions to which requirements of mandatory Reliability Standards are applicable. Organization Certification (Certification) ensures that an applicant to be a RC, BA, or TOP has the tools, processes, training, and procedures to demonstrate its ability to meet the requirements of all the Reliability Standards applicable to the functions for which it is applying, thereby demonstrating the ability to become certified and then operational. The decision to certify changes to an already operating and certified RC, BA, or TOP is a collaborative decision between the affected Regional Entities and NERC. Together, the Registration and Certification groups manage the Organization Registration and Certification Program (ORCP).

Stakeholder Engagement and Benefit

Compliance Assurance engages with stakeholders in two primary ways:

1. Through the CCC. The CCC is chartered to engage with, support, and advise the Board and NERC regarding all facets of the CMEP and Registration and Certification programs. Among other things, Compliance Assurance works with the CCC on activities related to the ERO Enterprise Effectiveness Survey, in seeking input and advice on the development of draft Reliability Standard Audit Worksheets (RSAWs) and the Implementation Guidance process, and coordinating ERO Enterprise Program Alignment Process issues.
2. Through stakeholder outreach. This is conducted through webinars related to specific processes throughout the year, such as to discuss development and evolution of the CMEP IP, and through Regional Entity and NERC workshops, such as the annual NERC Standards and Compliance Workshop.

Registration and Certification engages with the CCC's Organization Registration and Certification Subcommittee (ORCS), which oversees the ORCP. Registration and Certification staff also work with entities individually on specific questions pertaining to an entity's unique facts and circumstances. As appropriate, the Registration and Certification group conducts webinars and other outreach explaining various work products or high-profile activities, including CMEP Practice Guides, modifications to existing documents, IT application developments, etc. The Registration and Certification group also engages industry stakeholders by presenting at NERC and Regional Entity workshops and other forums.

Tools and Technology

Historically, NERC has used the Compliance Reporting and Tracking System (CRATS) as its compliance database. CRATS also included modules for Reliability Standards, Technical Feasibility Exceptions (TFEs), and Registration. NERC has been working closely with the Regional Entities to evaluate and implement strategic investments in tools that will replace CRATS and the CMEP and Registration data applications used among the Regional Entities with single, common applications, known as the Align for CMEP and CORES for Registration. CORES is set to be released by the end of 2019, and 2020 is the final development year for Align. Funding for support of the CRATS application in 2020 and beyond, at reduced levels, will be required for historical purposes.

The objectives and benefits of the Align tool include (1) a single common portal and experience for registered entities; (2) improved integration of and access to data, as well as increased analytics; and (3) standardized business processes and consistent application of the CMEP, resulting in increased productivity and reduced application costs across the ERO Enterprise. There will be a release in the fall of 2019 that will support self-reporting, self-logging, enforcement, and mitigation. There will be two more releases in 2020, the final development year, which will support Compliance Assurance activities. For more information, see the Align Project page on the NERC website.

CORES similarly creates consistent Regional Entity and registered entity processes and improves data maintenance, including capturing data elements to be integrated with the Align application. Additionally, registered entities are able to directly manage their registration needs. The initial release of CORES is scheduled by the end of 2019, with further enhancements planned for 2020. For more information, see the CORES Technology Project page on the NERC website.

The BES Notification and Exception System tool (BESnet) is also used in support of the Registration group's activities. The BESnet application allows registered entities to submit to their respective Regional Entity notifications of changes to BES assets that affect the registered entity's responsibilities for compliance with the Reliability Standards.

Key Efforts Underway

Current and ongoing efforts and activities for Compliance Assurance are as follows:

NERC Oversight of Risk-Based Compliance Monitoring

NERC continues to implement risk-based compliance monitoring as part of its stated objectives of ensuring BPS reliability, improving consistency, effectiveness, and efficiency of ERO Enterprise compliance operations, focusing on identified risks and reducing unnecessary burdens on registered entities. Ensuring the successful implementation of NERC's risk-based CMEP remains the priority of Compliance Assurance's oversight plan for the Regional Entities. As part of that oversight, and in addition to offering regular feedback to the Regional Entities, NERC continues to identify areas for improvement or promoting consistency through training, guidance, or adjustments. NERC also produces an ERO Enterprise CMEP annual report, which includes an assessment of the risk-based CMEP implementation.

CIP Compliance

NERC and the Regional Entities continue to manage the smooth implementation of compliance activities for CIP Version 5 Reliability and Physical Security Standards, along with their subsequent enhancements by providing training, webinars, and other forms of outreach. The ERO Enterprise continues to provide educational programs to support industry compliance and the integration of risk assessment and internal controls.

Program Alignment Process

The ERO Enterprise continues to align CMEP activities across North America. The ERO Enterprise Program Alignment Process provides a structure for collecting, reviewing, resolving, and communicating discrepancies in practices across the ERO Enterprise. Alignment issues come to the ERO Enterprise from a variety of sources, including industry submittals and NERC oversight.

Align Project

The development of the Align tool discussed above required NERC and the Regional Entities to coordinate heavily in 2018 and 2019 to harmonize several aspects of CMEP activities, improving overall program execution and alignment.

Regional Entity Training
Compliance Assurance provides training to Regional Entity staff on the most important elements of risk-based compliance monitoring, including enhancements to registered entity IRAs, internal controls reviews, COP development, as well as Reliability Standards monitoring. NERC develops this training based on observations from its oversight activities of the Regional Entities, as well as the process reviews described above.

Small Group Advisory Sessions
Compliance Assurance periodically hosts Small Group Advisory Sessions (SGAS) with industry that include in-depth discussions around the possible implementation of controls for newly approved, but not yet effective, Reliability Standards to address and mitigate cyber and physical security risks of the BPS. In 2019, the focus of the SGAS activities was related to supporting implementation of the Cyber Security Supply Chain Risk Management Reliability Standard.

Compliance Enforcement Authority for Southwest Power Pool Regional Transmission Organization
As a result of the Southwest Power Pool Regional Entity (SPP RE) dissolution process, in early 2018 NERC assumed the Compliance Enforcement Authority (CEA) activities for the registered entity SPP Regional Transmission Organization (RTO) for two years. This is the role that is generally delegated by NERC to a Regional Entity. Essentially the CEA is responsible for planning and conducting all CMEP activities as described in the ROP and other guiding documents. NERC leverages existing internal and Regional Entity resources and expertise to undertake the CEA activities with respect to the SPP RTO. NERC also uses its CEA activities to inform program alignment.

Recent, current, and ongoing activities for Registration and Certification include:

- Transition of SPP RE registered entities to MRO and SERC, and transition of FRCC RE registered entities to SERC with respect to the dissolution of FRCC RE;[9]
- Completion of an ERO Practice Guide on Distribution Provider "Directly Connected" Determinations;
- Peak Reliability wind-down activities, including but not limited to, continuity of RC functionality, operational readiness of infrastructure and readiness of personnel, compatibility of RC methodologies, continuity of west-wide tools, seams management, and data sharing;
- Development and launch of CORES, discussed above, including continued focus on functionality for Coordinated Functional Registrations (CFRs);
- Execution of Certification engagements and response to industry changes requiring Certification review, with particular emphasis on control center relocations, Energy Management System (EMS) replacements, and RC, BA, and TOP footprint changes; and
- Processing registration change requests, including NERC-led Review Panels and BES Exceptions.

2020 Goals and Deliverables

In 2020, Compliance Assurance resources will focus on improvements implemented as a result of the risk-based compliance monitoring activities in 2017, 2018, and 2019. Specific objectives for this group are:

- Continue to mature the risk-based compliance monitoring program, providing ongoing oversight of the risk-based CMEP, including IRAs, consideration of internal controls, coordinated oversight of Multi-Region Registered Entities (MRREs), and ensuring COPs are addressing the relevant risks.

[9] *Letter Order Approving the Joint Petition Requesting Certain Approvals in connection with the Dissolution of FRCC*, Docket No. RR19-4-000, 167 FERC ¶ 61,095 (2019)

- Work closely with NERC's Enforcement and IT departments, as well as staff in the Regional Entities, to implement the Align tool.
- Support the continued successful implementation of the CIP Version 5 Reliability Standards and subsequent enhancements as they become effective.
- Monitor and support effective implementation of the physical security Reliability Standard.
- Enhance and implement training to support monitoring of Reliability Standards, integrating principles from the *Compliance Monitoring Competency Guide*.
- Continue feedback to the Reliability Standards group through coordination between the standards and compliance functions to allow for clear stakeholder implementation of standards, as well as feedback on risks seen in the field. This effort will be supported through a common set of RSAWs, guidance, and outreach.
- Support international CMEP activities, including reliability and security subject matter expertise and outreach.
- Provide support and leadership to the CCC as well as its subcommittees, working groups, and task forces. Support the CCC leadership and development and implementation of annual work plans.
- Complete the NERC CEA program for SPP RTO until planned transition to MRO in 2020.

The Registration and Certification group will continue the ongoing activities described above as applicable. With CORES fully deployed, there will be an opportunity in 2020 and beyond to explore how the ERO IT platforms can further enhance work products, communication, and data tracking and reporting.

Future Plans

For 2021 and 2022, NERC anticipates full implementation of the Align tool, providing significant impetus for continued harmonization of CMEP processes across the ERO Enterprise and enhanced CMEP workflow management. Additionally, the Align implementation, along with continued coordination among NERC and the Regional Entities, should result in significant maturation of risk-based CMEP processes, particularly in realizing enhanced development and use of COPs to support CMEP planning activities.

Resource Requirements

Personnel

In prior years, personnel increased in the Compliance Assurance area through the reallocation of resources from other departments as part of ERO Enterprise efforts to strengthen the implementation and oversight of the risk-based CMEP, increase risk analysis capabilities and technical expertise, and support feedback loops that improve program oversight and the development of Reliability Standards. As the risk-based CMEP program has matured, NERC has reduced personnel in this area accordingly through the reallocation of resources or elimination of open positions. The decrease of 4.23 FTEs in the 2020 budget is a result of this continued effort to realign staff with current strategic needs. There have been no changes to FTEs for Registration and Certification.

Consultants and Contracts

The increase of approximately $40k for Consultants and Contracts in the 2020 budget is the result of a reclassification of support costs for BESnet from the IT department to the Registration and Certification area. A detailed breakdown of the 2019 and 2020 budgeted expenses is shown in *Exhibit B – Consultant and Contractor Costs*.

Other Costs

The $77k increase in Office Costs expenses in the 2020 budget is primarily related to the contracted cost for software licensing, maintenance, and hosting expenses for Align, for which the total annual cost is split evenly with Compliance Enforcement. The Fixed Asset budget includes approximately $904k for the last year of development of Align (for which the total expenditure for 2020 is approximately $1.8M, split evenly between Compliance Assurance and Compliance Enforcement), and $200k for planned enhancements for CORES.

Statement of Activities and Fixed Asset Additions
2019 Budget & Projection, and 2020 Budget
COMPLIANCE ASSURANCE, REGISTRATION, AND CERTIFICATION

	2019 Budget	2019 Projection	Variance 2019 Projection v 2019 Budget Over(Under)	2020 Budget	Variance 2020 Budget v 2019 Budget Over(Under)
Funding					
ERO Funding					
NERC Assessments	$ 13,806,602	$ 13,806,602	$ -	$ 12,236,583	$ (1,570,019)
Assessment Stabilization Reserve - Penalties	104,310	104,310	-	-	(104,310)
Total NERC Funding	**$ 13,910,912**	**$ 13,910,912**	**$ -**	**$ 12,236,583**	**$ (1,674,329)**
Third-Party Funding	$ -	$ -	$ -	$ -	$ -
Testing Fees	-	-	-	-	-
Services & Software	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Interest & Investment Income	33,504	88,866	55,363	55,517	22,014
Total Funding (A)	**$ 13,944,416**	**$ 13,999,779**	**$ 55,363**	**$ 12,292,101**	**$ (1,652,315)**
Expenses					
Personnel Expenses					
Salaries	$ 4,123,449	$ 4,354,497	$ 231,048	$ 3,646,298	$ (477,151)
Payroll Taxes	265,782	249,950	(15,832)	222,053	(43,729)
Benefits	674,062	711,896	37,834	686,630	12,568
Retirement Costs	456,866	440,021	(16,845)	404,705	(52,161)
Total Personnel Expenses	**$ 5,520,160**	**$ 5,756,364**	**$ 236,205**	**$ 4,959,686**	**$ (560,474)**
Meeting Expenses					
Meetings & Conference Calls	$ 215,650	$ 211,953	$ (3,697)	$ 89,200	$ (126,450)
Travel	525,500	400,442	(125,058)	400,000	(125,500)
Total Meeting Expenses	**$ 741,150**	**$ 612,395**	**$ (128,755)**	**$ 489,200**	**$ (251,950)**
Operating Expenses, excluding Depreciation					
Consultants & Contracts	$ 50,000	$ 50,000	$ -	$ 90,320	$ 40,320
Office Rent	-	-	-	-	-
Office Costs	264,000	264,000	-	341,358	77,358
Professional Services	-	6,631	6,631	-	-
Miscellaneous	1,000	4,662	3,662	750	(250)
Total Operating Expenses, excluding Depreciation	**$ 315,000**	**$ 325,294**	**$ 10,294**	**$ 432,428**	**$ 117,428**
Total Direct Expenses	**$ 6,576,310**	**$ 6,694,053**	**$ 117,744**	**$ 5,881,314**	**$ (694,996)**
Indirect Expenses	**$ 5,693,082**	**$ 6,076,079**	**$ 382,998**	**$ 5,092,050**	**$ (601,031)**
Other Non-Operating Expenses	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Total Expenses (B)	**$ 12,269,391**	**$ 12,770,132**	**$ 500,741**	**$ 10,973,364**	**$ (1,296,027)**
Change in Net Assets (=A-B)	**$ 1,675,025**	**$ 1,229,646**	**$ (445,379)**	**$ 1,318,736**	**$ (356,288)**
Fixed Asset Additions, excluding Right of Use Assets (C)	**$ 1,675,025**	**$ 1,670,457**	**$ (4,568)**	**$ 1,318,736**	**$ (356,288)**
Total Budget (=B+C)	**$ 13,944,416**	**$ 14,440,589**	**$ 496,173**	**$ 12,292,101**	**$ (1,652,315)**
FTEs	**25.85**	**25.47**	**(0.38)**	**21.62**	**(4.23)**

Compliance Enforcement

Compliance Enforcement (in whole dollars)	2019 Budget	2020 Budget	Increase (Decrease)
Total FTEs	13.16	12.22	(0.94)
Direct Expenses	$ 2,977,690	$ 2,822,301	$ (155,389)
Indirect Expenses	2,898,296	2,878,115	(20,181)
Other Non-Operating Expenses	-	-	-
Fixed Asset Additions	981,249	1,025,155	43,906
TOTAL BUDGET	$ 6,857,235	$ 6,725,572	$ (131,663)

Background and Scope

The Enforcement group is responsible for overseeing enforcement processes, the application of penalties or sanctions, and activities to mitigate and prevent recurrence of noncompliance with Reliability Standards. The group works collaboratively with the Regional Entities to ensure consistent and effective implementation of the risk-based CMEP. The group focuses on ensuring that the ERO Enterprise dedicates resources to the matters that pose the greatest risk to the reliability of the BPS. The scope of the Enforcement group's activities include the following:

- Monitoring Regional Entities' enforcement processes and providing oversight of their outcomes to ensure alignment across the ERO Enterprise;
- Collecting and analyzing enforcement data and trends to help identify emerging risks to the BPS and inform the development of enforcement policies and processes;
- Filing Notices of Penalty (NOPs) and other disposition documents associated with noncompliance discovered through Regional Entity or NERC-led CMEP activities;
- Collaborating with other NERC departments, including Compliance Assurance, Reliability Standards, and Event Analysis; and
- Training ERO Enterprise staff and registered entities, as well as supporting other outreach efforts.

Stakeholder Engagement and Benefit

Enforcement engages with stakeholders through interaction with and presentations to the CCC, NERC and Regional Entity workshops, and ERO Enterprise webinars to communicate with registered entities about the most significant risks to reliability and security. Enforcement uses those forums to share information about violations and their mitigation to reduce those significant risks.

Tools and Technology

Historically, NERC has used CRATS to track violations, mitigation plans, and reporting required by NERC as the ERO. As discussed in the *Compliance Assurance and Organization Registration and Certification* section above, NERC has been working closely with the Regional Entities to evaluate and implement strategic investments in tools that will replace CRATS and the CMEP applications used among the Regional Entities with a single, common application known as Align. There will be a release in 2019 that will support self-reporting, self-logging, enforcement, and mitigation. There will be two more releases in 2020, the final development year, which will support Compliance Assurance. Funding for support of the CRATS application in 2020 and beyond, at reduced levels, will be required for historical purposes. For more information, see the Align Project page on the NERC website.

Key Efforts Underway

Risk-based Enforcement
The ERO Enterprise's responsibility to address risks to reliability and security includes resolving violations that posed significant risks. Enforcement is identifying those serious violations, ensuring appropriate resolution of those cases, and communicating results to industry. New in 2019 is a series of webinars addressing the themes of violations in major cases.

Streamlining of Minimal Risk Noncompliance
Enforcement continues to enhance risk-based enforcement by identifying additional opportunities to streamline the resolution of minimal risk noncompliance. This effort includes examining the processes to review and assess the risk of noncompliance in order to resolve minimal risk noncompliance more efficiently. Enforcement also considers modifications to the Self-Logging Program to make the program more beneficial to participants and facilitate more efficient resolution of self-logged issues.

Program Alignment Process
The ERO Enterprise continues to align CMEP activities across North America. The ERO Enterprise Program Alignment Process provides a structure for collecting, reviewing, resolving, and communicating discrepancies in practices across the ERO Enterprise. Alignment issues come to the ERO Enterprise from a variety of sources, including industry submittals and NERC oversight.

Align Project
The development of the Align tool discussed above required NERC and the Regional Entities to coordinate heavily in 2018 and 2019 to harmonize several aspects of CMEP activities, improving overall program execution and alignment.

Continued Outreach
NERC CMEP staff provides CMEP training to ERO Enterprise staff through workshops, instructor-led training events, eLearning opportunities, and oversight of the training and education activities of the Regional Entities. These opportunities focus on identifying gaps in staff knowledge and capabilities related to the risk-based CMEP.

2020 Goals and Deliverables

Specific 2020 objectives for the Enforcement department include continuing to:

- Focus on identifying and mitigating the greatest risks to reliability and security.
- Support the development and implementation of the Align tool.
- Streamline minimal risk noncompliance, including Compliance Exceptions and the self-logging program.
- Align the risk assessment process and educate relevant parties.
- Mature the Coordinated Oversight program for MRREs.

Future Plans

In 2021 and beyond, NERC and the Regional Entities will continue to conduct outreach activities that focus on self-logging, compliance exceptions, mitigation, and risk assessment of noncompliance. NERC plans to use existing industry events, such as the standards and compliance workshops and industry webinars, to provide information on enforcement activities. Enforcement will continue to identify areas for improvement and promotion of alignment through training, guidance, or other adjustments.

Resource Requirements

Personnel

The decrease of 0.94 FTEs in 2020 is the result of resource allocations to realign staff with current needs.

Consultants and Contracts

The decrease of $161k in Consultants and Contracts in the 2020 budget is a result of a reclassification of CRATS support and maintenance costs to Office Costs. A detailed breakdown of the 2019 and 2020 budgeted expenses is shown in *Exhibit B – Consultant and Contractor Costs*.

Other Costs

The $159k increase in Office Costs expenses in the 2020 budget is primarily related to the reclassification of CRATS support and maintenance costs from Consultants and Contracts noted above, as well as the contracted cost for software licensing, maintenance, and hosting expenses for Align, for which the total annual cost is split evenly with Compliance Assurance. The Fixed Asset budget includes approximately $904k for the last year of development of Align (for which the total expenditure for 2020 is approximately $1.8M, split evenly between Compliance Assurance and Compliance Enforcement).

Statement of Activities and Fixed Asset Additions
2019 Budget & Projection, and 2020 Budget
COMPLIANCE ENFORCEMENT

	2019 Budget	2019 Projection	Variance 2019 Projection v 2019 Budget Over(Under)	2020 Budget	Variance 2020 Budget v 2019 Budget Over(Under)
Funding					
ERO Funding					
NERC Assessments	$ 6,787,076	$ 6,787,076	$ -	$ 6,694,193	$ (92,883)
Assessment Stabilization Reserve - Penalties	53,103	53,103	-	-	(53,103)
Total NERC Funding	**$ 6,840,179**	**$ 6,840,179**	**$ -**	**$ 6,694,193**	**$ (145,986)**
Third-Party Funding	$ -	$ -	$ -	$ -	$ -
Testing Fees	-	-	-	-	-
Services & Software	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Interest & Investment Income	17,056	45,031	27,975	31,379	14,323
Total Funding (A)	**$ 6,857,235**	**$ 6,885,210**	**$ 27,975**	**$ 6,725,572**	**$ (131,663)**
Expenses					
Personnel Expenses					
Salaries	$ 1,991,052	$ 1,771,998	$ (219,053)	$ 1,829,637	$ (161,414)
Payroll Taxes	126,256	120,482	(5,773)	113,039	(13,217)
Benefits	198,145	211,505	13,360	230,971	32,826
Retirement Costs	218,788	193,202	(25,586)	197,746	(21,042)
Total Personnel Expenses	**$ 2,534,240**	**$ 2,297,188**	**$ (237,052)**	**$ 2,371,393**	**$ (162,847)**
Meeting Expenses					
Meetings & Conference Calls	$ 4,400	$ 14,427	$ 10,027	$ 6,200	$ 1,800
Travel	47,500	82,903	35,403	55,000	7,500
Total Meeting Expenses	**$ 51,900**	**$ 97,331**	**$ 45,431**	**$ 61,200**	**$ 9,300**
Operating Expenses, excluding Depreciation					
Consultants & Contracts	$ 161,000	$ 161,000	$ -	$ -	$ (161,000)
Office Rent	-	-	-	-	-
Office Costs	230,050	230,050	-	389,208	159,158
Professional Services	-	-	-	-	-
Miscellaneous	500	3,000	2,500	500	-
Total Operating Expenses, excluding Depreciation	**$ 391,550**	**$ 394,050**	**$ 2,500**	**$ 389,708**	**$ (1,842)**
Total Direct Expenses	**$ 2,977,690**	**$ 2,788,568**	**$ (189,122)**	**$ 2,822,301**	**$ (155,389)**
Indirect Expenses	**$ 2,898,296**	**$ 2,879,398**	**$ (18,898)**	**$ 2,878,115**	**$ (20,181)**
Other Non-Operating Expenses	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Total Expenses (B)	**$ 5,875,986**	**$ 5,667,967**	**$ (208,020)**	**$ 5,700,417**	**$ (175,570)**
Change in Net Assets (=A-B)	**$ 981,249**	**$ 1,217,243**	**$ 235,994**	**$ 1,025,155**	**$ 43,906**
Fixed Asset Additions, excluding Right of Use Assets (C)	**$ 981,249**	**$ 945,396**	**$ (35,853)**	**$ 1,025,155**	**$ 43,906**
Total Budget (=B+C)	**$ 6,857,235**	**$ 6,613,362**	**$ (243,873)**	**$ 6,725,572**	**$ (131,663)**
FTEs	**13.16**	**12.07**	**(1.09)**	**12.22**	**(0.94)**

Reliability Assessments and Performance Analysis

The Reliability Assessments and Performance Analysis (RAPA) program identifies, prioritizes, and enables activities to reduce known and emerging risks to the BPS. Four groups between two NERC departments are focused on this program: (1) the Reliability Assessments and Technical Committees group and (2) the Performance Analysis group, which are part of the Risk Identification and Mitigation department, and (3) the Power System Analysis and (4) the Advanced System Analytics and Modeling group, which are part of the Engineering and Standards department.

Reliability Assessments and Peformance Analaysis (in whole dollars)	2019 Budget	2020 Budget	Increase (Decrease)
Total FTEs	25.38	23.50	(1.88)
Direct Expenses	$ 7,455,074	6,753,513	$ (701,561)
Indirect Expenses	5,589,571	5,534,837	(54,734)
Other Non-Operating Expenses	-	-	-
Fixed Asset Additions	187,552	833,953	646,401
TOTAL BUDGET	$ 13,232,197	$ 13,122,303	$ (109,893)

Background and Scope

Reliability Assessments and Technical Committees

The Reliability Assessments (RA) and Technical Committees group includes RA staff as well as the NERC staff secretaries of the OC, PC, and CIPC. RA staff carry out the ERO's statutory responsibility to conduct assessments of the overall reliability and adequacy of the BPS and associated emerging reliability risks that could impact the short, mid, and long-term planning horizons, as well as other reliability issues requiring in-depth analysis. Additionally, RA staff publishes the annual *State of Reliability Report* that looks at the year-over-year performance indicators of the grid. RA activities directly address the risk priorities established by the RISC, and the group relies on its own engineering and analysis expertise, as well as Regional Entity and stakeholder resources. Annual reports and assessments produced by RA staff include:

- Long-Term Reliability Assessment (LTRA) (supplemented by the Probabilistic Assessment)
- Summer and Winter Reliability Assessments
- *State of Reliability Report*
- Special Reliability Assessments (selected based on high-risk issues that require an independent assessment from the ERO)

The NERC technical committees, which include the PC, OC, CIPC, and their subgroups, provide the oversight, guidance, and leadership essential to enhancing BPS reliability by addressing areas of strategic focus efficiently and comprehensively, and ensuring technical accuracy. The NERC staff secretaries of the technical committees coordinate and administer these activities and efforts. NERC staff also coordinates the Standing Committee Coordinating Group, which organizes the leadership of each of the standing committees to address and coordinate on cross-cutting efforts.

The RA and Technical Committees group works closely with stakeholders to create assessment development schedules with adequate stakeholder review at every level. All NERC reliability assessments typically have a sponsoring technical committee, subcommittee, or other subgroup. The long-term and seasonal assessments are conducted by the PC's Reliability Assessment Subcommittee (RAS), and

ultimately endorsed by the PC. Special assessments often require a separate and specialized task force or advisory group to help construct, conduct, and produce special topic assessments.

Performance Analysis

The Performance Analysis (PA) group monitors the performance of and identifies risks to reliability of the BPS through analyzing data from industry and measuring historic trends. As such, PA is responsible for the collection, management, and analysis of data related to the performance of five areas of BPS operations: transmission, conventional generation, wind generation, protection system misoperations, and demand response. Analysis performed by PA includes identifying potential risks of concern related to system, equipment, entity, and organizational performance that may indicate a need to develop remediation strategies, improvements to the reporting applications, new data collection or analysis tools, or data used to create, revise, or retire Reliability Standards or consider new reliability standards or reporting areas. Such analyses provide the foundation for the annual *State of Reliability* report and other analytical reports and technical papers to the industry.

Power System Analysis

The Power System Analysis (PSA) group provides technical leadership and support in the areas of resource and demand balancing and system analysis and modeling, including technical support for the NERC balancing (BAL) and modeling (MOD) Reliability Standards. This has become particularly important as new technologies are added to the system, and significant changes in the resource mix are being both experienced and projected. The PSA group is responsible for:

- Assisting the RA and Technical Committees group in their independent reliability assessments;
- Interconnection-wide analysis of steady-state and dynamic conditions, including frequency, ERS, stability, short circuit ratio, and oscillatory behavior aspects; and
- Assuring that the BES electrical elements necessary for its reliable operation are identified and subject to the Reliability Standards.

Advanced System Analytics and Modeling

The Advanced System Analytics and Modeling (ASAM) group provides support for the development and improvement of long-term, sustainable interconnection-based power flow, dynamic, and load models that exhibit the accuracy and fidelity reflecting actual BES reliability performance and dynamic conditions. As new technology incorporation into the BPS accelerates, there is a need for new and improved models towards simulation of their contributions and impacts on reliability. This will facilitate improved design and maximize technology incorporation while maintaining the reliable operation of the BPS. The group:

- Provides guidance on the appropriate use of new and existing models to study emerging risks;
- Advances understanding of power system characteristics and behaviors by gathering larger phasor measurement units (PMU) datasets for advanced data analytics and modeling improvements; and
- Promotes and expands understanding of the growing need and available methods for probabilistic studies to augment deterministic studies in system planning studies.

ASAM further provides advanced statistical analysis functions to support the RA and Technical Committees group's *State of Reliability* report and various reliability assessments, PSA's interconnection-wide analysis of frequency response and other parameters, and PRISM's analytical review of Reliability Standard effectiveness.

Stakeholder Engagement and Benefit

The groups described above work collaboratively with NERC stakeholders, particularly through the PC and OC and their technical subgroups, to create a reliability strategy that is relevant, timely, and effective to address the most important reliability risks. These efforts include:

- Synthesizing key information identified through analysis and assessment efforts;
- Extracting and prioritizing the associated reliability risks;
- Sharing and integrating risk analysis insights across the ERO Enterprise; and
- Translating knowledge into actionable guidance and recommendations for the Board and industry, along with state, federal, and provincial policymakers.

Further, these groups continue to work closely with other organizations, including but not limited to the DOE, Electric Power Research Institute (EPRI), Institute of Electrical and Electronics Engineers (IEEE), Institute of Nuclear Power Operations (INPO), North American Transmission Forum (NATF), North American Generator Forum (NAGF), Interstate Natural Gas Association of America (INGAA), Natural Gas Supply Association (NGSA), Canadian Electricity Association (CEA), and International Council on Large Electric Systems (CIGRÉ).

Tools and Technology

The following tools are used by RA, PA, PSA, and ASAM staff to support their activities:

- Advanced analytics and analysis software
- Planning software
- Infrastructure and geographic-related vulnerabilities analysis software
- Data management systems, including GADS, GADS Wind, TADS, DADS, RADS, BASS, the Frequency Response Analysis Tools (FRAT), and the Misoperations Information Data Analysis System (MIDAS)

Key Efforts Underway

In addition to the development of the annual assessments and reports, RA focus areas and ongoing activities include:

- Effective ERS. These efforts are expected to lead to a broad set of recommendations that will culminate with defined elements, an evaluation of initial metrics and data compilation of actual performance, and refinement of the ongoing assessment of ERS measures;
- Advancing the value of the seasonal reliability assessment by providing predictive evaluations of the operational risk in each assessment area. In addition to the Planning Reserve Margin analysis, future seasonal reliability assessments will use historical resource performance data to identify expected and potentially extreme operational risks;
- Advancing probabilistic assessments and evaluations of energy assurance; and
- Enhancing ERO Enterprise-wide effectiveness and efficiency of RA-related functions. This includes coordinating data and information systems across the ERO Enterprise and providing consistent oversight regarding data collection, checking, validation, and assessment.

Additionally, in FERC's Order No. 830 approving Reliability Standard TPL-007-1 (*Transmission System Planned Performance for Geomagnetic Disturbance Events*), FERC directed NERC to file a research work plan describing how NERC will conduct research into the GMD-related topics identified in the order. NERC

developed a research plan[10] with EPRI and filed it with FERC on April 19, 2018. This $3.4M research project is being co-funded by NERC along with more than 20 owners and operators from the electric industry. As part of this effort and directed by FERC, the Board approved an ROP Section 1600 data request to collect GMD data August 16, 2018. Further, NERC continues to work with industry to collect information on geomagnetically induced current (GIC) and the potential impacts on power system reliability.

The technical committees recognize the need to strengthen the ties among each other to ensure expertise is leveraged and amplified, thereby increasing the relevance and value of results. NERC staff is supporting a Stakeholder Engagement Team that has been formed to review the structure, drawing upon the experience of successfully enhanced Regional Entity committee models, and develop recommendations to improve the effectiveness and efficiency of the committees.

PA continues to oversee and evaluate reliability trends that identify reliability risks by analyzing data contained in GADS, TADS, and DADS, along with reliability metrics and protection and controls system misoperations data. PA is currently expanding the GADS data trend analysis and has begun reflecting post-seasonal reliability review, insights from analysis of the GADS, TADS, and DADS, and integration of event analysis and misoperations. Additionally, in 2019, PA began development of reporting requirements for solar and associated energy storage data collection.

The PSA group is focusing on:

- Developing technical analyses in key reliability areas, resulting in comprehensive reports addressing areas of concern (e.g., frequency response, short circuit strength, inter-area oscillation, DER, etc.). The purpose of these technical analyses is to understand and evaluate BPS characteristics, behavior, and performance due to the changing resource mix and integration of new technology, thereby providing guidance and technical expertise to address key planning-related issues and Interconnection-wide concerns;
- Continuing to explore the use of state-of-the-art software to conduct power system analysis by enhancing the usage of real-time tools used by the industry to sharpen and fine-tune models as the system evolves with the integration of new technology;
- Conducting detailed forensic analyses of significant system disturbances; and
- Providing technical expertise, research, and feedback to the industry, including those that support development of key reliability planning-related standards.

ASAM's current key focus areas include:

- Provide industry insight related to modeling improvements and interconnection-wide system analysis through a State of Modeling report, with recommendations for enhancement and industry engagement.
- In coordination with the PC's Inverter-Based Resource Performance Task Force (IRPTF), perform event analyses and investigate abnormal performance of inverter-based resources, particularly solar photovoltaic. Develop industry recommendations and address potential reliability gaps.
- Support industry in the reliable integration of increased levels of DER, and provide industry technical guidance on key reliability impacts. Develop recommended practices and guidelines (modeling, planning, and operations) to ensure BPS reliability.

[10] Revised Geomagnetic Disturbance Research Work Plan of the North American Electric Reliability Corporation

- Support industry adoption and advancement of synchrophasor technology through the PC's Synchronized Measurement Subcommittee (SMS). Study interconnection-wide oscillatory behavior (and other interconnection-wide phenomena) through PMU data collected from RCs.
- Support industry understanding and expertise in power plant modeling through the PC's System Analysis and Modeling Subcommittee's (SAMS's) Power Plant Modeling and Verification Task Force (PPMVTF). Advance capabilities to perform a disturbance based model verification, working with software vendors. Support industry implementation of MOD-026-1 and MOD-027-1.
- Drive improvements of dynamic load modeling capabilities in support of industry stability studies for planning and real-time reliability assessments. Advance state-of-the-art modeling capability across North America. Support the SAMS's Load Modeling Task Force (LMTF) efforts.
- Support studies and technical positions on the changing nature of end use loads and advocate for grid-friendly load behavior. Engage with industries collaboratively, working with utility members, to represent BPS needs.
- Perform annual assessments of case quality and fidelity on the interconnection-wide cases released by the MOD-032 designees. Develop a feedback loop mechanism with the MOD-032 designees to instigate improvements to models.
- Proactively address deficiencies in interconnection-wide models and provide industry education on key modeling topics (e.g., generic model notifications for wind, solar, battery) as identified by NERC or industry.
- Coordinate with the PC's Methods for Establishing IROLs Task Force (MEITF) and support improvements to the methods, practices, and tools used for establishing IROLs. Coordinate with industry and FERC on potential new approaches to characterize IROLs while ensuring reliable operation of the BPS.
- Conduct a Composite Reliability Study using probabilistic—or near probabilistic—methods for transmission as well as resources.
- Conduct a Joint WECC/NERC Battery Study of the Western Interconnection to determine the adequacy of battery energy injection to support frequency response, steady-state and dynamic support, primary frequency reserve margin, etc.
- Conduct advanced statistical studies in support of the Standards Efficiency Review and the *State of Reliability Report*.

2020 Goals and Deliverables

In 2020, the RA and Technical Committees, PA, PSA, and ASAM groups will continue the efforts described above as applicable, with particular focus on evaluation and assessment of future energy assurance, a Special Reliability Assessment on electricity storage, an Interconnection-wide short circuit study and report, as well as implementation of an effectiveness and efficiency strategy for NERC's committee structure.

As the grid evolves, the ability to collect and the quality and integration of data becomes increasingly important, requiring continued investment in enhancements to and maintenance of the suite of data management tools, including GADS, GADS Wind, TADS, DADS, RADS, and BASS. NERC also continues to develop technology applications for the collection of new data under Section 1600 data requests. This includes the collection of GMD data as a result of FERC Order 830 discussed above. NERC also expects to work with industry on a Section 1600 data request for the collection of data for solar energy storage associated with solar and wind generation, as well as event reporting for solar and wind generation, which will require the development of a GADS Solar data management system.

Future Plans

In 2021 and beyond, NERC will need to continue to build and maintain the analytical capabilities needed to support the reliability of the changing grid. This will include the implementation of data collection applications to include solar inventory, event, and performance reporting, as well as the integration of energy storage with the solar and wind facilities, and the development of a strategic plan to re-platform data collection applications as needed to create better integration of collection efforts and analysis for the ERO Enterprise. These shared analytics, data warehouses, and tools advance the capabilities and credibility of the ERO as a trusted source for reliability assessment information and decision-making guidance. In addition, these capabilities provide industry and other stakeholders with important information to assist them in ensuring reliability in light of the unprecedented changes of the character and composition of the BPS.

Resource Requirements

Personnel

The decrease of 1.88 FTEs in the 2020 budget is a result of the department and position reorganization discussed in the *Introduction and Executive Summary*.

Consultants and Contracts

The decrease of $526k for Consultants and Contracts in the 2020 budget is primarily a result of a reclassification of maintenance and enhancement costs for GADS, TADS, and DADS to Office Costs and Fixed Assets, respectively. A detailed breakdown of 2019 and 2020 budgeted expenses are shown in *Exhibit B – Consultant and Contract Costs*.

Other Costs

The $140k increase for Meeting Expenses in the 2020 budget is primarily a result of the department and position reorganization (discussed in the *Introduction and Executive Summary*) due to the movement of associated costs for the NERC technical committee meetings to the RA and Technical Committees group. The $219k increase for Office Costs is due to the reclassification of maintenance and enhancement costs for GADS, TADS, and DADS from Consultants and Contracts. The Fixed Asset budget for 2020 includes $600k for enhancements for the GADS, TADS, and DADS tools and development of GADS Solar, discussed above.

Statement of Activities and Fixed Asset Additions
2019 Budget & Projection, and 2020 Budget
RELIABILITY ASSESSMENTS AND PERFORMANCE ANALYSIS

	2019 Budget	2019 Projection	Variance 2019 Projection v 2019 Budget Over(Under)	2020 Budget	Variance 2020 Budget v 2019 Budget Over(Under)
Funding					
ERO Funding					
NERC Assessments	$ 13,056,888	$ 13,056,888	$ -	$ 13,001,958	$ (54,930)
Assessment Stabilization Reserve - Penalties	102,414	102,414	-	-	(102,414)
Total NERC Funding	**$ 13,159,302**	**$ 13,159,302**	**$ -**	**$ 13,001,958**	**$ (157,344)**
Third-Party Funding	$ -	$ -	$ -	$ -	$ -
Testing Fees	-	-	-	-	-
Services & Software	40,000	40,000	-	60,000	20,000
Miscellaneous	-	-	-	-	-
Interest & Investment Income	32,894	86,656	53,762	60,345	27,450
Total Funding (A)	**$ 13,232,197**	**$ 13,285,958**	**$ 53,762**	**$ 13,122,303**	**$ (109,893)**
Expenses					
Personnel Expenses					
Salaries	$ 4,170,057	$ 3,788,384	$ (381,674)	$ 3,662,883	$ (507,174)
Payroll Taxes	260,940	236,077	(24,863)	233,091	(27,849)
Benefits	541,751	554,185	12,434	595,261	53,511
Retirement Costs	461,661	408,079	(53,582)	407,604	(54,057)
Total Personnel Expenses	**$ 5,434,409**	**$ 4,986,724**	**$ (447,685)**	**$ 4,898,839**	**$ (535,570)**
Meeting Expenses					
Meetings & Conference Calls	$ 117,100	$ 117,504	$ 404	$ 286,800	$ 169,700
Travel	330,000	368,463	38,463	300,000	(30,000)
Total Meeting Expenses	**$ 447,100**	**$ 485,967**	**$ 38,867**	**$ 586,800**	**$ 139,700**
Operating Expenses, excluding Depreciation					
Consultants & Contracts	$ 1,278,565	$ 1,260,243	$ (18,322)	$ 752,570	$ (525,995)
Office Rent	-	-	-	-	-
Office Costs	294,000	294,000	-	513,304	219,304
Professional Services	-	-	-	-	-
Miscellaneous	1,000	1,000	-	2,000	1,000
Total Operating Expenses, excluding Depreciation	**$ 1,573,565**	**$ 1,555,243**	**$ (18,322)**	**$ 1,267,874**	**$ (305,691)**
Total Direct Expenses	**$ 7,455,074**	**$ 7,027,935**	**$ (427,139)**	**$ 6,753,513**	**$ (701,561)**
Indirect Expenses	**$ 5,589,571**	**$ 5,875,690**	**$ 286,119**	**$ 5,534,837**	**$ (54,734)**
Other Non-Operating Expenses	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Total Expenses (B)	**$ 13,044,645**	**$ 12,903,625**	**$ (141,020)**	**$ 12,288,351**	**$ (756,294)**
Change in Net Assets (=A-B)	**$ 187,552**	**$ 382,334**	**$ 194,782**	**$ 833,953**	**$ 646,401**
Fixed Asset Additions, excluding Right of Use Assets (C)	**$ 187,552**	**$ 125,284**	**$ (62,268)**	**$ 833,953**	**$ 646,401**
Total Budget (=B+C)	**$ 13,232,197**	**$ 13,028,908**	**$ (203,288)**	**$ 13,122,303**	**$ (109,893)**
FTEs	**25.38**	**24.63**	**(0.75)**	**23.50**	**(1.88)**

Situation Awareness

Situation Awareness (in whole dollars)	2019 Budget	2020 Budget	Increase (Decrease)
Total FTEs	5.64	5.64	-
Direct Expenses	$ 2,612,404	$ 2,578,597	$ (33,807)
Indirect Expenses	1,242,127	1,328,361	86,234
Other Non-Operating Expenses	-	-	-
Fixed Asset Additions	441,678	349,049	(92,630)
TOTAL BUDGET	$ 4,296,209	$ 4,256,006	$ (40,203)

Background and Scope

NERC's Situation Awareness group and the Regional Entities monitor BPS conditions, significant occurrences and emerging risks, and threats across the 14 RC regions in North America to maintain an understanding of conditions and situations that could impact reliable operation. This group also supports the development and publication of NERC Alerts and awareness products and facilitates information sharing among industry, the Regional Entities, and the government during crisis situations and major system disturbances. The process for understanding the potential threats or vulnerabilities to BPS reliability starts with understanding occurrences and events in the context in which they occur.

Stakeholder Engagement and Benefit

BPS conditions continually change and provide recognizable signatures through automated tools, mandatory reports and voluntary information sharing, and third-party publicly available sources. The significant majority of these signatures represents conditions and occurrences that have little or no reliability impact, either positive or adverse, on the BPS. However, being cognizant of the short-term condition of the BPS and the signatures associated with the entire range of reliability performance helps the ERO identify significant occurrences more accurately and efficiently. Registered entities continue to robustly share information and collaborate with the ERO to maintain and improve overall reliability.

The Situation Awareness group assists the OC's Operating Reliability Subcommittee (ORS) in enhancing BPS reliability with their efforts to provide operational guidance to the industry by managing NERC-sponsored technology tools and services that support operational coordination, and by providing technical support and advice as requested.

Tools and Technology

The group uses and supports the following reliability-related tools in support of Situation Awareness activities:

- **Resource Adequacy (Area Control Error [ACE] Frequency) Tool –** This software application provides continuous monitoring of key resource adequacy performance metrics, including pre-established thresholds and limits defined in standards. It alerts RCs and resource subcommittees to conditions that could result in critical inadequacies, such as major tie errors, inaccurate load forecasts, and inadequate frequency response.
- **Inadvertent Interchange** – This tool facilitates the entering of monthly scheduling data and submittal of monthly inadvertent performance standards reports to NERC. It also assists in the monitoring and resolution of reliability issues originated by inadvertent interchange imbalances.

- **Frequency Monitoring Network (FNet)** – Operated by the Power Information Technology Laboratory at the University of Tennessee, FNet is a low-cost, quickly deployable GPS-synchronized wide-area frequency measurement network. High dynamic accuracy frequency disturbance recorders are used to measure the frequency, phase angle, and voltage of the power system at ordinary 120V outlets. This measurement data is continuously transmitted via the Internet to the FNet servers hosted at the University of Tennessee and Virginia Tech.
- **Intelligent Alarms Tool** – This tool detects short-term and long-term frequency deviations using data transmitted to NERC by the BAs. When coupled with FNet, this tool allows immediate differentiation of the cause of a frequency deviation—a generator trip or a scheduling error.
- **PowerIQ and Power RT** – These tools provide more detailed insight into current-day conditions impacting BPS conditions in both normal operations and stressed conditions.
- **Situation Awareness for NERC, FERC, and the Regional Entities (SAFNR)** – This system provides near real-time information about the current operating conditions of the BPS and valuable information from a wide-area view about BPS impacts from hurricanes, hot and cold weather extremes, and varying system conditions.
- **Reliability Coordinator Information System (RCIS)** – This system allows RCs to post messages and share operating information in real time.
- **NERC Alerts –** This secure alerting system enables NERC to issue alerts to registered entities and the electricity sector when NERC discovers, identifies, or is provided with information that is critical to ensuring the reliability of the BPS.
- **Process Information (PI) Historian System** – The PI Historian system initially provided the ability to collect and analyze system inertia data in support of the recommendations in the 2015 Essential Reliability Services Task Force (ERSTF) report. The system also offers longer term value by enabling the continued strategy to transition away from outside applications by replicating the functionality of Resource Adequacy and Intelligent Alarms in-house. The system also creates the necessary foundation for NERC's eventual receipt and consumption of streaming synchrophasor data in near real time.

Key Efforts Underway

Situation Awareness is focusing on the following priorities and ongoing activities:

- Ensuring that the ERO is aware of all BES events above a threshold of impact;
- Enabling the sharing of information and data to facilitate wide-area situational awareness;
- Facilitating the exchange of information among industry, the Regional Entities, and the U.S. and Canadian governments during crisis situations;
- Keeping industry informed of emerging reliability threats and risks, including any expected actions;
- Administering the NERC Alerts process as specified in ROP Section 810 to issue Advisory (Level 1) Alerts on significant and emerging reliability and security-related topics as needed, and facilitate the tracking of actions specified in Recommendation (Level 2) and Essential Action (Level 3) Alerts;
- Continuing to set the conditions to bring in limited streaming synchrophasor data for wide-area situational awareness and event triage applications; and
- Looking at the importance of having visibility and understanding of the reliability or availability of natural gas and its interdependency with electrical generation.

Additionally, in 2019, the Situation Awareness group is focusing on the upgrade to the SAFNR software application, which is expected to be released by the end of the year. The current SAFNR platform limits the Situation Awareness group's ability to accurately understand current conditions on the BPS due to the inability to easily or cost-effectively update the underlying power system information. The upgrade will allow for rapid and accurate situational awareness that appropriately protects the proprietary information in the tool while maximizing the value of understanding shared to the right audiences. Further, enhancing SAFNR will incorporate functionality elements piloted during GridEx IV that will enable the Situation Awareness group to provide the E-ISAC and the ESCC with more timely and understandable common operating picture information.

2020 Goals and Deliverables

In 2020, the Situation Awareness group will continue to execute the activities discussed above, including implementation of the upgraded SAFNR system and development of any needed enhancements. Additional 2020 plans include (1) an upgrade to the video wall in the NERC Atlanta office situational awareness room; (2) enhancing natural gas situational awareness by working with vendors to gain a better understanding of the tools and methods that are and will be available to monitor natural gas availability, transmission, and distribution across the BES; and (3) working with the E-ISAC to increase situational awareness related to physical security.

Future Plans

In 2021 and beyond, efforts related to natural gas and physical security situational awareness will continue. The Situation Awareness group is also planning for needed upgrades to or replacements of the RCIS, Resource Adequacy Tool, and NERC Alerts applications.

Resource Requirements

Personnel

There is no change in FTEs for the 2020 budget from the 2019 budget.

Consultants and Contracts

The $1.3M decrease in Consultants and Contracts in the 2020 budget is a result of a reclassification of costs for licenses, support, and maintenance for the Situation Awareness tools discussed above to Office Costs. A detailed breakdown of the 2019 and 2020 budgeted expenses is shown in *Exhibit B – Consultant and Contract Costs*.

Other Costs

The $1.1M increase for Office Costs in the 2020 budget is a result of the reclassification of costs for licenses, support, and maintenance for the Situation Awareness tools discussed above from Contracts and Consultants. The costs for these tools in 2020 is consistent with the 2019 budget. The total Fixed Assets budget includes $250k for an upgrade to the video wall in the NERC Atlanta office situational awareness room.

Statement of Activities and Fixed Asset Additions
2019 Budget & Projection, and 2020 Budget
SITUATION AWARENESS

	2019 Budget	2019 Projection	Variance 2019 Projection v 2019 Budget Over(Under)	2020 Budget	Variance 2020 Budget v 2019 Budget Over(Under)
Funding					
ERO Funding					
NERC Assessments	$ 4,266,141	$ 4,266,141	$ -	$ 4,241,524	$ (24,617)
Assessment Stabilization Reserve - Penalties	22,759	22,759	-	-	(22,759)
Total NERC Funding	**$ 4,288,899**	**$ 4,288,899**	**$ -**	**$ 4,241,524**	**$ (47,376)**
Third-Party Funding	$ -	$ -	$ -	$ -	$ -
Testing Fees	-	-	-	-	-
Services & Software	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Interest & Investment Income	7,310	19,581	12,271	14,483	7,173
Total Funding (A)	**$ 4,296,209**	**$ 4,308,480**	**$ 12,271**	**$ 4,256,006**	**$ (40,203)**
Expenses					
Personnel Expenses					
Salaries	$ 865,683	$ 902,298	$ 36,615	$ 900,228	$ 34,546
Payroll Taxes	58,475	56,755	(1,720)	59,293	817
Benefits	182,721	209,972	27,252	227,569	44,849
Retirement Costs	95,435	85,885	(9,551)	100,163	4,727
Total Personnel Expenses	**$ 1,202,314**	**$ 1,254,910**	**$ 52,596**	**$ 1,287,253**	**$ 84,939**
Meeting Expenses					
Meetings & Conference Calls	$ 2,000	$ 3,896	$ 1,896	$ 30,000	$ 28,000
Travel	33,000	50,000	17,000	35,000	2,000
Total Meeting Expenses	**$ 35,000**	**$ 53,896**	**$ 18,896**	**$ 65,000**	**$ 30,000**
Operating Expenses, excluding Depreciation					
Consultants & Contracts	$ 1,280,990	$ 1,329,740	$ 48,750	$ -	$ (1,280,990)
Office Rent	-	-	-	-	-
Office Costs	93,600	255,722	162,122	1,225,844	1,132,244
Professional Services	-	-	-	-	-
Miscellaneous	500	500	-	500	-
Total Operating Expenses, excluding Depreciation	**$ 1,375,090**	**$ 1,585,962**	**$ 210,872**	**$ 1,226,344**	**$ (148,746)**
Total Direct Expenses	**$ 2,612,404**	**$ 2,894,769**	**$ 282,365**	**$ 2,578,597**	**$ (33,807)**
Indirect Expenses	**$ 1,242,127**	**$ 1,381,252**	**$ 139,125**	**$ 1,328,361**	**$ 86,234**
Other Non-Operating Expenses	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Total Expenses (B)	**$ 3,854,531**	**$ 4,276,021**	**$ 421,490**	**$ 3,906,958**	**$ 52,427**
Change in Net Assets (=A-B)	**$ 441,678**	**$ 32,459**	**$ (409,219)**	**$ 349,049**	**$ (92,630)**
Fixed Asset Additions, excluding Right of Use Assets (C)	**$ 441,678**	**$ 162,785**	**$ (278,894)**	**$ 349,049**	**$ (92,630)**
Total Budget (=B+C)	**$ 4,296,209**	**$ 4,438,806**	**$ 142,597**	**$ 4,256,006**	**$ (40,203)**
FTEs	**5.64**	**5.79**	**0.15**	**5.64**	**-**

Event Analysis

Event Analysis (in whole dollars)	2019 Budget	2020 Budget	Increase (Decrease)
Total FTEs	11.28	9.40	(1.88)
Direct Expenses	$ 2,731,658	$ 2,426,341	$ (305,317)
Indirect Expenses	2,484,254	2,213,935	(270,319)
Other Non-Operating Expenses	-	-	-
Fixed Asset Additions	83,356	93,581	10,225
TOTAL BUDGET	$ 5,299,268	$ 4,733,857	$ (565,411)

Background and Scope

The Event Analysis group performs assessments of the reliability and adequacy of the BES. This includes identifying potential issues of concern related to system, equipment, entity, and human performance that may indicate a need to develop remediation strategies, action plans, or data used to revise or retire Reliability Standards or consider new Reliability Standards. The group analyzes and determines the cause of the events, promptly ensures tracking of corrective actions to prevent recurrence, and provides lessons learned to the industry. Event Analysis ensures that reporting and analysis are consistent to allow wide-area assessment of trends and risks. The group analyzes all reportable events for sequence of events, root cause, risk to reliability, and mitigation, and keeps the industry well informed of system events, emerging trends, risk analysis, lessons learned, and expected actions.

Additional resources within this group focus on identifying human-error risks and those precursor factors that allow human error to impact system reliability. The group educates industry regarding risks, precursors, and mitigation methods. Resources also support compliance and Reliability Standards training initiatives and trending and analysis to identify emerging reliability risks. These efforts are conducted in collaboration with industry human performance projects, including those of WECC's Human Performance Working Group, the OC's Event Analysis Subcommittee (EAS), and others.

Stakeholder Engagement and Benefit

The Event Analysis group coordinates the use of collective resources, consistency in analysis, and timely delivery of event analysis reports as per the *ERO Event Analysis Process*. The ERO disseminates lessons learned and other useful information to the electric industry obtained from or as a result of event analysis. The Event Analysis team conducts in-depth analyses of approximately 150 events per year on average. Each year, the team also conducts calls facilitated by the Regional Entities with over 140 registered entities to discuss in detail and finalize root and contributing causes for the categorized events analyzed. Major analysis to date includes continuing assessment of EMS outages, continued collaboration with the RAPA groups on frequency response performance, analyses of substation equipment failure events, and protective relay trends, including ground overcurrent relay misoperations, relay communication system failures, and the importance of commissioning testing. Additionally, substantial work and analysis is being done in the area of inverters and inverter technologies.

Tools and Technology

The Event Analysis Management System (TEAMS) is used to track and process records originating from the EOP-004 reporting, OE-417 reporting, Event Analysis, and the ERO Cause Code Assignment processes. Relevant reports are recorded, uploaded, and tied together into a single event. The data in TEAMS is used to fuel event cause coding, general system performance analysis, and key performance indicators.

Key Efforts Underway

Event Analysis focus areas and ongoing activities include:

- Work with the Regional Entities to obtain and review information from registered entities on qualifying events and disturbances to advance awareness of events above a threshold level; facilitate analysis of root and contributing causes, risks to reliability, wide-area assessments, and remediation efforts; and disseminate information regarding events in a timely manner.
- Ensure that all reportable events are analyzed for sequence of events, root cause, risk to reliability, and mitigation.
- Continue to refine risk-based methods to support better identification of reliability risks, including the use of more sophisticated cause codes for analysis.
- Conduct training (webinars, workshops, and conference support) to inform industry and the ERO of lessons learned, root cause analysis, trends, human performance, and extreme weather preparedness and recommendations, including events like the annual NERC Monitoring and Situational Awareness Conference and annual Human Performance Conference.
- Develop reliability recommendations and alerts as needed and track industry accountability for critical reliability recommendations.
- Ensure that industry is well informed of system events, emerging trends, risk analysis, lessons learned, and expected actions.
- Conduct major event analysis and reporting of major findings and recommendations that will improve reliability.

The Event Analysis department also supports several of the top-priority reliability risk projects as identified and described in the *Reliability Assessment and Performance Analysis* section.

2020 Goals and Deliverables

In addition to continuing the activities described above, in 2020 the Event Analysis group will focus on updating/upgrading data collection and shortage capabilities and capacity for TEAMS. Additionally, the Event Analysis and PA groups will work to develop a link between performance and event analysis data to enhance the ability to conduct effective event analyses, as well as to identify key areas for trend analyses across multiple databases.

Future Plans

In 2021 and beyond, the Event Analysis group will continue to work to improve the depth of event analyses across the ERO Enterprise, including enhancing data collection abilities and capacity and integration with other database systems.

Resource Requirements

Personnel

The 1.88 decrease in FTEs in the 2020 budget is a result of the department and position reorganization discussed in the *Introduction and Executive Summary*.

Consultants and Contracts

The $10k for Consultants and Contracts in the 2020 budget is for Event Analysis review support.

Statement of Activities and Fixed Asset Additions
2019 Budget & Projection, and 2020 Budget
EVENT ANALYSIS

	2019 Budget	2019 Projection	Variance 2019 Projection v 2019 Budget Over(Under)	2020 Budget	Variance 2020 Budget v 2019 Budget Over(Under)
Funding					
ERO Funding					
NERC Assessments	$ 5,239,131	$ 5,239,131	$ -	$ 4,709,719	$ (529,412)
Assessment Stabilization Reserve - Penalties	45,517	45,517	-	-	(45,517)
Total NERC Funding	**$ 5,284,648**	**$ 5,284,648**	**$ -**	**$ 4,709,719**	**$ (574,929)**
Third-Party Funding	$ -	$ -	$ -	$ -	$ -
Testing Fees	-	-	-	-	-
Services & Software	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Interest & Investment Income	14,620	33,050	18,431	24,138	9,518
Total Funding (A)	**$ 5,299,268**	**$ 5,317,699**	**$ 18,431**	**$ 4,733,857**	**$ (565,411)**
Expenses					
Personnel Expenses					
Salaries	$ 1,903,950	$ 1,696,731	$ (207,220)	$ 1,651,222	$ (252,728)
Payroll Taxes	113,420	93,235	(20,185)	94,949	(18,472)
Benefits	264,308	234,796	(29,512)	259,683	(4,625)
Retirement Costs	210,479	180,160	(30,319)	181,837	(28,643)
Total Personnel Expenses	**$ 2,492,158**	**$ 2,204,922**	**$ (287,236)**	**$ 2,187,691**	**$ (304,467)**
Meeting Expenses					
Meetings & Conference Calls	$ 41,500	$ 23,214	$ (18,286)	$ 33,600	$ (7,900)
Travel	150,000	150,000	-	150,000	-
Total Meeting Expenses	**$ 191,500**	**$ 173,214**	**$ (18,286)**	**$ 183,600**	**$ (7,900)**
Operating Expenses, excluding Depreciation					
Consultants & Contracts	$ -	$ -	$ -	$ 10,000	$ 10,000
Office Rent	-	-	-	-	-
Office Costs	47,500	47,500	-	44,550	(2,950)
Professional Services	-	-	-	-	-
Miscellaneous	500	4,461	3,961	500	-
Total Operating Expenses, excluding Depreciation	**$ 48,000**	**$ 51,961**	**$ 3,961**	**$ 55,050**	**$ 7,050**
Total Direct Expenses	**$ 2,731,658**	**$ 2,430,097**	**$ (301,561)**	**$ 2,426,341**	**$ (305,317)**
Indirect Expenses	**$ 2,484,254**	**$ 2,311,630**	**$ (172,624)**	**$ 2,213,935**	**$ (270,319)**
Other Non-Operating Expenses	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Total Expenses (B)	**$ 5,215,912**	**$ 4,741,727**	**$ (474,185)**	**$ 4,640,276**	**$ (575,636)**
Change in Net Assets (=A-B)	**$ 83,356**	**$ 575,972**	**$ 492,616**	**$ 93,581**	**$ 10,225**
Fixed Asset Additions, excluding Right of Use Assets (C)	**$ 83,356**	**$ 49,289**	**$ (34,067)**	**$ 93,581**	**$ 10,225**
Total Budget (=B+C)	**$ 5,299,268**	**$ 4,791,016**	**$ (508,252)**	**$ 4,733,857**	**$ (565,411)**
FTEs	**11.28**	**9.69**	**(1.59)**	**9.40**	**(1.88)**

Electricity Information Sharing and Analysis Center

E-ISAC (including CRISP) (in whole dollars)	2019 Budget	2020 Budget	Increase (Decrease)
Total FTEs	37.60	44.18	6.58
Direct Expenses	$ 17,959,819	$ 20,018,016	$ 2,058,197
Indirect Expenses	8,392,122	10,405,494	2,013,372
Other Non-Operating Expenses	-	-	-
Fixed Asset Additions	973,686	861,280	(112,405)
TOTAL BUDGET	$ 27,325,627	$ 31,284,791	$ 3,959,164

Background and Scope

The Electricity Information Sharing and Analysis Center (E-ISAC) mission is to reduce cyber and physical security risk to the electricity industry across North America through unique insights, leadership, and collaboration. At the request of the Board and under the guidance of the ESCC and MEC, executive leadership of the E-ISAC developed the *E-ISAC Long-Term Strategic Plan*, which was approved by the MEC on April 24, 2017 and accepted by the Board on May 11, 2017. This long-term strategy includes a five-year resource plan to transform the E-ISAC into a world-class intelligence collecting and analytical capability for the electricity industry. The goal is to build the E-ISAC into a world-class, trusted source of quality analysis and rapid sharing of security information for the electricity industry. The strategic plan contemplates a measured increase in resources over an initial five year period, with the exact timing of resource additions dependent on management's progress executing the long-term strategy and receiving required corporate and regulatory authorizations.

The E-ISAC also oversees the Cybersecurity Risk Information Sharing Program (CRISP), a unique public-private initiative among the E-ISAC, the North American electric utility industry, DOE, and the U.S. Intelligence Community that delivers real-time, relevant, and actionable cyber security risk information to all E-ISAC member electricity asset owners and operators, including those from Canada and Mexico. The program leverages subject matter expertise and resources from the E-ISAC, DOE, the Pacific Northwest National Laboratory (PNNL), and the Argonne National Laboratory. Using passive information sharing devices (ISD) on participant networks outside boundary firewalls, participant data is collected and then matched against known threat signatures—classified and unclassified—to identify potential threats and provide participants with recommended mitigation steps. Aggregated indicators of compromise and other relevant security information are shared with all E-ISAC members, regardless of participation in CRISP. The majority of the CRISP budget is funded by participating utilities, with a small portion funded through NERC assessments.

Stakeholder Engagement and Benefit

The E-ISAC's engagement with stakeholders is best described in the context of the three primary foundational focus areas, which are further described the E-ISAC's long-term strategy: (1) engagement, (2) information sharing, and (3) analysis.

Engagement

A member-first culture drives the E-ISAC focus to provide value to the electricity industry asset owners and operators, and active engagement of members and partners (government and other security organizations) increases data sources and leverage cross-sector security resources. Successful

engagement with electric industry members and other stakeholders is critical to building trust, which is vital to cyber and physical security risk identification, sharing, analysis, and mitigation.

The E-ISAC Portal is the primary tool for communications with members and partners. The Portal includes a user-community capability that allows members with similar security concerns to collaborate directly on a trusted, secure platform. The user communities bring together expertise regarding common issue areas and build trust through increased interaction among members. In addition to Portal communications, the E-ISAC issues bulletins, develops periodic reports, and holds monthly and dynamic briefings. The E-ISAC also developed a Critical Broadcast Program (CBP) to facilitate more rapid information sharing with industry regarding potential security threats.

The E-ISAC also hosts industry members through its Industry Engagement Program (IEP). The IEP embeds industry security analysts at the E-ISAC, who interact with E-ISAC staff, observe data collection and handling procedures, and share their own expertise with E-ISAC personnel. Participants also provide valuable feedback regarding their organizations' security practices and needs, which helps inform ongoing and future practices and programs within the E-ISAC.

The E-ISAC also regularly interacts with industry members in coordination with various trade associations, including the American Public Power Association (APPA), CEA, EEI, and the National Rural Electric Cooperative Association (NRECA) by providing analyst briefings and information regarding E-ISAC programs and services. Participating in planned regional security programs enables the E-ISAC to share actionable security information across industry.

Since 2011, the E-ISAC has sponsored a biennial grid security exercise (GridEx). This geographically-distributed exercise is designed to exercise the electricity industry's crisis response to simulated coordinated cyber and physical security threats and incidents, to strengthen utilities' crisis response functions, and to provide input for lessons learned. The E-ISAC manages the program and collects industry information during and after the exercise subject to existing data collection and protection policies. During the exercise, E-ISAC Watch Operations and analyst staff exercise the E-ISAC mission and share crisis information and analysis towards mitigating the threats and attacks. Lessons learned and recommendations are shared with exercise participants via restricted reports, and also shared publically at a high level.

Also since 2011, NERC has also sponsored an annual grid security conference (GridSecCon). This conference brings together hundreds of industry and government subject matter experts on cyber, physical, and operations technology threats and solutions, with training sessions and classified or official-use briefs on topics vital to grid security. The E-ISAC provides expertise and gathers appropriate speakers, panelists, and training providers.

The E-ISAC is committed to strengthening ongoing collaboration between industry and government, which is a key component of GridEx and other security exercises. Exercises like GridEx are vital to effectively responding to any crisis affecting the electric grid. The E-ISAC continues to build relationships with the government intelligence community, with the goal of increased access to government-informed threat information and analysis. The E-ISAC is engaged in regular communications with the DOE, the Department of Homeland Security (DHS), the Department of Defense (DOD), and FERC's Office of Energy and Infrastructure Security, and continues to build on its cross-sector relationships with the other ISACs (e.g., financial services, multi-state, downstream natural gas, water, communications, and nuclear).

In 2018, the E-ISAC launched a Canadian engagement strategy to strengthen collaboration and information sharing between the E-ISAC and the Canadian electric industry, as well as between the E-ISAC

and applicable trade associations, Canadian regulatory authorities, and the Canadian cyber security intelligence community. This strategy includes ongoing partnership outreach tours and face-to-face meetings with industry leaders in each of the interconnected provinces. Other initiatives involving Canadian entities include participation in the E-ISAC's IEP and unclassified and classified briefings.

Information Sharing
Timely and effective information sharing is critical to sector engagement, security risk identification, and mitigation. Focus areas include: developing and implementing high priority notification procedures, using automated information sharing technology, improving E-ISAC Portal functionality, and improving industry personnel's access to classified information. The E-ISAC Portal capabilities include publishing immediate notifications and other informational products, exchanging threat indicator information, and providing self-service access to user security awareness services. Beyond the Portal notifications, the E-ISAC developed the CBP to deliver information rapidly to stakeholders about emerging security threats based on the best analysis available at the time, with follow-on updates as more details emerge. The CBP allows a faster response to events and a higher level of awareness for members provided by E-ISAC analysts.

As discussed above, the E-ISAC delivers real-time, relevant, and actionable cyber security risk information to all E-ISAC member electricity asset owners and operators through CRISP. The E-ISAC has also broadened automated information sharing capabilities beyond CRISP, piloting a program using the Structured Threat Information Expression/Trusted Automated Exchange of Indicator Information (STIX/TAXII) protocols in use by many organizations, including DHS. To that end, during 2017 and early 2018, the E-ISAC and several industry partners piloted the Cyber Automated Information Sharing System (CAISS). The pilot evaluated technological solutions for bi-directional communication, workflow between participants, the handling and vetting of shared information, and lessons learned from the technology and processes overall. CAISS became operational in 2019 and is available for voluntary participation from industry asset owners and operators.

Analysis
As mentioned previously, the E-ISAC publishes reports, bulletins, and advisories; conducts monthly webinars; and convenes experts for classified and unclassified briefings for its members. The most valuable content in those activities comes from analysis by E-ISAC cyber security, physical security, and threat intelligence teams, as well as incorporating independent analysis from members, government partners, the cross-sector community, strategic vendors, and other partners.

The E-ISAC Plan has guided investments in hiring and training skilled security analysts, identifying and leveraging additional technology, enhancing relationships with and access to government analysis sources, and developing strategic vendor relationships, which are all crucial to the E-ISAC's goal of providing credible, timely analytics that turn member, cross-sector, third-party, and government data into sector-specific insights and allow for member action against threats.

Building and maintaining highly-skilled cyber and physical security analysis teams are significant and ongoing areas of management focus. The E-ISAC also continually evaluates and, where appropriate, contracts with outside service providers with security analysis expertise to support highly-specialized analytical needs, as well as to supplement in-house capabilities.

Tools and Technology

The primary technologies and tools used in support of the E-ISAC's operations include:

- The E-ISAC Portal
- Hardware and software funded and supported as part of CRISP

- Industry broadcast communication systems
- A customer relationship management (CRM) system
- An event management system
- A high frequency disaster recovery communication system
- Data storage and management systems
- E-mail and secure text communications systems
- Technology to facilitate threat communications among members
- Incident management tools
- Various third-party physical and cyber security sharing information services

Key Efforts Underway

As noted above, the three primary elements of E-ISAC's long-term strategy are engagement, information sharing, and analysis. The following are current efforts related to those areas, as well as other supporting activities:

Engagement

- Organizing and advertising industry briefings and IEPs;
- Ongoing execution of the Canadian engagement strategy, including expanding Canadian membership growth and Portal usage;
- Continuing to build and strengthen governmental, cross-sector, and international relationships, including with U.S. and Canadian intelligence communities, as well as collaborating with Ontario Independent Electric System Operator (IESO) cyber security information sharing operations. Discussions with IESO have focused on the mutual benefits of entering into a pilot collaboration agreement, which builds on the strengths of both organizations and improves the overall efficiency and effectiveness in the execution of their common objective of assisting industry with cyber security awareness and reducing cyber security risks.
- Expanding participation in the 2019 GridEx V program, including identifying action items, lessons learned, and obtaining feedback on execution of the exercise;

Information Sharing

- Procuring and deploying CRM technology;
- Implementing Portal enhancements, expanding Portal user groups, and integrating CRM-related capabilities with the Portal;
- Onboarding new CRISP participants and increasing cross-sector information sharing;
- Creating governance and control procedures for bidirectional information exchanges with U.S. and Canadian security organizations;
- Creating governance frameworks and procedures to support information sharing with other ISACs;

Analysis

- Executing hiring plan for watch officers and analysts;
- Expanding internal threat analysis using available data sources;
- Expanding collaborative relationships with federally funded research organizations;
- Providing for advanced training for analysts;

Metrics

- Developing metrics to more effectively measure progress in execution of the long term strategy, including the effectiveness of activities in supporting achievement of approved goals and objectives; and

Internal Controls

- Refining and updating internal control procedures, as well as developing additional procedures as appropriate.

2020 Goals and Deliverables

The E-ISAC remains focused on furtherance of the strategic efforts discussed above as 2020 marks the third year of the long-term strategy. Building on the resources and foundation put in place in the 2018 and 2019 BP&Bs, the E-ISAC 2020 budget reflects a continued measured approach in strengthening the resources and technology required to support the three primary elements of the E-ISAC's long-term strategy: engagement, information sharing, and analysis.

Engagement

- Building and enriching the value of E-ISAC membership;
- Strengthening trusted-source relationships;
- Enhancing engagement with Canada;
- Evolving the GridEx program;

Information Sharing

- Continuing to improve Portal features and capabilities;
- Increasing information sharing by trusted source partners and industry;
- Improving value added actionable information sharing with industry;
- Implementation of 24x7 watch capabilities;

Analysis

- Leveraging technology, data sources, and analytical capabilities to increase sharing of valued added and actionable threat information to industry;
- Continuing to strengthen watch operations and analysis team skills;
- Developing new data sources, analytical tools, and capabilities; and
- Strengthening analytical capabilities through strategic partnerships.

Future Plans

In 2021 and 2022, the E-ISAC will continue execution of the long-term strategy, including:

- Strengthening analytical and value added information sharing resources and capabilities, including effectively building out watch operations and increasing analytical bench strength;
- Building on trusted source partnerships with governmental agencies, including DOE, DHS and DOD, the national laboratories, and the intelligence community;
- Expanding sources of valuable threat information and analysis; and
- Making investments in technology to support both ongoing operations and key initiatives. This includes continuing to enhance Portal features and capabilities, and investing in the infrastructure necessary to support the expanded intake, storage, and management of data from multiple sources, with solid business cases supporting each new investment and disciplined execution ensuring solid results and returns on investment.

Resource Requirements

Personnel

The increase of 6.58 FTEs is to address the watch operations, analytical, and engagement capabilities discussed above in support of the long-term strategy for the E-ISAC. An additional 2.82 FTEs are being added to Administrative Programs areas for E-ISAC support activities.

Consultants and Contracts

Consultants and contracts expenses for the E-ISAC 2020 budget, including CRISP, are approximately $8.1M, which is consistent with the 2019 budget. CRISP's consultants and contracts expenses are $6.7M, which is $200k more than the 2019 budget, largely due to an increase in scope and funding for the outside auditor security review. A detailed breakdown of the budgeted 2019 and 2020 costs is provided in *Exhibit B – Consultant and Contractor Costs*.

Other Costs

The $560k increase in Office Costs is primarily due to additional software licensing and support costs for tools and technology in support of the E-ISAC long-term strategy, including the E-ISAC Portal and CRM and CBP systems. The $116k increase in Meeting Expenses is a result of increased travel costs due to personnel increases and engagement efforts, as well as enhanced conference call capabilities. The total Fixed Asset budget includes $350k for continued enhancements to the E-ISAC Portal.

Statement of Activities and Fixed Asset Additions
2019 Budget & Projection, and 2020 Budget
E-ISAC (including CRISP)

	2019 Budget	2019 Projection	Variance 2019 Projection v 2019 Budget Over(Under)	2020 Budget	Variance 2020 Budget v 2019 Budget Over(Under)
Funding					
ERO Funding					
NERC Assessments	$ 19,627,897	$ 19,627,897	$ -	$ 23,328,006	$ 3,700,109
Assessment Stabilization Reserve - Penalties	155,517	155,517	-	-	(155,517)
Total NERC Funding	**$ 19,783,414**	**$ 19,783,414**	**$ -**	**$ 23,328,006**	**$ 3,544,592**
Third-Party Funding	$ 7,486,353	$ 7,338,907	$ (147,446)	$ 7,814,577	$ 328,224
Testing Fees	-	-	-	-	-
Services & Software	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Interest & Investment Income	55,859	182,380	126,521	142,207	86,348
Total Funding (A)	**$ 27,325,627**	**$ 27,304,702**	**$ (20,925)**	**$ 31,284,791**	**$ 3,959,164**
Expenses					
Personnel Expenses					
Salaries	$ 6,297,594	$ 5,872,142	$ (425,452)	$ 7,494,261	$ 1,196,667
Payroll Taxes	384,429	360,457	(23,972)	461,786	77,356
Benefits	825,677	835,508	9,832	1,060,720	235,043
Retirement Costs	672,423	595,942	(76,481)	808,861	136,438
Total Personnel Expenses	**$ 8,180,123**	**$ 7,664,050**	**$ (516,073)**	**$ 9,825,628**	**$ 1,645,504**
Meeting Expenses					
Meetings & Conference Calls	$ 57,000	$ 256,142	$ 199,142	$ 103,200	$ 46,200
Travel	291,000	336,000	45,000	361,000	70,000
Total Meeting Expenses	**$ 348,000**	**$ 592,142**	**$ 244,142**	**$ 464,200**	**$ 116,200**
Operating Expenses, excluding Depreciation					
Consultants & Contracts	$ 8,278,000	$ 8,716,975	$ 438,975	$ 8,090,000	$ (188,000)
Office Rent	-	-	-	-	-
Office Costs	903,196	1,034,196	131,000	1,462,689	559,493
Professional Services	250,000	205,000	(45,000)	175,000	(75,000)
Miscellaneous	500	4,924	4,424	500	-
Total Operating Expenses, excluding Depreciation	**$ 9,431,696**	**$ 9,961,095**	**$ 529,399**	**$ 9,728,189**	**$ 296,493**
Total Direct Expenses	**$ 17,959,819**	**$ 18,217,287**	**$ 257,468**	**$ 20,018,016**	**$ 2,058,197**
Indirect Expenses	**$ 8,392,122**	**$ 7,991,702**	**$ (400,420)**	**$ 10,405,494**	**$ 2,013,372**
Other Non-Operating Expenses	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Total Expenses (B)	**$ 26,351,941**	**$ 26,208,989**	**$ (142,952)**	**$ 30,423,510**	**$ 4,071,569**
Change in Net Assets (=A-B)	**$ 973,686**	**$ 1,095,713**	**$ 122,027**	**$ 861,280**	**$ (112,405)**
Fixed Asset Additions, excluding Right of Use Assets (C)	**$ 973,686**	**$ 490,402**	**$ (483,284)**	**$ 861,280**	**$ (112,405)**
Total Budget (=B+C)	**$ 27,325,627**	**$ 26,699,391**	**$ (626,235)**	**$ 31,284,791**	**$ 3,959,164**
FTEs	**37.60**	**33.50**	**(4.10)**	**44.18**	**6.58**

Personnel Certification and Continuing Education

Personnel Certification and Continuing Education (in whole dollars)	2019 Budget	2020 Budget	Increase (Decrease)
Total FTEs	1.88	2.82	0.94
Direct Expenses	$ 615,828	$ 1,046,033	$ 430,206
Indirect Expenses	414,042	664,180	250,138
Other Non-Operating Expenses	-	-	-
Fixed Asset Additions	13,893	28,074	14,182
TOTAL BUDGET	$ 1,043,763	$ 1,738,288	$ 694,525

Background and Scope

The Personnel Certification and Continuing Education (PCCE) group oversees the System Operator Certification program, which ensures that System Operators have the skills, training, and qualifications needed to operate the system reliably. NERC maintains credentials for over 7,500 System Operator credential holders who work in various industry areas. NERC's System Operator Certification exam prepares operators for complying with requirements of Reliability Standards and, appropriately, operating the BPS during normal and emergency operations. The System Operator Certification program is governed by the PCGC, which is comprised of an industry group of operations experts, trainers, and supervisors. Certification exams are created by the PCGC's Exam Working Group (EWG), which consists of an industry group of operations subject matter experts. Under the PCGC oversight, the EWG reviews and updates job tasks and certification exams. ROP Section 600 addresses Personnel Certification activities in the area of System Operator Certification.

Credential maintenance of the System Operator Certification program is accomplished by obtaining Continuing Education Hours (CEHs). The Continuing Education (CE) program acknowledges high quality learning activities within the electric utility industry via the approval of CE providers and their approved courses. Comprised of industry training experts, the OC's Personnel Subcommittee (PS) provides oversight of the CE program. ROP Section 902 addresses the specific CE program expectations and activities.

The System Operator Certification and CE programs are self-funded through exam fees, and the PCGC oversees the programs' budgets.

Stakeholder Engagement and Benefit

The PCCE group collaborates with the PCGC and EWG on the completion of System Operator Certification program tasks. PCCE staff coordinate and administer the PCGC and EWG meetings and all activities associated with the System Operator Certification program. Industry stakeholders also benefit from the ability to participate in the Job Task Analysis (JTA) and the Item Writing Workshop (IWW), which occur every three years. The group also collaborates and meets with the PS throughout the year. As part of the course evaluation, industry stakeholders have an opportunity to provide feedback on every course taken in the CE program.

Tools and Technology

The primary tool of the System Operator Certification program and the CE program is a credential maintenance database known as the System Operator Certification Continuing Education Database (SOCCED). Candidates and System Operators use the tool for purchasing a certification exam application

and, upon successfully passing the exam, credential maintenance. CE providers use SOCCED to upload courses for approval as well as earned CEHs to System Operator transcripts.

Key Efforts Underway

The PCCE department is focused on the following priorities and ongoing activities:

- Analysis of System Operator Certification program survey results;
- Updates to the System Operator Certification Exam Item Bank to ensure relevance to current Reliability Standards;
- Enhancements to the exam "skills assessment" process to better assess the skills and knowledge of System Operators;
- Upon industry and FERC acceptance, development of an implementation plan for One Credential transition;
- Evaluating credential review and rationalization to maintain credentials;
- Reinstatement of Provider Renewal Audits;
- Revising the Continuing Education Program Manual; and
- Continued improvements to the SOCCED system to enhance user experiences.

2020 Goals and Deliverables

Under the guidance of the PCGC, the PCCE group is dedicated to enhancing the System Operator Certification program to support reliable operation of the BPS. In 2020, the group will focus on further development of the credential maintenance portion of the certification program. Key deliverables for the System Operator Certification program include:

- Analysis of System Operator Certification Program survey results;
- Annual analysis of the System Operator Certification Exam Item Bank;
- Annual analysis of Appendix A topics;
- Credential maintenance requirements; and
- Continued enhancements for SOCCED.

Under the guidance of the PS, the PCCE group will continue to focus on revisions, approval, and implementation of the new Continuing Education Program manual to provide clear and concise definitions, instructions, and processes for the CE program. The PS is also overseeing the development of guidelines that will assist industry with the creation and administration of their own System Operator Certification CE programs.

Future Plans

In 2021 and beyond, the PCCE group will focus on transition and implementation plans for the primary activities in 2020. For the System Operator Certification program, this includes transitioning to One Credential and the appropriate credential maintenance requirements, and for the CE program this includes implementation of the new Continuing Education Program manual.

Resource Requirements

Personnel

The 0.94 increase in FTEs is the result of the reallocation of resources to realign staff with current needs.

Consultants and Contracts

The $120k increase for Consultants and Contracts in the 2020 budget is attributed to the movement of CE program expenses from Training and Education to PCCE (as explained in the *Introduction and Executive Summary*), as well as an increase for SOCCED database improvements. A detailed breakdown of 2019 and 2020 budgeted expenses is shown in *Exhibit B – Consultant and Contract Costs*.

Other Costs

The $121k increase for Office Costs in the 2020 budget is due primarily to the movement of CE program expenses from Training and Education to PCCE, as well as an increase in SOCCED database support.

Statement of Activities and Fixed Asset Additions
2019 Budget & Projection, and 2020 Budget
PERSONNEL CERTIFICATION AND CONTINUING EDUCATION

	2019 Budget	2019 Projection	Variance 2019 Projection v 2019 Budget Over(Under)	2020 Budget	Variance 2020 Budget v 2019 Budget Over(Under)
Funding					
ERO Funding					
NERC Assessments	$ -	$ -	$ -	$ -	$ -
Assessment Stabilization Reserve - Penalties	-	-	-	-	-
Total NERC Funding	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Third-Party Funding	$ -	$ -	$ -	$ -	$ -
Testing Fees	1,190,000	1,190,000	-	1,735,000	545,000
Services & Software	-	-	-	-	-
Miscellaneous	-	260	260	-	-
Interest & Investment Income	2,437	23,513	21,076	7,241	4,805
Total Funding (A)	**$ 1,192,437**	**$ 1,213,773**	**$ 21,336**	**$ 1,742,241**	**$ 549,805**
Expenses					
Personnel Expenses					
Salaries	$ 258,133	$ 309,120	$ 50,987	$ 372,765	$ 114,632
Payroll Taxes	17,873	19,109	1,236	24,774	6,901
Benefits	32,946	40,383	7,437	64,235	31,289
Retirement Costs	28,276	31,803	3,528	40,459	12,183
Total Personnel Expenses	**$ 337,228**	**$ 400,416**	**$ 63,188**	**$ 502,233**	**$ 165,006**
Meeting Expenses					
Meetings & Conference Calls	$ 33,200	$ 32,634	$ (566)	$ 34,400	$ 1,200
Travel	7,000	31,655	24,655	30,000	23,000
Total Meeting Expenses	**$ 40,200**	**$ 64,290**	**$ 24,090**	**$ 64,400**	**$ 24,200**
Operating Expenses, excluding Depreciation					
Consultants & Contracts	$ 162,000	$ 312,000	$ 150,000	$ 282,000	$ 120,000
Office Rent	-	-	-	-	-
Office Costs	76,400	76,400	-	197,400	121,000
Professional Services	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Total Operating Expenses, excluding Depreciation	**$ 238,400**	**$ 388,400**	**$ 150,000**	**$ 479,400**	**$ 241,000**
Total Direct Expenses	**$ 615,828**	**$ 853,105**	**$ 237,277**	**$ 1,046,033**	**$ 430,206**
Indirect Expenses	**$ 414,042**	**$ 472,345**	**$ 58,303**	**$ 664,180**	**$ 250,138**
Other Non-Operating Expenses	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Total Expenses (B)	**$ 1,029,870**	**$ 1,325,450**	**$ 295,580**	**$ 1,710,214**	**$ 680,344**
Change in Net Assets (=A-B)	**$ 162,566**	**$ (111,677)**	**$ (274,244)**	**$ 32,027**	**$ (130,539)**
Fixed Asset Additions, excluding Right of Use Assets (C)	**$ 13,893**	**$ 10,072**	**$ (3,821)**	**$ 28,074**	**$ 14,182**
Total Budget (=B+C)	**$ 1,043,763**	**$ 1,335,522**	**$ 291,759**	**$ 1,738,288**	**$ 694,525**
FTEs	**1.88**	**1.98**	**0.10**	**2.82**	**0.94**

Training and Education

Training and Education (in whole dollars)	2019 Budget	2020 Budget	Increase (Decrease)
Total FTEs	1.88	1.88	-
Direct Expenses	$ 751,927	$ 553,483	$ (198,444)
Indirect Expenses	414,042	442,787	28,745
Other Non-Operating Expenses	-	-	-
Fixed Asset Additions	13,893	18,716	4,824
TOTAL BUDGET	$ 1,179,862	$ 1,014,986	$ (164,876)

Background and Scope

ROP Section 901 acknowledges the need to acquire and sustain informed, knowledgeable, and skilled personnel in order to assure the reliable operation of the North American BPS. The Training and Education group facilitates the learning and development of ERO Enterprise staff[11] as well as BPS industry participants. The program oversees and coordinates learning activities and resources that support the acquisition and increase of knowledge and skills among stakeholders.

In support of the ERO Enterprise's ongoing efforts to engage and retain highly qualified talent with the leadership and technical skills needed to support its mission, the Training and Education group facilitates continuous learning among the ERO Enterprise's executive and professional staff. These learning opportunities and resources are aimed at improving competencies critical to success and succession planning.

Stakeholder Engagement and Benefit

The Training and Education group's stakeholders are comprised of ERO Enterprise employees and BPS industry learners, project sponsors and managers, subject matter experts, and anyone else with a vested interest in the outcome of a learning event. The Training and Education program uses one-way mass communication media, such as emails, newsletters, flyers and marketing videos to convey information about learning events and resources. Two-way communication methods, such as face-to-face meetings and webinars, are used whenever three or more stakeholders are engaged to analyze learning needs, mutually solve problems, or delegate responsibilities and tasks. Learners are typically engaged through learning events and products and resources, such as custom-made and off-the-shelf interactive self-paced e-learning modules, video-based learning, and in-person and live-webinar instructor-led training.

Tools and Technology

The Training and Education group uses the following tools and technology to support their activities:

- Learning Management System (LMS) platform and content library for online learning modules
- E-learning content management systems and authoring tools
- Graphic design and video editing software
- Video camera, lighting, green screen, and audio equipment
- Audience Response Ware (ARW) technology (interactive audience response software and hardware)

[11] NERC's Human Resources group focuses on learning and development for NERC staff specifically.

Key Efforts Underway

The Training and Education team's key efforts are based on the ERO Enterprise's long-term strategic goal of increasing workforce training that develops the skills needed to perform high quality rigorous activities while keeping up with the fast changing pace of supporting technology. The Training and Education group is currently focused on the follow priorities and ongoing activities:

- Assisting in the facilitation of the ERO Enterprise CMEP staff workshop by designing, developing, and delivering video-based and interactive e-learning resources as well as the management of supporting resources, such as the ARW technology;
- Developing learning products for industry-facing workshops and conferences, including the annual Standards and Compliance Workshop, the Gas Infrastructure Technical Workshop, and the annual Human Performance Conference;
- Developing CMEP e-learning modules for ERO Enterprise auditors, systems training products for data systems, including DADS and GADS Wind, and functional program training modules, such as the Cause Analysis e-learning module;
- Developing promotional and training videos, e-learning modules, and instructor-led training in support of the CORES and first Align system software release;
- Designing the ERO Enterprise Systems Training website; and
- Deploying a new LMS system as well as a new off-the-shelf content management system for the ERO Enterprise.

2020 Goals and Deliverables

The Training and Education group's deliverables for 2020 include:

- Development of promotional and training videos, e-learning modules and instructor-led training in support of the second release of the Align system software;
- Identification, design, development, and implementation of a management development program;
- Any necessary updates or enhancements to existing instructional design support tools and software;
- Implementing training and adoption for the new LMS among ERO Enterprise employees;
- Continued development of the ERO Enterprise Systems Training website; and
- Updating systems training products for data systems including GADS, GADS Wind, TADS, DADS, etc. to reflect the enhancements to the data systems.

Future Plans

In 2021 and beyond, the Training and Education group expects to focus on the following:

- Development of learning resources for subsequent releases of/enhancements to the Align and CORES applications;
- Implementation of the management development program;
- Continued development of the ERO Enterprise Systems Training website;
- Delivery of an orientation/onboarding program for ERO Enterprise employees; and
- Any necessary updates or enhancements to existing instructional design support tools and software.

Resource Requirements

Personnel

There is no change in FTEs for the 2020 budget from the 2019 budget.

Consultants and Contracts

The $225k decrease is a result of (1) the movement of CE program expenses from Training and Education to PCCE; (2) a reclassification of LMS license and support costs to Office Costs; and (3) a reclassification of NERC staff technical training costs to Human Resources. A detailed breakdown of 2019 and 2020 budgeted expenses is shown in *Exhibit B – Consultant and Contract Costs*.

Statement of Activities and Fixed Asset Additions
2019 Budget & Projection, and 2020 Budget
TRAINING AND EDUCATION

	2019 Budget	2019 Projection	Variance 2019 Projection v 2019 Budget Over(Under)	2020 Budget	Variance 2020 Budget v 2019 Budget Over(Under)
Funding					
ERO Funding					
NERC Assessments	$ 569,839	$ 569,839	$ -	$ 1,010,158	$ 440,319
Assessment Stabilization Reserve - Penalties	7,586	7,586	-	-	(7,586)
Total NERC Funding	**$ 577,426**	**$ 577,426**	**$ -**	**$ 1,010,158**	**$ 432,733**
Third-Party Funding	$ -	$ -	$ -	$ -	$ -
Testing Fees	600,000	525,000	(75,000)	-	(600,000)
Services & Software	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Interest & Investment Income	2,437	6,971	4,535	4,828	2,391
Total Funding (A)	**$ 1,179,862**	**$ 1,109,397**	**$ (70,465)**	**$ 1,014,986**	**$ (164,876)**
Expenses					
Personnel Expenses					
Salaries	$ 203,480	$ 220,754	$ 17,274	$ 212,108	$ 8,628
Payroll Taxes	16,740	17,051	310	17,391	651
Benefits	45,441	43,759	(1,682)	52,397	6,956
Retirement Costs	22,891	24,467	1,575	23,836	945
Total Personnel Expenses	**$ 288,553**	**$ 306,030**	**$ 17,477**	**$ 305,733**	**$ 17,180**
Meeting Expenses					
Meetings & Conference Calls	$ 12,250	$ 12,884	$ 634	$ 12,250	$ -
Travel	10,000	1,748	(8,252)	10,000	-
Total Meeting Expenses	**$ 22,250**	**$ 14,632**	**$ (7,618)**	**$ 22,250**	**$ -**
Operating Expenses, excluding Depreciation					
Consultants & Contracts	$ 335,000	$ 320,000	$ (15,000)	$ 110,000	$ (225,000)
Office Rent	-	-	-	-	-
Office Costs	105,624	105,624	-	115,000	9,376
Professional Services	-	-	-	-	-
Miscellaneous	500	500	-	500	-
Total Operating Expenses, excluding Depreciation	**$ 441,124**	**$ 426,124**	**$ (15,000)**	**$ 225,500**	**$ (215,624)**
Total Direct Expenses	**$ 751,927**	**$ 746,787**	**$ (5,141)**	**$ 553,483**	**$ (198,444)**
Indirect Expenses	**$ 414,042**	**$ 472,345**	**$ 58,303**	**$ 442,787**	**$ 28,745**
Other Non-Operating Expenses	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Total Expenses (B)	**$ 1,165,969**	**$ 1,219,132**	**$ 53,162**	**$ 996,270**	**$ (169,700)**
Change in Net Assets (=A-B)	**$ 13,893**	**$ (109,735)**	**$ (123,628)**	**$ 18,716**	**$ 4,824**
Fixed Asset Additions, excluding Right of Use Assets (C)	**$ 13,893**	**$ 10,072**	**$ (3,821)**	**$ 18,716**	**$ 4,824**
Total Budget (=B+C)	**$ 1,179,862**	**$ 1,229,203**	**$ 49,341**	**$ 1,014,986**	**$ (164,876)**
FTEs	**1.88**	**1.98**	**0.10**	**1.88**	**-**

Administrative Programs

Administrative Programs (in whole dollars)	Direct Expenses and Fixed Asset Additions			FTEs		
	2019 Budget	2020 Budget	Increase (Decrease)	2019 Budget	2020 Budget	Increase (Decrease)
General & Administrative	$ 10,654,921	$ 11,084,094	$ 429,172	14.10	16.92	2.82
Legal and Regulatory	3,878,791	4,588,376	709,585	13.16	15.04	1.88
Information Technology	10,686,532	11,945,975	1,259,442	23.50	24.44	0.94
Human Resources & Administration	2,562,371	2,724,553	162,182	9.40	9.40	-
Finance and Accounting	2,553,747	2,423,239	(130,508)	7.52	8.46	0.94
Total Administrative Programs	**$ 30,336,363**	**$ 32,766,236**	**$ 2,429,873**	**67.68**	**74.26**	**6.58**

Program Scope and Functional Description

NERC's Administrative Programs area includes the budget for all business and administrative functions of the organization, including (1) General and Administrative; (2) Legal and Regulatory; (3) Information Technology; (4) Human Resources & Administration; (5) Finance and Accounting; and (6) other general administrative expenses necessary to support program area activities. The costs of the Administrative Programs functions are allocated to the statutory programs as indirect expenses. The resource requirements and comparative budget information for each of these functions are described below.

General and Administrative

The General and Administrative area is responsible for the administration and general management of the organization. Expenses allocated in this area include office rent as well as personnel and related costs of (1) the CEO, the CRO, and their support staff; (2) Policy and External Affairs staff, described below; and (3) Board costs, detailed below.

Policy and External Affairs

The Policy and External Affairs group provides strategic and communications advice on policy-related matters, manages internal and external messaging and outreach, and serves as the primary representative for NERC on policy-related matters to external audiences, including those in the United States, Canada, and Mexico. The Policy and External Affairs group includes staff who are focused on three areas:

- **Legislative and Regulatory** – Addresses policy matters that arise in legislative arenas and manages regulatory outreach related to FPA Section 215. Engagement occurs with federal and state regulators and legislators, and other governmental and non-governmental stakeholder organizations. NERC is registered as a lobbying organization and complies with all lobbying rules and regulations. Engagement occurs through direct communication with legislators, regulators, government officials and their staffs.
- **Communications** – Manages all external and internal communications that support NERC initiatives, including newsletters, media coordination and messaging, as well as facilitating consistency of message across the ERO Enterprise. This group works with senior management on identified strategic objectives of the corporation as well as internal initiatives, and is responsible for managing the content of NERC's website and NERC's social media presence.
- **International Affairs** – Serves as the liaison between NERC and non-U.S. reliability stakeholders, including Mexican federal and Canadian provincial governments and stakeholder organizations, such as NARUC's international committee, FERC, and trade association international efforts.

The Policy and External Affairs group is focused on the following efforts and activities:

Legislative and Regulatory

- Communications coordination with executive branch agencies (i.e., DOE, White House) on reliability, security, and related matters
- Coordinating with Government Accountability Office, Congressional Research Service, and other government entities on reports
- Congressional hearing preparation and coordination on energy and security legislation and related matters
- FERC technical conferences, meetings, and Chairman, Commissioner and staff outreach related to NERC initiatives
- Education and communication on reliability and security matters to states (NARUC)
- Building strategic partnerships with stakeholders and policymakers
- Supporting business units through guidance, advice, and written materials related to external messaging for the E-ISAC, Reliability Assessments, and other initiatives

Communication

- Supporting ERO Enterprise-wide communication efforts
- Coordinating with IT department to improve the NERC website, reducing extraneous, outdated pages and documents, and improving search capability and improve user experience
- Supporting the E-ISAC in communication and outreach efforts, especially as related to GridSecCon and GridEx, including convening and chairing a communications working group
- Managing media inquiries and messaging
- Working with NERC departments on communication matters related to Align and adapting the Standards and Compliance Bulletin to reflect the entire ERO Enterprise footprint

International Affairs

- Reviewing standards adoption and Canadian enforcement status in coordination with NERC business units
- Identifying and expanding messaging related to international value of the ERO with international organizations and agencies.
- Maintaining relationships across the ERO Enterprise, focusing on those Regional Entities with international borders
- Acting as the primary liaison with Canadian provincial, federal, and industry stakeholder groups related to reliability
- Supporting the outreach efforts to Canada and Mexico by NERC business units and the E-ISAC
- Communicating the value of an international ERO to external stakeholders and policymakers

Policy and External Affairs continues to see increased activity in the legislative and regulatory arenas. As a lobbying organization, tracking and monitoring advocacy efforts for reliability and security could potentially include reporting requirements at the state level, calling for more vigilance. Additionally,

communications activities are increasing to support further coordination across the ERO Enterprise, the growing E-ISAC, and a potential future website redesign.

Resource Requirements

The 2.82 increase in FTEs in General and Administrative is the result of an additional FTE in the Policy and External Affairs group in support of the E-ISAC long-term strategy, and the reorganization of two positions from the Human Resources and Administrative area to Policy and External Affairs. Consultants and Contracts for General and Administrative are decreasing $220k due to a reclassification of expenses to other departments.

Board Costs

The following table details the Board costs included in the total General and Administrative expenses.

Board of Trustee Expenses	2019 Budget	2020 Budget	Increase (Decrease)	
Meeting and Travel Expenses				
Quarterly Board Meetings	$ 185,000	$ 185,000	$ -	0.0%
Trustee Travel	130,000	165,000	35,000	26.9%
Total	**$ 315,000**	**$ 350,000**	**$ 35,000**	**11.1%**
Professional Services				
Independent Trustee Fees	$ 1,410,000	$ 1,410,000	$ -	0.0%
Trustee Search Fees	100,000	50,000	(50,000)	-50.0%
Total	**$ 1,510,000**	**$ 1,460,000**	**$ (50,000)**	**-3.3%**
Total	**$ 1,825,000**	**$ 1,810,000**	**$ (15,000)**	**-0.8%**

Legal and Regulatory

The Legal and Regulatory department supports the NERC program areas and is responsible for providing a wide range of legal support to the NERC management team regarding antitrust, corporate, commercial, insurance, contract, employment, real estate, copyright, tax, legislation, and other legal matters. The department also addresses legal and regulatory matters that arise in connection with the delegation agreements with the Regional Entities. Additionally, the Legal and Regulatory department includes the Internal Audit and Corporate Risk Management group, explained further below.

Internal Audit and Corporate Risk Management

The Internal Audit and Corporate Risk Management (IACRM) group performs independent, objective activities designed to add value and improve NERC and Regional Entity operations. The group's activities ensure:

- Risks are appropriately identified, prioritized, and managed across NERC and the ERO Enterprise;
- The effectiveness of risk management processes is monitored and evaluated;
- Systems of internal control are adequately promoted and are effectively functioning; and
- Significant risk exposures and control issues, including fraud risks, governance issues, and other matters needed or requested by the Board are reported.

The Internal Audit (IA) function specifically engages with the CCC to collaborate on ERO Enterprise audits as required by ROP Sections 406, 506, and Appendix 4A. As part of IA's audit efforts on behalf of the CCC, IA collaborates with NERC's CMEP and ORCP teams to take an ERO Enterprise-wide approach to the

annual CMEP and ORCP self-certification process. IA, the CCC, and the Board Enterprise-wide Risk Committee (EWRC) collectively determine whether NERC and the ERO Enterprise comply with the ROP, allowing for timely reporting and consistent remediation effort, as necessary. Currently, the IA, CMEP, and ORCP teams are collaborating to eliminate real and perceived duplication of efforts among these groups with respect to Regional Entity audit and oversight activities.

The Corporate Risk Management (CRM) function is also continuing to work with the Regional Entities to enhance the ERO Enterprise-wide corporate risk identification and risk mitigation efforts. This occurs through collaborative interactions to identify high priority ERO Enterprise risks, remediating internal control weaknesses, implementing performance improvement recommendations, and sharing lessons learned and best practices. Deliverables include more streamlined and coordinated reports and harmonized assessment of ERO Enterprise risks and processes. At times, CRM also interfaces with stakeholders to perform risk assessment activities.

In 2020 and beyond, IACRM will continue to perform risk-based audits and participate in special projects that will provide value to NERC and the ERO Enterprise. IACRM also hopes to leverage the CMEP's Align application, with minimum customization, to implement a governance, risk management, and compliance (GRC) tool to support IACRM activities.

Resource Requirements

The increase of 1.88 FTEs in Legal and Regulatory is the result of an additional FTE in the Legal area in support of the E-ISAC long-term strategy and the reallocation of FTEs to realign staff with current needs. There is a $300k increase for Contracts and Consultants as a result of a reclassification of internal controls and outside auditor support for IACRM from Finance and Accounting. A detailed breakdown of 2019 and 2020 budgeted expenses are shown in *Exhibit B – Consultant and Contract Costs*. Outside law firms and consultants supporting the Legal area are budgeted and tracked as Professional Services. The Professional Services budget for Legal and Regulatory in 2020 is unchanged from 2019.

Information Technology

NERC's IT department supports the technology needs necessary to the existence and function of the organization in executing ERO statutory activities. IT also supports, configures, and secures corporate and enterprise applications and infrastructure leveraged by the ERO Enterprise and registered entities. The IT department includes a Project Management Office (PMO) that provides project management skills and leadership for major ERO Enterprise and NERC IT projects, including those of the E-ISAC.

NERC's IT strategy includes the following:

- Emphasis on reducing the NERC infrastructure and support footprint in order to allocate a larger portion of budget funding to enhance and improve the registered entity and Regional Entity experience;
- Adoption of an enterprise IT investment planning methodology that ensures only projects with compelling and approved business cases are funded; and
- A "platform" strategy that enables more cost-effective configuration solutions versus creating custom solutions. Examples of these platforms include Microsoft Dynamics xRM, Microsoft SharePoint, the Ingeniux content publication system, the Salesforce CRM system, and the BWise GRC system.

NERC's IT department is currently focused on three key areas: ERO Enterprise new functionality, ERO Enterprise application and infrastructure support, and NERC infrastructure support.

ERO Enterprise New Functionality. This includes technologies designed to improve or add capability to the registered entities, Regional Entities, and NERC staff. For those projects that involve regional or registered entities, stakeholders are regularly engaged as subject matter experts on the project team to provide business requirements, functionality testing, and outreach. The benefits of this approach ensure that the systems delivered are the systems that meet stakeholder needs now and in the future. IT and PMO staff are currently focused on supporting the following key ERO Enterprise IT projects, including development, implementation, and future enhancements:

- The Align and CORES projects – NERC has been working closely with the Regional Entities to evaluate and implement strategic investments in tools that will replace the current three CMEP and Registration data applications used among NERC and the Regional Entities with single, common applications, known as Align for CMEP and CORES for Registration. For more information, see the *Compliance Assurance and Organization Registration and Certification* section and the Align Project and CORES Technology Project pages on the NERC website.
- SAFNR upgrade – This system provides near real-time information to NERC, FERC, and the Regional Entities on current operating conditions of the BPS from a wide-area view. The upgrade will allow for rapid and accurate situational awareness that appropriately protects the proprietary information in the tool while maximizing the value of understanding shared to the right audiences. For more information, see the *Situation Awareness* section.
- Data management system enhancements – As the grid evolves, the ERO Enterprise's ability to collect and the quality and integration of data becomes increasingly important, requiring continued investment in enhancements to the suite of data management tools, including GADS, GADS Wind, TADS, DADS, and RADS. Additionally, technology applications are needed for the collection of new data under ROP Section 1600 data requests, including a tool for GMD data submittals as well as a system for data associated with solar energy storage (i.e., GADS Solar). For more information, see the *Reliability Assessment and Performance Analysis* section.

ERO Enterprise Application and Infrastructure Support. This includes the underlying infrastructure and resources required to support existing and future ERO Enterprise applications, such as server host machines, virtual servers, storage, back-up and restore systems, and network, communications, business continuity, and security tools.

NERC Infrastructure Support. This includes similar items as noted above in the ERO Enterprise application and infrastructure support category, including but not limited to Microsoft Office productivity tools, audio visual systems, laptops, and business continuity and security technologies.

In 2021 and beyond, NERC IT and PMO staff will continue to oversee the requirements, design, and implementation of new and enhanced technology for NERC and the ERO Enterprise. This includes planned enhancements for Align, CORES, and the suite of data management tools, as well as upgrades to or replacements of RCIS, the NERC Alerts system, and the NERC website.

Resource Requirements

The increase of 0.94 FTEs in IT in 2020 is the result of a contractor conversion (increase in personnel costs and a reduction in consultants and contracts expenses) for a critical role related to the Align application. There is a $237k decrease for consultants and contracts expenses overall as a result of the contractor conversion and the reclassification of expenses to other departments. A detailed breakdown of 2019 and 2020 budgeted consultants and contracts expenses are shown in *Exhibit B – Consultant and Contract Costs*. There is a $976k increase in Office Costs as a result of increased software license and support expenses, particularly for enhanced security, as well as additional leased audio visual and computer equipment.

Human Resources and Administration

The Human Resources and Administration group primarily includes benefits administration, employee relations, performance and compensation management, training and development, facilities management of NERC's two office locations, and meeting planning and coordination.

Leadership, Management, and Professional and Administrative Staff Training and Development

As part of the ERO Enterprise's ongoing efforts to engage and retain highly qualified talent with the leadership and technical skills to support its mission, NERC's executives, managers, and professional and support staff participate in ongoing training and development to improve competencies critical to success and succession planning. As such, NERC continues to invest in learning opportunities in several areas, including (1) an e-leaning platform for improving soft and technical skills; (2) broad-based staff development training though real-world access via tours of and training on control centers, electric substations, and power generation plants; and (3) access to additional education, including but not limited to degree-oriented university education, pursuit of specialized certifications, and other in-house and external training that provides essential competencies and skills development.

Compensation Strategy

NERC relies on data and advisory from multiple perspectives to hire and retain the necessary staff to support the company's goals and objectives. Under the mandate of the CGHRC, NERC performs periodic market compensation studies to benchmark the pay practices of similar organizations and roles for which NERC hires. Management will continue to closely monitor market conditions through periodic compensation studies and real-time pay trends of its candidate pool.

Compensation Consulting

Consultants are periodically retained to examine appropriate compensation based on current market data. This ensures that decisions affecting compensation are made in light of the current market climate and that qualified employees are attracted and retained within a defined total remuneration range. NERC also periodically retains compensation subject matter experts to perform periodic assessments of the Board compensation model to ensure alignment with market practices.

Surveys

NERC periodically retains a vendor to conduct Board and committee effectiveness surveys to identify improvement opportunities. Human Resources will also launch additional surveys as appropriate, based on business needs, which may include periodic internal climate surveys.

Succession Planning

Minimizing disruption of knowledge, skill, and experience of key staff is critical to the company's success. Human Resource works with senior management to identify essential roles and develop strategies to build succession and contingency plans for any loss of staff.

Human Resources Products and Services Automation

Human Resource continues to operate, maintain, and investigate investment in additional electronic platforms for Human Resource support services that reduce administrative burden and improve employee access to tools and information.

Resource Requirements

There is a 1.88 increase in FTEs in the Human Resources and Administration area in 2020 as a result of an additional FTE in support of the increase in staffing in the E-ISAC and a contractor conversion (increase in personnel costs and a reduction in consultants and contracts expenses) for audio visual and facility security coordination. This is offset by the decrease of 1.88 FTEs as a result of the reorganization of two

positions from the Human Resources and Administrative area to Policy and External Affairs. Consultants and Contracts are increasing $70k for this area as a result of a reclassification of expenses from Training and Education and General and Administrative. A detailed breakdown of 2019 and 2020 budgeted expenses is shown in in *Exhibit B – Consultant and Contract Costs*.

Finance and Accounting

NERC's Finance and Accounting department manages all finance and accounting functions, including employee payroll, 401(k), 457(b), and 457(f) plans, travel and expense reporting, monthly financial reporting, sales and use tax, and insurance. This area also holds primary responsibility for the development of the annual BP&B. Over the past several years, NERC's Finance and Accounting department implemented additional systems, policies, procedures, and controls governing day-to-day practices, including contract and personnel procurements, expense reimbursement, and back office systems and procedures. The department will continue to refine, improve and, where necessary, implement additional procedures and controls.

Resource Requirements

The increase of 0.94 FTEs is due to the reallocation of resources to realign staff with current needs. There is a $300k decrease for Consultants and Contracts in this area as a result of a reclassification of internal controls and outside auditor support for IACRM to Legal and Regulatory. A detailed breakdown of 2019 and 2020 budgeted expenses is shown in *Exhibit B – Consultant and Contact Costs*.

Miscellaneous Expenses

Miscellaneous expenses include community responsibility, employee engagement, and employee rewards and recognition.

Statement of Activities and Fixed Asset Additions
2019 Budget & Projection, and 2020 Budget
ADMINISTRATIVE SERVICES

	2019 Budget	2019 Projection	Variance 2019 Projection v 2019 Budget Over(Under)	2020 Budget	Variance 2020 Budget v 2019 Budget Over(Under)
Funding					
ERO Funding					
NERC Assessments	$ (1,067,980)	$ (1,067,980)	$ -	$ (1,414,478)	$ (346,499)
Assessment Stabilization Reserve - Penalties	-	-	-	-	-
Total NERC Funding	**$ (1,067,980)**	**$ (1,067,980)**	**$ -**	**$ (1,414,478)**	**$ (346,499)**
Third-Party Funding	$ -	$ -	$ -	$ -	$ -
Testing Fees	-	-	-	-	-
Services & Software	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Interest & Investment Income	-	-	-	-	-
Total Funding (A)	**$ (1,067,980)**	**$ (1,067,980)**	**$ -**	**$ (1,414,478)**	**$ (346,499)**
Expenses					
Personnel Expenses					
Salaries	$ 11,965,297	$ 13,017,715	$ 1,052,418	$ 13,070,451	$ 1,105,154
Payroll Taxes	666,617	681,647	15,030	721,605	54,988
Benefits	1,610,374	1,671,036	60,661	1,826,687	216,312
Retirement Costs	1,032,835	1,036,060	3,225	1,146,339	113,504
Total Personnel Expenses	**$ 15,275,124**	**$ 16,406,457**	**$ 1,131,333**	**$ 16,765,082**	**$ 1,489,958**
Meeting Expenses					
Meetings & Conference Calls	$ 455,300	$ 458,077	$ 2,777	$ 456,800	$ 1,500
Travel	570,000	611,203	41,203	650,000	80,000
Total Meeting Expenses	**$ 1,025,300**	**$ 1,069,280**	**$ 43,980**	**$ 1,106,800**	**$ 81,500**
Operating Expenses, excluding Depreciation					
Consultants & Contracts	$ 3,447,763	$ 3,379,195	$ (68,568)	$ 3,060,692	$ (387,071)
Office Rent	3,335,058	3,305,058	(30,000)	3,450,468	115,410
Office Costs	4,454,347	4,568,561	114,213	5,712,971	1,258,624
Professional Services	2,507,600	2,454,500	(53,100)	2,336,600	(171,000)
Miscellaneous	77,000	87,945	10,945	77,000	-
Total Operating Expenses, excluding Depreciation	**$ 13,821,768**	**$ 13,795,259**	**$ (26,509)**	**$ 14,637,731**	**$ 815,963**
Total Direct Expenses	**$ 30,122,192**	**$ 31,270,996**	**$ 1,148,804**	**$ 32,509,613**	**$ 2,387,421**
Indirect Expenses	**$ (30,336,363)**	**$ (31,410,967)**	**$ (1,074,604)**	**$ (32,766,236)**	**$ (2,429,873)**
Other Non-Operating Expenses	**$ 214,171**	**$ 139,971**	**$ (74,200)**	**$ 256,623**	**$ 42,452**
Total Expenses (B)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Change in Net Assets (=A-B)	**$ (1,067,980)**	**$ (1,067,980)**	**$ -**	**$ (1,414,478)**	**$ (346,499)**
Fixed Asset Additions, excluding Right of Use Assets (C)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Total Budget (=B+C)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
FTEs	**67.68**	**70.49**	**2.81**	**74.26**	**6.58**

Section B – Supplemental Financial Information

Breakdown by Statement of Activity Sections

The following detailed schedules support the consolidated Statement of Activities.

Table B-1 – Operating Reserve and Assessment Analysis

Operating Reserve and Assessment Analysis
Statutory

		Total Reserves	Future Obligation Reserve[1]	Operating Contingency Reserve	System Operator Certification Reserve	CRISP Reserve	Assessment Stabilization Reserve
Beginning Operating Reserves Balance - 1/1/2019		**$ 11,342,801**	**$ 2,535,333**	**$ 5,644,358**	**$ 592,110**	**$ 500,000**	**$ 2,071,000**
Generation or (Use) from 2019 Operations							
From 2019 budgeted operations		$ (1,294,975)	$ (480,457)	$ (963,192)	$ 148,674	$ -	$ -
From 2019 approved addition/(use) of reserves		-	-	-	-	-	
Proceeds from financing activities (non-current portion only)	[2]	1,089,333	-	1,089,333	-	-	-
Debt service	[3]	(394,687)	-	(394,687)	-	-	-
Other addition/(use) of reserves	[4]	(788,366)	64,843	-	(303,209)	-	(550,000)
Projected Operating Reserves - 12/31/19		**$ 9,954,106**	**$ 2,119,719**	**$ 5,375,812**	**$ 437,575**	**$ 500,000**	**$ 1,521,000**
Required Working Capital and Operating Reserves - 12/31/20		**$ 8,818,065**	**$ 1,633,761**	**$ 4,721,776**	**$ 441,528**	**$ 500,000**	**$ 1,521,000**
Adjustment in funding to achieve required reserve balance		(1,136,041)	(485,958)	(654,036)	3,953	-	-
Penalty sanctions received 7/1/2018 - 6/30/2019 (See Table B-2)		-	-	-	-	-	-
Less: Assessment Stabilization Reserve Release - Penalties		-	-	-	-	-	-
Total Adjustments to Reserves		**$ (1,136,041)**	**$ (485,958)**	**$ (654,036)**	**$ 3,953**	**$ -**	**$ -**
Assessment Reconciliation							
2020 Expenses and Capital Expenditures		$ 83,417,476					
Less: Assessment Stabilization Reserve Release - Penalties		-					
Adjustment in funding to achieve required reserve balance		(650,083)					
Less: Other Funding Sources		(9,995,577)					
Less: Proceeds from financing activities (non-current only)		(1,338,000)					
Plus: Debt service		577,557					
2020 NERC Assessment		**$ 72,011,373**					

[1]As further explained in the discussion of the Working Capital Reserve amount in Exhibit D, the Future Obligations Reserve offsets future, non-current liabilities.

[2]Proceeds from financing activities amount is equal to two-thirds of the amount financed or to be financed in the year. See Exhibit D.

[3]Debt Service amount is equal to Annual Payments for Debt Service less Interest Expense. See Exhibit C.

[4]Represents transactions recorded only on the Statement of Financial Position (balance sheet) and do not impact the Statement of Activities (income statement), including recording of capitalized leases, amortization of future obligations, and funding the 457f plan.

Table B-2 – Penalties

Penalty Sanctions and Allocation Method

ROP Section 1107.2 specifies that penalty monies received by NERC during the 12 months ended June 30 are to be used in the subsequent budget year to offset assessments. In 2015, the Board approved an updated *Working Capital and Operating Reserves Policy* that was approved by FERC. This updated policy allows NERC, with Board and FERC approval pursuant to ROP Section 1107.4, to place penalty funds into an Assessment Stabilization Reserve for use in future years to offset assessments. Penalty sanctions released from the Asset Stabilization Reserve are allocated to the following statutory programs to reduce assessments: (1) Reliability Standards and PRISM, (2) Compliance Assurance and Organization Registration and Certification, (3) Compliance Enforcement, (4) RAPA, (5) Situation Awareness, (6) Event Analysis, (7) E-ISAC (including CRISP), and (8) Training and Education. Penalty sanctions are allocated based on the number of FTEs in the program divided by the aggregate total FTEs in the programs receiving the allocation.

For the period July 1, 2018–June 30, 2019, NERC did not collect any penalty funds to deposit into the Assessment Stabilization Reserve. Also, due to reduced debt service, increased interest income, and a surplus of working capital, the 2020 assessment currently does not reflect a proposed release of funds from this reserve. The balance held in the Assessment Stabilization Reserve will be used for assessment offsets in future years.

Penalty Sanctions	Date Received	Amount Received
Penalties received between 7/1/2018 and 6/30/2019		
	N/A	$ -
		$ -
Penalties received prior to 6/30/2018, held in the assessment stabilization reserve		$ 1,521,000
Total penalties available on 1/1/2020 to offset assessments		$ 1,521,000
Adjustments		
Total penalties released to offset assessments in the 2020 Budget		$ -
Total penalties held in Assessment Stabilization Reserve 12/31/2020		$ 1,521,000

Table B-3 – Outside Funding

Outside Funding Breakdown By Program (Excludes Penalty Sanction)	2019 Budget	2020 Budget	Increase (Decrease)
Reliability Standards			
Interest & Investment Income Allocation	18,884	45,862	26,978
Total	**$ 18,884**	**$ 45,862**	**$ 26,978**
Compliance Assurance, Certification, and Registration			
Interest & Investment Income Allocation	$ 33,504	$ 55,517	$ 22,014
Total	**$ 33,504**	**$ 55,517**	**$ 22,014**
Compliance Enforcement			
Interest & Investment Income Allocation	$ 17,056	$ 31,379	$ 14,323
Total	**$ 17,056**	**$ 31,379**	**$ 14,323**
Reliability Assessment and Performance Analysis			
Services and Software	$ 40,000	$ 60,000	$ 20,000
Interest & Investment Income Allocation	32,894	60,345	27,450
Total	**$ 72,894**	**$ 120,345**	**$ 47,450**
Personnel Certification and Continuing Education			
Testing Fees	$ 540,000	$ 455,000	$ (85,000)
Certificate Renewals	650,000	780,000	130,000
Continuing Education Fees	600,000	500,000	(100,000)
Interest & Investment Income Allocation	2,437	7,241	4,805
Total	**$ 1,792,437**	**$ 1,742,241**	**$ (50,195)**
Training and Education			
Interest & Investment Income Allocation	$ 2,437	4,828	$ 2,391
Total	**$ 2,437**	**$ 4,828**	**$ 2,391**
Event Analysis			
Interest & Investment Income Allocation	14,620	24,138	9,518
Total	**$ 14,620**	**$ 24,138**	**$ 9,518**
Situation Awareness			
Interest & Investment Income Allocation	$ 7,310	$ 14,483	$ 7,173
Total	**$ 7,310**	**$ 14,483**	**$ 7,173**
E-ISAC			
Third Party Funding (CRISP)	$ 7,486,353	$ 7,814,577	$ 328,224
Interest & Investment Income Allocation	55,859	142,207	86,348
Total	**$ 7,542,213**	**$ 7,956,784**	**$ 414,572**
Grand Total	**$ 9,501,353**	**$ 9,995,577**	**$ 494,224**

As discussed in the *Introduction and Executive Summary*, starting with the 2020 BP&B, NERC will no longer include workshop or event fees as a funding line item, but instead account for this income in meeting expenses as an offset to costs. This supports the goal of providing a total budget amount that more closely reflects the amount of annual revenues required for assessments. As such, 2019 budgeted income from workshop fees is no longer reflected in the funding line item, and meeting expenses reflect the costs net of this revenue.

Table B-4 – Personnel

Personnel	2019 Budget	2020 Budget	Increase (Decrease)	
Salaries	$ 33,810,276	$ 35,462,611	$ 1,652,335	4.9%
Payroll Taxes	2,044,880	2,113,486	68,606	3.4%
Benefits	4,673,208	5,420,461	747,254	16.0%
Retirement	3,423,826	3,601,601	177,776	5.2%
Total	**$ 43,952,190**	**$ 46,598,160**	**$ 2,645,970**	**6.02%**
FTEs	204.92	213.38	8.46	4.1%
Cost per FTE				
Salaries	$ 164,993	$ 166,195	$ 1,202	0.7%
Payroll Taxes	9,979	9,905	(74)	-0.7%
Benefits	22,805	25,403	2,598	11.4%
Retirement	16,708	16,879	171	1.0%
Total	**$ 214,485**	**$ 218,381**	**$ 3,896**	**1.82%**

Total salary expense is comprised of base salaries, incentive compensation, deferred compensation, employment agency fees, and temporary office expenses. The 2020 budget for base salaries assumes a 3.0% increase over actual 2019 base salaries for merit adjustments and, as requested by the Board, up to 0.5% for equity and market adjustments. The 2020 budget for incentive compensation is based on historical actuals and is comparable to prior years. The 2020 budgets for deferred compensation, employment agency fees, and temporary office expenses are generally consistent with 2019.

Benefits are budgeted to increase 16.0% primarily due to a 13.0% increase in health insurance premiums and costs for additional FTEs.

There have been no changes to NERC's retirement plans.

Table B-5 – Meetings

Meetings	2019 Budget	2020 Budget	Increase (Decrease)	
Meetings & Conference Calls	$ 1,001,400	$ 1,112,250	$ 110,850	11.1%
Travel	2,184,000	2,211,000	27,000	1.2%
Total	**$ 3,185,400**	**$ 3,323,250**	**$ 137,850**	**4.3%**

Meeting and travel expenses are increasing in 2020 mainly due to E-ISAC personnel increases, engagement efforts, and enhanced conference call capabilities.

Table B-6 – Consultants and Contracts

Refer to *Exhibit B – Consultant and Contract Costs*

Table B-7 – Rent

Office Rent	2019 Budget	2020 Budget	Increase (Decrease)	
Office Rent	$ 3,122,808	$ 3,228,468	$ 105,660	3.4%
Maintenance	212,250	222,000	9,750	4.6%
Total	**$ 3,335,058**	**$ 3,450,468**	**$ 115,410**	**3.5%**

Table B-8 – Office Costs

Office Costs	2019 Budget	2020 Budget	Increase (Decrease)	
Telephone	$ 312,851	$ 356,562	$ 43,711	14.0%
Telephone Answering Service	1,200	-	(1,200)	-100.0%
Internet	241,500	269,350	27,850	11.5%
Office Supplies	175,700	250,050	74,350	42.3%
Computer Supplies	183,500	186,448	2,948	1.6%
Software License and Support	4,140,834	7,214,718	3,073,884	74.2%
Subscription and Publications	228,420	307,370	78,950	34.6%
Dues	69,611	86,050	16,439	23.6%
Postage	10,540	10,540	(0)	0.0%
Express Shipping	28,992	33,742	4,750	16.4%
Copying	117,642	80,042	(37,600)	-32.0%
Audio/Visual and Hardware Lease	752,529	1,005,501	252,972	33.6%
Equipment Repair/Service Contracts	132,497	144,000	11,503	8.7%
Bank Charges	25,000	28,000	3,000	12.0%
Merchant Card Fees	86,100	80,000	(6,100)	-7.1%
Total	**$ 6,506,917**	**$ 10,052,374**	**$ 3,545,456**	**54.5%**

Office Supplies is increasing $74k primarily as a result of a higher capitalization threshold established in 2018. This is offset by a decrease in fixed asset (capital) expenditures accordingly.

Software Licenses and Support includes non-capital software license and support costs, as well as support and service expenses for infrastructure management software, data center co-location, offsite backup of data, and network and security monitoring. The $3.1M increase in 2020 is primarily due to a combination of an increase in these expenses in IT, particularly for enhanced security, and a reclassification of these costs from Consultants and Contracts (offset by a $2.6M decrease in Consultants and Contracts).

Subscriptions and Publications is increasing $79k primarily as a result of a combination of increased costs for these expenses in E-ISAC, IT, and Legal, and a reclassification of these costs from Outside Services.

Audio/Visual and Hardware Lease costs consist of lease payments for audio visual equipment, computers, laptops, servers, and switches that were leased, in lieu of purchasing, beginning in January 2017. The $253k increase in the 2020 budget is the result of additional leased audio visual and computer equipment for the NERC Atlanta office expansion and increased FTEs in E-ISAC.

Table B-9 – Professional Services

Professional Services	2019 Budget	2020 Budget	Increase (Decrease)	
Independent Trustee Fees	$ 1,410,000	$ 1,410,000	$ -	0.0%
Trustee Search Fees	100,000	50,000	(50,000)	-50.0%
Outside Legal	645,500	585,500	(60,000)	-9.3%
Lobbying	72,000	72,000	-	0.0%
Accounting and Auditing Fees	128,000	155,000	27,000	21.1%
Insurance Commercial	225,000	225,000	-	0.0%
Outside Services	177,100	14,100	(163,000)	-92.0%
Total	**$ 2,757,600**	**$ 2,511,600**	**$ (246,000)**	**-8.9%**

The $163k decrease in Outside Services is due primarily to a reclassification of these expenses to other areas.

Table B-10 – Miscellaneous

Miscellaneous Expenses	2019 Budget	2020 Budget	Increase (Decrease)	
Miscellaneous Expense	$ 7,000	$ 7,750	$ 750	10.7%
Employee Rewards and Recognition	48,000	48,000	-	0.0%
Community Responsibility & Employee Engagement	4,500	4,500	-	0.0%
Sponsorships	22,500	22,500	-	0.0%
Total	**$ 82,000**	**$ 82,750**	**$ 750**	**0.9%**

Table B-11 – Other Non-Operating Expenses

Other Non-Operating Expenses	2019 Budget	2020 Budget	Increase (Decrease)	
Property and Other Tax Expense	$ 120,000	$ 165,000	$ 45,000	37.5%
Interest Expense	94,171	91,623	(2,548)	-2.7%
Total	**$ 214,171**	**$ 256,623**	**$ 42,452**	**19.8%**

The $45k increase in Property and Other Tax Expense is due to increased property and state excise taxes.

Table B-12 – Fixed Assets

Fixed Asset Additions	2019 Budget	2020 Budget	Increase (Decrease)	
Computer & Software CapEx	$ 3,488,000	$ 3,271,349	$ (216,651)	-6.2%
Furniture & Fixtures CapEx	-	-	-	0.0%
Equipment CapEx	890,000	935,000	45,000	5.1%
Leasehold Improvements	400,000	500,000	100,000	25.0%
Total	**$ 4,778,000**	**$ 4,706,349**	**$ (71,651)**	**-1.5%**

As discussed in the *Introduction and Executive Summary*, expenditures for fixed assets are budgeted to be $72k less in 2020 compared to 2019. This decrease is primarily due to reduced spending on ERO Enterprise software projects.

Table B-13 – 2021–2022 Projections

Refer to the *Introduction and Executive Summary* section on pages 17–18

Section C – Non-Statutory Activity

NERC has no non-statutory activities.

Section D – Consolidated Statement of Activities by Program

Consolidated Statement of Activities Program 2020 Budget	Statutory Activities														
	Statutory Total	Reliability Standards and Risk Management	Compliance Assurance, Registration, and Certification	Event Analysis	Compliance Enforcement	Personnel Certification	Training and Education	Reliability Assessment and Performance Analysis	Situation Awareness	E-ISAC (including CRISP)	General and Administrative (Includes Executive and Gov't Relations)	Legal and Regulatory	Information Technology	Human Resources and Administration	Accounting and Finance
Funding															
ERO Funding															
NERC Assessments	$ 72,011,373	$ 8,203,710	$ 12,236,583	$ 4,709,719	$ 6,694,193	$ -	$ 1,010,158	$ 13,001,958	$ 4,241,524	$ 23,328,006	$ (1,414,478)	$ -	$ -	$ -	$ -
Assessment Stabilization Reserve - Penalties	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total NERC Funding	**$ 72,011,373**	**$ 8,203,710**	**$ 12,236,583**	**$ 4,709,719**	**$ 6,694,193**	**$ -**	**$ 1,010,158**	**$ 13,001,958**	**$ 4,241,524**	**$ 23,328,006**	**$ (1,414,478)**	**$ -**	**$ -**	**$ -**	**$ -**
Third-Party Funding	$ 7,814,577	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,814,577	$ -	$ -	$ -	$ -	$ -
Testing Fees	1,735,000	-	-	-	-	1,735,000	-	-	-	-	-	-	-	-	-
Services & Software	60,000	-	-	-	-	-	-	60,000	-	-	-	-	-	-	-
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest & Investment Income	386,000	45,862	55,517	24,138	31,379	7,241	4,828	60,345	14,483	142,207	-	-	-	-	-
Total Funding (A)	**$ 82,006,951**	**$ 8,249,572**	**$ 12,292,101**	**$ 4,733,857**	**$ 6,725,572**	**$ 1,742,241**	**$ 1,014,986**	**$ 13,122,303**	**$ 4,256,006**	**$ 31,284,791**	**$ (1,414,478)**	**$ -**	**$ -**	**$ -**	**$ -**
Expenses															
Personnel Expenses															
Salaries	$ 35,462,611	$ 2,622,756	$ 3,646,298	$ 1,651,222	$ 1,829,637	$ 372,765	$ 212,108	$ 3,662,883	$ 900,228	$ 7,494,261	$ 3,511,022	$ 2,957,499	$ 3,971,134	$ 1,324,004	$ 1,306,791
Payroll Taxes	2,113,486	165,506	222,053	94,949	113,039	24,774	17,391	233,091	59,293	461,786	172,264	161,986	242,980	70,580	73,794
Benefits	5,420,461	416,307	686,630	259,683	230,971	64,235	52,397	595,261	227,569	1,060,720	480,745	344,613	609,073	207,069	185,187
Retirement Costs	3,601,601	290,052	404,705	181,837	197,746	40,459	23,836	407,604	100,163	808,861	149,671	316,578	433,924	110,100	136,066
Total Personnel Expenses	**$ 46,598,160**	**$ 3,494,622**	**$ 4,959,686**	**$ 2,187,691**	**$ 2,371,393**	**$ 502,233**	**$ 305,733**	**$ 4,898,839**	**$ 1,287,253**	**$ 9,825,628**	**$ 4,313,703**	**$ 3,780,676**	**$ 5,257,112**	**$ 1,711,753**	**$ 1,701,839**
Meeting Expenses															
Meetings & Conference Calls	$ 1,112,250	$ 59,800	$ 89,200	$ 33,600	$ 6,200	$ 34,400	$ 12,250	$ 286,800	$ 30,000	$ 103,200	$ 338,400	$ 13,600	$ 83,800	$ 13,600	$ 7,400
Travel	2,211,000	220,000	400,000	150,000	55,000	30,000	10,000	300,000	35,000	361,000	408,000	75,000	100,000	27,000	40,000
Total Meeting Expenses	**$ 3,323,250**	**$ 279,800**	**$ 489,200**	**$ 183,600**	**$ 61,200**	**$ 64,400**	**$ 22,250**	**$ 586,800**	**$ 65,000**	**$ 464,200**	**$ 746,400**	**$ 88,600**	**$ 183,800**	**$ 40,600**	**$ 47,400**
Operating Expenses, excluding Depreciation															
Consultants & Contracts	$ 12,435,902	$ 40,320	$ 90,320	$ 10,000	$ -	$ 282,000	$ 110,000	$ 752,570	$ -	$ 8,090,000	$ 20,000	$ 300,000	$ 1,805,692	$ 760,000	$ 175,000
Office Rent	3,450,468	-	-	-	-	-	-	-	-	-	3,450,468	-	-	-	-
Office Costs	10,052,374	50,050	341,358	44,550	389,208	197,400	115,000	513,304	1,225,844	1,462,689	559,900	65,100	4,698,871	150,600	238,500
Professional Services	2,511,600	-	-	-	-	-	-	-	-	175,000	1,714,000	353,500	-	9,100	260,000
Miscellaneous	82,750	500	750	500	500	-	500	2,000	500	500	23,000	500	500	52,500	500
Total Operating Expenses, excluding Depreciation	**$ 28,533,094**	**$ 90,870**	**$ 432,428**	**$ 55,050**	**$ 389,708**	**$ 479,400**	**$ 225,500**	**$ 1,267,874**	**$ 1,226,344**	**$ 9,728,189**	**$ 5,767,368**	**$ 719,100**	**$ 6,505,063**	**$ 972,200**	**$ 674,000**
Total Direct Expenses	**$ 78,454,504**	**$ 3,865,292**	**$ 5,881,314**	**$ 2,426,341**	**$ 2,822,301**	**$ 1,046,033**	**$ 553,483**	**$ 6,753,513**	**$ 2,578,597**	**$ 20,018,016**	**$ 10,827,471**	**$ 4,588,376**	**$ 11,945,975**	**$ 2,724,553**	**$ 2,423,239**
Indirect Expenses	**$ -**	**$ 4,206,476**	**$ 5,092,050**	**$ 2,213,935**	**$ 2,878,115**	**$ 664,180**	**$ 442,787**	**$ 5,534,837**	**$ 1,328,361**	**$ 10,405,494**	**$ (11,084,094)**	**$ (4,588,376)**	**$ (11,945,975)**	**$ (2,724,553)**	**$ (2,423,239)**
Other Non-Operating Expenses	**$ 256,623**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 256,623**	**$ -**	**$ -**	**$ -**	**$ -**
Total Expenses (B)	**$ 78,711,127**	**$ 8,071,768**	**$ 10,973,364**	**$ 4,640,276**	**$ 5,700,417**	**$ 1,710,214**	**$ 996,270**	**$ 12,288,351**	**$ 3,906,958**	**$ 30,423,510**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Change in Net Assets (=A-B)	**$ 3,295,824**	**$ 177,804**	**$ 1,318,736**	**$ 93,581**	**$ 1,025,155**	**$ 32,027**	**$ 18,716**	**$ 833,953**	**$ 349,049**	**$ 861,280**	**$ (1,414,478)**	**$ -**	**$ -**	**$ -**	**$ -**
Fixed Asset Additions, excluding Right of Use Assets (C)	**$ 4,706,349**	**$ 177,804**	**$ 1,318,736**	**$ 93,581**	**$ 1,025,155**	**$ 28,074**	**$ 18,716**	**$ 833,953**	**$ 349,049**	**$ 861,280**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Total Budget (=B+C)	**$ 83,417,476**	**$ 8,249,572**	**$ 12,292,101**	**$ 4,733,857**	**$ 6,725,572**	**$ 1,738,288**	**$ 1,014,986**	**$ 13,122,303**	**$ 4,256,006**	**$ 31,284,791**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Change in Working Capital (=A-B-C)	**$ (1,410,525)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 3,953**	**$ -**	**$ -**	**$ -**	**$ -**	**$ (1,414,478)**	**$ -**	**$ -**	**$ -**	**$ -**
FTEs	**213.38**	**17.86**	**21.62**	**9.40**	**12.22**	**2.82**	**1.88**	**23.50**	**5.64**	**44.18**	**16.92**	**15.04**	**24.44**	**9.40**	**8.46**

Exhibit A – Application of NERC Section 215 Criteria

DISCUSSION OF HOW THE NERC MAJOR ACTIVITIES IN THE 2020 BUSINESS PLAN AND BUDGET MEET THE NERC WRITTEN CRITERIA FOR DETERMINING WHETHER A RELIABILITY ACTIVITY IS ELIGIBLE TO BE FUNDED UNDER FEDERAL POWER ACT SECTION 215

I. Introduction

This Exhibit discusses how the major activities in NERC's 2020 Business Plan and Budget meet the NERC written criteria for determining whether a reliability activity is eligible to be funded under §215 of the Federal Power Act (FPA §215). This Exhibit is intended to satisfy Recommendation No. 38 resulting from the financial performance review of NERC conducted by the Federal Energy Regulatory Commission's (Commission's) Division of Audits (DA) in 2012–2013 and adopted by the Commission in its November 2, 2012 order on NERC's 2013 Business Plan and Budget.[12] NERC submitted the written criteria to the Commission in a compliance filing dated February 21, 2013 in Docket No. FA11-21-000.[13] The Commission approved the NERC written criteria, with modifications, in an order issued in that docket on April 18, 2013.[14] The NERC written criteria as used in this Exhibit incorporate the modifications specified in the Compliance Order.[15]

II. Reliability Standards and Power Risk Issue Strategic Management 2020 Major Activities

The major activities of Reliability Standards and Power Risk Issue Strategic Management (PRISM) are described at pages 19–21 of the 2020 Business Plan and Budget. Reliability Standards carries out the ERO's responsibility to develop, adopt, obtain approval of, and modify as and when appropriate, mandatory Reliability Standards to assure the Bulk Electric System (BES) is planned, operated, maintained, and secured to minimize risks of cascading failures, avoid damages to major equipment, and limit interruptions. The major activity of PRISM is to leverage in-house expertise on Reliability Standards and standards development to implement cross-cutting efforts among NERC functions and the NERC standing and technical committees, with emphasis on developing NERC's positions on emerging technologies and the effect of these technologies on Reliability Standards. The PRISM group provides in-house training on Reliability Standards and conducts statistical analyses concerning the results of standards to identify potential weaknesses, redundancies, and overall necessity.

The major activities for the Reliability Standards program include (1) providing project management and leadership to the reliability standard development process to deliver high quality, continent-wide Reliability Standards, both new and modified, to provide solutions to address reliability risks identified through the Reliability Risk Management Process, including standard development outreach activities, facilitation of drafting team activities, drafting support, assisting drafting teams in adhering to the processes in the *Standard Processes Manual*, and ensuring that the quality of documents produced are appropriate for approval by industry and the NERC Board; (2) facilitating continent-wide industry

[12] *North American Electric Reliability Corporation, Order Accepting 2013 Business Plan and Budget of the North American Electric Reliability Corporation and Ordering Compliance Filing*, 141 FERC ¶ 61,086 (2012) ("2013 Budget Order"). Recommendation 38, as adopted in the 2013 Budget Order, is: "In its annual business plan and budget filings, [NERC should] provide an explanation as to why the proposed activities to be undertaken by each program area for the budget year are statutory, including, at a minimum: a description and the purpose of the major activities to be taken by each program area and an explanation for why the activity is a statutory activity." *Id.* at P 16.

[13] *Compliance Filing of the North American Electric Reliability Corporation in Response to Paragraph 30 of November 2, 2012 Commission Order – NERC Written Criteria for Determining Whether a Reliability Activity is Eligible to be Funded Under Federal Power Act Section 215*, filed February 1, 2013 in Docket No. FA 11-21-000 ("February 1, 2013 Compliance Filing").

[14] *North American Electric Reliability Corporation, Order on Compliance*, 143 FERC ¶ 61,052 (2013) ("Compliance Order").

[15] For ease of reference, the complete NERC written criteria, as modified in accordance with the Compliance Order, are provided at the end of this Exhibit.

engagement in the standard development processes; and (3) conducting industry balloting on standards, disseminating information on standards and the standard development processes, and supporting regulatory filings and proceedings relating to standards. In response to input from regulatory authorities, Regional Entities, and industry stakeholders, the Reliability Standards program gathers industry feedback during the standard development and revision processes on costs of proposed standards and the risks they are intended to address. The PRISM group interacts with stakeholder groups, including NERC technical committees and subcommittees, and ensures that the processes to address Standards Authorization Requests and Requests for Interpretations of standards are coordinated and efficient.

For 2020, the major activities of the Reliability Standards program will continue to focus on (1) selection of standards projects to be undertaken based on the nature of the reliability issue, and whether a standard or another solution is most appropriate to address the issue; (2) addressing Commission directives and responding to Commission orders as necessary through the standards process; (3) continuing to implement the results of the comprehensive review of standards completed in 2018, by initiating projects to modify or retire standards, including analyzing the need to retire or enhance standards requirements based on operational experience; and (4) facilitating smooth transitions to new standards, including by working with the other NERC program areas and the Regional Entities to develop guidelines, webinars, and other activities to support auditor and industry training for new standards. Also in 2020, this program will continue to work with stakeholders to determine whether there is a need to make further improvements to Reliability Standards through periodic reviews that include a measured review of the contents of standards, considering whether the requirements could more effectively mitigate risks to the Bulk Power System (BPS); whether the standards are results-based and drafted with high quality; whether the standards are concise or if the number of requirements could be reduced; and whether compliance expectations are clear. The PRISM group will continue standards training activities for NERC staff, expand its analysis for the efficacy of standards and emerging technologies affecting the BPS, and coordinate with the Reliability Issues Steering Committee (RISC) on alignment of identified risks and mitigating activities.

The major activities of the Reliability Standards program satisfy the following criteria:

I.A: Is the activity necessary or appropriate for Reliability Standards development projects pursuant to the NERC Rules of Procedure (ROP)?

I.B: Is the activity necessary or appropriate for providing guidance and assistance to Regional Entities in carrying out Regional Reliability Standards development activities?

I.C: Is the activity necessary or appropriate for information gathering, collection and analysis activities to obtain information for Reliability Standards development, including for purposes of identifying areas in which new Reliability Standards could be developed, existing Reliability Standards could be revised, or existing Reliability Standards could be eliminated?

I.D: Is the activity necessary or appropriate for the provision of training and education concerning Reliability Standards development processes, procedures, and topics for/to (i) NERC personnel, (ii) Regional Entity personnel, (iii) industry personnel?

II.F.1: Is the activity necessary or appropriate for the provision of training, education and dissemination of information for/to (i) NERC personnel, (ii) Regional Entity personnel, and (ii) industry personnel with respect to compliance monitoring and enforcement topics and topics concerning reliability risks identified through compliance monitoring and enforcement activities, such as (1) Requirements of Reliability Standards, including how to comply and how to demonstrate compliance? This includes development of guidance and interpretation documents.

IV: Is the activity one that was required or directed by a Commission order issued pursuant to §215? (Reliability Standards development projects are often initiated in response to directives in Commission orders).

V: Is the activity one that is required or specified by, or carries out, the provisions of NERC's ROP that have been approved by the Commission as "Electric Reliability Organization Rules" (defined in 18 C.F.R. §39.1) pursuant to FPA §215(f)? (The applicable ROP provisions for the Reliability Standards Program are §300 and Appendix 3A.)

VI: Is the activity necessary or appropriate for the supervision and oversight of Regional Entities in the performance of their delegated responsibilities in accordance with FPA §215, 18 C.F.R. Part 39, the Commission-approved delegation agreement between NERC and the Regional Entity, the NERC ROP, and applicable provisions of Commission orders?

IX. Is the activity necessary or appropriate for NERC and Regional Entity committees, subcommittees and working groups engaged in activities encompassed by one or more of the other criteria?

X. Is the activity necessary or appropriate for the analysis and evaluation of activities encompassed by one or more of the other criteria for the purpose of identifying means of performing the activities more effectively and efficiently?

III. Compliance Assurance, Organization Registration and Certification, and Compliance Enforcement 2020 Major Activities

The major activities of Compliance Assurance, Organization Registration and Certification, and Compliance Enforcement are described on pages 23–27 and 29–30 of the 2020 Business Plan and Budget. This Program Area is comprised of (1) Compliance Assurance, (2) Organization Registration and Certification, and (3) Compliance Enforcement.

The Compliance Assurance group works collaboratively with the Regional Entities to ensure effective implementation of risk-based compliance monitoring under the Compliance Monitoring and Enforcement Program (CMEP) across the entire ERO Enterprise. This group's activities include the following major activities and functions: (1) oversight of the Regional Entities' implementation of the risk-based compliance monitoring program and the NERC ROP, including ensuring that Regional Entities monitor registered entities for compliance according to their specific facts and circumstances, developing customized compliance oversight plans (COPs) for each registered entity based on its inherent risk assessment (IRA) and other factors; (2) development and execution of the annual CMEP Implementation Plan; (3) oversight of use of necessary compliance-related processes, procedures, information technology (IT) platforms, tools and templates; (4) development and delivery of education and training for ERO Enterprise staff; (5) training and outreach activities for the Critical Infrastructure Protection (CIP) Reliability Standards and subsequent enhancements to support industry compliance and security; (6) coordinating with the Reliability Standards program to assist in smooth transition for standards from development to enforceability and to provide feedback on risks seen in the field that are not addressed by a standard, as well as information on whether a standard is too broad; and (7) supporting Regional Entity and industry committees, working groups and task forces, such as the ERO Compliance Monitoring Group (NERC and Regional Entity collaboration group), NERC Compliance and Certification Committee (CCC), and NERC Critical Infrastructure Protection Committee (CIPC). Ensuring successful implementation of the risk-based CMEP is the priority of Compliance Assurance's oversight plan for the Regional Entities. Compliance Assurance provides training to Regional Entity staffs on the elements of risk-based compliance monitoring, including enhancements to registered entities' IRAs, internal controls reviews, COP

development, and Reliability Standards monitoring. Compliance Assurance is also involved, with the Regional Entities, in development of the ERO Enterprise-wide Align application (CMEP Technology Project).

The ongoing and new major activities of the Compliance Assurance group for 2020 will include: (1) continuing to mature the risk-based compliance program, including ongoing oversight of the risk-based CMEP, IRAs, internal controls, coordinated oversight of Multi-Region Registered Entities (MRREs), and ensuring that COPs are addressing the relevant risks; (2) working with NERC Enforcement and IT and with Regional Entities to implement the Align tool; (3) supporting the continued successful implementation of CIP V5 standards and subsequent enhancements as they become effective; (4) monitoring and supporting effective implementation and monitoring of the Physical Security Reliability Standard; (5) enhancing and implementing training to support monitoring of compliance with Reliability Standards, integrating principles from the Compliance Monitoring Competency Guide; (6) continuing to provide feedback to the Reliability Standards program through coordination between the standards and compliance functions to allow clear stakeholder implementation of standards and feedback on risks seen in the field, and supporting this effort through a common set of Reliability Standard Audit Worksheets, guidance, and outreach; (7) supporting international CMEP activities including reliability and security subject matter expertise and outreach; (8) providing support and leadership to applicable committees and subcommittees including the CIPC and the CCC. Additionally, in connection with dissolution of the SPP Regional Entity, NERC, through the Compliance Assurance group, will continue to act as the Compliance Enforcement Authority (CEA) with respect to the SPP Regional Transmission Organization registered functions until the planned transition of CEA responsibilities to Midwest Reliability Organization in 2020.

Organization Registration and Certification manages the Organization Registration and Certification Program (ORCP). Organization Registration identifies and registers BPS users, owners, and operators that are responsible for performing specific reliability functions to which Reliability Standards requirements are applicable. Organization Certification ensures that an applicant to be a Reliability Coordinator (RC), Balancing Authority (BA), or Transmission Operator (TOP) has the tools, processes, training, and procedures to demonstrate its ability to become certified and operational for the applicable functions. This includes responding to industry changes requiring Certification review, including control center relocations, energy management system replacements, and RC, BA and TOP footprint changes. Organization Registration and Certification work with the CCC's Organization Registration and Certification Subcommittee, which oversees the ORCP, and provides training, guidance, and outreach to stakeholders through NERC and Regional Entity workshops and other forums as well as on an individual basis with entities. Organization Registration and Certification is involved in development and implementation of both the Align and the Centralized Organization Registration ERO System (CORES) applications.

Compliance Enforcement is responsible for overseeing enforcement processes, the application of Penalties or sanctions, and activities to mitigate and prevent recurrence of noncompliance with Reliability Standards. This group works collaboratively with the Regional Entities to ensure consistent and effective implementation of the risk-based CMEP. It also focuses on ensuring that the ERO Enterprise dedicates resources to the matters that pose the greatest risk to reliability. Compliance Enforcement monitors Regional Entities' enforcement processes and provides oversight over the outcomes of such processes, to ensure alignment across the ERO Enterprise; collects and analyzes compliance enforcement data and trends to help identify emerging risks to the BPS and inform the development of enforcement policies and procedures; files Notices of Penalty and other disposition documents associated with noncompliance discovered through Regional Entity or NERC-led CMEP activities; collaborates with other NERC departments, including Reliability Standards, Compliance Assurance, and Event Analysis; and delivers

training to ERO Enterprise staff and registered entities and supports other outreach efforts. During 2020, the major activities of Compliance Enforcement will include: (1) identifying and mitigating the greatest risks to reliability and security; (2) supporting development and implementation of the Align tool; (3) streamlining minimal risk noncompliances, including Compliance Exceptions and the self-logging program; (4) aligning the risk assessment process and educating relevant parties; and (5) maturing the Coordinated Oversight program for MRREs.

The major activities of Compliance Assurance, Organization Registration and Certification, and Compliance Enforcement satisfy the following criteria:

I.A: Is the activity necessary or appropriate for Reliability Standards development projects pursuant to the NERC ROP?

I.C: Is the activity necessary or appropriate for information gathering, collection and analysis activities to obtain information for Reliability Standards development, including for purposes of identifying areas in which new Reliability Standards could be developed, existing Reliability Standards could be revised, or existing Reliability Standards could be eliminated?

II. Is the activity necessary or appropriate for the monitoring and enforcement of compliance with Reliability Standards?

A: Is the activity necessary or appropriate for the identification and registration of users, owners, and operators of the BPS that are required to comply with Requirements of Reliability Standards applicable to the reliability functions for which they are registered?

B: Is the activity necessary or appropriate for the Certification of RCs, TOPs, and BAs as having the requisite personnel, qualifications and facilities and equipment needed to perform these reliability functions in accordance with the applicable Requirements of Reliability Standards?

D: Is the activity necessary or appropriate for conducting, participating in or overseeing compliance monitoring and enforcement activities pursuant to the NERC ROP and (through the Regional Entities) the Commission-approved delegation agreements?

E: Is the activity necessary or appropriate for information gathering, collection and analysis activities to obtain information to monitor and enforce compliance with Reliability Standards, including evaluating the effectiveness of current compliance monitoring and enforcement processes, the need for new or revised compliance monitoring and enforcement processes, and the need for new or different means of training and education on compliance with Reliability Standards.

F: Is the activity necessary or appropriate for the provision of training, education and dissemination of information for/to (i) NERC personnel, (ii) Regional Entity personnel, and (iii) industry personnel with respect to compliance monitoring and enforcement topics and topics concerning reliability risks identified through compliance monitoring and enforcement activities, such as: (1) Requirements of Reliability Standards, including how to comply and how to demonstrate compliance? This includes development of guidance and interpretation documents. (2) Compliance monitoring and enforcement processes, including how to conduct them, how to participate in them, and the expectations for the process? This includes development of guidance documents. (3) Disseminating, through workshops, webinars, Advisories/Recommendations/Essential Actions, and other publications, “lessons learned” information on compliance concerns

and reliability risks obtained through compliance monitoring and enforcement activities, monitoring and investigation of BPS major events, off-normal occurrences and near miss events, and other BPS monitoring activities? (4) Registered Entity internal processes for compliance with Reliability Standards, such as development, implementation and maintenance of internal reliability compliance programs?

V: Is the activity one that is required or specified by, or carries out, the provisions of NERC's ROP that have been approved by the Commission as "Electric Reliability Organization Rules" (defined in 18 C.F.R. §39.1) pursuant to FPA §215(f)? (The applicable ROP provisions for these major activities are §400 and 500 and Appendices 4B, 4C, 5A, 5B and 5C.)

VI: Is the activity necessary or appropriate for the supervision and oversight of Regional Entities in the performance of their delegated responsibilities in accordance with FPA §215, 18 C.F.R. Part 39, the Commission-approved delegation agreement between NERC and the Regional Entity, the NERC ROP, and applicable provisions of Commission orders?

IX: Is the activity necessary or appropriate for NERC and Regional Entity committees, subcommittees and working groups engaged in the activities encompassed by one or more of the other criteria?

X: Is the activity necessary or appropriate for the analysis and evaluation of activities encompassed by one or more of the other criteria for the purpose of identifying means of performing the activities more effectively and efficiently?

IV. Reliability Assessments and Performance Analysis 2020 Major Activities

The major activities of Reliability Assessments and Performance Analysis (RAPA) are described at pages 32–37 of the 2020 Business Plan and Budget. RAPA is comprised of the Risk Identification and Mitigation Department, which in turn is comprised of the Reliability Assessments and Technical Committees (RATC) group and the Performance Analysis (PA) group; and the Engineering and Standards department, which in turn is comprised of the Power System Analysis (PSA) group and the Advanced System Analytics and Modeling (ASAM) group.

The RATC group, which includes the NERC staff secretaries of the Operating Committee (OC), Planning Committee (PC), and CIPC, carries out the ERO's responsibility to conduct assessments of the reliability and adequacy of the BPS and associated emerging reliability risks, as well as other reliability issues requiring in-depth analysis. Annual reports and assessments produced by this group include the Long-Term Reliability Assessment (supplemented by the Probabilistic Assessment), the Summer and Winter Reliability Assessments, the *State of Reliability Report*, and Special Reliability Assessments that are selected based on high risk issues requiring an independent assessment from the ERO. The NERC staff secretaries for the NERC technical committees coordinate and administer the activities of these committees, which include providing oversight, guidance, and leadership essential to enhancing BPS reliability. In addition to developing the annual and other assessments, the major ongoing activities of the RATC include focusing on effective Essential Reliability Standards (ERS), advancing the value of the seasonal reliability assessments, advancing probabilistic assessments and evaluations of energy assurance, and enhancing ERO Enterprise-wide effectiveness and efficiency of reliability assurance-related functions. Activities in 2020 will include a Special Reliability Assessment on electricity storage, an interconnection-wide short circuit study and report, and implementation of an effectiveness and efficiency strategy for NERC's committee structure. The RATC group is also implementing the research work plan concerning geomagnetic disturbance effects that was developed and submitted to the

Commission pursuant to Order No. 830, including collection of data pursuant to an ROP Section 1600 data request and other means.

PA monitors the performance of and identifies risks to reliability of the BPS through analyzing data from industry and measuring historic trends, in five areas of BPS operations: transmission, conventional generation, wind generation, protection system misoperations, and demand response. Analysis performed by PA includes identifying potential risks that may indicate a need to develop remediation strategies, improvements to reporting applications, and new data collection or analysis tools which may be used to create, retire, or revise Reliability Standards. To evaluate reliability trends that identify reliability risks, PA analyzes data in the Generation Availability Data System (GADS), Transmission Availability Data System (TADS), and Demand Response Availability System (DADS), as well as reliability metrics and protection and control system misoperations data.

PSA provides technical leadership and support in the areas of resource and demand balancing and system analysis and modeling, including technical support for the balancing (BAL) and modeling (MOD) Reliability Standards. PSA assists the RATC in its independent reliability assessments; performs Interconnection-wide analysis of steady state and dynamic conditions, including frequency, ERS, stability, short circuit ratio, and oscillatory behavior aspects; and assures that the BES electrical elements necessary for reliable operation are identified and subject to Reliability Standards. PSA's ongoing major activities include developing technical analyses in key reliability area to address areas of concern, in order to evaluate BPS characteristics, behavior and performance due to the changing resource mix and integration of new technologies; continuing to explore use of state-of-the-art software to conduct power system analysis; conducting detailed forensic analysis of significant system disturbances; and providing technical expertise, research, and feedback to the industry, including those that support development of key reliability planning-related Reliability Standards.

ASAM provides support for development and improvement of long-term, sustainable interconnection-based power flow, dynamic, and load models that reflect actual BES reliability performance and dynamic conditions. ASAM provides guidance on appropriate use of new and existing models to study emerging risks; advances understanding of power system characteristics and behaviors by gathering larger phasor measurement unit data sets for advanced data analytics and modeling improvements; and promotes understanding of the need and available methods for probabilistic studies to augment deterministic studies in system planning. ASAM provides advanced statistical analysis support to RATC's *State of Reliability Report* and reliability assessments; PSA's interconnection-wide analysis of frequency response and other parameters; and PRISM's analytical review of Reliability Standard effectiveness. ASAM's ongoing major activities include providing industry insight on modeling improvements through a State of Modeling report; in coordination with the PC's Inverter-Based Resource Performance Task Force, performing event analyses and investigating abnormal performance of inverter-based resources to develop industry recommendations and address potential reliability gaps; supporting industry in the reliable integration of increased levels of Distributed Energy Resources; supporting industry adoption and advancement of synchrophasor technology through the PC's Synchronized Measurement Subcommittee; supporting industry understanding and expertise in power plant modeling through the PC's System Analysis and Modeling Subcommittee's Power Plant Modeling and Verification Task Force; advancing improvements in dynamic load modeling in support of industry stability studies for planning and real-time reliability assessments; supporting studies and technical positions on the changing nature of end-use loads; performing annual assessments of case quality and fidelity on interconnection-wide cases released by the MOD-032 designees; addressing deficiencies in interconnection-wide models and providing industry education on key modeling topics; coordinating with the PC's Methods for Establishing Interconnection Reliability Operating Limits (IROLs) Task Force and supporting improvements to the

methods, practice, and tools used to establish IROLs; conducting a Composite Reliability Study using probabilistic or near-probabilistic methods for transmission and resources; conducting a WECC/NERC Battery Study of the Western Interconnection to determine the adequacy of battery energy injection to support frequency response, steady-state and dynamic support, and primary frequency reserve margin; and conducting advanced statistical studies in support of the Standards Efficiency Review and the *State of Reliability Report*.

The RAPA groups work closely with other governmental and industry organizations, including the U.S. Department of Energy, Electric Power Research Institute, Institute of Electrical and Electronics Engineers, Institute of Nuclear Power Operations, North American Transmission Forum, North American Generators Forum, Interstate Natural Gas Association of America, Natural Gas Supply Association, Canadian Electricity Association, and International Council on Large Electric Systems.

The major activities of RAPA satisfy the following criteria:

I.A: Is the activity necessary or appropriate for Reliability Standards development projects pursuant to the NERC ROP?

I.C: Is the activity necessary or appropriate for information gathering, collection and analysis activities to obtain information for Reliability Standards development, including for purposes of identifying areas in which new Reliability Standards could be developed, existing Reliability Standards could be revised, or existing Reliability Standards could be eliminated, such as: (1) Measuring reliability performance—past, present and future; publishing or disseminating the results of such measurements; analyzing the results of such measurements; identifying and analyzing risks to reliability of the Bulk Power System based on such measurements; and/or identifying approaches to mitigating or eliminating such risks? (2) Monitoring, event analysis and investigation of BPS major events, off-normal occurrences and near miss events?

II.A: Is the activity necessary or appropriate for the identification and registration of users, owners, and operators of the BPS that are required to comply with Requirements of Reliability Standards applicable to the reliability functions for which they are registered?

III.A: Is the activity necessary or appropriate for the preparation or dissemination of long-term, seasonal, and special assessments of the reliability and adequacy of the BPS?

III.B: Is the activity necessary or appropriate for measuring reliability performance—past, present and future; publishing or disseminating the results of such measurements; analyzing the results of such measurements; identifying and analyzing risks to reliability of the BPS based on such measurements; and/or identifying approaches to mitigating or eliminating such risks?

III.C. Is the activity necessary or appropriate for investigating, analyzing, evaluating, and disseminating information concerning, the causes of major events and off-normal occurrences, and/or providing coordination assistance, technical expertise and other assistance to users, owners, and operators of the BPS in connection with BPS major events and off-normal occurrences, but not real-time operational control of the BPS?

III.D. Is the activity necessary or appropriate for awareness of circumstances on the BPS and to contribute to understanding risks to reliability?

III.F: Is the activity necessary or appropriate for the development and dissemination of Advisories/Recommendations/Essential Actions regarding lessons learned and potential reliability risks to users, owners, and operators of the BPS?

IV: Is the activity one that was required or directed by a Commission order issued pursuant to §215? (FERC orders directed NERC to develop and implement a revised definition of "Bulk Electric System" and a procedure for requesting and receiving exceptions from the BES definition, and subsequently approved NERC's proposed revised BES definition and its proposed BES exception procedure.)

V. Is the activity one that is required or specified by, or carries out, the provisions of NERC's ROP that have been approved by the Commission as "Electric Reliability Organization Rules" (defined in 18 C.F.R. §39.1) pursuant to FPA §215(f)? (The applicable ROP provisions for major activities of the RAPA program are §801-806, §809-810, and Appendix 5C.)

VI: Is the activity necessary or appropriate for the supervision and oversight of Regional Entities in the performance of their delegated responsibilities in accordance with FPA §215, 18 C.F.R. Part 39, the Commission-approved delegation agreement between NERC and the Regional Entity, the NERC ROP, and applicable provisions of Commission orders?

IX: Is the activity necessary or appropriate for NERC and Regional Entity committees, subcommittees and working groups engaged in activities encompassed by one or more of the other criteria?

X: Is the activity necessary or appropriate for the analysis and evaluation of activities encompassed by one or more of the other criteria for the purpose of identifying means of performing the activities more effectively and efficiently?

V. Situation Awareness 2020 Major Activities

The major activities of Situation Awareness are described at pages 39–41 of the 2020 Business Plan and Budget. The Situation Awareness group, along with the Regional Entities, monitors BPS conditions, significant occurrences and emerging risks, and threats across the 14 Reliability Coordinator regions in North America, to maintain an understanding of conditions and situations that could impact reliable operations. Situation Awareness supports development and publication of NERC Alerts and awareness products, and facilitates information sharing among industry, Regional Entities and government during crisis situations and major system disturbances. Situation Awareness assists the NERC OC's Operating Reliability Subcommittee in enhancing BPS reliability with efforts to provide operational guidance to industry by managing NERC-sponsored technology tools and services that support operational coordination, as well as by providing technical support and advice. Situation Awareness uses and supports reliability-related tools in support of Situation Awareness activities, including the Resource Adequacy (Area Control Error Frequency) Tool; Inadvertent Interchange; FNet; Intelligent Alarms Tool; PowerIQ and PowerRT tools; Situation Awareness for NERC, FERC, and the Regional Entities (SAFNR); Reliability Coordinator Information System (RCIS); NERC Alerts (secure alerting system); and the Process Information (PI) Historian System.

The ongoing and new major activities of the Situation Awareness department for 2020 include: ensuring that the ERO is aware of all BES events above a threshold of impact; enabling the sharing of information and data to facilitate wide-area situational awareness; during crisis situations, facilitating the exchange of information among industry, Regions, and U.S. and Canadian governments; keeping the industry informed of emerging reliability threats and risks, including any expected actions; administering the NERC Alerts process as specified in §810 of the ROP to issue Advisory (Level 1) Alerts on significant and emerging reliability and security related topics, and facilitate the tracking of actions specified in Recommendation (Level 2) and Essential Action (Level 3) Alerts; continuing to set the conditions to bring in limited streaming synchrophasor data for wide-area situational awareness and event triage applications; evaluating the

importance of having visibility and understanding of the reliability or availability of natural gas and its interdependency with electrical generation; and developing and implementing upgrades to SAFNR. During 2020, Situation Awareness will continue the implementation of the upgraded SAFNR system and development of any needed enhancements, as well as upgrading the video wall in the NERC situational awareness room; enhancing natural gas situational awareness; and working with the E-ISAC to increase situational awareness related to physical security.

The major activities of the Situation Awareness group satisfy the following criteria:

I.C.2: Is the activity necessary or appropriate for information gathering, collection and analysis activities to obtain information for Reliability Standards development, including for purposes of identifying areas in which new Reliability Standards could be developed, existing Reliability Standards could be revised, or existing Reliability Standards could be eliminated, such as: (2) Monitoring, event analysis and investigations of BPS major events, off-normal occurrences and near-miss events?

II.G: Is the activity necessary or appropriate for the development and provision of tools and services that are useful for the provision of adequate reliability, because they relate specifically to compliance with existing Reliability Standards and they proactively help avert Reliability Standard violations and BPS disturbances?

III.C. Is the activity necessary or appropriate for investigating, analyzing, evaluating, and disseminating information concerning, the causes of major events and off-normal occurrences, and/or providing coordination assistance, technical expertise and other assistance to users, owners, and operators of the BPS in connection with BPS major events and off-normal occurrences, but not real-time operational control of the BPS?

III.D: Is the activity necessary or appropriate for awareness of circumstances on the BPS System and to contribute to understanding risks to reliability?

III.E: Is the activity necessary or appropriate for gathering, analyzing and sharing with and among industry and government participants, information regarding the physical or cyber security of the BPS?

III.F: Is the activity necessary or appropriate for the development and dissemination of Advisories/Recommendations/Essential Actions regarding lessons learned and potential reliability risks to users, owners, and operators of the BPS?

V: Is the activity one that is required or specified by, or carries out, the provisions of NERC's ROP that have been approved by the Commission as "Electric Reliability Organization Rules" (defined in 18 C.F.R. §39.1) pursuant to FPA §215(f)? (The applicable ROP provision for these major activities is §1001.)

IX. Is the activity necessary or appropriate for NERC and Regional Entity committees, subcommittees and working groups engaged in activities encompassed by one or more of the other criteria?

VI. Event Analysis 2020 Major Activities

The major activities of Event Analysis are described at pages 43–44 of the 2020 Business Plan and Budget. The Event Analysis group performs assessments of the reliability and adequacy of the BES to identify potential issues of concern related to system, equipment, entity, and human performance that may indicate a need to develop remediation strategies, action plans, or data used to revise or retire Reliability Standards or consider new Reliability Standards. Event Analysis analyzes and determines the causes of

events, promptly assures tracking of corrective actions to prevent recurrence, and provides lessons learned to the industry. Event Analysis analyzes all reportable events for sequence of events, root cause, risks to reliability, and mitigation and keeps the industry well-informed of system events, emerging trends, risk analysis, lessons learned, and expected actions. Event Analysis conducts in-depth analyses of approximately 150 events per year on average, and also conducts calls facilitated by Regional Entities with registered entities to discuss in detail and finalize root and contributing causes for the events analyzed. Event Analysis identifies human error risks and precursor factors that allow human error to affect BES reliability, and educates industry regarding such risks, precursors, and related mitigation methods. Event Analysis works in collaboration with and supports the activities of other groups involved in human performance analysis, including the NERC OC's Event Analysis Subcommittee, the WECC Human Performance Working Group, and others. Additionally, Event Analysis supports compliance and standards training initiatives and trending and analysis to identify emerging reliability risks.

The ongoing and new major activities for 2020 for the Event Analysis group include: (1) Working with Regional Entities to obtain and review information from registered entities on qualifying events and disturbances in order to advance awareness of events above a threshold level; facilitating analysis of root and contributing causes, risks to reliability, wide-area assessments and remediation efforts; and disseminating information regarding events in a timely manner. (2) Ensuring that all reportable events are analyzed for sequence of events, root cause, risk to reliability, and mitigation. (3) Continuing to refine risk-based methodologies to support better identification of reliability risks, including use of more sophisticated cause codes for analysis. (4) Conducting training (webinars, workshops and conference support) to inform industry and the ERO of lessons learned, root cause analysis, trends, human performance, and extreme weather preparedness and recommendations, including events like the annual NERC Monitoring and Situational Awareness Conference and annual Human Performance Conference. (5) Developing reliability recommendations and Alerts as needed, and tracking industry accountability for critical reliability recommendations. (6) Ensuring that industry is well informed of system events, emerging trends, risk analysis, lessons learned, and expected actions. (7) Conducting major event analysis and reporting of major findings and recommendations that will improve reliability. The Event Analysis department will also support several top priority reliability risk projects being led by RAPA. Additionally, in 2020, Event Analysis will focus on updating and upgrading data collection and shortage capabilities ad capacity for the Event Analysis Management System (TEAMS); as well as working to develop a link between performance and event analysis data to enhance the availability to conduct effective event analyses and to identify key areas for trend analyses across multiple databases.

The major activities of the Event Analysis group satisfy the following criteria:

I.C.2: Is the activity necessary or appropriate for information gathering, collection and analysis activities to obtain information for Reliability Standards development, including for purposes of identifying areas in which new Reliability Standards could be developed, existing Reliability Standards could be revised, or existing Reliability Standards could be eliminated, such as: (2) Monitoring, event analysis and investigations of BPS major events, off-normal occurrences and near-miss events?

II.E.2: Is the activity necessary or appropriate for information gathering, collection and analysis activities to obtain information to monitor and enforce compliance with Reliability Standards, including evaluating the effectiveness of current compliance monitoring and enforcement processes, the need for new or revised compliance monitoring and enforcement processes, and the need for new or different means of training and education on compliance with Reliability Standards, such as: (2) Monitoring, event analysis and investigation of BPS major events, off-normal occurrences, and near miss events?

II.F.3: Is the activity necessary or appropriate for the provision of training, education and dissemination of information for/to (i) NERC personnel, (ii) Regional Entity personnel, and (iii) industry personnel with respect to compliance monitoring and enforcement topics and topics concerning reliability risks identified through compliance monitoring and enforcement activities, such as: (3) Disseminating, through workshops, webinars, Advisories, Recommendations, Essential Actions, and other publications; "lessons learned" information on compliance concerns and reliability risks obtained through compliance monitoring and enforcement activities; monitoring and investigation of BPS major events, off-normal occurrences and near miss events, and other BPS monitoring activities?

III.B. Is the activity necessary or appropriate for measuring reliability performance—past, present and future; publishing or disseminating the results of such measurements; analyzing the results of such measurements; identifying and analyzing risks to reliability of the BPS based on such measurements; and/or identifying approaches to mitigating or eliminating such risks?

III.C. Is the activity necessary or appropriate for investigating, analyzing, evaluating, and disseminating information concerning, the causes of major events and off-normal occurrences, and/or providing coordination assistance, technical expertise and other assistance to users, owners, and operators of the BPS in connection with BPS major events and off-normal occurrences, but not real-time operational control of the BPS?

III.D. Is the activity necessary or appropriate for awareness of circumstances on the BPS and to contribute to understanding risks to reliability?

III.E: Is the activity necessary or appropriate for gathering, analyzing and sharing with and among industry and government participants, information regarding the physical or cyber security of the BPS?

III.F: Is the activity necessary or appropriate for the development and dissemination of Advisories/Recommendations/Essential Actions regarding lessons learned and potential reliability risks to users, owners, and operators of the BPS?

V: Is the activity one that is required or specified by, or carries out, the provisions of NERC's ROP that have been approved by the Commission as "Electric Reliability Organization Rules" (defined in 18 C.F.R. §39.1) pursuant to FPA §215(f)? (The applicable ROP provisions for these major activities are §801-811 and Appendix 8.)

VI. Is the activity necessary or appropriate for the supervision and oversight of Regional Entities in the performance of their delegated responsibilities in accordance with FPA §215, 18 C.F.R. Part 39, the Commission-approved delegation agreement between NERC and the Regional Entity, the NERC ROP, and applicable provisions of Commission orders?

IX. Is the activity necessary or appropriate for NERC and Regional Entity committees, subcommittees and working groups engaged in activities encompassed by one or more of the other criteria?

VII. Electricity Information Sharing and Analysis Center 2020 Major Activities

The major activities of the Electricity Information Sharing and Analysis Center (E-ISAC) are described at pages 46–51 of the 2020 Business Plan and Budget. The primary function of E-ISAC is to reduce cyber and physical risk to the electricity industry across North America by providing unique insights, leadership and coordination, and to be a world-class trusted source of quality analysis and rapid sharing of security information for the electric industry. E-ISAC oversees the Cybersecurity Risk Information Sharing Program (CRISP). CRISP delivers real-time, relevant, and actionable cybersecurity risk information to E-ISAC

member electricity asset owners and operators. E-ISAC also supports an annual grid security conference and a biennial Grid Security Exercise.

The E-ISAC's major activities for 2020 are focused on three areas: (1) Engagement with industry participants using the E-ISAC Portal as the primary took for communication to promote cyber and physical security risk identification, sharing, analysis, and mitigation. The E-ISAC also strives to strengthen relationships with the government intelligence community, with the goal of increased access to government-informed threat information and analysis. (2) Information sharing, including developing and implementing high priority notification procedures, using automated information sharing technology, improving E-ISAC Portal functionality, and improving industry personnel's access to classified information. (3) Analysis—the E-ISAC publishes reports, bulletins, and advisories, conducts monthly webinars, and convenes experts for classified and unclassified briefings with members. These activities provide information obtained through analysis by E-ISAC cyber and physical security and threat intelligence teams, as well as independent analysis from members, government, the cross-sector community, strategic vendors, and other partners.

I.C.1: Is the activity necessary or appropriate for information gathering, collection and analysis activities to obtain information for Reliability Standards development, including for purposes of identifying areas in which new Reliability Standards could be developed, existing Reliability Standards could be revised, or existing Reliability Standards could be eliminated, such as: (1) Measuring reliability performance—past, present and future; publishing or disseminating the results of such measurements; analyzing the results of such measurements; identifying and analyzing risks to reliability of the BPS based on such measurements; and/or identifying approaches to mitigating or eliminating such risks? (2) Monitoring, event analysis and investigation of BPS major events, off-normal occurrences and near-miss events?

III.D: Is the activity necessary or appropriate for awareness of circumstances on the BPS and to contribute to understanding risks to reliability.

III.E: Is the activity necessary or appropriate for gathering, analyzing and sharing with and among industry and government participants, information regarding the physical or cyber security of the BPS.

III.F: Is the activity necessary or appropriate for the development and dissemination of Advisories/Recommendations/Essential Actions regarding lessons learned and potential reliability risks to users, owners, and operators of the BPS?

V: Is the activity one that is required or specified by, or carries out, the provisions of NERC's ROP that have been approved by the Commission as "Electric Reliability Organization Rules" (defined in 18 C.F.R. §39.1) pursuant to FPA §215(f)? (The applicable ROP provisions for these major activities are §810 and 1003.)

VIII. Personnel Certification and Continuing Education 2020 Major Activities

NERC has placed the System Operator Certification Program and the Continuing Education (CE) program into a separate group overseen by the NERC Personnel Certification Governance Committee. These programs are funded entirely through examination fees, and do not receive any funding from FPA §215 statutory assessments. For completeness, however, a summary of the major activities of the Personnel Certification and Continuing Education (PCCE) group is provided in this Exhibit A.

The major activities of the PCCE group are described at pages 53–54 of the 2020 Business Plan and Budget. The System Operator Certification program ensures personnel operating the BPS have the skills, training

and qualifications needed to operate the system reliably. This program maintains the credentials required to work in various industry areas across North America for over 7,500 system operators. NERC's System Operator Certification exam prepares operators for complying with the requirements of Reliability Standards and appropriately operating the BPS during normal and emergency operations. Credential maintenance of the System Operator Certification program is accomplished by obtaining CE Hours. The Continuing Education Program approves CE providers and their courses. NERC's OC Personnel Subcommittee provides oversight of the CE Program.

Major ongoing and new activities of the PCCE include analysis of System Operator Certification program survey results; updates to the System Operator Certification Exam Item Bank to ensure relevance to current Reliability Standards; enhancements to the exam "skills assessment" process to better assess the skills and knowledge of system operators; development of an implementation plan for One Credential transition; evaluating credential review and rationalization to maintain credentials (credential maintenance requirements); reinstatement of Provider Renewal Audits; revising the CE Program Manual; and continued improvements to the System Operator Certification Continuing Education Database to enhance user experiences.

The major activities of the PCCE group satisfy the following criteria:

I.D: Is the activity necessary or appropriate for the provision of training and education concerning Reliability Standards development processes, procedures and topics for/to (i) NERC personnel, (ii) Regional Entity personnel, and (iii) industry personnel?

II.C: Is the activity necessary or appropriate for the Certification of system operating personnel as qualified to carry out the duties and responsibilities of their positions in accordance with the Requirements of applicable Reliability Standards?

II.F.1: Is the activity necessary or appropriate for the provision of training, education and dissemination of information for/to (i) NERC personnel, (ii) Regional Entity personnel, and (iii) industry personnel with respect to compliance monitoring and enforcement topics and topics concerning reliability risks identified through compliance monitoring and enforcement activities, such as: (1) Requirements of Reliability Standards, including how to comply and how to demonstrate compliance? This includes development of guidance and interpretation documents.

V: Is the activity one that is required or specified by, or carries out, the provisions of NERC's ROP that have been approved by the Commission as "Electric Reliability Organization Rules" (defined in 18 C.F.R. §39.1) pursuant to FPA §215(f)? (The applicable ROP provision for the major activities of the Personnel Certification Program is §900.)

IX. Is the activity necessary or appropriate for NERC and Regional Entity committees, subcommittees and working groups engaged in activities encompassed by one or more of the other criteria?

IX. Training and Education 2020 Major Activities

The major activities of Training and Education are described at pages 56–57 of the 2020 Business Plan and Budget. The Training and Education group oversees and coordinates the delivery of training programs to ERO Enterprise staff and BPS industry participants. Training and Education uses both one-way mass communication media (e-mails, newsletters, flyers and videos) and two-way communication methods (face-to-face meetings and webinars) to convey learning materials and information. The ongoing and new major activities of the Training and Education group include assisting in facilitation of the ERO Enterprise

CMEP staff workshop; developing learning products for industry-facing workshops and conferences, including the annual Standards and Compliance Workshop, the Gas Infrastructure Technical Workshop, and the Human Performance Conference; developing CMEP e-learning modules for ERO Enterprise auditors; developing and updating systems training products for data systems (GADS, GADS Wind, TADS, DADS); developing learning products in support of the implementation of Align and CORES; designing and developing the ERO Enterprise training website; development and implementation of a management development program; and implementing training and adoption for the new Learning Management System among ERO Enterprise staff.

The major activities of Training and Education satisfy the following criteria:

I.D: Is the activity necessary or appropriate for the provision of training and education concerning Reliability Standards development processes, procedures and topics for/to (i) NERC personnel, (ii) Regional Entity personnel, and (iii) industry personnel?

II.F: Is the activity necessary or appropriate for the provision of training, education and dissemination of information for/to (i) NERC personnel, (ii) Regional Entity personnel, and (iii) industry personnel with respect to compliance monitoring and enforcement topics and topics concerning reliability risks identified through compliance monitoring and enforcement activities, such as: (1) Requirements of Reliability Standards, including how to comply and how to demonstrate compliance? This includes development of guidance and interpretation documents. (2) Compliance monitoring and enforcement processes, including how to conduct them, how to participate in them, and the expectations for the processes? This includes development of guidance documents. (3) Disseminating, through workshops, webinars, Advisories/Recommendations/Essential Actions, and other publications, "lessons learned" information on compliance concerns and reliability risks obtained through compliance monitoring and enforcement activities, monitoring and investigation of BPS major events, off-normal occurrences and near miss events, and other BPS monitoring activities. (4) Registered Entity internal processes for compliance with Reliability Standards, such as development, implementation and maintenance of internal reliability compliance programs?

III.E: Is the activity necessary or appropriate for gathering, analyzing and sharing with and among industry and government participants, information regarding the physical or cyber security of the BPS?

V: Is the activity one that is required or specified by, or carries out, the provisions of NERC's ROP that have been approved by the Commission as "Electric Reliability Organization Rules" (defined in 18 C.F.R. §39.1) pursuant to FPA §215(f)? (The applicable ROP provisions for the major activities of the Training and Education are in §900.)

VI: Is the activity necessary or appropriate for the supervision and oversight of Regional Entities in the performance of their delegated responsibilities in accordance with FPA §215, 18 C.F.R. Part 39, the Commission-approved delegation agreement between NERC and the Regional Entity, the NERC ROP, and the applicable provisions of Commission orders.

X. Administrative Services 2020 Major Activities

NERC's Administrative Services Departments are General and Administrative, Legal and Regulatory, Information Technology (IT), Human Resources and Administration, and Finance and Accounting. The major activities of these departments are described at pages 59–65 of the 2020 Business Plan and Budget.

General and Administrative is responsible for the administration and general management of the organization and includes the Chief Executive Officer and Chief Reliability Officer and support staff; Policy and External Affairs staff (legislative and regulatory, communications, and international affairs activities); and Board of Trustees costs.

Legal and Regulatory provides legal support to the organization, including management and the NERC program areas. General corporate legal support is provided in areas including antitrust, corporate, commercial, insurance, contracts, employment, real estate, copyright, tax, and legislation. Legal and regulatory support is also provided in connection with delegation agreements with Regional Entities. Legal and Regulatory also includes the Internal Audit and Corporate Risk Management functions.

IT supports the technology needs necessary to the existence and function of the organization in executing statutory activities, and supports, configures, and secures corporate and enterprise applications and infrastructure leveraged by the ERO Enterprise and registered entities. IT's Project Management Office provides project management skills and leadership for major ERO Enterprise and NERC IT projects. IT's major activities are focused on three areas: (1) developing ERO Enterprise new functionality, including Align, CORES, the SAFNR upgrade, enhancements to data management systems (GADS, GADS Wind, TADS, DADS and the Reliability Assessment Data System), and technology applications for collection of data under ROP Section 1600 data requests); (2) ERO Enterprise application and infrastructure support; and (3) NERC infrastructure support.

Human Resources and Administration's activities include hiring, benefits administration, employee relations, performance and compensation management, training and development for leadership, management, and professional and administrative staff, facilities management of NERC's two office locations, and meeting planning and coordination. Under the direction of the NERC Board Corporate Governance and Human Resources Committee, Human Resources and Administration develops compensation strategy and performs or obtains (through consultants) market compensation studies, effectiveness studies, and other compensation and staffing related studies as needed.

Finance and Accounting manages all finance and accounting functions of NERC, including employee payroll, 401(k), 457(b) and 457(f) plans, travel and expense reporting, monthly financial reporting, sales and use tax, insurance, and development of the annual business plan and budget.

The major activities of NERC's Administrative Services Departments satisfy the following criteria:

I.A: Is the activity necessary or appropriate for Reliability Standards development projects pursuant to the NERC ROP?

II.A: Is the activity necessary or appropriate for the identification and registration of users, owners, and operators of the BPS that are required to comply with Requirements of Reliability Standards applicable to the reliability functions for which they are registered?

II.D: Is the activity necessary or appropriate for conducting, participating in or overseeing compliance monitoring and enforcement activities pursuant to the NERC ROP and (through the Regional Entities) the Commission-approved delegation agreements?

III.C: Is the activity necessary or appropriate for investigating, analyzing, evaluating, and disseminating information concerning, the causes of major events and off-normal occurrences, and/or providing coordination assistance, technical expertise and other assistance to users, owners, and operators of the BPS in connection with BPS major events and off-normal occurrences, but not real-time operational control of the BPS?

V: Is the activity one that is required or specified by, or carries out, the provisions of NERC's ROP that have been approved by the Commission as "Electric Reliability Organization Rules" (defined in 18 C.F.R. §39.1) pursuant to FPA §215(f)? (The applicable ROP provisions for ERO Enterprise audits conducted by the Internal Audit group in Legal and Regulatory are §406, §506, and Appendix 4A, and for major activities of Finance and Accounting is §1100.)

VI: Is the activity necessary or appropriate for the supervision and oversight of Regional Entities in the performance of their delegated responsibilities in accordance with FPA §215, 18 C.F.R. Part 39, the Commission-approved delegation agreement between NERC and the Regional Entity, the NERC ROP, and the applicable provisions of Commission orders.

IX. Is the activity necessary or appropriate for NERC and Regional Entity committees, subcommittees and working groups engaged in activities encompassed by one or more of the other criteria?

XI: Is the activity a governance or administrative/overhead function, activity or service necessary or appropriate for the activities encompassed by the other criteria and, in general, necessary and appropriate to operate a functioning organization?

NERC WRITTEN CRITERIA FOR DETERMINING WHETHER AN ACTIVITY IS ELIGIBLE TO BE FUNDED UNDER SECTION 215 OF THE FEDERAL POWER ACT

For purposes of internal management approval of a proposed new activity or group of related activities ("major activity"), the proposed activity or major activity must be shown to fall within at least one of the criteria listed below. When sub-criteria are listed below a roman numeral numbered major criterion, the proposed activity should be a positive answer to at least one of the sub-criteria. Conversely, an activity that falls under a sub-criterion should pertain to the subject matter of the major criterion.

NERC's annual business plan and budget will describe how each major activity falls within one or more of the criteria listed below. If the major activity is substantially the same as a major activity that was shown to fall within the criteria in a previous year's business plan and budget, the current year's business plan and budget can refer to the prior year business plan and budget.

A determination that an activity falls within FPA §215 does not necessarily mean that NERC will propose or undertake such activity. The determination of whether an activity falling under FPA §215 should or will be undertaken in a given budget year will be addressed in the context of the applicable business plan and budget and will include opportunities for stakeholder input.

The criteria listed below are not necessarily each distinct from the others. An activity or major activity may fall within more than one of the criteria listed below.

I. Is the activity necessary or appropriate for the development of Reliability Standards?

   A. Is the activity necessary or appropriate for Reliability Standards development projects pursuant to the NERC ROP?

   B. Is the activity necessary or appropriate for providing guidance and assistance to Regional Entities in carrying out Regional Reliability Standards development activities?

   C. Is the activity necessary or appropriate for information gathering, collection and analysis activities to obtain information for Reliability Standards development, including for purposes of identifying areas in which new Reliability Standards could be developed, existing Reliability Standards could be revised, or existing Reliability Standards could be eliminated, such as:

      1. Measuring reliability performance—past, present and future; publishing or disseminating the results of such measurements; analyzing the results of such measurements; identifying and analyzing risks to reliability of the Bulk Power System (BPS)[16] based on such measurements; and/or identifying approaches to mitigating or eliminating such risks?

      2. Monitoring, event analysis and investigation of BPS major events, off-normal occurrences and near miss events?

   D. Is the activity necessary or appropriate for the provision of training and education concerning Reliability Standards development processes, procedures and topics for/to (i) NERC personnel, (ii) Regional Entity personnel, and (iii) industry personnel?

[16] This document uses the term "Bulk Power System" because that is the term defined and used in FPA §215. NERC recognizes that a different term, "Bulk Electric System," is used to define the current reach of reliability standards.

II. Is the activity necessary or appropriate for the monitoring and enforcement of compliance with Reliability Standards?

A. Is the activity necessary or appropriate for the identification and registration of users, owners, and operators of the BPS that are required to comply with Requirements of Reliability Standards applicable to the reliability functions for which they are registered?

B. Is the activity necessary or appropriate for the Certification of RCs, TOPS, and BAs as having the requisite personnel, qualifications and facilities and equipment needed to perform these reliability functions in accordance with the applicable Requirements of Reliability Standards?

C. Is the activity necessary or appropriate for the Certification of system operating personnel as qualified to carry out the duties and responsibilities of their positions in accordance with the Requirements of applicable Reliability Standards?[17]

D. Is the activity necessary or appropriate for conducting, participating in or overseeing compliance monitoring and enforcement activities pursuant to the NERC ROP and (through the Regional Entities) the Commission-approved delegation agreements?

E. Is the activity necessary or appropriate for information gathering, collection and analysis activities to obtain information to monitor and enforce compliance with Reliability Standards, including evaluating the effectiveness of current compliance monitoring and enforcement processes, the need for new or revised compliance monitoring and enforcement processes, and the need for new or different means of training and education on compliance with Reliability Standards, such as:

1. Measuring reliability performance—past, present and future; publishing or disseminating the results of such measurements; analyzing the results of such measurements; identifying and analyzing risks to reliability of the BPS based on such measurements; and/or identifying approaches to mitigating or eliminating such risks?

2. Monitoring, event analysis and investigation of BPS major events, off-normal occurrences, and near miss events?

F. Is the activity necessary or appropriate for the provision of training, education and dissemination of information for/to (i) NERC personnel, (ii) Regional Entity personnel, and (iii) industry personnel with respect to compliance monitoring and enforcement topics and topics concerning reliability risks identified through compliance monitoring and enforcement activities, such as:

1. Requirements of Reliability Standards, including how to comply and how to demonstrate compliance? This includes development of guidance and interpretation documents.

2. Compliance monitoring and enforcement processes, including how to conduct them, how to participate in them, and the expectations for the processes? This includes development of guidance documents.

[17] Although certification of system operating personnel is an activity falling within the scope of, and eligible to be funded pursuant to, FPA §215, NERC strives to fully fund the costs of this activity through fees charged to participants.

3. Disseminating, through workshops, webinars, Advisories, Recommendations, Essential Actions, and other publications; "lessons learned" information on compliance concerns and reliability risks obtained through compliance monitoring and enforcement activities; monitoring and investigation of BPS major events, off-normal occurrences and near miss events, and other BPS monitoring activities?

4. Registered Entity internal processes for compliance with Reliability Standards, such as development, implementation and maintenance of internal reliability compliance programs?

G. Is the activity necessary or appropriate for the development and provision of tools and services that are useful for the provision of adequate reliability, because they relate specifically to compliance with existing Reliability Standards and they proactively help avert Reliability Standard violations and BPS disturbances?

III. Is the activity necessary or appropriate for conducting and disseminating periodic assessments of the reliability of the BPS or monitoring the reliability of the BPS?

A. Is the activity necessary or appropriate for the preparation or dissemination of long-term, seasonal, and special assessments of the reliability and adequacy of the BPS?

B. Is the activity necessary or appropriate for measuring reliability performance—past, present and future; publishing or disseminating the results of such measurements; analyzing the results of such measurements; identifying and analyzing risks to reliability of the BPS based on such measurements; and/or identifying approaches to mitigating or eliminating such risks?

C. Is the activity necessary or appropriate for investigating, analyzing, evaluating, and disseminating information concerning, the causes of major events and off-normal occurrences, and/or providing coordination assistance, technical expertise and other assistance to users, owners, and operators of the BPS in connection with BPS major events and off-normal occurrences, but not real-time operational control of the BPS?

D. Is the activity necessary or appropriate for awareness of circumstances on the BPS and to contribute to understanding risks to reliability?

E. Is the activity necessary or appropriate for gathering, analyzing and sharing with and among industry and government participants, information regarding the physical or cyber security of the BPS?

F. Is the activity necessary or appropriate for the development and dissemination of Advisories/Recommendations/Essential Actions regarding lessons learned and potential reliability risks to users, owners, and operators of the BPS?

G. Is the activity necessary or appropriate for data collection and analysis of information regarding BPS reliability matters mandated by the Commission?

IV. Is the activity one that was required or directed by a Commission order issued pursuant to FPA §215? Justification of an activity as a FPA §215 activity based on this category must reference the particular Commission order and directive.

V. Is the activity one that is required or specified by, or carries out, the provisions of NERC's ROP that have been approved by the Commission as "Electric Reliability Organization Rules" (defined in 18 C.F.R. §39.1) pursuant to FPA §215(f)?

VI. Is the activity necessary or appropriate for the supervision and oversight of Regional Entities in the performance of their delegated responsibilities in accordance with FPA §215, 18 C.F.R. Part 39, the Commission-approved delegation agreement between NERC and the Regional Entity, the NERC ROP, and applicable provisions of Commission orders?

VII. Is the activity necessary or appropriate to maintain NERC's certification as the Electric Reliability Organization? This Criterion includes conducting periodic assessments of NERC's and the Regional Entities' performance as the Electric Reliability Organization as required by 18 C.F.R. §39.3(c).

VIII. Does the activity respond to or is it necessary or appropriate for audits of NERC and the Regional Entities conducted by the Commission?

IX. Is the activity necessary or appropriate for NERC and Regional Entity committees, subcommittees and working groups engaged in activities encompassed by one or more of the other criteria?

X. Is the activity necessary or appropriate for the analysis and evaluation of activities encompassed by one or more of the other criteria for the purpose of identifying means of performing the activities more effectively and efficiently?

XI. Is the activity a governance or administrative/overhead function, activity or service necessary or appropriate for the activities encompassed by the other criteria and, in general, necessary and appropriate to operate a functioning organization? (Should NERC perform any non-FPA §215 activities, the costs of governance and administrative/overhead functions must be appropriately allocated.)

NERC's current governance and administrative/overhead functions are carried out in the following program areas:

A. Technical Committees and Members' Forum Programs

B. General and administrative (includes, but is not limited to, executive, board of trustees, communications, government affairs, and facilities and related services)

C. Legal and Regulatory

D. Information Technology

E. Human Resources

F. Accounting and Finance

The following matters are excluded from the scope of FPA §215 activities. While a list of non-FPA §215 activities would be infinite, the following excluded matters are listed here because they are expressly referred to in FPA §215, the Commission's ERO regulations and/or a Commission order issued pursuant to FPA §215:

A. Developing or enforcing requirements to enlarge BPS facilities, or to construct new transmission capacity or generation capacity, or requirements for adequacy or safety of electric facilities or services.

B. Activities entailing Real-time operational control of the BPS.

C. Activities pertaining to facilities used in the local distribution of electricity.

Exhibit B – Consultant and Contract Costs

Consultants & Contracts	2019 Budget	2020 Budget	Increase (Decrease)
Reliability Standards			
Standards Balloting System Maintenance and Enhancements	$ 50,000	$ 40,320	$ (9,680)
Total	**$ 50,000**	**$ 40,320**	**$ (9,680)**
Compliance Assurance and Organization Registration and Certification			
Compliance Assurance Program Support	$ 50,000	$ 50,000	$ -
BESnet Maintenance and Enhancements	$ -	$ 40,320	$ 40,320
Total	**$ 50,000**	**$ 90,320**	**$ 40,320**
Compliance Enforcement			
CRATS Maintenance	$ 161,000	$ -	$ (161,000)
Total	**$ 161,000**	**$ -**	**$ (161,000)**
Reliability Assessment and Performance Analysis			
RADS Maintenance and Enhancements	$ -	$ 40,320	$ 40,320
Reliability Effects of GMD	$ 200,000	$ 100,000	$ (100,000)
Environmental Regulatory Analysis	$ 250,000	$ 225,000	$ (25,000)
Probablistic Analysis	$ 75,000	$ 75,000	$ -
Emerging Technology Analysis	$ 100,000	$ 100,000	$ -
Power System Analysis Support	$ -	$ 63,000	$ 63,000
GADS/TADS/DADS Support	$ 653,565	$ 149,250	$ (504,315)
Total	**$ 1,278,565**	**$ 752,570**	**$ (525,995)**
Event Analysis			
Event Analysis Review Support	$ -	$ 10,000	$ 10,000
Total	**$ -**	**$ 10,000**	**$ 10,000**
Situation Awareness			
Reliability Tools	$ 1,280,990	$ -	$ (1,280,990)
Total	**$ 1,280,990**	**$ -**	**$ (1,280,990)**
E-ISAC			
Security Consulting	$ 33,000	$ 35,000	$ 2,000
GridEx Support	$ 550,000	$ 275,000	$ (275,000)
Program-Level Capabilities	$ 725,000	$ 420,000	$ (305,000)
Techology Support	$ -	$ 582,500	$ 582,500
Portal Improvement	$ 462,500	$ 50,000	$ (412,500)
Events and Outreach	$ 50,000	$ 50,000	$ -
CRISP	$ 6,457,500	$ 6,677,500	$ 220,000
Total	**$ 8,278,000**	**$ 8,090,000**	**$ (188,000)**
Personnel Certification			
System Operator Testing Expenses	$ 62,000	$ 62,000	$ -
System Operator Examination Development	$ 50,000	$ 50,000	$ -
Continuing Education Program	$ 85,000	$ 95,000	$ 10,000
SOCCED Database Improvements	$ 50,000	$ 75,000	$ 25,000
Total	**$ 247,000**	**$ 282,000**	**$ 35,000**
Training and Education			
ERO Enterprise Learning Portal	$ 105,000	$ -	$ (105,000)
ERO Enterprise and Industry Course Development	$ 110,000	$ 110,000	$ -
NERC Staff Technical Training	$ 35,000	$ -	$ (35,000)
Total	**$ 250,000**	**$ 110,000**	**$ (140,000)**
General and Administrative			
Communications Support	$ 20,000	$ 20,000	$ -
ERO Enterprise Effectivness Survey	$ 20,000	$ -	$ (20,000)
Management Consulting	$ 200,000	$ -	$ (200,000)
Total	**$ 240,000**	**$ 20,000**	**$ (220,000)**
Information Technology			
Applications Enhancements, Support, and Ongoing Operations	$ 2,042,763	$ 1,805,692	$ (237,071)
Total	**$ 2,042,763**	**$ 1,805,692**	**$ (237,071)**
Human Resources			
Training and Development	$ 400,000	$ 500,000	$ 100,000
Compensation Consulting	$ 225,000	$ 125,000	$ (100,000)
Employee, Industry, and Board Surveys	$ 40,000	$ 100,000	$ 60,000
HR Consulting Services	$ 25,000	$ 35,000	$ 10,000
Total	**$ 690,000**	**$ 760,000**	**$ 70,000**
Finance and Accounting			
Internal Controls and Outside Auditor Consulting Support	$ 300,000	$ -	$ (300,000)
Finance and Accounting Support	$ 175,000	$ 175,000	$ -
Total	**$ 475,000**	**$ 175,000**	**$ (300,000)**
Legal & Regulatory			
Internal Controls and Outside Auditor Consulting Support	$ -	$ 300,000	$ 300,000
Total	**$ -**	**$ 300,000**	**$ 300,000**
Total Consultants & Contracts	**$ 15,043,318**	**$ 12,435,902**	**$ (2,607,416)**

Exhibit C – Capital Financing

The company initiated a capital financing program in January 2014 as a funding source for major software application development projects that primarily benefit the ERO Enterprise. The total size of the original non-revolving credit facility was $7.5M and was used to finance a portion of NERC's capital expenditures (including IT hardware and software application development costs) made through December 2016. A similar non-revolving credit facility was closed in November 2016, totaling $5.0M, and is available to finance certain capital expenditures made from January 2017 to December 2019. The interest rate for both credit facilities is floating and equal to LIBOR plus 275 basis points. NERC projects the average interest rate during 2020 will be 6.5%. Authorized annual borrowings under the facilities are limited to the amount approved by the Board and FERC in each year's BP&B. Borrowings under the credit facilities are amortized over a three-year period, and can be prepaid without penalty.

As discussed in the *Introduction and Executive Summary* and shown in the table below, NERC has a proposed 2020 capital (fixed asset) budget of approximately $4.7M, of which it is proposing to finance $2.0M.

NERC Capital Budget	2019 Budget	2020 Budget	Increase(Decrease)	
ERO Application Development	$ 3,268,000	$ 2,007,000	$ (1,261,000)	-38.6%
Hardware (storage, servers)	565,000	685,000	120,000	21.2%
Other Equipment	425,000	250,000	(175,000)	-41.2%
NERC Capital Software	120,000	1,264,349	1,144,349	953.6%
Leasehold Improvements	400,000	500,000	100,000	25.0%
Total	**$ 4,778,000**	**$ 4,706,349**	**$ (71,651)**	**-1.5%**

The tables below show projected year-end outstanding debt and the future annual payments for debt service.

	Year-End Outstanding Debt Balance				
	Prior Years Actual	2019 Projected	2020 Budget	2021 Projected	2022 Projected
Prior Years (2016 - 2018 Borrowings)	$ 427,578	$ 32,890	$ -	$ -	$ -
2019 Projection	-	1,634,000	1,089,333	544,667	-
2020 Budgeted	-	-	2,007,000	1,338,000	669,000
2021 Projected	-	-	-	1,300,000	866,667
2022 Projected	-	-	-	-	-
Total Outstanding Balance	$ 427,578	$ 1,666,890	$ 3,096,333	$ 3,182,667	$ 1,535,667

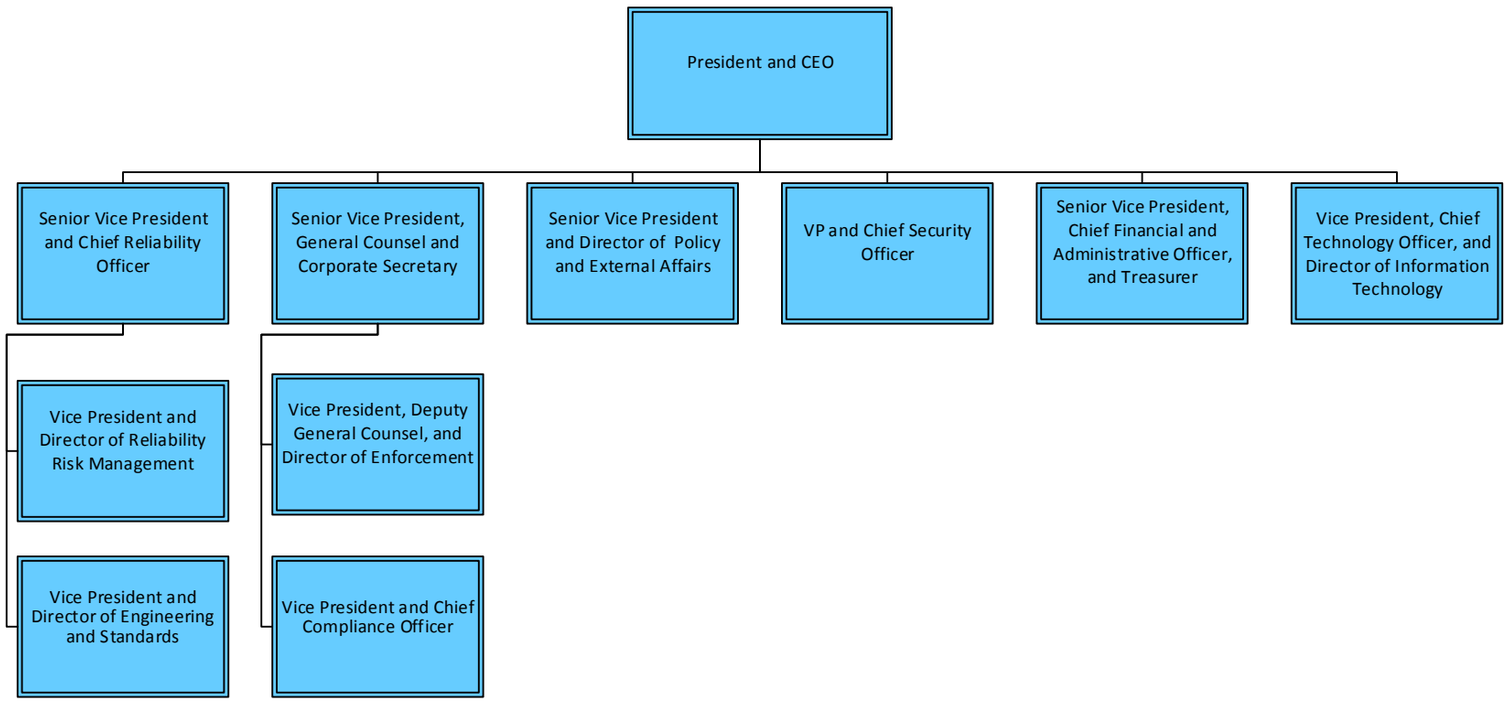
	Future Annual Payments for Debt Service			
	2019 Projected	2020 Budget	2021 Projected	2022 Projected
Prior Years - Principal	$ 394,688	$ 32,890	$ -	$ -
2019 Projection	-	544,667	544,667	544,667
2020 Budgeted	-	-	669,000	669,000
2021 Projected	-	-	-	433,333
2022 Projected	-	-	-	-
Interest Expense	13,708	91,626	180,670	172,644
Total Principal and Interest Costs	$ 408,396	$ 669,183	$ 1,394,337	$ 1,819,644

Exhibit D – Reserve Amounts

NERC is proposing an overall reserve budget of $8.8M across all categories of reserves. This represents a decrease of $247k (2.9%) from the total reserve amounts included in NERC's 2019 budget. The reserve categories are as follows:

- **Future Obligation Reserve** – Includes funding that has been received to satisfy future obligations under lease, credit, loan, or other agreements to which the company is a party. This reserve is budgeted to be $1.6M for 2020.
- **System Operator Certification Reserve** – Includes surplus funding from operator certification and testing fees that are above incurred expenses and shall be used solely to support operator testing and certification needs. The 2020 System Operator Certification Reserve is budgeted at $442k and comprised primarily of existing funds.
- **CRISP Reserve** – Represents funds dedicated to support CRISP. These reserves are established pursuant to a CRISP budget agreed to and funded entirely by utilities participating in CRISP. These reserves have no impact on assessments and are segregated from other reserves pursuant to the terms of the CRISP agreements. The CRISP reserves are projected to be $500k in the 2020 budget.
- **Operating Contingency Reserve** – Includes both general working capital funds resulting from day to day operations, and additional funds for contingencies that were not anticipated. NERC's current policy on Operating Contingency Reserves requires a reserve target of 3.5–7.0%, except as otherwise approved by the Board after review and recommendation by the Board Finance and Audit Committee (FAC). This percentage is calculated against NERC's total budget for operating and capital expenditures, less those costs related to CRISP and System Operator Certification, each of which has a separate reserve category. NERC is proposing to use $650k of the Operating Contingency Reserve for funding for the 2020 budget, resulting in an assumed Operating Contingency Reserve of approximately $4.7M, which is 6.5% of total budgeted operating and fixed asset (capital) costs.
- **Assessment Stabilization Reserve** – To date, this reserve has been funded entirely by previously received penalties and is projected to have a balance of $1.5M as of January 1, 2020. For the 12 months ended June 30, 2019, NERC collected no penalties. For purposes of the company's 2020 BP&B, NERC is not currently proposing any release of Assessment Stabilization Reserve funds to offset U.S. assessments. The Assessment Stabilization Reserve will be used to reduce U.S. assessments in one or more future periods in the applicable year's BP&B, subject to review and approval by the Board and FERC.

Appendix 1 – NERC Staff Organization Chart – Budget 2020



NERC
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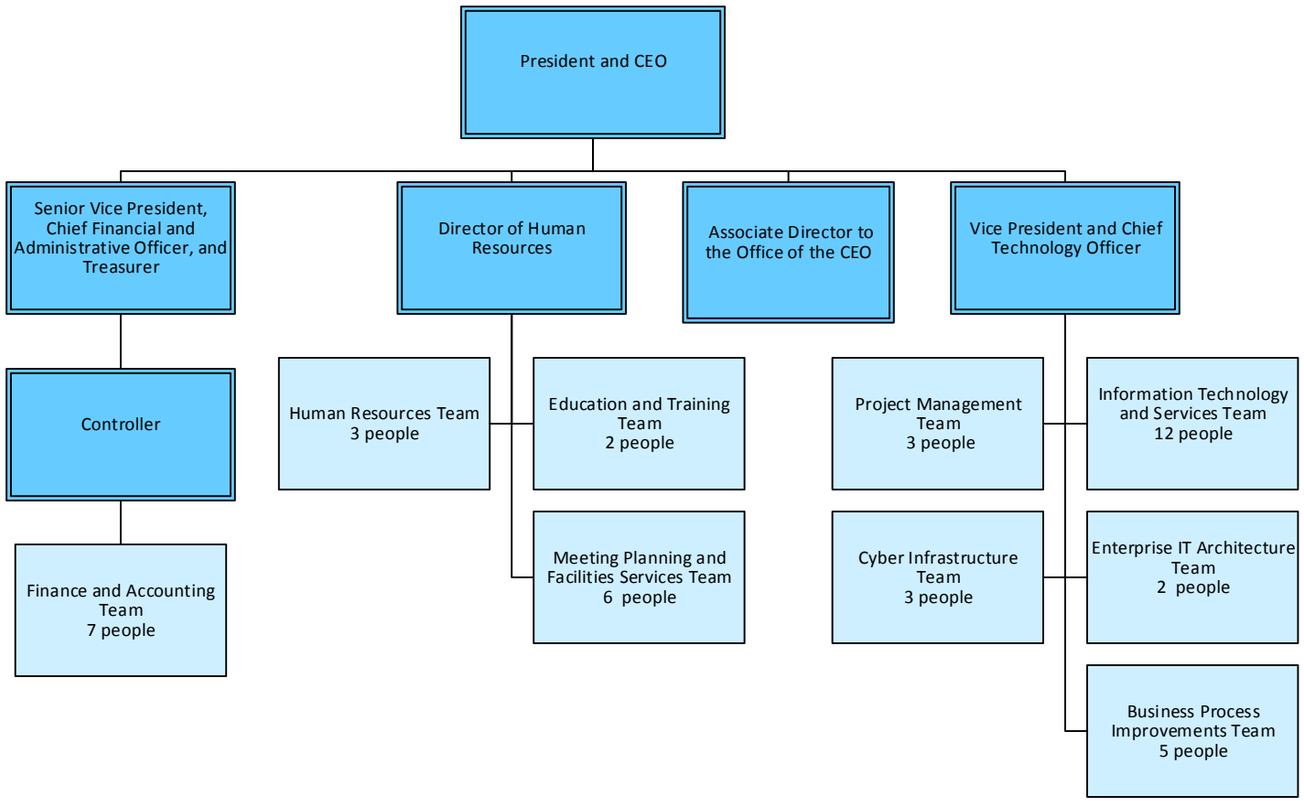
Executive, IT, Finance, & HR and Administration



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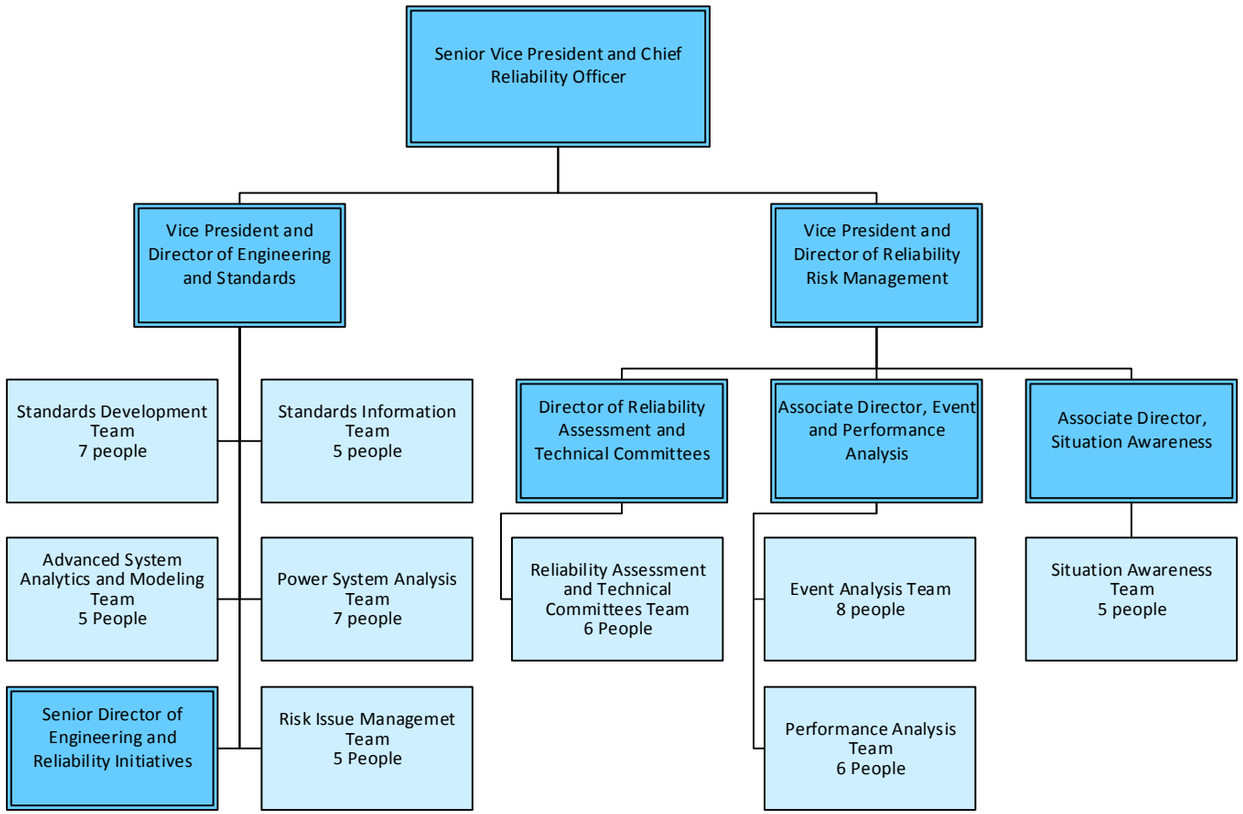
Engineering and Standards & Reliability Risk Management



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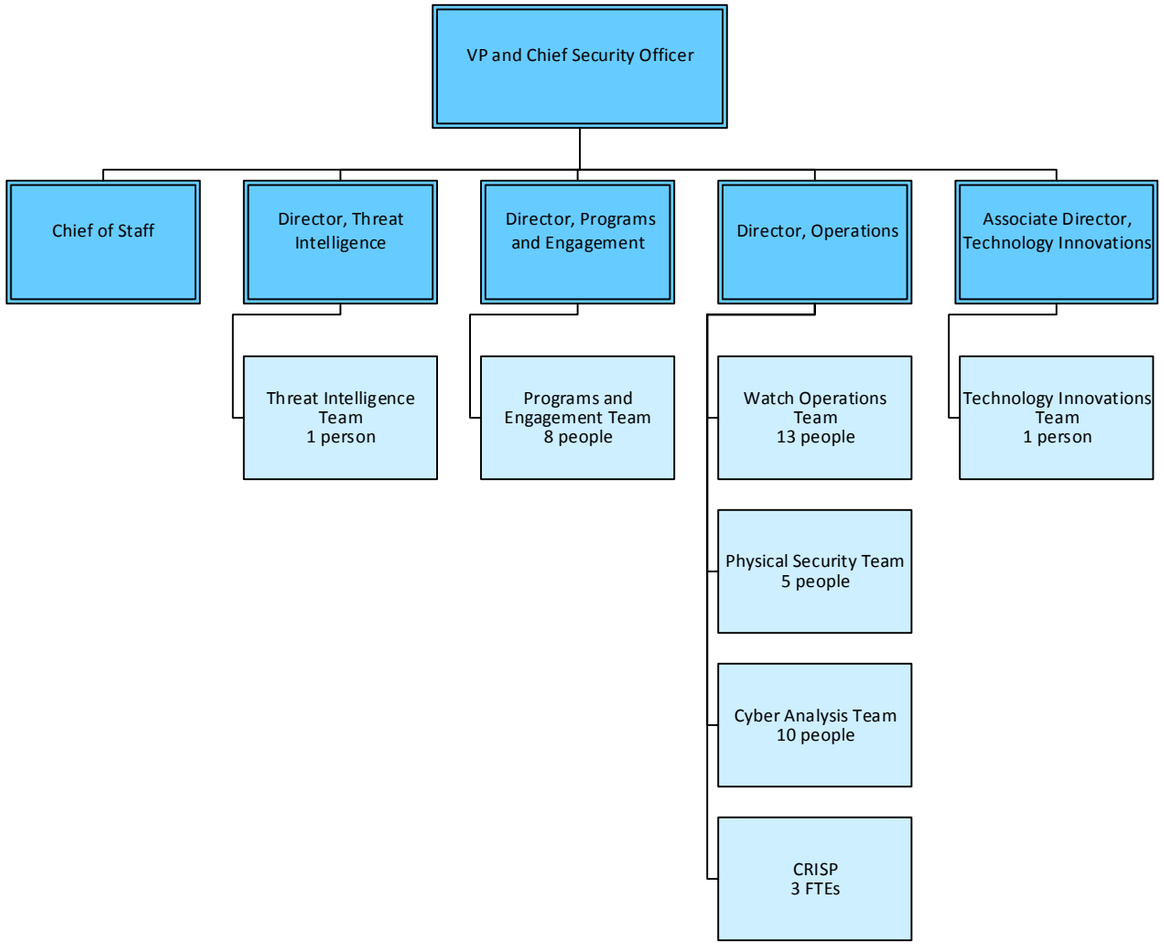
Electricity Information Sharing and Analysis Center



NERC
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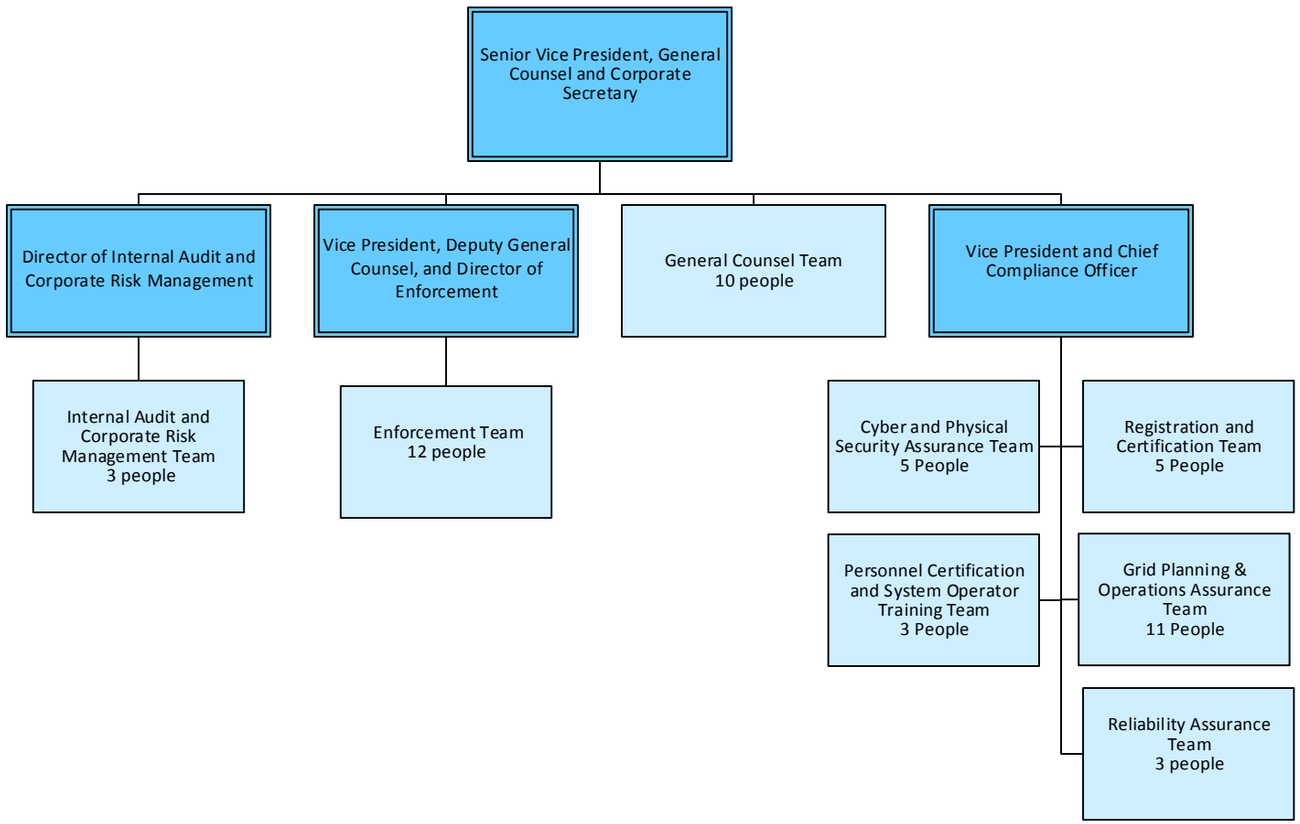
Legal and Regulatory, Internal Audit and Corporate Risk Management, Compliance, & Enforcement



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Policy and External Affairs