

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

2021 Business Plan and Budget

Final

August 13, 2020

RELIABILITY | RESILIENCE | SECURITY



3353 Peachtree Road NE
Suite 600, North Tower
Atlanta, GA 30326
404-446-2560 | www.nerc.com

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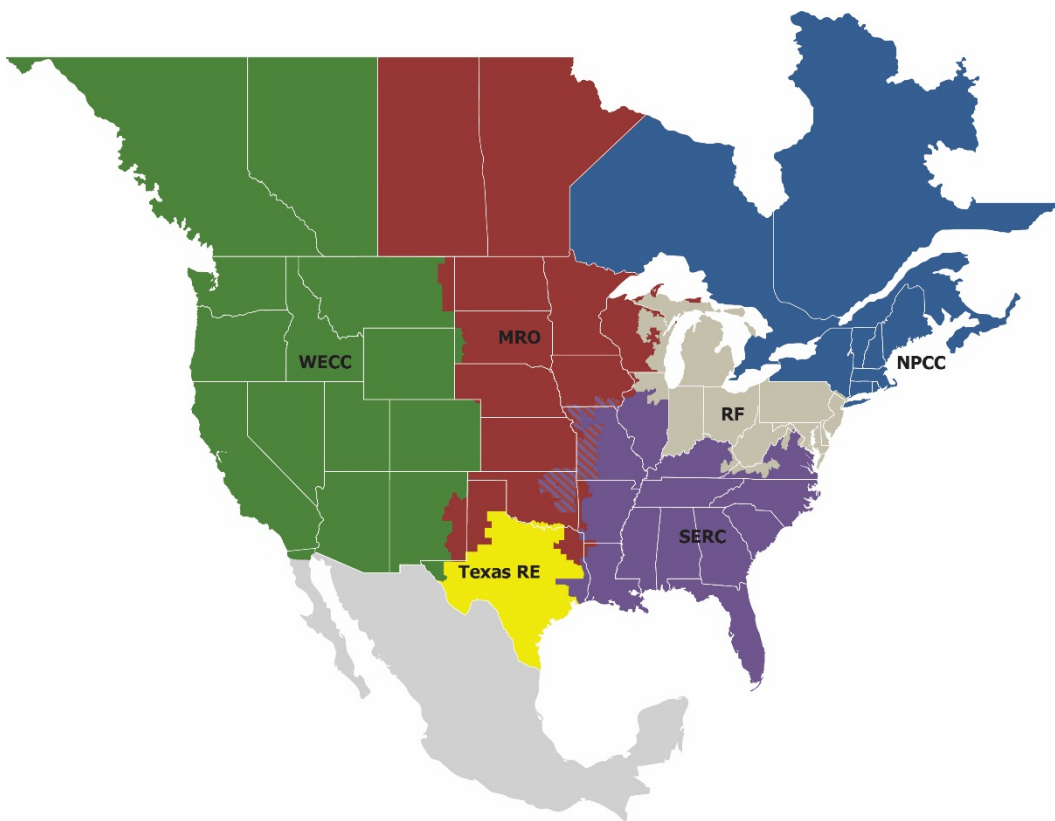
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Preface

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 BPS¹—a system that serves the needs of nearly 400 million people and includes installed electricity production capacity of approximately 1.1 million megawatts, operates 469,842 circuit miles of high-voltage transmission (100 kV and above), and is comprised of assets worth more than \$1 trillion.

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 provinces² and the Canada Energy Regulator in furtherance of this framework. Mexico is taking steps to implement such a framework pursuant to restructuring of Mexico's electricity industry and reforms of the country's regulatory framework enacted in 2013 and 2014. NERC is working with the Mexican regulator, *Comisión Reguladora de Energía* (CRE), and the Mexican system and market operator, *CENACE*, under a MOU signed in 2017 to ensure consistency with the framework in Canada and the United States.

Membership and Governance

An 11-member Board, comprised of 10 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.

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. In this Business Plan and Budget (BP&B) document, *Exhibit A – Application of NERC Section 215 Criteria*, summarizes the major activities NERC proposes to undertake in 2021 and the approved FPA Section 215 criteria applicable to such activities.⁵

Funding

FPA Section 215 and FERC's regulations specify procedures for NERC's funding in the United States. NERC's annual 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

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

⁵ North American Electric Reliability Corporation, Order on Compliance, 143 FERC ¶ 61,052 (2013).

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.

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, committing the ERO Enterprise to:

- Work together as one team and honor each of its roles;
- Actively support ERO Enterprise activities while eliminating unnecessary duplication of work;
- Collaborate to develop clear and consistent guidance across the ERO Enterprise;
- Share information, knowledge, and resources across the ERO Enterprise;
- Develop and share harmonized messages across ERO Enterprise communications; and
- Support innovation, initiatives, 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.



ERO Enterprise Strategic and Operational Planning

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.

In 2019, ERO Enterprise leadership came together to revise the [ERO Enterprise Long-Term Strategy](#) as part of an effort to streamline its strategic and operational documents and ensure alignment with the NERC Reliability Issues Steering Committee's (RISC's) currently identified BPS risks. This strategy, which was approved by the NERC Board on December 12, 2019, includes the following strategic focus areas:

1. Expand risk-based focus in all standards, compliance monitoring, and enforcement programs;
2. Assess and catalyze steps to mitigate known and emerging risks to reliability and security, leveraging the RISC's biennial [ERO Reliability Risk Priorities Report](#);
3. Build a strong, Electricity Information Sharing and Analysis Center (E-ISAC)-based security capability;
4. Strengthen engagement across the reliability and security ecosystem in North America; and
5. Capture effectiveness, efficiency, and continuous improvement opportunities.

As part of the business planning and budgeting process, NERC and the Regional Entities identify and discuss departmental goals and activities to ensure alignment with the long-term strategy and harmonization across the ERO Enterprise where appropriate. Program area narratives in each organization's BP&B may reference how activities support each of the strategic focus areas.

NERC and each Regional Entity may also 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.⁶

⁶ [ERO Work Plan Priorities](#) for NERC for 2020 were approved by the Board in February 2020. NERC management and the Board will evaluate annual work plan priorities each year.

Introduction and Executive Summary

TOTAL RESOURCES (in whole dollars)				
	2021 Budget	U.S.	Canada	Mexico
Statutory FTEs	213.38			
Non-statutory FTEs	-			
Total FTEs	213.38			
Statutory Expenses	\$ 79,287,138			
Non-Statutory Expenses	\$ -			
Total Expenses	\$ 79,287,138			
Statutory Fixed Asset Additions	\$ 2,751,500			
Non-Statutory Fixed Asset Additions	\$ -			
Total Fixed Asset Additions	\$ 2,751,500			
Statutory Funding of Reserves	\$ (1,727,688)			
Non-Statutory Funding of Reserves	\$ -			
Total Working Capital Requirement	\$ (1,727,688)			
Net Proceeds from Financing Activities	\$ 844,601			
Total Statutory Funding Requirement	\$ 81,155,551			
Total Non-Statutory Funding Requirement	\$ -			
Total Funding Requirement	\$ 81,155,551			
	TOTAL	US	CANADA	MEXICO
Statutory Funding Assessments	\$ 72,011,373	\$ 64,957,145	\$ 6,826,738	\$ 227,490
Non-Statutory Fees	\$ -	\$ -	\$ -	\$ -
NEL	4,560,817,618	4,025,357,981	521,362,237	14,097,400
NEL%	100.00%	88.26%	11.43%	0.31%

2021 Business Plan and Budget Summary

Budget Reporting Format and Presentation

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, 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 (SOA 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.

Budget Reporting Change for Financing Activity

NERC is implementing a change to the SOA report to provide enhanced transparency of financing activity (e.g., debt borrowing, leased-financed asset purchases, and principal payments). 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, and has historically been shown as part of the reserve summary table (Table B-1, Operating Reserve and Assessment Analysis). Beginning with 2020 budget-to-actual variance reporting and this 2021 BP&B, NERC will instead report financing activity in a new section on the SOA report. The incorporation of this financing activity adjusts the total budget number on the SOA report, which allows for a total budget that more closely reflects the amount of annual revenues required from assessments. For example, the total budget in the 2020 BP&B is \$83.4M. With the incorporation of the financing activity section, the total 2020 budget is \$82.7M because it considers the net of loan and lease proceeds and payments, which were previously addressed only in the calculation of assessments on the reserve summary table. As such, the 2020 assessment is unchanged at \$72.0M. Since the SOA reports in the 2020 BP&B were not presented in this format, in this 2021 BP&B document the 2020 budget has been restated to reflect the incorporation of financing activity to show the year-over-year budget changes on a comparable basis.

Overview of 2021 Budget and Funding Requirements

NERC's 2021 expense and fixed asset budget, including financing activity, is approximately \$82.9M, which represents an increase of approximately \$226k (0.3%) from the 2020 budget. Total expenses are increasing approximately \$1.5M (1.9%) over 2020. The total fixed asset budget is approximately \$2.8M, a decrease of \$2.0M (41.5%) from 2020. Approximately \$8.2M (9.9%) of NERC's 2021 budget is related to the Cybersecurity Risk Information Sharing Program (CRISP), with the majority of the CRISP budget funded by participating utilities, with a small portion funded through assessments.

NERC is planning to fund approximately \$1.8M of the fixed assets budget from Operating Contingency Reserves in 2021 for continued costs associated with the Compliance Monitoring and Enforcement Program (CMEP) Align tool (discussed further below). Factoring in this use of reserves, the total fixed asset budget is approximately \$951k, a decrease of \$3.8M (79.8%) from 2020, and NERC's total expense and fixed assets budget for 2021 is approximately \$81.1M, a decrease of \$1.6M (1.9%) from 2020.

NERC's proposed 2021 assessment is approximately \$72.0M, which is flat versus 2020. Factors contributing to the difference between the proposed budget and the proposed assessment include assumptions regarding other funding sources, such as the use of reserves mentioned above and third-party funding for 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*, which was included in NERC's filing to FERC requesting acceptance of the NERC 2009 BP&B.⁷

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 2020, the assessment did not include a release of funds from the Assessment Stabilization Reserve due to reduced debt service, increased interest income, and a surplus of working capital. Similarly for 2021, NERC management is not recommending a release of funds from the Assessment Stabilization Reserve since 2021 assessments are not increasing over 2020, thereby preserving funds in the Assessment Stabilization Reserve to stabilize assessments in future years. Further, NERC proposes to deposit the \$1.0 million of penalties collected in the 12 months ended June 30, 2020, in the Assessment Stabilization Reserve, rather than use these penalties to reduce the 2021 assessment.

The following table provides a high-level year-over-year comparison of the major categories of expenses, total budget, and full-time equivalents (FTEs). This table includes the \$1.8M for Align costs that will be funded by operating reserves as discussed above.

Statement of Activities and Fixed Asset Additions 2020 Budget & Projection, and 2021 Budget						
STATUTORY						
	2020 Budget	2020 Projection	Variance 2020 Projection v 2020 Budget Over(Under)	2021 Budget	Variance 2021 Budget v 2020 Budget Over(Under)	% Over (Under)
Funding						
NERC Funding						
NERC Assessments	\$ 72,011,373	\$ 72,011,373	\$ -	\$ 72,011,373	\$ -	0.0%
Penalties Released*	-	-	-	-	-	-
Third-Party Funding (CRISP)	\$ 7,814,577	\$ 6,732,693	\$ (1,081,884)	\$ 7,064,343	\$ (750,234)	
Testing Fees	1,735,000	1,735,150	150	1,801,634	66,634	
Services & Software	60,000	60,000	-	60,000	-	
Miscellaneous	-	60,500	60,500	-	-	
Interest & Investment Income	386,000	129,000	(257,000)	218,200	(167,800)	
Total Funding (A)	\$ 82,006,951	\$ 80,728,716	\$ (1,278,234)	\$ 81,155,551	\$ (851,400)	-1.0%
Expenses						
Personnel Expenses	\$ 46,598,160	\$ 44,757,827	\$ (1,840,333)	\$ 48,189,435	\$ 1,591,275	3.4%
Meeting & Travel Expenses	3,323,250	987,292	(2,335,958)	2,201,748	(1,121,502)	-33.7%
Operating Expenses, excluding Depreciation	27,583,094	27,698,723	115,630	28,766,294	1,183,200	4.3%
Other Non-Operating Expenses	306,623	110,800	(195,823)	129,661	(176,962)	-57.7%
Total Expenses (B)	\$ 77,811,127	\$ 73,554,643	\$ (4,256,484)	\$ 79,287,138	\$ 1,476,011	1.9%
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 4,706,349	\$ 7,250,350	\$ 2,544,001	\$ 2,751,500	\$ (1,954,849)	-41.5%
Financing Activity						
Loan or Financing Lease - Borrowing (-)	(1,338,000)	(2,100,000)	(762,000)	(100,000)	1,238,000	-92.5%
Loan or Financing Lease - Principal Payments (+)	1,477,558	550,000	(927,558)	944,601	(532,957)	-36.1%
Net Financing Activity (D)	\$ 139,558	\$ (1,550,000)	\$ (1,689,558)	\$ 844,601	\$ 705,043	505.2%
Total Budget (=B+C+D)	\$ 82,657,034	\$ 79,254,993	\$ (3,402,041)	\$ 82,883,239	\$ 226,205	0.3%
FTEs	213.38	199.92	(13.46)	213.38	0.00	0.0%

*Penalties Released in the current year reflects the designated amount of funds released from the Assessment Stabilization Reserve to offset U.S. assessments as approved by the NERC Board and FERC. Actual penalties invoiced in the current reporting year are shown as an increase to the Assessment Stabilization Reserve on the reserve summary table and will be reported as income on the audited financial statements in accordance with Generally Accepted Accounting Principles (GAAP).

⁷ North American Electric Reliability Corp., Docket No. RR08-6-000, Attachment 16, (filed August 22, 2008)

Key Budget Assumptions

Key assumptions used in the development of NERC's 2021 budget include the following:

- **No increase to headcount (FTEs).** Though NERC is adding FTEs related to cyber security and to support the ERO Secure Evidence Locker (SEL) (discussed further below), this increase is offset by a decrease of open positions in other areas. A 6.0% reduction to FTEs (vacancy rate) is applied to account for attrition and hiring delays, which is the same as 2020. FTEs by department are discussed later in this section.
- **Market-based compensation for personnel and medical and dental benefit plan costs.** Personnel costs are increasing \$1.6M (3.4%), which reflects (1) a 2.5% increase over actual 2020 base salaries for merit adjustments and up to 0.5% for equity and market adjustments⁸ and (2) 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 2019. 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 2021.
- **Optimization of current E-ISAC resources.** Management is taking the opportunity to assess the *E-ISAC Long-Term Strategic Plan*, including optimizing resource allocation and improving the effectiveness and efficiency of current products and services. The financial impacts of the revised strategic plan in 2021 are discussed further below.
- **Funding for the CMEP Align and ERO SEL solutions.** This includes funding for the debt service and ongoing software, maintenance, and security standard certification costs for the ERO SEL developed in 2020, and using Operating Contingency Reserves to fund the costs to complete the Align project in 2021. These projects and tools are discussed further below along with financial details.
- **Additional cost savings efforts.** In response to the uncertain economic conditions resulting from the COVID-19 pandemic, NERC is proposing savings in addition to no increase in FTEs by (1) reducing meeting and travel expenses (based on the assumption of continued pandemic conditions), and (2) narrowing or deferring important, but less urgent work supporting evolving reliability and security risks, resulting in lower spending for some project-based contract and professional services resources and certain system enhancements. These savings, in addition to planned 2020 budget savings, help NERC achieve a flat assessment in 2021 without the use of Assessment Stabilization Reserves, preserving funds in the Assessment Stabilization Reserve to mitigate future year assessment increases.

E-ISAC Long-Term Strategic Plan

In 2017, the E-ISAC, with guidance from the Electricity Sector Coordinating Council (ESCC) Member Executive Committee (MEC), the NERC Board, and various trade associations and stakeholder groups, developed a strategic plan to better define its mission and focus its resources in helping the electric sector protect itself from escalating cyber and physical security risks. The strategic plan has three primary areas of focus—engagement, information sharing, and analysis. The strategic plan embraces the ongoing need to review priorities under each focus area.

Starting in 2019, management began assessing the strategic plan to (1) confirm strategic and operational focus; (2) evaluate and refine products and services; (3) optimize resource allocation; and (4) identify additional areas to provide value to members, and the strategic plan was revised to identify near-term

⁸ As directed by the Board, this is a placeholder amount; actual increases will be evaluated by the Board at year-end.

and longer term priorities. For the near-term strategic priorities in 2020 and 2021, the resource focus mitigates upward pressure by:

- Ensuring effectiveness and efficiency of operations;
- Maximizing utilization of current staffing and teamwork;
- Leveraging partnerships; and
- Effectively using technology to support the strategy.

As a result, the 2021 budget for the E-ISAC and CRISP departments is well below the 2021 projection from the 2020 BP&B and slightly below the 2020 budget. See the *Electricity Information Sharing and Analysis Center* section of Section A for further information.

Align and ERO SEL Projects

Since 2014, NERC has been working closely with the Regional Entities to evaluate and implement strategic investments in tools that will replace the various CMEP manual processes and numerous applications used among NERC and the Regional Entities with a single, common business application, known as Align. 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. The original schedule planned for three releases of the tool: one in the last quarter of 2019 to support self-reporting, self-logging, enforcement, and mitigation, and two more releases in 2020 to support Compliance Assurance activities. The total capital expenditure for Align was expected to be approximately \$5.4M, with work spanning from 2017 through 2020.

In August 2019, the Board accepted a schedule change for the Align project to delay the first planned release of the tool. The primary drivers for delaying the release included refining and harmonizing compliance audit and investigation processes across the Regional Entities and addressing stakeholder concerns regarding evidence collection. Since then, harmonization activities have been completed and continue, and the ERO SEL project has been introduced. The ERO SEL will support the highly secure transfer, management, retention, and destruction of sensitive registered entity files used in CMEP activities. It will complement the Align tool, which manages all ERO Enterprise-developed work products used in CMEP activities. Collectively, the Align tool and the ERO SEL will provide a platform to enable harmonization of Regional Entity practices, driving to a common registered entity experience while facilitating the secure submission, review, and retention of evidence generated during CMEP activities. Continued development of Align and the development of the ERO SEL will occur in 2020, with the implementation of the ERO SEL and the first release of Align planned for the first quarter of 2021, with subsequent releases to follow. For more information, see the [Align Project](#) page on the NERC website.

Taking into account the revised schedule for development and release, the costs of and funding strategy for (1) the ERO SEL capital investment and ongoing support costs and (2) continued Align tool development are as follows:

- In 2020, an unbudgeted capital investment for the ERO SEL of \$3.8M, funded by:
 - An Operating Contingency Reserve draw of \$1.8M⁹
 - Financing of \$2.0M

⁹ FERC accepted NERC's petition to expend funds from the Operating Contingency Reserve in 2020 on the capital investment for the ERO SEL in its [Order](#) on June 22, 2020 in Docket No. RR19-8-001.

- Starting fully in 2021, annual debt service for financing and software support costs for the ERO SEL, funded by assessments:
 - Annual debt service – approximately \$430k for five years
 - Annual software support, maintenance, and security standard certification – approximately \$570k
- 2021 Align development costs of approximately \$1.8M (above the original total capital expenditure of \$5.4M) funded fully by a draw of Operating Contingency Reserves.

As discussed above, NERC is implementing cost savings efforts in both 2020 and 2021. This includes cash funding the 2020 Align development costs originally budgeted to be financed, which saves on future year debt service. This savings on debt service combined with the savings discussed above allow NERC to absorb the 2021 ERO SEL debt service and ongoing support costs in the 2021 budget while maintaining a flat assessment without the use of Assessment Stabilization Reserves.

Fixed Asset (Capital) Budget and Capital Financing

NERC's 2021 fixed asset budget is approximately \$2.8M, which represents a decrease of \$2.0M from 2020. This decrease is primarily due to reduced spending on capital software projects and leasehold improvements. The fixed asset budget for 2021 includes Information Technology (IT) equipment, including computers, hardware servers, and storage, disaster recovery, and network devices and capital ERO Enterprise and NERC software development and enhancements, including:

- The final development year for Align. As mentioned above, NERC is planning to fund the approximately \$1.8M for these 2021 costs from the Operating Contingency Reserve; and
- Ongoing enhancements to the Centralized Organization Registration ERO System (CORES); the Situation Awareness for NERC, FERC, and the Regional Entities (SAFNR) tool; and the Reliability Coordinator Information System (RCIS).

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

NERC's capital financing program was put in place as part of NERC's 2014 BP&B for ERO Enterprise software projects. The 2021 budget assumes no loan borrowing through the capital financing program, and \$375k of loan payments and \$55k of interest payments for the ERO SEL borrowing in 2020. Further information regarding capital financing can be found in *Exhibit C – Capital Financing*. The 2021 budget also assumes \$100k for financing lease proceeds for IT equipment, as well as approximately \$570k of financing lease payments for existing equipment, including laptops, network switches and servers, and audio visual tools. As discussed above, these loan and financing lease borrowings and payments can be seen in the financing activity section of the applicable SOA reports in this document.

Program Budget and FTE Comparisons

The following table shows a 2021 versus 2020 total budget comparison by program area. The amounts reflect all direct and indirect departmental costs, including fixed asset expenditures. 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.

2021 versus 2020 Total Budget by Program

Total Budget	2020 Budget	2021 Budget	Increase (Decrease)	
Reliability Standards	\$ 8,302,592	\$ 7,856,641	\$ (445,951)	-5.4%
CMEP*	18,098,171	21,014,178	2,916,006	16.1%
RAPA	13,122,303	12,631,436	(490,867)	-3.7%
Event Analysis	4,733,857	4,287,213	(446,644)	-9.4%
Situation Awareness	4,326,699	4,450,989	124,289	2.9%
Personnel Certification	1,738,288	1,736,522	(1,766)	-0.1%
Training and Education	1,014,986	1,084,523	69,537	6.9%
NERC Budget, excluding E-ISAC	\$ 51,336,896	\$ 53,061,501	\$ 1,724,604	3.4%
E-ISAC (non-CRISP)	\$ 22,523,983	\$ 21,625,531	\$ (898,451)	-4.0%
E-ISAC (CRISP)	8,796,155	8,196,207	(599,948)	-6.8%
Total E-ISAC Budget	\$ 31,320,137	\$ 29,821,738	\$ (1,498,399)	-4.8%
Total Budget	\$ 82,657,034	\$ 82,883,239	\$ 226,205	0.3%

*Includes Align and ERO SEL costs, including \$1.8M for Align development costs funded by operating reserves.

The primary areas of increase are in CMEP, Situation Awareness, and Training and Education. The increases for CMEP and Situation Awareness reflect the addition of staff reallocated from other areas and, for CMEP, the 2021 development costs for Align and software expenses and debt service for the ERO SEL (discussed above). The increase for Training and Education is related to a reclassification of expenses from Human Resources and Administration for training that benefits the ERO Enterprise.

The decrease in E-ISAC is related to the reevaluation of the E-ISAC strategic plan and optimization of current resources (discussed above), and a reduction in indirect cost allocation. The decrease in CRISP is primarily due to a reduction in participant-paid costs for the Pacific Northwest National Laboratory (PNNL) (mainly due to additional DOE funding), the annual security review, and pilot programs. The decreases in the remaining programs are the result of either or a combination of (1) reallocation of FTEs to other program areas, which also results in lower allocations of indirect costs and fixed assets from Administrative Services, and (2) lower spending as part of the costs savings efforts discussed above, including lower meeting and travel expenses and reduced or deferred contract resources and system enhancements that are not urgently needed.

The following table presents a 2021 versus 2020 comparison of budgeted FTEs by department and reflects 2021 personnel additions, open position reductions, 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 2021 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.

2021 versus 2020 FTEs by Department

FTEs*	2020 Budget	2021 Budget	Increase (Decrease)	
Reliability Standards	17.86	16.92	(0.94)	-5.3%
CMEP	33.84	35.72	1.88	5.6%
RAPA	23.50	25.38	1.88	8.0%
Event Analysis	9.40	7.52	(1.88)	-20.0%
Situation Awareness	5.64	6.58	0.94	16.7%
Personnel Certification	2.82	2.82	-	0.0%
Training and Education	1.88	1.88	-	0.0%
Administrative Programs	74.26	77.08	2.82	3.8%
NERC FTEs, excluding E-ISAC	169.20	173.90	4.70	2.8%
E-ISAC (non-CRISP)	41.36	36.66	(4.70)	-11.4%
E-ISAC (CRISP)	2.82	2.82	-	0.0%
Total E-ISAC FTEs	44.18	39.48	(4.70)	-10.6%
Total FTEs	213.38	213.38	(0.00)	0.0%

**Reflects 2021 additions and transfers between departments, anticipated timing of 2021 hires, and assumes 6% attrition in all programs*

The Administrative Programs encompass a number of necessary support functions, including IT, Legal and Regulatory, Finance and Accounting, and Human Resources and Administration. It also includes General and Administrative functions, which include the CEO, the Chief Engineer, the Chief Administrative Officer (CAO), and their support staff, as well as 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 2021, NERC is budgeting no increase or decrease in FTEs versus 2020. This includes the addition of two positions in IT related to cyber security and the addition of one position in Compliance Assurance to support the ERO SEL. These additions are offset by reductions of open positions in other areas, especially in the E-ISAC as a result of the reevaluation of its long-term strategy discussed above. The decrease of FTEs in E-ISAC is also attributed to planned use of contract support versus budgeted FTEs. The remaining FTE increases and decreases among the program areas reflect the reallocation of staff among the departments, which is subject to continual strategic evaluation. The table above reflects the addition, reduction, and reallocations of staff resulting in flat FTEs in 2021 as compared to 2020.

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 \$10.8M across all categories of reserves. This represents an increase of \$2.0M (22.8%) from the total reserve amounts included in NERC's 2020 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 \$1.1M at December 31, 2021.
- **System Operator Certification Reserve** – Includes surplus funding from operator certification fees that are above incurred expenses and shall be used solely to support operator testing and certification needs. The 2021 System Operator Certification Reserve is budgeted at \$921k at December 31, 2021, and is 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 2021 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% of the company's total expense and fixed asset budget, 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 \$1.8M of the Operating Contingency Reserve for funding for the 2021 budget, resulting in a projected Operating Contingency Reserve of approximately \$5.8M at December 31, 2021, which is 8.0% of total budgeted operating and fixed asset costs. The projected reserve is higher than target to provide additional reserves during uncertain economic conditions due to the pandemic, allowing funding for the deferred projects resulting from cost savings efforts in 2020 and 2021 discussed above if needed.
- **Assessment Stabilization Reserve** – To date, this reserve has been funded entirely by previously received penalties and is projected to have a balance of \$2.5M as of January 1, 2021. This includes \$1.0M in penalty money received for the 12 months ended June 30, 2020, which NERC proposes to leave in the Assessment Stabilization Reserve and not use to reduce the 2021 assessment. For purposes of the company's 2021 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 stabilize and 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 2020 budget, 2020 projection, and 2021 budget.

Introduction and Executive Summary

Statement of Activities and Fixed Asset Additions 2020 Budget & Projection, and 2021 Budget						
STATUTORY						
	2020	2020	Variance		Variance	% Inc
	Budget	Projection	2020 Projection v 2020 Budget Over(Under)	2021 Budget	2021 Budget v 2020 Budget Over(Under)	2021 Over
						2020
Funding						
NERC Funding						
NERC Assessments	\$ 72,011,373	\$ 72,011,373	\$ -	\$ 72,011,373	\$ -	
Penalties Released*	-	-	-	-	-	
Total NERC Funding	\$ 72,011,373	\$ 72,011,373	\$ -	\$ 72,011,373	\$ -	0.0%
Third-Party Funding (CRISP)	\$ 7,814,577	\$ 6,732,693	\$ (1,081,884)	\$ 7,064,343	\$ (750,234)	
Testing Fees	1,735,000	1,735,150	150	1,801,634	66,634	
Services & Software	60,000	60,000	-	60,000	-	
Miscellaneous	-	60,500	60,500	-	-	
Interest & Investment Income	386,000	129,000	(257,000)	218,200	(167,800)	
Total Funding (A)	\$ 82,006,951	\$ 80,728,716	\$ (1,278,234)	\$ 81,155,551	\$ (851,400)	-1.0%
Expenses						
Personnel Expenses						
Salaries	\$ 35,462,611	\$ 34,705,981	\$ (756,630)	\$ 36,636,628	\$ 1,174,017	
Payroll Taxes	2,113,486	2,005,530	(107,956)	2,122,568	9,082	
Benefits	5,420,461	4,639,787	(780,675)	5,703,799	283,338	
Retirement Costs	3,601,601	3,406,529	(195,072)	3,726,439	124,838	
Total Personnel Expenses	\$ 46,598,160	\$ 44,757,827	\$ (1,840,333)	\$ 48,189,435	\$ 1,591,275	3.4%
Meeting & Travel Expenses						
Meetings & Conference Calls	\$ 1,112,250	\$ 542,756	\$ (569,494)	\$ 890,751	\$ (221,499)	
Travel	2,211,000	444,536	(1,766,464)	1,310,997	(900,003)	
Total Meeting & Travel Expenses	\$ 3,323,250	\$ 987,292	\$ (2,335,958)	\$ 2,201,748	\$ (1,121,502)	-33.7%
Operating Expenses, excluding Depreciation						
Consultants & Contracts	\$ 12,435,902	\$ 11,939,382	\$ (496,520)	\$ 12,691,813	\$ 255,911	
Office Rent	3,450,468	3,540,468	90,000	3,603,442	152,974	
Office Costs	9,102,374	9,798,748	696,374	10,185,789	1,083,415	
Professional Services	2,511,600	2,328,145	(183,455)	2,185,100	(326,500)	
Miscellaneous	82,750	91,980	9,230	100,150	17,400	
Total Operating Expenses, excluding Depreciation	\$ 27,583,094	\$ 27,698,723	\$ 115,630	\$ 28,766,294	\$ 1,183,200	4.3%
Total Direct Expenses	\$ 77,504,504	\$ 73,443,843	\$ (4,060,661)	\$ 79,157,477	\$ 1,652,973	2.1%
Indirect Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	-
Other Non-Operating Expenses	\$ 306,623	\$ 110,800	\$ (195,823)	\$ 129,661	\$ (176,962)	-57.7%
Total Expenses (B)	\$ 77,811,127	\$ 73,554,643	\$ (4,256,484)	\$ 79,287,138	\$ 1,476,011	1.9%
Change in Net Assets (=A-B)	\$ 4,195,824	\$ 7,174,074	\$ 2,978,249	\$ 1,868,413	\$ (2,327,411)	
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 4,706,349	\$ 7,250,350	\$ 2,544,001	\$ 2,751,500	\$ (1,954,849)	-41.5%
Financing Activity						
Loan or Financing Lease - Borrowing (-)	(1,338,000)	(2,100,000)	(762,000)	(100,000)	1,238,000	
Loan or Financing Lease - Principal Payments (+)	1,477,558	550,000	(927,558)	944,601	(532,957)	
Net Financing Activity (D)	\$ 139,558	\$ (1,550,000)	\$ (1,689,558)	\$ 844,601	\$ 705,043	505.2%
Total Budget (=B+C+D)	\$ 82,657,034	\$ 79,254,993	\$ (3,402,041)	\$ 82,883,239	\$ 226,205	0.3%
Change in Working Capital (=A-B-C-D)	\$ (650,083)	\$ 1,473,724	\$ 2,123,806	\$ (1,727,688)	\$ (1,077,605)	
FTEs	213.38	199.92	(13.46)	213.38	0.00	0.0%

*Penalties Released in the current year reflects the designated amount of funds released from the Assessment Stabilization Reserve to offset U.S. assessments as approved by the NERC Board and FERC. Actual penalties invoiced in the current reporting year are shown as an increase to the Assessment Stabilization Reserve on the reserve summary table and will be reported as income on the audited financial statements in accordance with Generally Accepted Accounting Principles (GAAP).

Projections for 2022–2023

Management is currently developing preliminary operating and fixed asset projections for 2022 and 2023. Significant assumptions considered in preparing these projections include:

- Salary and benefit cost increases generally consistent with 2021 assumptions;
- Continued reduced meeting and travel costs relative to pre-pandemic levels due to anticipated greater leveraging of technology for virtual meetings and collaboration tools for smaller working meetings with stakeholders;
- Debt service repayment obligations in connection with the company’s Capital Financing Program, including financing for the ERO SEL established in 2020;
- Continued execution of the E-ISAC Long-Term Strategic Plan, which focuses on improving effectiveness and efficiency of current products, platforms, and services and, in the longer-term, providing additional value in the areas of analytical capabilities, operational technology risks and mitigation, enhanced information sharing capabilities, and extending services to support the downstream natural gas sector; and
- Funding for additional FTEs and data management system enhancements across the company deferred in 2020 and 2021 that are necessary for the ERO Enterprise to continue to fulfill its mission in the long-term.

While NERC was able to reduce certain human resource and technology investments in the 2020 and 2021 periods, this represents a deferral of short-term cost impacts but not an elimination of these strategies. It is anticipated that NERC will continue to make investments in technology on behalf of the entire ERO Enterprise, including the Align tool and ERO SEL. Since the bulk of NERC’s budget consists of people and technology, continued investments in human resources and software tools are necessary to support NERC’s strategic goals and mission.

NERC’s preliminary 2022 budget projection is \$87.0M, which is a 5.0% increase over 2021, and the 2022 assessment projection is \$77.8M, which is an 8.0% increase over 2021. In 2023, the budget projection is \$91.4M (5.0% increase over 2022) and the assessment projection is \$82.1M (5.5% increase over 2022).

As noted above, these budget and assessment increases versus 2021 reflect a measured return to pre-COVID-19 planning assumptions. However, steps have been taken and are being contemplated to reduce costs in certain budget areas. As a result, the current 2022 budget projection is **\$3.8M less** than the 2022 budget projection of \$90.8M that was included in the 2020 BP&B (including debt service and financing activity), and the 2022 assessment projection is **\$2.8M less** than the 2022 assessment projection of \$80.6M that was included in the 2020 BP&B. As with all future year projections, these numbers are preliminary and the assessments do not yet consider the use of Assessment Stabilization Reserve funds to help mitigate increases, a decision that would be made during the 2022 and 2023 BP&B processes.

NERC continues to be sensitive to the economic uncertainties facing the sector resulting from the COVID-19 pandemic. As most companies, NERC is beginning a process to evaluate its own workforce, facilities, and external engagement model, and contemplates expanded use of technology to reduce meeting and travel costs and potentially real estate costs. NERC commits to thoughtfully balancing fiscal concerns with the evolution of BPS risk into different arenas, and will ensure that its budgets for 2022 and 2023 reflect activities that focus on the highest risks to reliability and security, and to continue to assess program areas and prioritize initiatives. NERC also commits to judicious use of reserves to manage assessment increases.

Introduction and Executive Summary

Statement of Activities and Fixed Asset Additions 2021 Budget & Projected 2022 and 2023 Budgets

	2021 Budget	2022 Projection	\$ Change 22 vs 21	% Change 22 vs 21	2023 Projection	\$ Change 23 vs 22	% Change 23 vs 22
Funding							
ERO Funding							
NERC Assessments	\$ 72,011,373	\$ 77,780,279	\$ 5,768,905	8.0%	\$ 82,093,851	\$ 4,313,572	5.5%
Penalties Released	-	-	-	-	-	-	-
Total NERC Funding	\$ 72,011,373	\$ 77,780,279	\$ 5,768,905	8.0%	\$ 82,093,851	\$ 4,313,572	5.5%
Third-Party Funding							
Third-Party Funding	\$ 7,064,343	\$ 7,362,732	\$ 298,389	4.2%	\$ 7,391,796	\$ 29,064	0.4%
Testing Fees	1,801,634	1,793,367	(8,267)	-0.5%	1,784,267	(9,100)	-0.5%
Services & Software	60,000	60,000	-	0.0%	60,000	-	0.0%
Miscellaneous	-	-	-	-	-	-	-
Interest & Investment Income	218,200	218,200	-	0.0%	218,200	-	0.0%
Total Funding (A)	\$ 81,155,551	\$ 87,214,578	\$ 6,059,027	7.5%	\$ 91,548,114	\$ 4,333,536	5.0%
Expenses							
Personnel Expenses							
Salaries	\$ 36,636,628	\$ 38,914,526	\$ 2,277,898	6.2%	\$ 41,073,320	\$ 2,158,794	5.5%
Payroll Taxes	2,122,568	2,218,966	96,398	4.5%	2,308,184	89,218	4.0%
Benefits	5,703,799	6,433,071	729,272	12.8%	7,218,100	785,029	12.2%
Retirement Costs	3,726,439	3,963,771	237,333	6.4%	4,190,141	226,370	5.7%
Total Personnel Expenses	\$ 48,189,435	\$ 51,530,335	\$ 3,340,900	6.9%	\$ 54,789,746	\$ 3,259,411	6.3%
Meeting Expenses							
Meetings & Conference Calls	\$ 890,751	\$ 1,117,646	\$ 226,895	25.5%	\$ 1,120,963	\$ 3,317	0.3%
Travel	1,310,997	1,310,997	-	0.0%	1,442,098	131,101	10.0%
Total Meeting Expenses	\$ 2,201,748	\$ 2,428,643	\$ 226,895	10.3%	\$ 2,563,061	\$ 134,418	5.5%
Operating Expenses, excluding Depreciation							
Consultants & Contracts	\$ 12,691,813	\$ 12,679,116	\$ (12,697)	-0.1%	\$ 13,413,444	\$ 734,328	5.8%
Office Rent	3,603,442	3,934,030	330,588	9.2%	3,300,553	(633,477)	-16.1%
Office Costs	10,185,789	10,458,513	272,724	2.7%	10,743,244	284,731	2.7%
Professional Services	2,185,100	2,304,100	119,000	5.4%	2,504,600	200,500	8.7%
Miscellaneous	100,150	100,650	500	0.5%	100,650	-	0.0%
Total Operating Expenses, excluding Depreciation	\$ 28,766,294	\$ 29,476,409	\$ 710,115	2.5%	\$ 30,062,491	\$ 586,082	2.0%
Total Direct Expenses							
Total Direct Expenses	\$ 79,157,477	\$ 83,435,386	\$ 4,277,910	5.4%	\$ 87,415,298	\$ 3,979,911	4.8%
Indirect Expenses							
Indirect Expenses	\$ -	\$ -	\$ -	0.0%	\$ -	\$ -	-
Other Non-Operating Expenses							
Other Non-Operating Expenses	\$ 129,661	\$ 135,000	\$ 5,339	4.1%	\$ 135,000	\$ -	0.0%
Total Expenses (B)	\$ 79,287,138	\$ 83,570,386	\$ 4,283,249	5.4%	\$ 87,550,298	\$ 3,979,911	4.8%
Change in Net Assets (=A-B)	\$ 1,868,413	\$ 3,644,191	\$ 1,775,778	95.0%	\$ 3,997,816	\$ 353,625	9.7%
Fixed Asset Additions, excluding Right of Use Assets (C)							
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 2,751,500	\$ 2,554,000	\$ (197,500)	-7.2%	\$ 2,904,350	\$ 350,350	13.7%
Financing Activity							
Loan or Financing Lease - Borrowing (-)	(100,000)	(100,000)	-	0.0%	(100,000)	-	0.0%
Loan or Financing Lease - Principal Payments (+)	944,601	1,000,000	55,399	5.9%	1,025,000	25,000	2.5%
Net Financing Activity (D)	\$ 844,601	\$ 900,000	\$ 55,399	6.6%	\$ 925,000	\$ 25,000	2.8%
Total Budget (=B+C+D)	\$ 82,883,239	\$ 87,024,386	\$ 4,141,148	5.0%	\$ 91,379,648	\$ 4,355,261	5.0%
Change in Working Capital (=A-B-C-D)	\$ (1,727,688)	\$ 190,191	\$ 1,917,879	-111.0%	\$ 168,466	\$ (21,725)	-11.4%
FTEs	213.38	217.14	3.76	1.8%	223.72	6.58	3.0%

Section A – 2021 Business Plan and Budget Program Area and Department Detail

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)			
	2020 Budget	2021 Budget	Increase (Decrease)
FTE Reporting	17.86	16.92	(0.94)
Direct Expenses	\$ 3,865,292	\$ 3,627,620	\$ (237,671)
Indirect Expenses	4,090,936	4,087,161	(3,775)
Other Non-Operating Expenses	-	-	-
Fixed Asset Additions	177,804	82,885	(94,919)
Financing Activity	168,560	58,974	(109,586)
Total Budget	\$ 8,302,592	\$ 7,856,641	\$ (445,951)

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 group focuses on expanding a risk-based approach to its projects, including ensuring that Reliability Standards are clear, timely, considerate of costs, effective in mitigating material risks, and do not unnecessarily burden industry with administrative requirements and/or detract from reliability or security.

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 toward 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 Reliability and Security Technical Committee (RSTC), 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. Additionally, the PRISM group is working to launch a cross-cutting tool, wEROCK, to serve as a repository to track RISC-identified issues and NERC and Regional Entity stakeholder committee work plan items. The tool's main objective is to ensure complete visibility to the efforts and results of these RISC and ERO Enterprise activities by providing a central tool to (1) track the various work products in response to emerging risks identified by the RISC, RSTC, and Regional Entity committees, providing a greater level of work product efficiency, and (2) cross-cut across the ERO Enterprise organizations so that work products and activities can be leveraged for optimal visibility and ultimate mitigation. wEROCK is being developed using in-house resources at NERC on existing internal platforms, and will include Regional Entity-facing reports or interfaces. The system will be used to keep the RSTC and other applicable stakeholder updated on project status.

Key Efforts Underway

NERC ensures that the Reliability Standards Development Plan (RSDP) is effectively executed and that standards are focused on and mitigate significant risks to BES reliability. In support of Focus Areas 1, 4, and 5 of the *ERO Enterprise Long-Term Strategy*, 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 or special reports** 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.

In support of Focus Areas 1, 2, and 4 of the *ERO Enterprise Long-Term Strategy*, 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. These position documents will be compiled in collaboration with various NERC stakeholder groups, including but not limited to the RSTC, Inverter-Based Resource Performance Task force (IRPTF), and System Planning Impacts from Distributed Energy Resources Working Group (SPIDERWG);
- Developing statistical analysis around misoperations data to identify trends and discrete areas for improvement;
- Developing statistical analysis around balancing (BAL) standards and the effects of frequency response within the four interconnections;
- Conducting Reliability Standards training for NERC and Regional Entity staff to enable consistent understandings. The PRISM group has extensive experience in standards development. As a result, the PRISM team, as part of the Standards and Engineering Department, provides additional standards training as needed for the ERO Enterprise;
- Launch of the cross cutting tool, wEROCK discussed above; and
- Measuring the effectiveness of the recently approved Electric Gas Working Group (EGWG) industry guideline on fuel assurance. Appropriate measurement and determination of the efficacy of this guideline will be a key driver in a potential fuel assurance standard.

2021 Goals and Deliverables

In 2021, 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 as 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 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

In 2022 and beyond, 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 for the purpose of identifying trends to BPS reliability risks, which can inform the efficacy of standards with respect to these emerging risks. NERC will 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 0.94 decrease in FTEs from the 2020 budget to the 2021 budget is a result of a reallocation of staff as part of the continued effort to realign staff with current strategic needs.

Consultants and Contracts

The \$74k increase for Consultants & Contracts expenses in 2021 is for knowledge-transfer and additional technical support. A detailed breakdown of 2020 and 2021 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*.

Other Costs

The \$127k decrease in Meeting & Travel expenses in the 2021 budget is primarily related to the expected costs savings in this area, which are discussed in the *Introduction and Executive Summary*.

Section A – 2021 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions					
2020 Budget & Projection, and 2021 Budget					
Reliability Standards and Power Risk Issue Strategic Management					
	2020	2020	Variance	2021	Variance
	Budget	Projection	2020 Projection v 2020 Budget Over(Under)	Budget	2021 Budget v 2020 Budget Over(Under)
Funding					
NERC Funding					
NERC Assessments	\$ 8,256,730	\$ 8,256,730	\$ -	\$ 7,833,694	\$ (423,036)
Penalties Released	-	-	-	-	-
Total NERC Funding	\$ 8,256,730	\$ 8,256,730	\$ -	\$ 7,833,694	\$ (423,036)
Third-Party Funding					
Third-Party Funding	\$ -	\$ -	\$ -	\$ -	\$ -
Testing Fees	-	-	-	-	-
Services & Software	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Interest & Investment Income	45,862	14,309	(31,553)	22,947	(22,915)
Total Funding (A)	\$ 8,302,592	\$ 8,271,039	\$ (31,553)	\$ 7,856,641	\$ (445,951)
Expenses					
Personnel Expenses					
Salaries	\$ 2,622,756	\$ 2,462,692	\$ (160,064)	\$ 2,468,752	\$ (154,004)
Payroll Taxes	165,506	154,419	(11,086)	155,276	(10,230)
Benefits	416,307	334,976	(81,332)	415,057	(1,251)
Retirement Costs	290,052	259,358	(30,694)	272,927	(17,126)
Total Personnel Expenses	\$ 3,494,622	\$ 3,211,446	\$ (283,176)	\$ 3,312,011	\$ (182,610)
Meeting & Travel Expenses					
Meetings & Conference Calls	\$ 59,800	\$ 19,840	\$ (39,960)	\$ 37,860	\$ (21,940)
Travel	220,000	47,034	(172,966)	115,147	(104,853)
Total Meeting & Travel Expenses	\$ 279,800	\$ 66,874	\$ (212,926)	\$ 153,007	\$ (126,793)
Operating Expenses, excluding Depreciation					
Consultants & Contracts	\$ 40,320	\$ 151,280	\$ 110,960	\$ 114,552	\$ 74,232
Office Rent	-	-	-	-	-
Office Costs	50,050	64,608	14,558	45,850	(4,200)
Professional Services	-	-	-	-	-
Miscellaneous	500	1,000	500	2,200	1,700
Total Operating Expenses, excluding Depreciation	\$ 90,870	\$ 216,888	\$ 126,018	\$ 162,602	\$ 71,732
Total Direct Expenses	\$ 3,865,292	\$ 3,495,208	\$ (370,084)	\$ 3,627,620	\$ (237,671)
Indirect Expenses	\$ 4,090,936	\$ 3,998,032	\$ (92,904)	\$ 4,087,161	\$ (3,775)
Other Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 7,956,227	\$ 7,493,239	\$ (462,988)	\$ 7,714,782	\$ (241,446)
Change in Net Assets (=A-B)	\$ 346,364	\$ 777,799	\$ 431,435	\$ 141,859	\$ (204,505)
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 177,804	\$ 80,981	\$ (96,824)	\$ 82,885	\$ (94,919)
Financing Activity					
Loan or Financing Lease - Borrowing (-)	\$ -	\$ (12,958)	\$ (12,958)	\$ (12,558)	\$ (12,558)
Loan or Financing Lease - Principal Payments (+)	168,560	71,262	(97,298)	71,533	(97,028)
Net Financing Activity (D)	\$ 168,560	\$ 58,304	\$ (110,256)	\$ 58,974	\$ (109,586)
Total Budget (=B+C+D)	\$ 8,302,592	\$ 7,632,524	\$ (670,068)	\$ 7,856,641	\$ (445,951)
Change in Working Capital (=A-B-C-D)	\$ -	\$ 638,514	\$ 638,514	\$ -	\$ -
FTEs	17.86	16.59	(1.27)	16.92	(0.94)

Compliance Assurance and Organization Registration and Certification

Compliance Assurance and Organization Registration and Certification (in whole dollars)			
	2020 Budget	2021 Budget	Increase (Decrease)
FTE Reporting	21.62	23.50	1.88
Direct Expenses	\$ 5,881,314	\$ 6,591,671	\$ 710,357
Indirect Expenses	4,952,185	5,730,723	778,538
Other Non-Operating Expenses	-	27,500	27,500
Fixed Asset Additions	1,318,736	1,066,217	(252,519)
Financing Activity	(333,533)	270,191	603,723
Total Budget	\$ 11,818,703	\$ 13,686,302	\$ 1,867,599

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 Risk, Performance, and Monitoring group (NERC and Regional Entity collaboration group), NERC Compliance and Certification Committee (CCC), and NERC RSTC.

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).

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

- Oversight of the Regional Entities' implementation of the Registration and Certification programs in North America;
- Leading NERC-led Review Panel proceedings;
- Oversight of the use of necessary processes, procedures, IT platforms, tools, and templates;
- Leading and supporting Regional Entity and industry committees, working groups, and task forces, such as the ERO Organization Registration and Certification Group (NERC and Regional Entity collaboration group), NERC CCC, and the CCC Organization Registration and Certification Subcommittee;
- Maintaining the NERC Compliance Registry (NCR) and adhering to the Rules of Procedure, Sections 500, and Appendices 5A, 5B, and 5C; and
- Providing training on IT applications, mainly CORES and the Coordinated Functional Registration (CFR) tool, to Regional Entities and registered entities to enhance utilization of these applications.

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 Compliance 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 and conferences.

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 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 Align and its associated ERO SEL for CMEP and CORES for Registration. CORES was initially released in 2019 and Align and the ERO SEL will both be complete in 2021. Funding for support of the CRATS application in 2021 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. The ERO SEL will complement the Align tool by supporting the secure transfer, management, retention, and destruction of sensitive registered entity files used in CMEP activities. Collectively, the Align tool and the ERO SEL will provide a platform to enable harmonization of Regional Entity practices, driving to a common registered entity experience while facilitating the secure submission, review, and retention of evidence generated during CMEP activities. Continued development of Align and the development of the ERO SEL will occur in 2020. Implementation of the ERO SEL and the first release of Align to support self-reporting, self-logging, enforcement, and mitigation is planned for the first quarter of 2021, with two more releases in 2021 to 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 was implemented in 2019, with further enhancements occurring in 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

In support of Focus Areas 1, 4, and 5 of the *ERO Enterprise Long-Term Strategy*, 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. For 2021 and beyond, there will be particular emphasis on oversight related to integrating Align into CMEP activities. NERC also produces an ERO Enterprise CMEP annual report, which includes an assessment of the risk-based CMEP implementation.

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 and ERO SEL Projects

The development of the Align tool and ERO SEL discussed above have required NERC and the Regional Entities to coordinate extensively 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, and 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 2020, as in 2019, the focus of the SGAS activities was related to supporting implementation of the Cyber Security Supply Chain Risk Management Reliability Standard.

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

- Development, rollout, and maintenance of CORES, discussed above, including continued focus on functionality for 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.

2021 Goals and Deliverables

In 2021, Compliance Assurance resources will focus on improvements implemented as a result of previous risk-based compliance monitoring activities. In continued support of the *ERO Enterprise Long-Term Strategic Plan*, 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.

- Work closely with NERC’s Enforcement and IT departments, as well as staff in the Regional Entities, to implement the Align and ERO SEL tools.
- Support the successful implementation of the Cyber Security Supply Chain Risk Management Reliability Standard.
- 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 Standards.
- 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.
- Continue to focus on how registered entities have mitigated reliability and security risks while achieving compliance with the Reliability Standards, including applicable internal controls.
- Finalize revisions to BES Reference Document and transition to a CMEP Practice Guide;
- 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.

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

Resource Requirements

Personnel

The increase of 1.88 FTEs from the 2020 budget to the 2021 budget is a result of an added position to support the ERO SEL and the reallocation of staff as part of the continued effort to realign staff with current strategic needs. There have been no changes to FTEs for Registration and Certification.

Consultants and Contracts

The approximately \$90k for Consultants & Contracts in the 2021 budget is for the annual third-party certification to ensure compliance with security standards for the ERO SEL, for which the total cost is split evenly with Compliance Enforcement, and support and maintenance for BESnet. A detailed breakdown of the 2020 and 2021 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*.

Other Costs

The \$200k decrease in Meeting & Travel expenses from the 2020 budget to the 2021 budget is primarily related to the expected cost savings in this area, which is discussed in the *Introduction and Executive Summary*. The \$311k increase in Office Costs expenses from the 2020 budget to the 2021 budget is primarily attributable to the cost for software licensing, maintenance, and support for the ERO SEL, for which the total annual cost is split evenly with Compliance Enforcement.

The Fixed Asset budget includes approximately \$50k for planned enhancements for CORES and \$900k for the last year of development of Align (the total 2021 expenditure for Align is approximately \$1.8M, split evenly between Compliance Assurance and Compliance Enforcement, and will be fully funded by operating reserves as discussed in the *Introduction and Executive Summary*). Finally, the \$268k for loan or financing lease payments includes approximately \$188k for loan payments for the ERO SEL capital investment borrowing in 2020, again split evenly between Compliance Assurance and Compliance Enforcement.

Section A – 2021 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions 2020 Budget & Projection, and 2021 Budget					
Compliance Assurance and Organization Registration and Certification					
	2020 Budget	2020 Projection	Variance 2020 Projection v 2020 Budget Over(Under)	2021 Budget	Variance 2021 Budget v 2020 Budget Over(Under)
Funding					
NERC Funding					
NERC Assessments	\$ 11,763,186	\$ 11,763,186	\$ -	\$ 13,654,127	\$ 1,890,941
Penalties Released	-	-	-	-	-
Total NERC Funding	\$ 11,763,186	\$ 11,763,186	\$ -	\$ 13,654,127	\$ 1,890,941
Third-Party Funding					
Third-Party Funding	\$ -	\$ -	\$ -	\$ -	\$ -
Testing Fees	-	-	-	-	-
Services & Software	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Interest & Investment Income	55,517	20,261	(35,257)	32,175	(23,342)
Total Funding (A)	\$ 11,818,703	\$ 11,783,446	\$ (35,257)	\$ 13,686,302	\$ 1,867,599
Expenses					
Personnel Expenses					
Salaries	\$ 3,646,298	\$ 3,956,031	\$ 309,733	\$ 4,038,791	\$ 392,493
Payroll Taxes	222,053	227,310	5,256	244,418	22,365
Benefits	686,630	712,894	26,264	824,511	137,881
Retirement Costs	404,705	421,012	16,307	449,687	44,983
Total Personnel Expenses	\$ 4,959,686	\$ 5,317,246	\$ 357,560	\$ 5,557,407	\$ 597,721
Meeting & Travel Expenses					
Meetings & Conference Calls	\$ 89,200	\$ 13,257	\$ (75,943)	\$ 51,742	\$ (37,458)
Travel	400,000	57,347	(342,653)	237,413	(162,587)
Total Meeting & Travel Expenses	\$ 489,200	\$ 70,604	\$ (418,596)	\$ 289,155	\$ (200,045)
Operating Expenses, excluding Depreciation					
Consultants & Contracts	\$ 90,320	\$ 88,400	\$ (1,920)	\$ 89,552	\$ (768)
Office Rent	-	-	-	-	-
Office Costs	341,358	508,489	167,131	652,307	310,949
Professional Services	-	-	-	-	-
Miscellaneous	750	2,750	2,000	3,250	2,500
Total Operating Expenses, excluding Depreciation	\$ 432,428	\$ 599,639	\$ 167,211	\$ 745,109	\$ 312,681
Total Direct Expenses	\$ 5,881,314	\$ 5,987,489	\$ 106,175	\$ 6,591,671	\$ 710,357
Indirect Expenses	\$ 4,952,185	\$ 5,660,866	\$ 708,681	\$ 5,730,723	\$ 778,538
Other Non-Operating Expenses	\$ -	\$ 15,000	\$ 15,000	\$ 27,500	\$ 27,500
Total Expenses (B)	\$ 10,833,499	\$ 11,663,355	\$ 829,856	\$ 12,349,894	\$ 1,516,395
Change in Net Assets (=A-B)	\$ 985,204	\$ 120,091	\$ (865,112)	\$ 1,336,408	\$ 351,204
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 1,318,736	\$ 3,000,661	\$ 1,681,925	\$ 1,066,217	\$ (252,519)
Financing Activity					
Loan or Financing Lease - Borrowing (-)	\$ (735,667)	\$ (1,018,345)	\$ (282,678)	\$ (17,609)	\$ 718,058
Loan or Financing Lease - Principal Payments (+)	402,134	100,902	(301,232)	287,799	(114,334)
Net Financing Activity (D)	\$ (333,533)	\$ (917,443)	\$ (583,910)	\$ 270,191	\$ 603,723
Total Budget (=B+C+D)	\$ 11,818,703	\$ 13,746,573	\$ 1,927,870	\$ 13,686,302	\$ 1,867,599
Change in Working Capital (=A-B-C-D)	\$ -	\$ (1,963,127)	\$ (1,963,127)	\$ -	\$ -
FTEs	21.62	23.49	1.87	23.50	1.88

Compliance Enforcement

Compliance Enforcement (in whole dollars)			
	2020 Budget	2021 Budget	Increase (Decrease)
FTE Reporting	12.22	12.22	0.00
Direct Expenses	\$ 2,822,301	\$ 3,129,467	\$ 307,165
Indirect Expenses	2,799,061	2,979,976	180,915
Other Non-Operating Expenses	-	27,500	27,500
Fixed Asset Additions	1,025,155	960,433	(64,722)
Financing Activity	(367,050)	230,499	597,549
Total Budget	\$ 6,279,468	\$ 7,327,875	\$ 1,048,407

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 implement strategic investments in tools that will replace CRATS and the CMEP data applications used among the Regional Entities with single, common applications, known as Align and its associated ERO SEL. Align and the ERO SEL will both be complete in 2021. Funding for support of the CRATS application in 2021 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

In support of Focus Areas 1, 4, and 5 of the *ERO Enterprise Long-Term Strategy*, current and ongoing efforts and activities for Compliance Enforcement are as follows:

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.

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 and ERO SEL Projects

The development of the Align tool and ERO SEL discussed above have required NERC and the Regional Entities to coordinate extensively 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.

2021 Goals and Deliverables

Specific 2021 objectives for the Enforcement department include continuing to:

- Focus on identifying and mitigating the greatest risks to reliability and security.
- Support the implementation of the Align and ERO SEL tools.
- Continue to find ways to efficiently process and close out lower risk violations.
- Educate relevant parties on the risk assessment process.
- Mature the Coordinated Oversight program for MRREs.

Future Plans

In 2022 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 Regional Entity and NERC conferences 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

There is no change in FTEs from the 2020 budget to the 2021 budget.

Consultants and Contracts

The increase of \$69k in Consultants & Contracts from the 2020 budget to the 2021 budget is primarily for the annual third-party certification to ensure compliance with security standards for the ERO SEL, for which the total cost is split evenly with Compliance Assurance. A detailed breakdown of the 2020 and 2021 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*.

Other Costs

The \$243k increase in Office Costs expenses from the 2020 budget to the 2021 budget is primarily attributable to the cost for software licensing, maintenance, and support for the ERO SEL, for which the total annual cost is split evenly with Compliance Assurance.

The Fixed Asset budget includes \$900k for the last year of development of Align (the total 2021 expenditure for Align is approximately \$1.8M, split evenly between Compliance Assurance and Compliance Enforcement, and will be fully funded by operating reserves as discussed in the *Introduction and Executive Summary*). The \$240k for loan or financing lease payments includes approximately \$188k for loan payments for the ERO SEL capital investment borrowing in 2020, again split evenly between Compliance Assurance and Compliance Enforcement.

Section A – 2021 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions					
2020 Budget & Projection, and 2021 Budget					
Compliance Enforcement					
	2020	2020	Variance	2021	Variance
	Budget	Projection	2020 Projection v 2020 Budget Over(Under)	Budget	2021 Budget v 2020 Budget Over(Under)
Funding					
NERC Funding					
NERC Assessments	\$ 6,248,089	\$ 6,248,089	\$ -	\$ 7,311,144	\$ 1,063,055
Penalties Released	-	-	-	-	-
Total NERC Funding	\$ 6,248,089	\$ 6,248,089	\$ -	\$ 7,311,144	\$ 1,063,055
Third-Party Funding	\$ -	\$ -	\$ -	\$ -	\$ -
Testing Fees	-	-	-	-	-
Services & Software	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Interest & Investment Income	31,379	8,745	(22,634)	16,731	(14,648)
Total Funding (A)	\$ 6,279,468	\$ 6,256,834	\$ (22,634)	\$ 7,327,875	\$ 1,048,407
Expenses					
Personnel Expenses					
Salaries	\$ 1,829,637	\$ 1,541,039	\$ (288,599)	\$ 1,839,039	\$ 9,401
Payroll Taxes	113,039	101,557	(11,482)	115,307	2,267
Benefits	230,971	124,991	(105,981)	220,988	(9,984)
Retirement Costs	197,746	151,710	(46,036)	196,667	(1,078)
Total Personnel Expenses	\$ 2,371,393	\$ 1,919,296	\$ (452,098)	\$ 2,372,000	\$ 606
Meeting & Travel Expenses					
Meetings & Conference Calls	\$ 6,200	\$ 5,795	\$ (405)	\$ 6,310	\$ 110
Travel	55,000	7,858	(47,142)	32,645	(22,355)
Total Meeting & Travel Expenses	\$ 61,200	\$ 13,653	\$ (47,547)	\$ 38,955	\$ (22,245)
Operating Expenses, excluding Depreciation					
Consultants & Contracts	\$ -	\$ 9,000	\$ 9,000	\$ 69,000	\$ 69,000
Office Rent	-	-	-	-	-
Office Costs	389,208	521,560	132,352	632,612	243,404
Professional Services	-	15,000	15,000	15,000	15,000
Miscellaneous	500	500	-	1,900	1,400
Total Operating Expenses, excluding Depreciation	\$ 389,708	\$ 546,060	\$ 156,352	\$ 718,512	\$ 328,804
Total Direct Expenses	\$ 2,822,301	\$ 2,479,009	\$ (343,293)	\$ 3,129,467	\$ 307,165
Indirect Expenses	\$ 2,799,061	\$ 2,443,643	\$ (355,418)	\$ 2,979,976	\$ 180,915
Other Non-Operating Expenses	\$ -	\$ 15,000	\$ 15,000	\$ 27,500	\$ 27,500
Total Expenses (B)	\$ 5,621,363	\$ 4,937,652	\$ (683,711)	\$ 6,136,943	\$ 515,580
Change in Net Assets (=A-B)	\$ 658,105	\$ 1,319,183	\$ 661,077	\$ 1,190,932	\$ 532,827
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 1,025,155	\$ 2,895,496	\$ 1,870,341	\$ 960,433	\$ (64,722)
Financing Activity					
Loan or Financing Lease - Borrowing (-)	\$ (602,333)	\$ (1,007,919)	\$ (405,586)	\$ (9,157)	\$ 593,177
Loan or Financing Lease - Principal Payments (+)	235,283	43,557	(191,727)	239,656	4,372
Net Financing Activity (D)	\$ (367,050)	\$ (964,362)	\$ (597,313)	\$ 230,499	\$ 597,549
Total Budget (=B+C+D)	\$ 6,279,468	\$ 6,868,786	\$ 589,317	\$ 7,327,875	\$ 1,048,407
Change in Working Capital (=A-B-C-D)	\$ -	\$ (611,951)	\$ (611,951)	\$ -	\$ -
FTEs	12.22	10.14	(2.08)	12.22	0.00

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. Three primary groups between two NERC departments are focused on this program: (1) the Reliability Assessments and Technical Committee group and (2) the Performance Analysis group, which are part of the Risk Identification and Mitigation department, and (3) the Power System Analysis and Advanced System Analytics and Modeling group, which is part of the Engineering and Standards department.

Reliability Assessments and Performance Analysis			
(in whole dollars)			
	2020 Budget	2021 Budget	Increase (Decrease)
FTE Reporting	23.50	25.38	1.88
Direct Expenses	\$ 6,753,513	\$ 6,554,566	\$ (198,947)
Indirect Expenses	5,382,810	5,873,428	490,618
Other Non-Operating Expenses	-	-	-
Fixed Asset Additions	833,953	118,866	(715,086)
Financing Activity	152,027	84,575	(67,452)
Total Budget	\$ 13,122,303	\$ 12,631,436	\$ (490,867)

Background and Scope

Reliability Assessments and Technical Committee

The Reliability Assessments (RA) and Technical Committee group includes RA staff as well as the NERC staff secretaries of the RSTC. 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. 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
- Special Reliability Assessments (selected based on high-risk issues that require an independent assessment from the ERO)

The NERC RSTC and its 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 coordinate and administer these activities and efforts.

The RA and Technical Committee 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 Reliability Assessment Subcommittee (RAS), and ultimately endorsed by the RSTC. 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 industry data from industry and measuring historic trends. PA is responsible for the collection, management, and analysis of data related to the performance of four areas of BPS operations: transmission, 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 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* (SOR) report and other analytical reports and technical papers to the industry. PA staff leads the ERO, technical committee, and stakeholder process to publish the SOR report examining the year-over-year performance indicators of the grid.

Power System Analysis and Advanced System Analytics and Modeling

Power System Analysis (PSA) staff provide technical leadership and support in the areas of resource and demand balancing and system analysis and modeling, including technical support for the NERC 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. PSA staff are responsible for:

- Assisting the RA and Technical Committee group in their independent reliability assessments;
- Interconnection-wide analysis of steady-state and dynamic conditions, including frequency, Essential Reliability Services (ERS), stability, short circuit ratio, and oscillatory behavior aspects, including support for the Resources Subcommittee and its subgroups and submission of the Frequency Response Annual Analysis (FRAA) report to FERC; 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 (ASAM) staff provide 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. ASAM staff:

- Provide guidance on the appropriate development and use of new and existing models to study emerging risks, including ensuring that BPS planning can adequately assure system reliability and security as the transmission and distribution interface evolves and resource penetration on the distribution system increases;
- Advance understanding of power system characteristics and behaviors by gathering larger phasor measurement units (PMU) datasets for advanced data analytics and modeling improvements;
- Promote and expand understanding of the growing need and available methods for probabilistic studies to augment deterministic studies in system planning studies, including support for the Probabilistic Assessment Working Group (PAWG) that reports to the RAS;
- Conduct advanced system studies of increasing penetrations of new resource technologies or new technologies facilitating these penetrations, such as Battery Energy Storage Systems (BESS), as well as piloting use of new resource models for system simulations;

- Publish Institute of Electrical and Electronics Engineers (IEEE) and other industry papers to promote continual advancement of BPS knowledge and understanding; and
- Support research projects, including NERC’s work with the Carnegie Mellon Industry Center (CEIC), the Power Systems Energy Research Center (PSERC), the DOE North American Energy Resilience Model (NAERM), and the DOE, Electric Power Research Institute (EPRI), and NERC solar project advancing modeling and protection for solar inverter-based resources.

ASAM further provides advanced statistical analysis functions to support the SOR report and various reliability assessments, the FRAA report and other parameters, analytical review of Reliability Standard effectiveness, and various reports on an emergent basis each year.

Stakeholder Engagement and Benefit

The groups described above work collaboratively with NERC stakeholders, particularly through the RSTC 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, EPRI, IEEE, the 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 (e.g., SAS)
- Engineering software (e.g., PSS/E, PSLF, PowerWorld, TSAT, EMPT)
- Infrastructure and geographic-related vulnerabilities analysis software (e.g., Velocity Suite)
- Data management systems, including the:
 - Generating Availability Data System (GADS) and GADS Wind
 - Transmission Availability Data System (TADS)
 - Demand Response Availability Data System (DADS)
 - Reliability Assessment Data System (RADS)
 - Balancing Authority Submittal Site (BASS)
 - Frequency Response Analysis Tools (FRAT)
 - Inadvertent Interchange Tool (IIT)
 - Process Information (PI) Historian
 - Misoperations Information Data Analysis System (MIDAS)

Key Efforts Underway

In addition to the development of the annual assessments and reports, and in support of Focus Areas 2 and 5 of the *ERO Enterprise Long-Term Strategy*, 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, seasonal reliability assessments 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 geomagnetic disturbance (GMD)-related topics identified in the order. NERC developed a research plan¹⁰ with EPRI and filed it with FERC on April 19, 2018. This \$3.4M research project was 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, on August 16, 2018, approved an ROP Section 1600 data request to collect GMD data. Results of the research plan will be filed with FERC in 2020, and NERC will begin implementing the Section 1600 data request for GMD. Further, NERC continues to work with industry to collect information on geomagnetically induced current (GIC) and the potential impacts on reliability.

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, PA is developing reporting requirements for solar and associated energy storage data collection.

Also in support of Focus Areas 2 and 4 of the *ERO Enterprise Long-Term Strategy*, the PSA and ASAM 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 integration, and systemic interdependencies, such as gas/electric and communications/electric). 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;

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

- Conducting detailed forensic analyses of significant system disturbances;
- Providing technical expertise, research, and feedback to the industry, including those that support development of key reliability planning-related standards;
- Providing 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 IRPTF, performing event analyses, investigating abnormal performance of inverter-based resources, particularly solar photovoltaic, and developing industry recommendations and addressing potential reliability gaps;
- Supporting industry in the reliable integration of increased levels of DER, providing industry technical guidance on key reliability impacts and developing recommended practices and guidelines (modeling, planning, and operations) to ensure BPS reliability;
- Supporting industry adoption and advancement of synchrophasor technology through the Synchronized Measurement Subcommittee (SMS) and studying interconnection-wide oscillatory behavior (and other interconnection-wide phenomena) through PMU data collected from RCs;
- Supporting industry understanding and expertise in power plant modeling through the System Analysis and Modeling Subcommittee's (SAMS's) Power Plant Modeling and Verification Task Force (PPMVTF), advancing capabilities to perform a disturbance based model verification, working with software vendors, and supporting implementation of MOD-026-1 and MOD-027-1;
- Driving improvements of dynamic load modeling capabilities in support of industry stability studies for planning and real-time reliability assessments, advancing state-of-the-art modeling capability across North America, and supporting the SAMS's Load Modeling Task Force (LMTF);
- Supporting studies and technical positions on the changing nature of end use loads, advocating for grid-friendly load behavior, and engaging with industries collaboratively, working with utility members, to represent BPS needs;
- Performing annual assessments of case quality and fidelity on the interconnection-wide cases released by the MOD-032 designees and developing a feedback loop mechanism with the MOD-032 designees to instigate improvements to models;
- Proactively addressing deficiencies in interconnection-wide models and providing industry education on key modeling topics (e.g., generic model notifications for wind, solar, battery) as identified by NERC or industry;
- Providing a report of results from a Composite Reliability Study using probabilistic—or near probabilistic—methods for transmission as well as resources;
- Supporting a Battery Storage Assessment using the Joint WECC/NERC Battery Study of the Western Interconnection to determine the adequacy of battery energy injection to support frequency response and primary frequency reserve margin, etc.; and
- Conducting advanced statistical studies in support of the Standards Efficiency Review and the SOR report.

Finally, in support of Focus Areas 2 and 4 of the *ERO Enterprise Long-Term Strategy*, in 2020 NERC formed a staff group focused on BPS security and grid transformation. This group will develop and promote cyber security planning, operations, and recovery strategies to improve the posture and performance of the BPS to cyber threats. In addition, this group will support the ERO Enterprise and industry to implement security risk mitigation priorities. NERC is also focusing on security initiatives specifically for the ERO Enterprise,

including sharing of best practices; development of security training and participation in regional and continent-wide security exercises; and supporting NERC, the Regional Entities, and industry on matters related to the interface between reliability and security, including providing support for the implementation of risk mitigation priorities recommended by the RISC.

2021 Goals and Deliverables

In 2021, the groups discussed above will continue the efforts described above as applicable, with particular focus on risk issues identified in the latest RISC report. The groups will focus on various assessments and technical reports under the direction of the RSTC. High risk issues include:

- Protection system misoperations
- Reduced situational awareness from loss of EMS
- Unacceptable inverter performance
- Increased amounts of DER
- Reducing potential for the BES initiating wildfires
- Energy adequacy
- Cyber security in planning and operations

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. Minor enhancements and modifications to the existing software applications are expected.

Future Plans

In 2022 and beyond, NERC will need to continue to build and maintain the analytical capabilities needed to support the reliability and security 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, security assessment and design basis, 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 and security 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 in the character and composition of the BPS.

Resource Requirements

Personnel

The increase of 2.82 FTEs from the 2020 budget to the 2021 budget is the result of resource allocations to realign staff with current needs.

Consultants and Contracts

The decrease of \$349k for Consultants & Contracts from the 2020 budget to the 2021 budget is primarily a result of reduced or deferred project-based contract resources as part of the cost savings efforts discussed in the *Introduction and Executive Summary*. The budget includes \$100k for a research project partnerships with EPRI noted above. A detailed breakdown of 2020 and 2021 budgeted expenses are shown in *Exhibit B – Consultants and Contracts Costs*.

Other Costs

The \$219k decrease for Meeting & Travel expenses from the 2020 budget to the 2021 budget is primarily related to the expected cost savings in this area, which is discussed in the *Introduction and Executive Summary*. Similarly, the \$715k decrease for Fixed Asset expenditures from the 2020 budget to the 2021 budget is related to deferred spending for major enhancements for GADS, TADS, and DADS. The \$143k increase for Office Costs is primarily attributable to additional expenses for software licenses and support, and the inclusion of \$50k of dues expenses for the research partnership with PSERC noted above.

Statement of Activities and Fixed Asset Additions					
2020 Budget & Projection, and 2021 Budget					
Reliability Assessments and Performance Analysis					
	2020	2020	Variance	2021	Variance
	Budget	Projection	2020 Projection v 2020 Budget Over(Under)	Budget	2021 Budget v 2020 Budget Over(Under)
Funding					
NERC Funding					
NERC Assessments	\$ 13,001,958	\$ 13,001,958	\$ -	\$ 12,538,528	\$ (463,430)
Penalties Released	-	-	-	-	-
Total NERC Funding	\$ 13,001,958	\$ 13,001,958	\$ -	\$ 12,538,528	\$ (463,430)
Third-Party Funding	-	-	-	-	-
Testing Fees	-	-	-	-	-
Services & Software	60,000	60,000	-	60,000	-
Miscellaneous	-	-	-	-	-
Interest & Investment Income	60,345	19,198	(41,147)	32,908	(27,437)
Total Funding (A)	\$ 13,122,303	\$ 13,081,156	\$ (41,147)	\$ 12,631,436	\$ (490,867)
Expenses					
Personnel Expenses					
Salaries	\$ 3,662,883	\$ 3,526,377	\$ (136,506)	\$ 3,830,459	\$ 167,576
Payroll Taxes	233,091	218,576	(14,515)	244,412	11,321
Benefits	595,261	490,213	(105,048)	622,466	27,205
Retirement Costs	407,604	390,295	(17,309)	425,191	17,587
Total Personnel Expenses	\$ 4,898,839	\$ 4,625,461	\$ (273,378)	\$ 5,122,528	\$ 223,689
Meeting & Travel Expenses					
Meetings & Conference Calls	\$ 286,800	\$ 149,588	\$ (137,212)	\$ 168,856	\$ (117,944)
Travel	300,000	63,279	(236,721)	199,429	(100,571)
Total Meeting & Travel Expenses	\$ 586,800	\$ 212,867	\$ (373,933)	\$ 368,285	\$ (218,515)
Operating Expenses, excluding Depreciation					
Consultants & Contracts	\$ 752,570	\$ 596,150	\$ (156,420)	\$ 403,203	\$ (349,367)
Office Rent	-	-	-	-	-
Office Costs	513,304	606,419	93,115	655,950	142,646
Professional Services	-	-	-	-	-
Miscellaneous	2,000	4,000	2,000	4,600	2,600
Total Operating Expenses, excluding Depreciation	\$ 1,267,874	\$ 1,206,569	\$ (61,305)	\$ 1,063,753	\$ (204,121)
Total Direct Expenses	\$ 6,753,513	\$ 6,044,897	\$ (708,616)	\$ 6,554,566	\$ (198,947)
Indirect Expenses	\$ 5,382,810	\$ 5,364,448	\$ (18,363)	\$ 5,873,428	\$ 490,618
Other Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 12,136,324	\$ 11,409,345	\$ (726,979)	\$ 12,427,994	\$ 291,671
Change in Net Assets (=A-B)	\$ 985,980	\$ 1,671,811	\$ 685,831	\$ 203,442	\$ (782,538)
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 833,953	\$ 257,657	\$ (576,295)	\$ 118,866	\$ (715,086)
Financing Activity					
Loan or Financing Lease - Borrowing (-)	-	(17,385)	(17,385)	(18,010)	(18,010)
Loan or Financing Lease - Principal Payments (+)	152,027	95,617	(56,410)	102,585	(49,442)
Net Financing Activity (D)	\$ 152,027	\$ 78,232	\$ (73,795)	\$ 84,575	\$ (67,452)
Total Budget (=B+C+D)	\$ 13,122,303	\$ 11,745,234	\$ (1,377,069)	\$ 12,631,436	\$ (490,867)
Change in Working Capital (=A-B-C-D)	\$ -	\$ 1,335,922	\$ 1,335,922	\$ -	\$ -
FTEs	23.50	22.26	(1.24)	25.38	1.88

Situation Awareness

Situation Awareness (in whole dollars)			
	2020 Budget	2021 Budget	Increase (Decrease)
FTE Reporting	5.64	6.58	0.94
Direct Expenses	\$ 2,578,597	\$ 2,674,692	\$ 96,095
Indirect Expenses	1,291,874	1,604,603	312,728
Other Non-Operating Expenses	-	-	-
Fixed Asset Additions	349,049	148,541	(200,508)
Financing Activity	107,180	23,153	(84,026)
Total Budget	\$ 4,326,699	\$ 4,450,989	\$ 124,289

Background and Scope

NERC's Situation Awareness group and the Regional Entities monitor BPS conditions, significant occurrences and emerging risks, and threats across the 16 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 RSTC'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.
- **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.
- **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.
- **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

In support of Focus Areas 2 and 4 of the *ERO Enterprise Long-Term Strategy*, 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, after the initial release of SAFNR v3 at the end of 2019 with ResilientGrid as the new vendor, the Situation Awareness group is continuing to focus on enhancements to the SAFNR application. The new SAFNR platform allows users to have a more robust tool to increase situation awareness and the sharing of information with E-ISAC, FERC, and the Regional Entities. The new software has more functionality and automatic model updates, weather overlays, fire data, and allows users to integrate gas data. The upgrade also allows 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, the enhanced SAFNR incorporates 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.

2021 Goals and Deliverables

In 2021, the Situation Awareness group will continue to execute the activities discussed above, including continued focus on implementation of the upgraded SAFNR system and development of any needed enhancements. Additional 2021 plans include (1) minor enhancements to RCIS; (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 2022 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 if need arises.

Resource Requirements

Personnel

The increase of 0.94 FTEs from the 2020 budget to the 2021 budget is the result of resource allocations to realign staff with current needs.

Consultants and Contracts

The \$15k for Consultants & Contracts in the 2021 budget is for PI Historian enhancements. A detailed breakdown of the 2020 and 2021 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*.

Other Costs

The \$22k increase for Meetings & Travel is due to a reclassification of conference server expenses specifically for communication with the RCs from Office Costs to Conference Calls. The \$93k decrease in Office Costs from the 2020 budget to the 2021 budget is also a result of this reclassification as well as lower spending on certain software licenses and support. The decrease of \$200k in Fixed Assets from the 2020 budget to the 2021 budget is primarily due to the fact that the 2020 budget included a one-time expense of \$250k for an upgrade to the video wall in the NERC Atlanta office situation awareness room.

Section A – 2021 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions					
2020 Budget & Projection, and 2021 Budget					
Situation Awareness					
	2020	2020	Variance	2021	Variance
	Budget	Projection	2020 Projection v 2020 Budget Over(Under)	Budget	2021 Budget v 2020 Budget Over(Under)
Funding					
NERC Funding					
NERC Assessments	\$ 4,312,217	\$ 4,312,217	\$ -	\$ 4,441,980	\$ 129,763
Penalties Released	-	-	-	-	-
Total NERC Funding	\$ 4,312,217	\$ 4,312,217	\$ -	\$ 4,441,980	\$ 129,763
Third-Party Funding	\$ -	\$ -	\$ -	\$ -	\$ -
Testing Fees	-	-	-	-	-
Services & Software	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Interest & Investment Income	14,483	5,099	(9,384)	9,009	(5,474)
Total Funding (A)	\$ 4,326,699	\$ 4,317,316	\$ (9,384)	\$ 4,450,989	\$ 124,289
Expenses					
Personnel Expenses					
Salaries	\$ 900,228	\$ 951,118	\$ 50,889	\$ 993,129	\$ 92,900
Payroll Taxes	59,293	58,918	(374)	65,048	5,756
Benefits	227,569	214,237	(13,332)	268,930	41,360
Retirement Costs	100,163	99,224	(939)	111,336	11,174
Total Personnel Expenses	\$ 1,287,253	\$ 1,323,497	\$ 36,244	\$ 1,438,443	\$ 151,190
Meeting & Travel Expenses					
Meetings & Conference Calls	\$ 30,000	\$ 37,324	\$ 7,324	\$ 66,310	\$ 36,310
Travel	35,000	9,450	(25,550)	20,774	(14,226)
Total Meeting & Travel Expenses	\$ 65,000	\$ 46,774	\$ (18,226)	\$ 87,084	\$ 22,084
Operating Expenses, excluding Depreciation					
Consultants & Contracts	\$ -	\$ -	\$ -	\$ 15,000	\$ 15,000
Office Rent	-	-	-	-	-
Office Costs	1,225,844	1,070,189	(155,655)	1,133,065	(92,779)
Professional Services	-	-	-	-	-
Miscellaneous	500	1,000	500	1,100	600
Total Operating Expenses, excluding Depreciation	\$ 1,226,344	\$ 1,071,189	\$ (155,155)	\$ 1,149,165	\$ (77,179)
Total Direct Expenses	\$ 2,578,597	\$ 2,441,460	\$ (137,137)	\$ 2,674,692	\$ 96,095
Indirect Expenses	\$ 1,291,874	\$ 1,424,254	\$ 132,379	\$ 1,604,603	\$ 312,728
Other Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 3,870,471	\$ 3,865,713	\$ (4,758)	\$ 4,279,294	\$ 408,823
Change in Net Assets (=A-B)	\$ 456,228	\$ 451,602	\$ (4,626)	\$ 171,694	\$ (284,534)
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 349,049	\$ 271,748	\$ (77,300)	\$ 148,541	\$ (200,508)
Financing Activity					
Loan or Financing Lease - Borrowing (-)	\$ -	\$ (4,616)	\$ (4,616)	\$ (4,930)	\$ (4,930)
Loan or Financing Lease - Principal Payments (+)	107,180	25,386	(81,793)	28,084	(79,096)
Net Financing Activity (D)	\$ 107,180	\$ 20,770	\$ (86,409)	\$ 23,153	\$ (84,026)
Total Budget (=B+C+D)	\$ 4,326,699	\$ 4,158,232	\$ (168,467)	\$ 4,450,989	\$ 124,289
Change in Working Capital (=A-B-C-D)	\$ -	\$ 159,084	\$ 159,084	\$ -	\$ -
FTEs	5.64	5.91	0.27	6.58	0.94

Event Analysis

Event Analysis (in whole dollars)			
	2020 Budget	2021 Budget	Increase (Decrease)
FTE Reporting	9.40	7.52	(1.88)
Direct Expenses	\$ 2,426,341	\$ 2,389,731	\$ (36,610)
Indirect Expenses	2,153,124	1,833,832	(319,293)
Other Non-Operating Expenses	-	-	-
Fixed Asset Additions	93,581	37,190	(56,392)
Financing Activity	60,811	26,461	(34,350)
Total Budget	\$ 4,733,857	\$ 4,287,213	\$ (446,644)

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, retire, or consider new Reliability Standards. The group analyzes and determines the cause of the events, promptly ensures tracking of corrective actions, and provides lessons learned for industry consumption. Event Analysis ensures that reporting and analysis are consistent to allow wide-area assessment of trends and risks. The group analyzes all voluntarily 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 ERO Enterprise human performance groups, the RSTC's Event Analysis Subcommittee (EAS), and other partners.

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

In support of Focus Areas 2 and 4 of the *ERO Enterprise Long-Term Strategic Plan*, 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 events (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 Electric Human Performance Symposium.
- 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.

2021 Goals and Deliverables

In addition to continuing the activities described above, in 2021 the Event Analysis group will continue to update/upgrade data collection and shortage capabilities and capacity for TEAMS commensurate with resource availability for the year. Additionally, the Event Analysis and PA groups will work to improve the linkage between performance and event analysis data in an effort to enhance the ability to conduct event analyses, as well as to identify key areas for trend analyses across multiple databases. The Event Analysis group will also lead the planning and execution of the annual ERO Enterprise and industry-wide Electric Power Human Performance Symposium.

Future Plans

In 2022 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, data analysis tools, and capacity and integration with other database systems. The group will also work with industry leaders to provide education on human-error and performance topics to improve human-system interaction on the BES going forward.

Resource Requirements

Personnel

The 1.88 decrease in FTEs from the 2020 budget to the 2021 budget is the result of resource allocations to realign staff with current needs.

Consultants and Contracts

The \$105k increase for Consultants & Contracts from the 2020 budget to the 2021 budget is primarily attributable to a reclassification of TEAMS support and maintenance from the IT department to the Event Analysis department. A detailed breakdown of the 2020 and 2021 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*.

Other Costs

The \$76k decrease for Meeting & Travel expenses from the 2020 budget to the 2021 budget is primarily related to the expected cost savings in this area, which is discussed in the *Introduction and Executive Summary*.

Section A – 2021 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions					
2020 Budget & Projection, and 2021 Budget					
Event Analysis					
	2020 Budget	2020 Projection	Variance 2020 Projection v 2020 Budget Over(Under)	2021 Budget	Variance 2021 Budget v 2020 Budget Over(Under)
Funding					
NERC Funding					
NERC Assessments	\$ 4,709,719	\$ 4,709,719	\$ -	\$ 4,276,917	\$ (432,802)
Penalties Released	-	-	-	-	-
Total NERC Funding	\$ 4,709,719	\$ 4,709,719	\$ -	\$ 4,276,917	\$ (432,802)
Third-Party Funding	\$ -	\$ -	\$ -	\$ -	\$ -
Testing Fees	-	-	-	-	-
Services & Software	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Interest & Investment Income	24,138	8,427	(15,711)	10,296	(13,842)
Total Funding (A)	\$ 4,733,857	\$ 4,718,145	\$ (15,711)	\$ 4,287,213	\$ (446,644)
Expenses					
Personnel Expenses					
Salaries	\$ 1,651,222	\$ 1,756,762	\$ 105,539	\$ 1,630,745	\$ (20,477)
Payroll Taxes	94,949	95,205	256	85,892	(9,056)
Benefits	259,683	208,594	(51,089)	218,265	(41,418)
Retirement Costs	181,837	192,158	10,321	179,177	(2,660)
Total Personnel Expenses	\$ 2,187,691	\$ 2,252,719	\$ 65,028	\$ 2,114,080	\$ (73,611)
Meeting & Travel Expenses					
Meetings & Conference Calls	\$ 33,600	\$ 8,483	\$ (25,117)	\$ 18,930	\$ (14,670)
Travel	150,000	27,942	(122,058)	89,031	(60,969)
Total Meeting & Travel Expenses	\$ 183,600	\$ 36,425	\$ (147,175)	\$ 107,961	\$ (75,639)
Operating Expenses, excluding Depreciation					
Consultants & Contracts	\$ 10,000	\$ 93,200	\$ 83,200	\$ 115,590	\$ 105,590
Office Rent	-	-	-	-	-
Office Costs	44,550	44,617	67	50,500	5,950
Professional Services	-	-	-	-	-
Miscellaneous	500	500	-	1,600	1,100
Total Operating Expenses, excluding Depreciation	\$ 55,050	\$ 138,317	\$ 83,267	\$ 167,690	\$ 112,640
Total Direct Expenses	\$ 2,426,341	\$ 2,427,461	\$ 1,120	\$ 2,389,731	\$ (36,610)
Indirect Expenses	\$ 2,153,124	\$ 2,354,477	\$ 201,353	\$ 1,833,832	\$ (319,293)
Other Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 4,579,465	\$ 4,781,938	\$ 202,473	\$ 4,223,562	\$ (355,903)
Change in Net Assets (=A-B)	\$ 154,392	\$ (63,793)	\$ (218,185)	\$ 63,651	\$ (90,741)
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 93,581	\$ 47,690	\$ (45,891)	\$ 37,190	\$ (56,392)
Financing Activity					
Loan or Financing Lease - Borrowing (-)	\$ -	\$ (7,630)	\$ (7,630)	\$ (5,635)	\$ (5,635)
Loan or Financing Lease - Principal Payments (+)	60,811	41,967	(18,843)	32,096	(28,715)
Net Financing Activity (D)	\$ 60,811	\$ 34,337	\$ (26,473)	\$ 26,461	\$ (34,350)
Total Budget (=B+C+D)	\$ 4,733,857	\$ 4,863,966	\$ 130,109	\$ 4,287,213	\$ (446,644)
Change in Working Capital (=A-B-C-D)	\$ -	\$ (145,820)	\$ (145,820)	\$ -	\$ -
FTEs	9.40	9.77	0.37	7.52	(1.88)

Electricity Information Sharing and Analysis Center

E-ISAC (including CRISP) (in whole dollars)			
	2020 Budget	2021 Budget	Increase (Decrease)
FTE Reporting	44.18	39.48	(4.70)
Direct Expenses	\$ 20,018,016	\$ 20,100,328	\$ 82,312
Indirect Expenses	10,119,683	9,315,576	(804,107)
Other Non-Operating Expenses	-	-	-
Fixed Asset Additions	861,280	271,624	(589,656)
Financing Activity	321,157	134,209	(186,948)
Total Budget	\$ 31,320,137	\$ 29,821,738	\$ (1,498,399)

Background and Scope

In 2017 the E-ISAC, with guidance from the ESCC MEC, the NERC Board, and various trade associations and stakeholder groups, developed a long-term strategic plan to better define its mission and focus its resources in helping the electric sector protect itself from escalating cyber and physical security risks. The E-ISAC strategic plan has three primary areas of focus—engagement, information sharing, and analysis. The strategic plan embraces the ongoing need to review priorities under each focus area, ensure alignment between priorities, optimize resource allocation, and establish metrics to measure progress. The central underpinning of the strategic plan is for the E-ISAC to focus on providing timely and actionable information and analysis to industry regarding cyber and physical security threats and mitigation strategies. To advance this important objective, the strategic plan also recognizes the critical interdependencies between the E-ISAC, industry, U.S. and Canadian government agencies, and other stakeholders.

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, 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 focuses on providing 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 leverages 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.

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

During 2019, the E-ISAC took steps to improve the efficiency of operations and reduce or eliminate certain lower value activities. In support of Focus Areas 3, 4, and 5 of the *ERO Enterprise Long-Term Strategy*, leadership was strengthened and security operations reorganized to align and optimize cyber and physical security teams as part of an integrated watch operations team. Portal posting and other publications were also reorganized and enhanced to provide greater context and more information that is actionable. In addition, a performance management group was created to oversee the implementation of process improvements, technology, and metrics to improve the quality, timeliness, and value of information sharing, data management, and analysis. Recent accomplishments include:

- Establishing 24x5 watch operations and hiring experienced security operations staff to facilitate a migration to a 24x7 model by Q3 2020;
- Launching a critical broadcast program to quickly disseminate information regarding imminent threats and other important notifications;
- Increasing inbound and outbound information sharing with members and government partners;
- Supporting numerous DOE initiatives, including CRISP expansion and Cyber Analytics Tools and Techniques (CATT) 2.0™;
- Implementing a CRM system based on the Salesforce platform;
- Increasing and diversifying membership, both within the United States and Canada;
- Establishing an Industry Engagement Program and increasing and diversifying participation in security exercises and training;
- Developing, in coordination with the industry-supported Physical Security Advisory Group, a two-year action plan to expand physical security risk identification, risk mitigation, and preparedness;
- Entering into detailed collaboration agreements with the Canadian Independent System Operator (IESO), the Downstream Natural Gas ISAC (DNG-ISAC) and the Multi-State ISAC (MS-ISAC); and
- Building analytical capabilities and strengthening the E-ISAC's talent pool, including both cyber and physical security expertise.

As part of management’s planning efforts for 2020 and 2021, and taking into account feedback from the Board, MEC, members and other stakeholders, E-ISAC leadership assessed progress to date, re-confirmed operating and strategic priorities, and identified both gaps and opportunities to further improve products, services and, ultimately, provide greater value to members. The following is a summary of actions the E-ISAC will be undertaking to address these gaps and opportunities.

The primary focus of the E-ISAC over the next two years will be improving the effectiveness and efficiency of current products, platforms, and services. These efforts support Focus Area 5 of the *ERO Enterprise Long-Term Strategy* to capture effectiveness, efficiency, and continuous improvement opportunities. The E-ISAC will sharpen its focus and execution in building and maintaining membership by demonstrating value through improved analysis, timely sharing of actionable information, and collaboration with key government and strategic partners, while ensuring that E-ISAC operations are both effective and efficient. These efforts and the actions identified below are closely aligned with the *ERO Enterprise Long-Term Strategy* objective to develop and share information to foster BPS resiliency through security. Key efforts will include:

- Demonstrating the value of information sharing by providing improved and more frequent information to our members;
- Engaging with both industry and government to ensure alignment on key priorities and making improvements to increase the effectiveness of our supporting products, services, and platforms; and
- Focusing and, as appropriate, reallocating resources to ensure proper support for these key priorities.

With these efforts in mind, the following practices will be used to guide resource allocation and investments while ensuring alignment with the three primary focus areas under the E-ISAC strategic plan:

- Fostering an inclusive, stable, productive and effective work environment that attracts and maintains a diverse, talented, and action-oriented workforce;
- Aggressively pursuing initiatives that increase operational effectiveness;
- Prudently choosing resource intensive initiatives that expand the E-ISAC’s scope and avoiding or deferring those that disperse its focus; and
- Exploring opportunities to refine and increase the effectiveness and efficiency of resource utilization supporting security exercises (e.g. GridEx), conferences (e.g. GridSecCon), and other resource intensive activities.

2021 Goals and Deliverables

The E-ISAC remains focused on furtherance of the strategic efforts discussed above as 2021 marks the fourth year of the long-term strategy. Building on its existing foundation and current resources, the E-ISAC 2021 budget reflects a continued measured approach in strengthening the resources and technology required to support the three primary elements of the E-ISAC’s strategic plan—engagement, information sharing, and analysis.

Engagement

- Expand and diversify membership by leveraging industry data and the CRM platform to identify and target prospects and proactively engage with underrepresented segments of the industry, including those in the public power segment.

- Develop more robust mechanisms to obtain and act upon stakeholder feedback, and improve services for existing members.

Information Sharing

- Increase the span, quality, and volume of voluntary shares from members.
- Improve and expand automated information sharing to increase the timeliness and volume of sharing and reduce the effort required by members to share information with the E-ISAC and use information from the E-ISAC.
- Work with government partners to increase E-ISAC and industry access to classified information through threat briefings and collaboration.
- Mature security operations processes to provide members with more timely and relevant information, leveraging 24x7 security operations staffing.

Analysis

- Improve the frequency, timeliness, and quality of valuable, in-depth analysis and reports.
- Operationalize the objectives described in agreements with DOE, IESO, DNG-ISAC and MS-ISAC.
- Facilitate collaboration between U.S. and Canadian government agencies in support of mutual priorities and programs, including Pathfinder, Cyber Space Solarium,¹¹ Project Lighthouse, and the recommendations of the National Infrastructure Advisory Council (NIAC).¹²
- Expand CRISP program participation, streamline governance, and drive greater program value through data enrichment and analysis.

Future Plans

For the long-term horizon (three to five years), the E-ISAC will focus on providing additional value to members and other stakeholders in four key areas:

1. Enhancing analytical capabilities, both internal and in partnership with third parties, while ensuring these enhancements provide value to members;
2. Working closely with the MEC working group, government, and industry partners to identify and share operational technology risks and risk mitigation strategies;
3. Enhancing capability to better leverage classified and other critical threat and intelligence information (both non-public governmental and private sector) to provide timely and actionable information to the sector regarding security risks; and
4. Conducting a detailed evaluation of the benefits, costs, governance, and funding issues and options for extending E-ISAC services and capabilities to support the downstream natural gas sector, given cross-sector interdependencies.

In addition, the E-ISAC will continue to evaluate partnership opportunities with the commercial sector, other ISACs, and government sponsored research and development organizations. The E-ISAC will also work closely with stakeholders and government partners to carefully evaluate the benefits, resource requirements, potential challenges, and risks associated with each of these initiatives, as well as in the

¹¹ Cyberspace Solarium Report, March 2020

¹² NIAC, Transforming the U.S. Cyber Threat Partnership Final Report, December 2019

formulation of appropriate program activities, budgets, and schedules through transparent resource planning and budget approval processes.

Resource Requirements

Personnel

The decrease of 4.70 FTEs from the 2020 budget to the 2021 budget is a result of the reevaluation of the E-ISAC strategic plan as discussed above, including an increased use of contract support versus budgeted FTEs as part of a phased transition of contractors to full-time employees.

Consultants and Contracts

Consultants & Contracts expenses for the E-ISAC 2021 budget, including CRISP, are approximately \$8.7M, which is an increase of \$636k from 2020. Excluding CRISP, E-ISAC's Consultants & Contracts expenses are increasing \$987k over 2020, primarily attributable to the increased use of contract support noted above, which is offset by lower spending in Personnel. CRISP's Consultants & Contracts expenses are \$6.3M, which is \$352k less than the 2020 budget, due to a decrease in participant-paid costs for PNNL (primarily due to an offset of additional DOE funding), the annual security review, and pilot programs. A detailed breakdown of the budgeted 2020 and 2021 costs for E-ISAC is provided in *Exhibit B – Consultants and Contracts Costs*.

Other Costs

The \$167k decrease for Meeting & Travel expenses from the 2020 budget to the 2021 budget is primarily related to the expected cost savings in this area, which is discussed in the *Introduction and Executive Summary*. The \$338k decrease for Fixed Assets from the 2020 budget to the 2021 budget is due a combination of a reduction of costs and reclassification of expenses to Consultants & Contracts.

Section A – 2021 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions					
2020 Budget & Projection, and 2021 Budget					
E-ISAC (including CRISP)					
	2020 Budget	2020 Projection	Variance 2020 Projection v 2020 Budget Over(Under)	2021 Budget	Variance 2021 Budget v 2020 Budget Over(Under)
Funding					
NERC Funding					
NERC Assessments	\$ 23,363,353	\$ 23,363,353	\$ -	\$ 22,673,035	\$ (690,318)
Penalties Released	-	-	-	-	-
Total NERC Funding	\$ 23,363,353	\$ 23,363,353	\$ -	\$ 22,673,035	\$ (690,318)
Third-Party Funding	\$ 7,814,577	\$ 6,732,693	\$ (1,081,884)	\$ 7,064,343	\$ (750,234)
Testing Fees	-	-	-	-	-
Services & Software	-	-	-	-	-
Miscellaneous	-	60,000	60,000	-	-
Interest & Investment Income	142,207	47,262	(94,945)	84,360	(57,847)
Total Funding (A)	\$ 31,320,137	\$ 30,203,308	\$ (1,116,829)	\$ 29,821,738	\$ (1,498,399)
Expenses					
Personnel Expenses					
Salaries	\$ 7,494,261	\$ 6,618,002	\$ (876,259)	\$ 7,283,602	\$ (210,659)
Payroll Taxes	461,786	391,376	(70,410)	413,208	(48,578)
Benefits	1,060,720	766,810	(293,910)	990,022	(70,698)
Retirement Costs	808,861	657,300	(151,561)	776,988	(31,874)
Total Personnel Expenses	\$ 9,825,628	\$ 8,433,488	\$ (1,392,140)	\$ 9,463,819	\$ (361,809)
Meeting & Travel Expenses					
Meetings & Conference Calls	\$ 103,200	\$ 63,600	\$ (39,600)	\$ 82,812	\$ (20,388)
Travel	361,000	59,994	(301,006)	214,268	(146,732)
Total Meeting & Travel Expenses	\$ 464,200	\$ 123,594	\$ (340,606)	\$ 297,080	\$ (167,120)
Operating Expenses, excluding Depreciation					
Consultants & Contracts	\$ 8,090,000	\$ 8,058,816	\$ (31,184)	\$ 8,725,641	\$ 635,641
Office Rent	-	-	-	-	-
Office Costs	1,462,689	1,527,317	64,628	1,469,438	6,749
Professional Services	175,000	135,545	(39,455)	135,000	(40,000)
Miscellaneous	500	600	100	9,350	8,850
Total Operating Expenses, excluding Depreciation	\$ 9,728,189	\$ 9,722,278	\$ (5,911)	\$ 10,339,429	\$ 611,240
Total Direct Expenses	\$ 20,018,016	\$ 18,279,360	\$ (1,738,657)	\$ 20,100,328	\$ 82,312
Indirect Expenses	\$ 10,119,683	\$ 8,417,848	\$ (1,701,836)	\$ 9,315,576	\$ (804,107)
Other Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 30,137,699	\$ 26,697,207	\$ (3,440,492)	\$ 29,415,905	\$ (721,795)
Change in Net Assets (=A-B)	\$ 1,182,438	\$ 3,506,100	\$ 2,323,663	\$ 405,833	\$ (776,604)
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 861,280	\$ 671,953	\$ (189,327)	\$ 271,624	\$ (589,656)
Financing Activity					
Loan or Financing Lease - Borrowing (-)	\$ -	\$ (27,281)	\$ (27,281)	\$ (28,579)	\$ (28,579)
Loan or Financing Lease - Principal Payments (+)	321,157	150,045	(171,112)	162,789	(158,369)
Net Financing Activity (D)	\$ 321,157	\$ 122,764	\$ (198,393)	\$ 134,209	\$ (186,948)
Total Budget (=B+C+D)	\$ 31,320,137	\$ 27,491,925	\$ (3,828,212)	\$ 29,821,738	\$ (1,498,399)
Change in Working Capital (=A-B-C-D)	\$ -	\$ 2,711,383	\$ 2,711,383	\$ -	\$ -
FTEs	44.18	34.93	(9.25)	39.48	(4.70)

Section A – 2021 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions					
2020 Budget & Projection, and 2021 Budget					
E-ISAC Only					
	2020	2020	Variance	2021	Variance
	Budget	Projection	2020 Projection	Budget	2021 Budget
			v 2020 Budget		v 2020 Budget
			Over(Under)		Over(Under)
Funding					
NERC Funding					
NERC Assessments	\$ 22,417,776	\$ 22,417,776	\$ -	\$ 21,577,172	\$ (840,604)
Penalties Released	-	-	-	-	-
Total NERC Funding	\$ 22,417,776	\$ 22,417,776	\$ -	\$ 21,577,172	\$ (840,604)
Third-Party Funding	\$ -	\$ -	\$ -	\$ -	\$ -
Testing Fees	-	-	-	-	-
Services & Software	-	-	-	-	-
Miscellaneous	-	60,000	60,000	-	-
Interest & Investment Income	106,207	27,262	(78,945)	48,360	(57,847)
Total Funding (A)	\$ 22,523,983	\$ 22,505,038	\$ (18,945)	\$ 21,625,531	\$ (898,451)
Expenses					
Personnel Expenses					
Salaries	\$ 7,024,462	\$ 6,103,560	\$ (920,902)	\$ 6,608,091	\$ (416,371)
Payroll Taxes	433,408	368,519	(64,889)	384,291	(49,117)
Benefits	981,788	709,332	(272,455)	912,362	(69,425)
Retirement Costs	758,234	612,087	(146,148)	726,065	(32,170)
Total Personnel Expenses	\$ 9,197,892	\$ 7,793,498	\$ (1,404,394)	\$ 8,630,808	\$ (567,084)
Meeting & Travel Expenses					
Meetings & Conference Calls	\$ 90,000	\$ 61,742	\$ (28,258)	\$ 75,240	\$ (14,760)
Travel	325,000	46,169	(278,831)	192,901	(132,099)
Total Meeting & Travel Expenses	\$ 415,000	\$ 107,911	\$ (307,089)	\$ 268,141	\$ (146,859)
Operating Expenses, excluding Depreciation					
Consultants & Contracts	\$ 1,412,500	\$ 2,423,545	\$ 1,011,045	\$ 2,399,918	\$ 987,418
Office Rent	-	-	-	-	-
Office Costs	1,025,974	1,220,147	194,173	1,357,910	331,936
Professional Services	-	545	545	-	-
Miscellaneous	250	350	100	8,900	8,650
Total Operating Expenses, excluding Depreciation	\$ 2,438,724	\$ 3,644,587	\$ 1,205,863	\$ 3,766,728	\$ 1,328,004
Total Direct Expenses	\$ 12,051,616	\$ 11,545,996	\$ (505,620)	\$ 12,665,677	\$ 614,061
Indirect Expenses	\$ 9,473,746	\$ 7,617,759	\$ (1,855,987)	\$ 8,627,890	\$ (845,856)
Other Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 21,525,362	\$ 19,163,755	\$ (2,361,607)	\$ 21,293,567	\$ (231,795)
Change in Net Assets (=A-B)	\$ 998,621	\$ 3,341,282	\$ 2,342,662	\$ 331,964	\$ (666,656)
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 695,706	\$ 473,247	\$ (222,459)	\$ 207,678	\$ (488,028)
Financing Activity					
Loan or Financing Lease - Borrowing (-)	\$ -	\$ (24,688)	\$ (24,688)	\$ (26,466)	\$ (26,466)
Loan or Financing Lease - Principal Payments (+)	302,914	135,784	(167,130)	150,753	(152,161)
Net Financing Activity (D)	\$ 302,914	\$ 111,096	\$ (191,818)	\$ 124,286	\$ (178,628)
Total Budget (=B+C+D)	\$ 22,523,983	\$ 19,748,099	\$ (2,775,884)	\$ 21,625,531	\$ (898,451)
Change in Working Capital (=A-B-C-D)	\$ -	\$ 2,756,939	\$ 2,756,939	\$ -	\$ -
FTEs	41.36	31.61	(9.75)	36.66	(4.70)

Section A – 2021 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions					
2020 Budget & Projection, and 2021 Budget					
CRISP Only					
	2020 Budget	2020 Projection	Variance 2020 Projection v 2020 Budget Over(Under)	2021 Budget	Variance 2021 Budget v 2020 Budget Over(Under)
Funding					
NERC Funding					
NERC Assessments	\$ 945,577	\$ 945,577	\$ -	\$ 1,095,863	\$ 150,286
Penalties Released	-	-	-	-	-
Total NERC Funding	\$ 945,577	\$ 945,577	\$ -	\$ 1,095,863	\$ 150,286
Third-Party Funding	\$ 7,814,577	\$ 6,732,693	\$ (1,081,884)	\$ 7,064,343	\$ (750,234)
Testing Fees	-	-	-	-	-
Services & Software	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Interest & Investment Income	36,000	20,000	(16,000)	36,000	-
Total Funding (A)	\$ 8,796,155	\$ 7,698,270	\$ (1,097,884)	\$ 8,196,207	\$ (599,948)
Expenses					
Personnel Expenses					
Salaries	\$ 469,799	\$ 514,442	\$ 44,643	\$ 675,511	\$ 205,712
Payroll Taxes	28,378	22,857	(5,521)	28,917	539
Benefits	78,933	57,477	(21,455)	77,660	(1,273)
Retirement Costs	50,627	45,214	(5,413)	50,923	296
Total Personnel Expenses	\$ 627,736	\$ 639,990	\$ 12,254	\$ 833,011	\$ 205,275
Meeting & Travel Expenses					
Meetings & Conference Calls	\$ 13,200	\$ 1,858	\$ (11,342)	\$ 7,572	\$ (5,628)
Travel	36,000	13,825	(22,175)	21,367	(14,633)
Total Meeting & Travel Expenses	\$ 49,200	\$ 15,683	\$ (33,517)	\$ 28,939	\$ (20,261)
Operating Expenses, excluding Depreciation					
Consultants & Contracts	\$ 6,677,500	\$ 5,635,271	\$ (1,042,229)	\$ 6,325,723	\$ (351,777)
Office Rent	-	-	-	-	-
Office Costs	436,715	307,170	(129,545)	111,528	(325,187)
Professional Services	175,000	135,000	(40,000)	135,000	(40,000)
Miscellaneous	250	250	-	450	200
Total Operating Expenses, excluding Depreciation	\$ 7,289,465	\$ 6,077,691	\$ (1,211,774)	\$ 6,572,701	\$ (716,764)
Total Direct Expenses	\$ 7,966,400	\$ 6,733,364	\$ (1,233,036)	\$ 7,434,651	\$ (531,749)
Indirect Expenses	\$ 645,937	\$ 800,088	\$ 154,151	\$ 687,687	\$ 41,750
Other Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 8,612,337	\$ 7,533,452	\$ (1,078,885)	\$ 8,122,338	\$ (490,000)
Change in Net Assets (=A-B)	\$ 183,817	\$ 164,818	\$ (18,999)	\$ 73,869	\$ (109,948)
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 165,574	\$ 198,706	\$ 33,132	\$ 63,946	\$ (101,628)
Financing Activity					
Loan or Financing Lease - Borrowing (-)	\$ -	\$ (2,593)	\$ (2,593)	\$ (2,113)	\$ (2,113)
Loan or Financing Lease - Principal Payments (+)	18,243	14,261	(3,982)	12,036	(6,207)
Net Financing Activity (D)	\$ 18,243	\$ 11,668	\$ (6,575)	\$ 9,923	\$ (8,320)
Total Budget (=B+C+D)	\$ 8,796,155	\$ 7,743,826	\$ (1,052,329)	\$ 8,196,207	\$ (599,948)
Change in Working Capital (=A-B-C-D)	\$ -	\$ (45,556)	\$ (45,556)	\$ -	\$ -
FTEs	2.82	3.32	0.50	2.82	0.00

Personnel Certification and Continuing Education

Personnel Certification and Continuing Education (in whole dollars)			
	2020 Budget	2021 Budget	Increase (Decrease)
FTE Reporting	2.82	2.82	-
Direct Expenses	\$ 1,046,033	\$ 982,466	\$ (63,567)
Indirect Expenses	645,937	687,687	41,750
Other Non-Operating Expenses	-	-	-
Fixed Asset Additions	28,074	56,446	28,372
Financing Activity	18,243	9,923	(8,320)
Total Budget	\$ 1,738,288	\$ 1,736,522	\$ (1,766)

Background and Scope

The Personnel Certification group oversees the System Operator Certification Program that promotes reliability of the North American BPS by ensuring that employers have a workforce of system operators that meet minimum qualifications. NERC monitors system operators to ensure they maintain their required credentials to work in system control centers across North America. NERC's system operator certification exam tests specific knowledge of job skills and Reliability Standards. It also prepares operators to handle the BPS during normal and emergency operations. Certification is maintained by completing NERC-approved Credential Maintenance Program courses and activities. These industry-accepted qualifications are set through internationally recognized processes and procedures for agencies that certify persons. ROP Section 600 addresses Personnel Certification activities in the area of System Operator Certification.

The Personnel Certification Governance Committee (PCGC) is a NERC standing committee that provides oversight to the policies and processes used to implement and maintain the integrity and independence of the NERC System Operator Certification Program. The PCGC provides reports to the Board regarding the governance and administration of the System Operator Certification Program.

The Credential Maintenance Working Group (CMWG) reports to the PCGC and is responsible for developing and maintaining the Credential Maintenance Program under the general guidelines set by the PCGC. Credential maintenance of the System Operator Certification program is accomplished by obtaining Continuing Education Hours (CEHs). The Credential Maintenance Program acknowledges high quality learning activities within the electric utility industry via the approval of continuing education providers and their approved courses.

The Exam Working Group (EWG) consists of subject matter experts from all regions of North America and is responsible for doing an extensive job analysis survey of certified operators across the industry, which provides the basis for the exams. The job analysis survey results in an exam content outline for each of the four exams. The exam content outline is the framework used to associate tasks to exam questions. NERC contracts with psychometric consultants who assist a working group of certified system operators in the development and maintenance of each exam.

The System Operator Certification and Credential Maintenance programs are self-funded through exam and continuing education provider fees, and the PCGC oversees the programs' budgets.

Stakeholder Engagement and Benefit

The Personnel Certification group collaborates with the PCGC, CMWG, and EWG on the completion of System Operator Certification program tasks. Personnel Certification staff coordinate and administer the PCGC, CMWG, 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.

Tools and Technology

The primary tool of the System Operator Certification and the Credential Maintenance programs 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. Continuing education providers use SOCCEd to become a provider and upload courses for approval as well as earned CEHs to System Operator transcripts.

Key Efforts Underway

The Personnel Certification 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 Credential Maintenance Program Manual; and
- Continued improvements to the SOCCEd system to enhance user experiences.

2021 Goals and Deliverables

Under the guidance of the PCGC, the Personnel Certification group is dedicated to enhancing the System Operator Certification program to support reliable operation of the BPS. In 2021, 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 PCGC and CMWG, the Personnel Certification group will continue to focus on revisions, approval, and implementation of the Credential Maintenance Program Manual to provide clear and concise definitions, instructions, and processes for the program. The CMWG is also overseeing the

development of guidelines that will assist industry with the creation and administration of their own System Operator Certification credential maintenance programs.

Future Plans

In 2022 and beyond, the Personnel Certification group will focus on transition and implementation plans for the primary activities in 2021. For the System Operator Certification Program, this includes transitioning to One Credential and the appropriate credential maintenance requirements, and for the Credential Maintenance Program this includes improvement of the Credential Maintenance Program Manual.

Resource Requirements

Personnel

There is no change in FTEs from the 2020 budget to the 2021 budget.

Consultants and Contracts

The \$107k increase for Consultants & Contracts from the 2020 budget to the 2021 budget is primarily attributable to the inclusion of expenses for the JTA, which occurs every three years, and a reclassification of expenses from Office Costs to Consultants & Contracts (with a corresponding decrease in Office Costs). A detailed breakdown of 2020 and 2021 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*.

Other Costs

The \$31k decrease for Meeting & Travel expenses from the 2020 budget to the 2021 budget is primarily related to the expected cost savings in this area, which is discussed in the *Introduction and Executive Summary*. The \$28k increase in Fixed Assets from the 2020 budget to the 2021 budget is mainly attributable to expenses related to a re-platform of SOCCED.

Section A – 2021 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions					
2020 Budget & Projection, and 2021 Budget					
Personnel Certification					
	2020	2020	Variance	2021	Variance
	Budget	Projection	2020 Projection v 2020 Budget Over(Under)	Budget	2021 Budget v 2020 Budget Over(Under)
Funding					
NERC Funding					
NERC Assessments	\$ -	\$ -	\$ -	\$ -	\$ -
Penalties Released	-	-	-	-	-
Total NERC Funding	\$ -	\$ -	\$ -	\$ -	\$ -
Third-Party Funding					
Testing Fees	1,735,000	1,735,150	150	1,801,634	66,634
Services & Software	-	-	-	-	-
Miscellaneous	-	500	500	-	-
Interest & Investment Income	7,241	4,000	(3,241)	7,200	(41)
Total Funding (A)	\$ 1,742,241	\$ 1,739,650	\$ (2,591)	\$ 1,808,834	\$ 66,593
Expenses					
Personnel Expenses					
Salaries	\$ 372,765	\$ 354,227	\$ (18,538)	\$ 304,433	\$ (68,333)
Payroll Taxes	24,774	26,349	1,575	22,091	(2,683)
Benefits	64,235	40,049	(24,187)	44,346	(19,890)
Retirement Costs	40,459	33,882	(6,577)	33,665	(6,794)
Total Personnel Expenses	\$ 502,233	\$ 454,507	\$ (47,726)	\$ 404,534	\$ (97,699)
Meeting & Travel Expenses					
Meetings & Conference Calls	\$ 34,400	\$ 10,796	\$ (23,604)	\$ 20,192	\$ (14,208)
Travel	30,000	7,140	(22,860)	13,190	(16,810)
Total Meeting & Travel Expenses	\$ 64,400	\$ 17,936	\$ (46,464)	\$ 33,382	\$ (31,018)
Operating Expenses, excluding Depreciation					
Consultants & Contracts	\$ 282,000	\$ 288,650	\$ 6,650	\$ 388,650	\$ 106,650
Office Rent	-	-	-	-	-
Office Costs	197,400	164,076	(33,324)	155,600	(41,800)
Professional Services	-	-	-	-	-
Miscellaneous	-	30	30	300	300
Total Operating Expenses, excluding Depreciation	\$ 479,400	\$ 452,756	\$ (26,644)	\$ 544,550	\$ 65,150
Total Direct Expenses	\$ 1,046,033	\$ 925,199	\$ (120,834)	\$ 982,466	\$ (63,567)
Indirect Expenses	\$ 645,937	\$ 718,152	\$ 72,214	\$ 687,687	\$ 41,750
Other Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 1,691,971	\$ 1,643,351	\$ (48,620)	\$ 1,670,153	\$ (21,818)
Change in Net Assets (=A-B)	\$ 50,271	\$ 96,299	\$ 46,029	\$ 138,681	\$ 88,410
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 28,074	\$ 14,546	\$ (13,528)	\$ 56,446	\$ 28,372
Financing Activity					
Loan or Financing Lease - Borrowing (-)	\$ -	\$ (2,327)	\$ (2,327)	\$ (2,113)	\$ (2,113)
Loan or Financing Lease - Principal Payments (+)	18,243	12,801	(5,442)	12,036	(6,207)
Net Financing Activity (D)	\$ 18,243	\$ 10,474	\$ (7,769)	\$ 9,923	\$ (8,320)
Total Budget (=B+C+D)	\$ 1,738,288	\$ 1,668,371	\$ (69,917)	\$ 1,736,522	\$ (1,766)
Change in Working Capital (=A-B-C-D)	\$ 3,953	\$ 71,279	\$ 67,326	\$ 72,312	\$ 68,359
FTEs	2.82	2.98	0.16	2.82	0.00

Training and Education

Training and Education (in whole dollars)			
	2020 Budget	2021 Budget	Increase (Decrease)
FTE Reporting	1.88	1.88	-
Direct Expenses	\$ 553,483	\$ 610,153	\$ 56,670
Indirect Expenses	430,625	458,458	27,833
Other Non-Operating Expenses	-	-	-
Fixed Asset Additions	18,716	9,297	(9,419)
Financing Activity	12,162	6,615	(5,547)
Total Budget	\$ 1,014,986	\$ 1,084,523	\$ 69,537

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 staff¹³ 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 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 an 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) (interactive audience response software and hardware)

¹³ 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;
- 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;
- 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.

2021 Goals and Deliverables

The Training and Education group’s deliverables for 2021 include:

- Development of promotional and training videos, e-learning modules and instructor-led training in support of the releases of the Align and ERO SEL system software;
- Identification, design, development, and implementation of a management development program and other employee training;
- 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;
- Updating systems training products for data systems including GADS, GADS Wind, TADS, DADS, etc. to reflect the enhancements to the data systems; and
- Design and development of cause analysis training.

Future Plans

In 2022 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 ERO SEL tools;
- 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 from the 2020 budget to the 2021 budget.

Consultants and Contracts

The \$60k increase for Consultants & Contracts from the 2020 budget to the 2021 budget is due to the reclassification of staff training expenses benefiting the ERO Enterprise from the Human Resources department to Training and Education. A detailed breakdown of 2020 and 2021 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*.

Statement of Activities and Fixed Asset Additions					
2020 Budget & Projection, and 2021 Budget					
Training and Education					
	2020	2020	Variance	2021	Variance
	Budget	Projection	2020 Projection v 2020 Budget Over(Under)	Budget	2021 Budget v 2020 Budget Over(Under)
Funding					
NERC Funding					
NERC Assessments	\$ 1,010,158	\$ 1,010,158	\$ -	\$ 1,081,949	\$ 71,791
Penalties Released	-	-	-	-	-
Total NERC Funding	\$ 1,010,158	\$ 1,010,158	\$ -	\$ 1,081,949	\$ 71,791
Third-Party Funding	\$ -	\$ -	\$ -	\$ -	\$ -
Testing Fees	-	-	-	-	-
Services & Software	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Interest & Investment Income	4,828	1,700	(3,127)	2,574	(2,254)
Total Funding (A)	\$ 1,014,986	\$ 1,011,859	\$ (3,127)	\$ 1,084,523	\$ 69,537
Expenses					
Personnel Expenses					
Salaries	\$ 212,108	\$ 232,307	\$ 20,198	\$ 226,511	\$ 14,403
Payroll Taxes	17,391	17,725	334	18,582	1,191
Benefits	52,397	64,670	12,273	63,864	11,468
Retirement Costs	23,836	26,045	2,208	25,471	1,635
Total Personnel Expenses	\$ 305,733	\$ 340,746	\$ 35,014	\$ 334,429	\$ 28,696
Meeting & Travel Expenses					
Meetings & Conference Calls	\$ 12,250	\$ 1,159	\$ (11,091)	\$ 1,262	\$ (10,988)
Travel	10,000	226	(9,774)	3,297	(6,703)
Total Meeting & Travel Expenses	\$ 22,250	\$ 1,385	\$ (20,865)	\$ 4,559	\$ (17,691)
Operating Expenses, excluding Depreciation					
Consultants & Contracts	\$ 110,000	\$ 154,180	\$ 44,180	\$ 170,000	\$ 60,000
Office Rent	-	-	-	-	-
Office Costs	115,000	91,280	(23,720)	100,465	(14,535)
Professional Services	-	-	-	-	-
Miscellaneous	500	500	-	700	200
Total Operating Expenses, excluding Depreciation	\$ 225,500	\$ 245,960	\$ 20,460	\$ 271,165	\$ 45,665
Total Direct Expenses	\$ 553,483	\$ 588,091	\$ 34,609	\$ 610,153	\$ 56,670
Indirect Expenses	\$ 430,625	\$ 474,751	\$ 44,126	\$ 458,458	\$ 27,833
Other Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 984,107	\$ 1,062,842	\$ 78,735	\$ 1,068,610	\$ 84,503
Change in Net Assets (=A-B)	\$ 30,878	\$ (50,984)	\$ (81,862)	\$ 15,913	\$ (14,966)
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 18,716	\$ 9,616	\$ (9,100)	\$ 9,297	\$ (9,419)
Financing Activity					
Loan or Financing Lease - Borrowing (-)	\$ -	\$ (1,539)	\$ (1,539)	\$ (1,409)	\$ (1,409)
Loan or Financing Lease - Principal Payments (+)	12,162	8,462	(3,700)	8,024	(4,138)
Net Financing Activity (D)	\$ 12,162	\$ 6,923	\$ (5,239)	\$ 6,615	\$ (5,547)
Total Budget (=B+C+D)	\$ 1,014,986	\$ 1,079,382	\$ 64,396	\$ 1,084,523	\$ 69,537
Change in Working Capital (=A-B-C-D)	\$ -	\$ (67,523)	\$ (67,523)	\$ -	\$ -
FTEs	1.88	1.97	0.09	1.88	0.00

Administrative Programs

Administrative Programs (in whole dollars)						
	Direct Expenses, Fixed Assets, and Net Financing Activity			FTEs		
	2020 Budget	2021 Budget	Increase (Decrease)	2020 Budget	2021 Budget	Increase (Decrease)
General & Administrative	\$ 11,584,094	\$ 11,304,770	\$ (279,324)	16.92	17.86	0.94
Legal and Regulatory	4,588,376	4,631,911	43,535	15.04	15.98	0.94
Information Technology	12,830,975	12,936,602	105,627	24.44	26.32	1.88
Human Resources & Administration	2,724,553	2,775,720	51,167	9.40	9.40	-
Finance and Accounting	2,423,239	2,052,043	(371,196)	8.46	7.52	(0.94)
Total Administrative Programs	\$ 34,151,237	\$ 33,701,046	\$ (450,191)	74.26	77.08	2.82

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 Chief Engineer, the CAO, and their support staff; (2) External Affairs staff, described below; and (3) Board costs, detailed below.

External Affairs

The 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 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 under applicable laws 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.
- **North American Affairs** – Serves as the liaison with government entities and industry stakeholders in Mexico and Canada. Key activities include supporting NERC business units and Regional Entities. This group also facilitates communication and information exchange with entities outside North America.

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

Legislative and Regulatory

- Communications coordination with Congress and 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;
- Support of FERC technical conferences, coordination and strategic import related to meetings with the Chairman, Commissioners, and FERC staff;
- Education and communication on reliability and security matters to states (e.g., the National Association of Regulatory Utility Commissioners);
- 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 the IT department to improve the NERC website, reducing extraneous, outdated pages and documents, and improving search capability and 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, including social media presence;
- Working with NERC departments on communication matters related to Align and the ERO SEL and adapting the Standards and Compliance Bulletin to reflect the entire ERO Enterprise footprint ;
- Managing internal communications in coordination with Human Resources;

North American 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; and
- Communicating the value of a North American ERO to external stakeholders and policymakers.

External Affairs continues to see increased activity in the legislative and regulatory arenas. As a registered lobbying organization in a number of jurisdictions, tracking and monitoring advocacy efforts for reliability and security could potentially trigger reporting requirements at the state level, calling for more vigilance in tracking costs. Additionally, communications activities are increasing to support further coordination across the ERO Enterprise, the E-ISAC, and a potential future website redesign.

Resource Requirements

The 0.94 increase in FTEs from the 2020 budget to the 2021 budget is a result of a shift in personnel previously charged to Finance and Accounting to the General and Administrative area for financial reporting purposes. The \$20k for Consultants & Contracts in the 2021 budget is for communications support for External Affairs. A detailed breakdown of 2020 and 2021 budgeted expenses are shown in *Exhibit B – Consultant and Contracts Costs*.

Board Costs

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

Board of Trustee Expenses	2020 Budget	2021 Budget	Increase (Decrease)	
Meeting and Travel Expenses				
Quarterly Board Meetings	\$ 185,000	\$ 145,130	\$ (39,870)	-21.6%
Trustee Travel	165,000	97,934	(67,066)	-40.6%
Total	\$ 350,000	\$ 243,064	\$ (106,936)	-30.6%
Professional Services				
Independent Trustee Fees	\$ 1,410,000	\$ 1,392,500	\$ (17,500)	-1.2%
Trustee Search Fees	50,000	50,000	-	0.0%
Total	\$ 1,460,000	\$ 1,442,500	\$ (17,500)	-1.2%
Total	\$ 1,810,000	\$ 1,685,564	\$ (124,436)	-6.9%

The \$107k decrease for Meeting & Travel expenses from the 2020 budget to the 2021 budget is primarily related to the expected cost savings in this area, which is discussed in the *Introduction and Executive Summary*.

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 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.

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 2021 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 will seek 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 0.94 decrease in FTEs from the 2020 budget to the 2021 budget is the result of resource allocations to realign staff with current needs. There is a \$90k decrease for Contracts & Consultants from the 2020 budget to the 2021 budget as a result of reduced spending on outside auditor support for IACRM. A detailed breakdown of 2020 and 2021 budgeted expenses are shown in *Exhibit B – Consultants and Contracts Costs*. Outside law firms and consultants supporting Legal area are budgeted as Professional Services. The Professional Services budget for Legal and Regulatory in 2021 is \$100k less than 2020.

Information Technology

NERC's IT department provides the technology needed for the organization to meet ERO statutory obligations. 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 Salesforce CRM system, and the BWISE GRC system.

NERC's IT department is currently focused on four key areas: ERO Enterprise new functionality, ERO Enterprise applications, E-ISAC, 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, subject matter experts are regularly engaged 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, ERO SEL, and CORES projects – NERC has been working closely with the Regional Entities to implement strategic investments in tools to support key ERO statutory functions. These tools will replace various manual processes and numerous applications in use today with robust, platform-based tools that can serve the needs of the entire ERO Enterprise. The existing CMEP and Registration data applications, along with the various evidence storage solutions in use today by NERC and the Regional Entities, are being replaced with three enterprise-grade tools:
 - Align, a single, common business application for use in implementing the risk-based CMEP;
 - The ERO SEL, a highly secure storage area to protect and manage certain registered entity data; and;
 - The CORES system, which provides a single tool for use in Entity 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.

- Situation Awareness tools – The initial release of SAFNR v3 occurred at the end of 2019, and additional ongoing enhancements are scheduled for 2020 and beyond. 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 allows 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. Additionally, minor enhancements to RCIS are planned for 2021, with an evaluation of a replacement solution in 2022, as well as potential future enhancements or replacements for the Resource Adequacy Tool and NERC Alerts system. For more information, see the *Situation Awareness* section.
- Data management system enhancements – As the grid evolves, the collection, 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, RADS, MIDAS, and TEAMS. Enhancements and modifications to these existing software applications are expected in 2021, with the potential for expanded enhancements in 2022 and beyond, including a system for data associated with solar energy storage. For more information, see the *Reliability Assessment and Performance Analysis* and *Event Analysis* sections.

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, networks, and communications. This also includes event preparedness and business continuity, as well as a continued strong emphasis on security processes and tools. Collaboration and sharing information between NERC and the Regional Entities will continue to be a cornerstone of this work, with strong efforts to support consistent technology approaches across the ERO Enterprise when and where possible.

E-ISAC. This includes ongoing efforts to support E-ISAC resource needs to provide analysis of information received from various sources, share and disseminate actionable intelligence about threats to the sector, and optimize the exchange of information both within and externally to the E-ISAC. Integrating key service and support functions across the E-ISAC technology ecosystem will help to eliminate any inefficiencies and ensure E-ISAC staff are able to continue their efforts to expand analysis and information sharing services. Additionally, work will continue to develop data sharing and support the vision of the E-ISAC long-term strategy.

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, and laptops, as well as business continuity and security technologies.

In 2022 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 and the ERO SEL, CORES, and the suite of data management tools, as well as potential upgrades to or replacements of RCIS, the NERC Alerts system, and the NERC website.

Resource Requirements

The increase of 1.88 FTEs in IT from the 2020 budget to the 2021 budget is the result of additional positions related to cyber security to enhance the cyber security posture of the ERO Enterprise. There is a \$170k decrease for Consultants & Contracts expenses from the 2020 budget to the 2021 budget primarily as a result of the reclassification of application support expenses to other departments and some cost savings efforts. A detailed breakdown of 2020 and 2021 budgeted consultants and contracts expenses is shown in *Exhibit B – Consultants and Contracts Costs*. There is a \$427k increase in Office Costs from the 2020 budget to the 2021 budget as a result of increased software license and support expenses, particularly for enhanced security, and there is a \$225k decrease in Fixed Assets primarily due to reduced spending on capital software. Finally, the 2021 budget assumes \$100k for financing lease proceeds for IT equipment, as well as approximately \$570k of financing lease payments for existing equipment, including laptops, network switches and servers, and audio visual 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-learning platform for improving soft and technical skills; (2) broad-based staff development training through 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. A key current and future focus includes ongoing coaching, education, and culture and leadership training with respect to the ERO Enterprise transformation discussed in the *About NERC* section at the beginning of this document, as well as a concerted focus on diversity and inclusion training.

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 no change in FTEs from the 2020 budget to the 2021 budget in the Human Resources and Administration area. Consultants & Contracts expenses are decreasing \$150k for this area primarily as a result of cost savings efforts discussed in the *Introduction and Executive Summary*. A detailed breakdown of 2020 and 2021 budgeted expenses is shown in *Exhibit B – Consultants and Contracts 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 0.94 decrease in FTEs from the 2020 budget to the 2021 budget is a result of a shift in personnel previously charged to Finance and Accounting to the General and Administrative area for financial reporting purposes. Consultants & Contracts expenses are decreasing \$50k for this area primarily as a

result of cost savings efforts discussed in the *Introduction and Executive Summary*. A detailed breakdown of 2020 and 2021 budgeted expenses is shown in *Exhibit B – Consultants and Contacts Costs*.

Miscellaneous Expenses

Miscellaneous expenses include employee engagement and employee rewards and recognition.

Statement of Activities and Fixed Asset Additions 2020 Budget & Projection, and 2021 Budget					
Administrative Programs					
	2020 Budget	2020 Projection	Variance 2020 Projection v 2020 Budget Over(Under)	2021 Budget	Variance 2021 Budget v 2020 Budget Over(Under)
Funding					
NERC Funding					
NERC Assessments	\$ (654,036)	\$ (654,036)	\$ -	\$ (1,800,000)	\$ (1,145,964)
Penalties Released	-	-	-	-	-
Total NERC Funding	\$ (654,036)	\$ (654,036)	\$ -	\$ (1,800,000)	\$ (1,145,964)
Third-Party Funding	\$ -	\$ -	\$ -	\$ -	\$ -
Testing Fees	-	-	-	-	-
Services & Software	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Interest & Investment Income	-	-	-	-	-
Total Funding (A)	\$ (654,036)	\$ (654,036)	\$ -	\$ (1,800,000)	\$ (1,145,964)
Expenses					
Personnel Expenses					
Salaries	\$ 13,070,451	\$ 13,307,427	\$ 236,976	\$ 14,021,169	\$ 950,718
Payroll Taxes	721,605	714,095	(7,510)	758,335	36,729
Benefits	1,826,687	1,682,354	(144,333)	2,035,351	208,664
Retirement Costs	1,146,339	1,175,545	29,206	1,255,330	108,991
Total Personnel Expenses	\$ 16,765,082	\$ 16,879,422	\$ 114,340	\$ 18,070,184	\$ 1,305,102
Meeting & Travel Expenses					
Meetings & Conference Calls	\$ 456,800	\$ 232,914	\$ (223,886)	\$ 436,477	\$ (20,323)
Travel	650,000	164,266	(485,734)	385,803	(264,197)
Total Meeting & Travel Expenses	\$ 1,106,800	\$ 397,180	\$ (709,620)	\$ 822,280	\$ (284,520)
Operating Expenses, excluding Depreciation					
Consultants & Contracts	\$ 3,060,692	\$ 2,499,706	\$ (560,986)	\$ 2,600,625	\$ (460,067)
Office Rent	3,450,468	3,540,468	90,000	3,603,442	152,974
Office Costs	4,762,971	5,200,193	437,222	5,290,002	527,031
Professional Services	2,336,600	2,177,600	(159,000)	2,035,100	(301,500)
Miscellaneous	77,000	81,100	4,100	75,150	(1,850)
Total Operating Expenses, excluding Depreciation	\$ 13,687,731	\$ 13,499,067	\$ (188,664)	\$ 13,604,319	\$ (83,412)
Total Direct Expenses	\$ 31,559,613	\$ 30,775,669	\$ (783,944)	\$ 32,496,783	\$ 937,170
Indirect Expenses	\$ (31,866,236)	\$ (30,856,469)	\$ 1,009,767	\$ (32,571,444)	\$ (705,208)
Other Non-Operating Expenses	\$ 306,623	\$ 80,800	\$ (225,823)	\$ 74,661	\$ (231,962)
Total Expenses (B)	\$ -	\$ -	\$ -	\$ -	\$ -
Change in Net Assets (=A-B)	\$ (654,036)	\$ (654,036)	\$ -	\$ (1,800,000)	\$ (1,145,964)
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ -	\$ -	\$ -	\$ -	\$ -
Financing Activity					
Loan or Financing Lease - Borrowing (-)	\$ -	\$ -	\$ -	\$ -	\$ -
Loan or Financing Lease - Principal Payments (+)	-	-	-	-	-
Net Financing Activity (D)	\$ -	\$ -	\$ -	\$ -	\$ -
Total Budget (=B+C+D)	\$ -	\$ -	\$ -	\$ -	\$ -
Change in Working Capital (=A-B-C-D)	\$ (654,036)	\$ (654,036)	\$ -	\$ (1,800,000)	\$ (1,145,964)
FTEs	74.26	71.88	(2.38)	77.08	2.82

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 ²	System Operator Certification Reserve	CRISP Reserve	Assessment Stabilization Reserve ³
Beginning Operating Reserves Balance - 1/1/2020	\$ 12,117,076	\$ 2,119,719	\$ 6,199,083	\$ 777,274	\$ 500,000	\$ 2,521,000
Generation or (Use) from 2020 Operations						
From 2020 budgeted operations, including debt service and financing	\$ (1,136,041)	\$ (485,958)	\$ (654,036)	\$ 3,953	\$ -	\$ -
From 2020 approved addition/(use) of reserves	(1,800,000)	-	(1,800,000)	-	-	-
Other addition/(use) of reserves	3,923,862	-	3,856,535	67,327	-	-
Projected Operating Reserves - 12/31/20	\$ 13,104,897	\$ 1,633,761	\$ 7,601,582	\$ 848,554	\$ 500,000	\$ 2,521,000
Required Working Capital and Operating Reserves - 12/31/21	\$ 10,825,609	\$ 1,082,161	\$ 5,801,582	\$ 920,866	\$ 500,000	\$ 2,521,000
Adjustment in funding to achieve required reserve balance	(2,279,288)	(551,600)	(1,800,000)	72,312	-	-
Less: Assessment Stabilization Reserve Release - Penalties	-	-	-	-	-	-
Total Adjustments to Reserves	\$ (2,279,288)	\$ (551,600)	\$ (1,800,000)	\$ 72,312	\$ -	\$ -
Assessment Reconciliation						
2021 Expenses, Capital Expenditures & Net Financing	\$ 82,883,239					
Less: Assessment Stabilization Reserve Release - Penalties	-					
Adjustment in funding to achieve required reserve balance	(1,727,688)					
Less: Other Funding Sources	(9,144,177)					
2021 NERC Assessment	\$ 72,011,373					

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

²Except as otherwise approved by the Board, after review by the FAC, the amount of the Operating Contingency Reserve shall be between three and one half (3.5%) percent and seven (7%) percent of the company's total expense and fixed asset budget minus the sum of the System Operator Certification and CRISP budgets, each of which have separate reserves.

³Includes \$1.0M of Penalties received on September 19, 2019, and deposited in the Assessment Stabilization Reserve.

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 2021 budget, with Board and FERC approval, which is hereby requested, NERC will deposit \$1.0M of penalties collected during the period July 1, 2019–June 30, 2020 into the Assessment Stabilization Reserve. The 2021 assessment 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 to stabilize and reduce assessments in future years.

Penalty Sanctions	Date Received	Amount Received
Penalties received between 7/1/2019 and 6/30/2020		
	September-19	\$ 1,000,000
		<u>\$ 1,000,000</u>
Penalties received prior to 6/30/2019, held in the assessment stabilization reserve		<u>\$ 1,521,000</u>
Total penalties available on 1/1/2021 to offset assessments		<u>\$ 2,521,000</u>
Adjustments		
Total penalties released to offset assessments in the 2021 Budget		\$ -
Total penalties held in Assessment Stabilization Reserve 12/31/2021		<u><u>\$ 2,521,000</u></u>

Table B-3 – Outside Funding

Outside Funding Breakdown By Program (Excludes Penalty Sanction)	2020 Budget	2021 Budget	Increase (Decrease)
Reliability Standards			
Interest & Investment Income Allocation	\$ 45,862	\$ 22,947	\$ (22,915)
Total	\$ 45,862	\$ 22,947	\$ (22,915)
Compliance Assurance, Certification, and Registration			
Interest & Investment Income Allocation	\$ 55,517	\$ 32,175	\$ (23,342)
Total	\$ 55,517	\$ 32,175	\$ (23,342)
Compliance Enforcement			
Interest & Investment Income Allocation	\$ 31,379	\$ 16,731	\$ (14,648)
Total	\$ 31,379	\$ 16,731	\$ (14,648)
Reliability Assessment and Performance Analysis			
Services and Software	\$ 60,000	\$ 60,000	\$ -
Interest & Investment Income Allocation	60,345	32,908	(27,437)
Total	\$ 120,345	\$ 92,908	\$ (27,437)
Personnel Certification and Continuing Education			
Testing Fees	\$ 455,000	\$ 520,000	\$ 65,000
Certificate Renewals	780,000	800,000	20,000
Continuing Education Fees	500,000	481,634	(2,675)
Interest & Investment Income Allocation	7,241	7,200	(41)
Total	\$ 1,742,241	\$ 1,808,834	\$ 82,284
Training and Education			
Interest & Investment Income Allocation	\$ 4,828	\$ 2,574	\$ (2,254)
Total	\$ 4,828	\$ 2,574	\$ (2,254)
Event Analysis			
Interest & Investment Income Allocation	\$ 24,138	\$ 10,296	\$ (13,842)
Total	\$ 24,138	\$ 10,296	\$ (13,842)
Situation Awareness			
Interest & Investment Income Allocation	\$ 14,483	\$ 9,009	\$ (5,474)
Total	\$ 14,483	\$ 9,009	\$ (5,474)
E-ISAC			
Third Party Funding (CRISP)	\$ 7,814,577	\$ 7,064,343	\$ (750,234)
Interest & Investment Income Allocation	142,207	84,360	(57,847)
Total	\$ 7,956,784	\$ 7,148,703	\$ (808,081)
Grand Total	\$ 9,995,577	\$ 9,144,177	\$ (835,709)

Interest & Investment Income – The \$168k decrease is due to anticipated lower interest rates in 2021.

Testing Fees and Certificate Renewals – The \$65k increase in testing fees and \$20k increase in certificate renewals is due to an increase in the estimate of the numbers of tests and renewals in 2021.

Third Party Funding (CRISP) – The \$750k decrease is due to a decrease in participant-paid costs for PNNL (primarily due to additional DOE funding), the annual security review, and pilot programs.

Table B-4 – Personnel

Personnel	2020 Budget	2021 Budget	Increase (Decrease)	
Salaries	\$ 35,462,611	\$ 36,636,628	\$ 1,174,017	3.3%
Payroll Taxes	2,113,486	2,122,568	9,082	0.4%
Benefits	5,420,461	5,703,799	283,338	5.2%
Retirement	3,601,601	3,726,439	124,838	3.5%
Total	\$ 46,598,160	\$ 48,189,435	\$ 1,591,275	3.4%
FTEs	213.38	213.38	-	0.0%
Cost per FTE				
Salaries	\$ 166,195	\$ 171,697	\$ 5,502	3.3%
Payroll Taxes	9,905	9,947	43	0.4%
Benefits	25,403	26,731	1,328	5.2%
Retirement	16,879	17,464	585	3.5%
Total	\$ 218,381	\$ 225,839	\$ 7,457	3.4%

Total salary expense is comprised of base salaries, incentive compensation, deferred compensation, employment agency fees, and temporary office expenses. The 2021 budget for base salaries assumes a 2.5% increase over actual 2020 base salaries for merit adjustments and up to 0.5% for equity and market adjustments. As directed by the Board, this is a placeholder increase; actual increases will be evaluated by the Board at year-end. The 2021 budget for incentive compensation is based on historical actuals and is comparable to prior years. The 2021 budgets for deferred compensation, employment agency fees, and temporary office expenses are generally consistent with 2020.

Benefits are increasing 5.2% primarily due to an estimated 15.0% increase in medical insurance premiums due to high loss-ratio trends and a 5.0% increase for vision and dental insurance premiums, offset by lower negotiated costs for NERC's benefits broker.

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

Table B-5 – Meetings & Travel

Meetings & Travel	2020 Budget	2021 Budget	Increase (Decrease)	
Meetings & Conference Calls	\$ 1,112,250	\$ 890,751	\$ (221,499)	-19.9%
Travel	2,211,000	1,310,997	(900,003)	-40.7%
Total	\$ 3,323,250	\$ 2,201,748	\$ (1,121,502)	-33.7%

Meetings & Travel expenses are decreasing due to the assumption that there will be fewer in-person meetings and reduced travel in 2021 as result of continued COVID-19 pandemic conditions as part of the overall cost savings efforts discussed in the *Introduction and Executive Summary*.

Table B-6 – Consultants and Contracts

Refer to *Exhibit B – Consultant and Contract Costs*

Table B-7 – Rent

Office Rent	2020 Budget	2021 Budget	Increase (Decrease)
Office Rent	\$ 3,228,468	\$ 3,329,442	\$ 100,974 3.1%
Maintenance	222,000	274,000	52,000 23.4%
Total	\$ 3,450,468	\$ 3,603,442	\$ 152,974 4.4%

Maintenance is increasing \$52k primarily due to recent higher real estate tax expense allocations on leased office space.

Table B-8 – Office Costs

Office Costs	2020 Budget	2021 Budget	Increase (Decrease)
Telephone	\$ 356,562	\$ 330,800	\$ (25,762) -7.2%
Internet	269,350	294,650	25,300 9.4%
Office Supplies	250,050	276,450	26,400 10.6%
Computer Supplies	186,448	140,250	(46,198) -24.8%
Software License and Support	7,214,718	8,022,452	807,734 11.2%
Subscription and Publications	307,370	363,299	55,929 18.2%
Dues	86,050	142,445	56,395 65.5%
Postage	10,540	10,500	(40) -0.4%
Express Shipping	33,742	34,700	958 2.8%
Copying	80,042	39,500	(40,542) -50.7%
Audio/Visual and Hardware Lease	55,501	282,743	227,242 409.4%
Equipment Repair/Service Contracts	144,000	130,000	(14,000) -9.7%
Bank Charges	28,000	28,000	- 0.0%
Merchant Card Fees	80,000	90,000	10,000 12.5%
Total	\$ 9,102,374	\$ 10,185,789	\$ 1,083,415 11.9%

Computer Supplies are decreasing \$46k, Copying expenses are decreasing \$41k, and Office Supplies are increasing \$26k in 2021 to bring the budget closer to recent actual costs.

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 \$808k increase in 2021 is primarily due to an increase in these expenses in IT, particularly for enhanced security, as well as the addition of the software licenses and support costs for the ERO SEL in the Compliance Assurance and Enforcement departments.

Audio/Visual and Hardware Lease costs are increasing \$227k in the 2021 budget as a result of a reclassification of managed services and taxes expenses from Financing Lease Payments to Office Costs.

Table B-9 – Professional Services

Professional Services	2020 Budget	2021 Budget	Increase (Decrease)	
Independent Trustee Fees	\$ 1,410,000	\$ 1,392,500	\$ (17,500)	-1.2%
Trustee Search Fees	50,000	50,000	-	0.0%
Outside Legal	585,500	388,500	(197,000)	-33.6%
Government Relations	72,000	-	(72,000)	-100.0%
Accounting and Auditing Fees	155,000	155,000	-	0.0%
Insurance Commercial	225,000	185,000	(40,000)	-17.8%
Outside Services	14,100	14,100	-	0.0%
Total	\$ 2,511,600	\$ 2,185,100	\$ (326,500)	-13.0%

The \$197k decrease in Outside Legal and the \$72k decrease in Government Relations is due primarily to the cost savings efforts discussed in the *Introduction and Executive Summary*. The \$40k decrease for Insurance Commercial in 2021 is to bring the CRISP liability insurance budget closer to recent actual costs.

Table B-10 – Miscellaneous

Miscellaneous Expenses	2020 Budget	2021 Budget	Increase (Decrease)	
Miscellaneous Expense	\$ 7,750	\$ 10,250	\$ 2,500	32.3%
Employee Rewards and Recognition	48,000	20,900	(27,100)	-56.5%
Employee Engagement	4,500	41,000	36,500	811.1%
Sponsorships	22,500	28,000	5,500	24.4%
Total	\$ 82,750	\$ 100,150	\$ 17,400	21.0%

The \$27k decrease in Employee Rewards and Recognition in 2021 is due to a reclassification of some of these expenses to Employee Engagement, which contributes to the \$36k increase in that category.

Table B-11 – Other Non-Operating Expenses

Other Non-Operating Expenses	2020 Budget	2021 Budget	Increase (Decrease)	
Property and Other Tax Expense	\$ 165,000	\$ 60,000	\$ (105,000)	-63.6%
Interest Expense	141,623	69,661	(71,962)	-50.8%
Total	\$ 306,623	\$ 129,661	\$ (176,962)	-57.7%

The \$105k decrease in Property and Other Tax Expense in 2021 is primarily due to the recent repeal of certain federal and state excise taxes on not-for-profit entities. The \$72k decrease in Interest Expense is due to lower assumed outstanding debt balances and lower interest rates.

Table B-12 – Fixed Assets

Fixed Asset Additions	2020 Budget	2021 Budget	Increase (Decrease)	
Computer & Software CapEx	\$ 3,271,349	\$ 2,091,500	(1,179,849)	-36.1%
Furniture & Fixtures CapEx	-	-	-	
Equipment CapEx	935,000	660,000	(275,000)	-29.4%
Leasehold Improvements	500,000	-	(500,000)	-100.0%
Total	\$ 4,706,349	\$ 2,751,500	\$ (1,954,849)	-41.5%

Expenditures for Fixed Assets are budgeted to be \$2.0M less in 2021 compared to 2020, inclusive of the Align 2021 development costs proposed to be funded by Operating Contingency Reserves, due to no leasehold improvements expected in 2021 and reduced spending in all areas as a result of the costs savings efforts discussed in the *Introduction and Executive Summary*.

Table B-13 – 2021–2022 Projections
Refer to the *Introduction and Executive Summary* section on page 15

Section C – Non-Statutory Activity

NERC has no non-statutory activities.

Section D - Consolidated Statement of Activities by Program

Statement of Activities, Fixed Asset Expenditures, Financing Activity, and Change in Working Capital by Program 2021 Budget	Statutory Activities														
	Statutory Total	Reliability Standards and Power Risk Issue Strategic Management	Compliance Assurance, Registration, and Certification	Event Analysis	Compliance Enforcement	Personnel Certification	Training and Education	Reliability Assessments and Performance Analysis	Situation Awareness	E-ISAC (including CRISP)	General and Administrative (Includes Executive and External Affairs)	Legal and Regulatory	Information Technology	Human Resources and Administration	Accounting and Finance
Funding															
ERO Funding															
NERC Assessments	\$ 72,011,373	\$ 7,833,694	\$ 13,654,127	\$ 4,276,917	\$ 7,311,144	\$ -	\$ 1,081,949	\$ 12,538,528	\$ 4,441,980	\$ 22,673,035	\$ (1,800,000)	\$ -	\$ -	\$ -	\$ -
Penalties Released	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total NERC Funding	\$ 72,011,373	\$ 7,833,694	\$ 13,654,127	\$ 4,276,917	\$ 7,311,144	\$ -	\$ 1,081,949	\$ 12,538,528	\$ 4,441,980	\$ 22,673,035	\$ (1,800,000)	\$ -	\$ -	\$ -	\$ -
Third-Party Funding															
Testing Fees	\$ 7,064,343	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,064,343	\$ -	\$ -	\$ -	\$ -	\$ -
Services & Software	1,801,634	-	-	-	-	1,801,634	-	-	-	-	-	-	-	-	-
Miscellaneous	60,000	-	-	-	-	-	-	60,000	-	-	-	-	-	-	-
Interest & Investment Income	218,200	22,947	32,175	10,296	16,731	7,200	2,574	32,908	9,009	84,360	-	-	-	-	-
Total Funding (A)	\$ 81,155,551	\$ 7,856,641	\$ 13,686,302	\$ 4,287,213	\$ 7,327,875	\$ 1,808,834	\$ 1,084,523	\$ 12,631,436	\$ 4,450,989	\$ 29,821,738	\$ (1,800,000)	\$ -	\$ -	\$ -	\$ -
Expenses															
Personnel Expenses															
Salaries	\$ 36,636,628	\$ 2,468,752	\$ 4,038,791	\$ 1,630,745	\$ 1,839,039	\$ 304,433	\$ 226,511	\$ 3,830,459	\$ 993,129	\$ 7,283,602	\$ 4,034,648	\$ 3,073,305	\$ 4,407,055	\$ 1,439,701	\$ 1,066,460
Payroll Taxes	2,122,568	155,276	244,418	85,892	115,307	22,091	18,582	244,412	65,048	413,208	188,247	167,227	257,969	77,258	67,634
Benefits	5,703,799	415,057	824,511	218,265	220,988	44,346	63,864	622,466	268,930	990,022	535,253	444,310	636,116	225,799	193,873
Retirement Costs	3,726,439	272,927	449,687	179,177	196,667	33,665	25,471	425,191	111,336	776,988	215,175	331,244	471,140	122,693	115,079
Total Personnel Expenses	\$ 48,189,435	\$ 3,312,011	\$ 5,557,407	\$ 2,114,080	\$ 2,372,000	\$ 404,534	\$ 334,429	\$ 5,122,528	\$ 1,438,443	\$ 9,463,819	\$ 4,973,323	\$ 4,016,085	\$ 5,772,280	\$ 1,865,451	\$ 1,443,046
Meeting and Travel Expenses															
Meetings & Conference Calls	\$ 890,751	\$ 37,860	\$ 51,742	\$ 18,930	\$ 6,310	\$ 20,192	\$ 1,262	\$ 168,856	\$ 66,310	\$ 82,812	\$ 277,640	\$ 6,310	\$ 146,217	\$ 3,155	\$ 3,155
Travel	1,310,997	115,147	237,413	89,031	32,645	13,190	3,297	199,429	20,774	214,268	242,165	44,516	59,354	16,026	23,742
Total Meeting & Travel Expenses	\$ 2,201,748	\$ 153,007	\$ 289,155	\$ 107,961	\$ 38,955	\$ 33,382	\$ 4,559	\$ 368,285	\$ 87,084	\$ 297,080	\$ 519,805	\$ 50,826	\$ 205,571	\$ 19,181	\$ 26,897
Operating Expenses, excluding Depreciation															
Consultants & Contracts	\$ 12,691,813	\$ 114,552	\$ 89,552	\$ 115,590	\$ 69,000	\$ 388,650	\$ 170,000	\$ 403,203	\$ 15,000	\$ 8,725,641	\$ 20,000	\$ 210,000	\$ 1,635,625	\$ 610,000	\$ 125,000
Office Rent	3,603,442	-	-	-	-	-	-	-	-	-	3,603,442	-	-	-	-
Office Costs	10,185,789	45,850	652,307	50,500	632,612	155,600	100,465	655,950	1,133,065	1,469,438	548,150	101,500	4,175,564	228,988	235,800
Professional Services	2,185,100	-	-	-	15,000	-	-	-	-	135,000	1,552,500	253,500	-	9,100	220,000
Miscellaneous	100,150	2,200	3,250	1,600	1,900	300	700	4,600	1,100	9,350	27,550	-	3,300	43,000	1,300
Total Operating Expenses, excluding Depreciation	\$ 28,766,294	\$ 162,602	\$ 745,109	\$ 167,690	\$ 718,512	\$ 544,550	\$ 271,165	\$ 1,063,753	\$ 1,149,165	\$ 10,339,429	\$ 5,751,642	\$ 565,000	\$ 5,814,489	\$ 891,088	\$ 582,100
Total Direct Expenses	\$ 79,157,477	\$ 3,627,620	\$ 6,591,671	\$ 2,389,731	\$ 3,129,467	\$ 982,466	\$ 610,153	\$ 6,554,566	\$ 2,674,692	\$ 20,100,328	\$ 11,244,770	\$ 4,631,911	\$ 11,792,340	\$ 2,775,720	\$ 2,052,043
Indirect Expenses	\$ 0	\$ 4,087,161	\$ 5,730,723	\$ 1,833,832	\$ 2,979,976	\$ 687,687	\$ 458,458	\$ 5,873,428	\$ 1,604,603	\$ 9,315,576	\$ (11,304,770)	\$ (4,631,911)	\$ (11,807,001)	\$ (2,775,720)	\$ (2,052,043)
Other Non-Operating Expenses	\$ 129,661	\$ -	\$ 27,500	\$ -	\$ 27,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 60,000	\$ -	\$ 14,661	\$ -	\$ -
Total Expenses (B)	\$ 79,287,138	\$ 7,714,782	\$ 12,349,894	\$ 4,223,562	\$ 6,136,943	\$ 1,670,153	\$ 1,068,610	\$ 12,427,994	\$ 4,279,294	\$ 29,415,905	\$ -	\$ (0)	\$ -	\$ -	\$ -
Change in Net Assets (=A-B)	\$ 1,868,413	\$ 141,859	\$ 1,336,408	\$ 63,651	\$ 1,190,932	\$ 138,681	\$ 15,913	\$ 203,442	\$ 171,694	\$ 405,833	\$ (1,800,000)	\$ 0	\$ -	\$ -	\$ -
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 2,751,500	\$ 82,885	\$ 1,066,217	\$ 37,190	\$ 960,433	\$ 56,446	\$ 9,297	\$ 118,866	\$ 148,541	\$ 271,624	\$ -	\$ -	\$ -	\$ -	\$ -
Financing Activity															
Loan or Financing Lease - Borrowing (-)	\$ (100,000)	\$ (12,558)	\$ (17,609)	\$ (5,635)	\$ (9,157)	\$ (2,113)	\$ (1,409)	\$ (18,010)	\$ (4,930)	\$ (28,579)	\$ -	\$ -	\$ -	\$ -	\$ -
Loan or Financing Lease - Principal Payments (+)	944,601	71,533	287,799	32,096	239,656	12,036	8,024	102,585	28,084	162,789	-	-	-	-	-
Net Financing Activity (D)	\$ 844,601	\$ 58,974.17	\$ 270,191	\$ 26,461	\$ 230,499	\$ 9,923	\$ 6,615	\$ 84,575	\$ 23,153	\$ 134,209	\$ -	\$ -	\$ -	\$ -	\$ -
Total Budget (=B+C)	\$ 82,883,239	\$ 7,856,641	\$ 13,686,302	\$ 4,287,213	\$ 7,327,875	\$ 1,736,522	\$ 1,084,523	\$ 12,631,436	\$ 4,450,989	\$ 29,821,738	\$ -	\$ (0)	\$ -	\$ -	\$ -
Change in Working Capital (=A-B-C-D)	\$ (1,727,688)	\$ 0	\$ 0	\$ 0	\$ (0)	\$ 72,312	\$ -	\$ 0	\$ 0	\$ 0	\$ (1,800,000)	\$ 0	\$ -	\$ -	\$ -
FTEs	213.38	16.92	23.50	7.52	12.22	2.82	1.88	25.38	6.58	39.48	17.86	15.98	26.32	9.40	7.52

Exhibit A – Application of NERC Section 215 Criteria

DISCUSSION OF HOW THE NERC MAJOR ACTIVITIES IN THE 2021 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 2021 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.¹⁴ NERC submitted the written criteria to the Commission in a compliance filing dated February 21, 2013 in Docket No. FA11-21-000.¹⁵ The Commission approved the NERC written criteria, with modifications, in an order issued in that docket on April 18, 2013.¹⁶ The NERC written criteria as used in this Exhibit incorporate the modifications specified in the Compliance Order.¹⁷

II. Reliability Standards and Power Risk Issue Strategic Management 2021 Major Activities

The major activities of Reliability Standards and Power Risk Issue Strategic Management (PRISM) are described at pages 17–19 of the 2021 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. This group focuses on expanding a risk-based approach to its projects, to ensure that Reliability Standards are clear, timely, consider costs, effective in mitigating material risks, and do not unnecessarily burden industry with administrative requirements and/or detract from reliability or security. 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

¹⁴ *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.

¹⁵ *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.

¹⁶ *North American Electric Reliability Corporation, Order on Compliance*, 143 FERC ¶ 61,052 (2013) (“Compliance Order”).

¹⁷ 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.

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 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 the NERC Reliability and Security Technical Committee (RSTC), and ensures that the processes to address Standards Authorization Requests and Requests for Interpretations of standards are coordinated and efficient.

For 2021, 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 and special reports as necessary through the standards development process; (3) continuing to implement the results of the comprehensive review of standards initiated in 2018, through 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 2021, 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.

Current activities of the PRISM group include completing NERC position documents for Distributed Energy Resources, Interconnection Reliability Operating Limits, System Operating Limits, and Battery Storage; developing statistical analyses around misoperations, balancing standards, and the effects of frequency response within the four interconnections; conducting Reliability Standards training for NERC and Regional Entity staff; launching the wERock cross-cutting tool to track Reliability Issues Steering Committee (RISC) issues and work plan items from NERC and Regional Entity committees; and measuring the effectiveness of the Electric Gas Working Group industry guidelines on fuel assurance. In 2021, 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 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 2021 Major Activities

The major activities of Compliance Assurance and Organization Registration and Certification and of Compliance Enforcement are described on pages 22–26 and 29–30 of the 2021 Business Plan and Budget.

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 Risk, Performance, and Monitoring Group (NERC and Regional Entity collaboration group), NERC Compliance and Certification Committee (CCC), and NERC RSTC. 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 and the related ERO SEL.

The ongoing and new major activities of the Compliance Assurance group for 2021 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 successful implementation of the Cyber Security Supply Chain Risk Management Reliability Standard; (4) supporting the continued successful implementation of CIP V5 standards and subsequent enhancements as they become effective; (5) monitoring and supporting effective implementation and monitoring of the Physical Security Reliability Standard; (6) enhancing and implementing training to support monitoring of compliance with Reliability Standards, integrating principles from the Compliance Monitoring Competency Guide; (7) 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; (8) continuing to focus on how registered entities have mitigated reliability and security risks while achieving compliance with Reliability Standards, including internal controls; (9) finalizing revisions to the BES reference document and transitioning to a CMEP Practice Guide; (10) supporting international CMEP activities including reliability and security subject matter expertise and outreach; and (11) providing support and leadership to applicable committees and subcommittees including the CCC.

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 the Align-ERO SEL and the Centralized Organization Registration ERO System (CORES) applications, including in particular development, roll-out, and maintenance of CORES, with continued focus on functionality for Coordinated Functional Registrations (CFRs). Organization Registration and

Certification also processes registration change requests, including NERC-led review panels and BES Exceptions. Organization Registration and Certification's responsibilities include oversight of the Regional Entities' implementation of the Registration and Certification programs; leading NERC-led Review Panel proceedings; oversight of the use of necessary processes, procedures, IT platforms, tools, and templates; leading and supporting Regional Entity and industry committees, working groups, and task forces, including that ERO Organization Registration and Certification Group, the NERC CCC, and the CCC Organization Registration and Certification subcommittee; maintaining the NERC Compliance Registry and adhering to NERC ROP Section 500 and ROP Appendices 5A, 5B and 5C; and providing training on IT applications, including CORES and the CFR tool, to Regional Entities and registered entities.

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 2021, the major activities of Compliance Enforcement will include: (1) identifying and mitigating the greatest risks to reliability and security; (2) supporting implementation of the Align and ERO SEL tools; (3) continuing to find ways to efficiently process and close out lower risk violations; (4) educating relevant parties on the risk assessment process; 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?
- 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 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 2021 Major Activities

The major activities of Reliability Assessments and Performance Analysis (RAPA) are described at pages

33–38 of the 2021 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 RSTC, 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, and Special Reliability Assessments that are selected based on high risk issues requiring an independent assessment from the ERO. The NERC RSTC and its subgroups provide oversight, guidance, and leadership essential to enhancing BPS reliability; the NERC staff secretaries of the RSTC coordinate and administer these activities and efforts. In addition to developing the annual and other assessments, the major ongoing activities of the RATC include focusing on effective Essential Reliability Services (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 2021 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 of collecting information on geomagnetically-induced current and the potential impacts on reliability.

PA monitors the performance of and identifies risks to reliability of the BPS through analyzing data from industry and measuring historic trends, in four areas of BPS operations: transmission, 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. These analyses provide the foundation for the annual State of Reliability (SOR) report and other analytical reports and technical papers to the industry. PA staff leads the ERO, technical committees, and stakeholder process to publish the SOR report examining year-over-year performance indicators of the grid. 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 Data System (DADS), as well as reliability metrics and protection and control system misoperations data. PA is also developing reporting requirements for solar and associated energy storage data collection.

PSA staff 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 including support for the Resources Subcommittee and its subgroups and submission of the Frequency Report Annual Analysis (FRAA) to FERC; and assures that the BES electrical elements necessary for reliable operation are identified and subject to Reliability Standards.

ASAM staff 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; promotes understanding of the need and available methods for probabilistic studies to augment deterministic studies in system planning, including support for the Probabilistic Assessment Working Group; conducts advanced system studies of increasing penetrations of new resource technologies or new technologies facilitating these penetrations, as well as piloting use of new resource models for system simulations; publishes Institute of Electrical and Electronic Engineers (IEEE) and other industry papers to promote continual advancement of BPS knowledge and understanding; and supports research projects, including those of the Carnegie Mellon Industry Center, the Power Systems Energy Research Center, the Department of Energy (DOE) North American Energy Resilience Model, and the DOE-Electric Power Research Institute (EPRI)-NERC project advancing modeling and protection for solar inverter-based resources. ASAM also provides advanced statistical analysis support for the SOR report and various reliability assessments; the FRAA report; analytical review of Reliability Standard effectiveness; and various reports on an emergent basis each year.

PSA's and ASAM's ongoing major activities include developing technical analyses in key reliability areas to address areas of concern, including frequency response, short-circuit strength, inter-area oscillation, distributed energy resource integration, and system interdependencies such as gas/electric and communications/electric, 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. Ongoing major activities also include providing industry insight on modeling improvements through a State of Modeling report; in coordination with the 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 Synchronized Measurement Subcommittee; supporting industry understanding and expertise in power plant modeling through the System Analysis and Modeling Subcommittee's Power Plant Modeling and Verification Task Force and supporting implementation of MOD-026-1 and MOD-027-1; 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; providing a report of results from a Composite Reliability Study using probabilistic or near-probabilistic methods for transmission and resources; supporting a Battery Storage Assessment using the WECC/NERC Battery Study of the Western Interconnection to determine the adequacy of battery energy injection to support frequency response and primary frequency reserve margin; and conducting advanced statistical studies in support of the Standards Efficiency Review and the SOR report.

Additionally, NERC has formed a staff group focused on BPS security and grid transformation which will develop and promote cyber security planning, operations and recovery strategies to improve the posture and performance of the BPS to cyber threats. NERC is also focusing on security initiatives specifically for the ERO Enterprise, including sharing of best practices; development of security training and participation in regional and continent-wide security exercises; and supporting NERC, the Regional Entities and industry

on matters related to the interface between reliability and security, including supporting implementation of risk mitigation priorities recommended by the RISC.

The RAPA groups work closely with other governmental and industry organizations, including the U.S. DOE, EPRI, IEEE, Institute of Nuclear Power Operations, North American Transmission Forum, North American Generator Forum, Interstate Natural Gas Association of America, Natural Gas Supply Association, Canadian Electricity Association, and International Council on Large Electric Systems.

In 2021, the RAPA groups will continue to focus on risk issues identified in the latest RISC report, and on assessments and technical reports under direction of the RSTC; including these high-risk issues: protection system misoperations; reduced situational awareness from loss of energy management systems; unacceptable inverter performance; increased amounts of distributed energy resources; reducing potential for the BES to initiate wildfires; energy adequacy; and cyber security in planning and operations.

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?
- II.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?
- 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?
- III.G. Is the activity necessary or appropriate for data collection and analysis of information regarding BPS reliability matters mandated by the Commission? (FERC Order No. 830 directed the performance of research and collection of data on geomagnetic disturbance effects.)
- 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 and §809-810.)
- 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 2021 Major Activities

The major activities of Situation Awareness are described at pages 40–42 of the 2021 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 16 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 RSTC’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 2021 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 continuing to focus on enhancements to SAFNR Version 3. During 2021, Situation Awareness will continue the implementation of the upgraded SAFNR system and development of any needed enhancements; implementing enhancements to RCIS; 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 2021 Major Activities

The major activities of Event Analysis are described at pages 44–45 of the 2021 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, and provides lessons learned to the industry. Event Analysis analyzes all voluntarily 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 system 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 ERO Enterprise human performance groups, the RSTC’s Event Analysis Subcommittee, and others.

The ongoing and new major activities for 2021 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 events (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 the annual ERO Enterprise and industry wide Electric Power Human Performance Symposium (including leading the planning and execution of the latter event). (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 2021, Event Analysis will continue to update and upgrade data collection and shortage capabilities and capacity for the Event Analysis Management System (TEAMS) commensurate with resource availability; as well as working with the PA group to improve the linkage between performance and event analysis data to enhance the ability to conduct 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 §807-808 and §810-811 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 2021 Major Activities

The major activities of the Electricity Information Sharing and Analysis Center (E-ISAC) are described at pages 48–51 of the 2021 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, including those from Canada and Mexico. Current and recent accomplishments include establishing a 24X5 watch operation and hiring experienced staff to facilitate movement to a 24X7 watch by third quarter 2020; launching a critical broadcast program to quickly disseminate information regarding imminent threats and other important notifications; increasing inbound and outbound information sharing with members and government partners; supporting numerous DOE initiatives; implementing a CRM system; increasing and diversifying membership; establishing an Industry Engagement Program and increasing and diversifying participation in security exercises and training; developing a two-year action plan to expand physical security risk identification, risk mitigation, and preparedness; entering into collaboration agreements with the Independent Electric System Operator (IESO), the Downstream Natural Gas ISAC (DNG-ISAC), and the Multi-State ISAC (MS-ISAC); and building analytical capabilities, including both cyber and physical security expertise.

The E-ISAC’s major activities for 2021 will continue to focus on three areas: (1) Engagement with industry participants – expanding and diversifying membership by leveraging industry data and the CRM platform to identify and target prospects and proactively engage with underrepresented segments of the industry, including the public power segment; and developing more robust mechanisms to obtain and act upon stakeholder feedback and improve service for members. (2) Information sharing – increasing the span, quality, and volume of information shares from members; improving and expanding automated information sharing to increase the timeliness and volume of information sharing; working with government partners to increase E-ISAC and industry access to classified information through threat briefings and collaboration; and maturing security operations processes to provide members with more timely and relevant information, including through 24X7 staffing. (3) Analysis – improving the frequency, timeliness, and quality of in-depth analysis and reports; operationalizing the objectives in the agreements with DOE, IESO, DNG-ISAC and MS-ISAC; facilitating collaboration between U.S. and Canadian government agencies in support of mutual priorities and programs; and expanding CRISP participation including through data enrichment and analysis.

The major activities of the E-ISAC satisfy the following criteria:

- 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 2021 Major Activities

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

The major activities of the Personnel Certification group are described at pages 56–58 of the 2021 Business Plan and Budget. The System Operator Certification Program promotes the reliability of the North American BPS by ensuring that employers have a workforce of system operators that meet minimum qualifications and maintain their required credentials to work in system control centers. NERC’s System Operator Certification exam tests specific knowledge of job skills and Reliability Standards, and prepares operators to handle the BPS during normal and emergency operations. Certification is maintained by completing NERC approved Credential Maintenance Program courses and activities. The Credential Maintenance Program is developed and maintained by the Credential Maintenance Working Group under the guidelines set by the PCGC. The Exam Working Group, consisting of subject matter experts from all regions of North America, is responsible for conducting extensive job analysis surveys of certified operators across the industry, which provides the basis for certification exams.

Major ongoing and new activities of the Personnel Certification group 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; reinstatement of Provider Renewal Audits; revising the Credential Maintenance Program Manual; and continued improvements to the System Operator Certification Continuing Education Database (SOCCED) to enhance user experiences.

The major activities of the Personnel Certification 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 2021 Major Activities

The major activities of Training and Education are described at pages 60–61 of the 2021 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; developing CMEP e-learning modules for ERO Enterprise auditors; developing and updating systems training products for data systems, including GADS, GADS Wind, TADS, and DADS to reflect enhancements to the data systems ; designing and developing the ERO Enterprise training website; developing a new Learning Management System as well as a content management system for the ERO Enterprise; developing promotional and training videos, e-learning modules and instructor-led training in support of releases of Align and ERO-SEL; design, development, and implementation of a management development program and other employee training; and design and development of cause analysis training.

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 2021 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 63–70 of the 2021 Business Plan and Budget.

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

Legal and Regulatory provides legal support to the organization, including management and the NERC program areas. 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 matters relating to the 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 responsibilities, 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 four areas: (1) developing ERO Enterprise new functionality, including Align, ERO-SEL, and CORES; Situation Awareness tools, including minor enhancements to the RCIS; and enhancements to data management systems (GADS, GADS Wind, TADS, DADS, the Reliability Assessment Data System (RADS), Misoperations Information Data System (MIDAS) and TEAMS); (2) ERO Enterprise application and infrastructure support, the underlying infrastructure and resources required to support existing and future ERO Enterprise applications; (3) E-ISAC; and (4) NERC infrastructure support, including productivity tools, audio-visual systems, laptops, and business continuity and security technologies.

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. A key current focus of HR and Administration is diversity and inclusion training. 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)¹⁸ 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?

¹⁸ 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?¹⁹
 - 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.

¹⁹ 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 – Consultants and Contracts Costs

Consultants & Contracts	2020 Budget	2021 Budget	Increase(Decrease)
Reliability Standards			
SBS Maintenance and Support	\$ 40,320	\$ 39,552	\$ (768)
Engineering and Standards Support	-	75,000	75,000
Total	\$ 40,320	\$ 114,552	\$ 74,232
Compliance Assurance and Organization Registration and Certification			
Compliance Assurance Program Support	\$ 50,000	\$ -	\$ (50,000)
BESnet Maintenance and Support	40,320	39,552	(768)
ERO SEL Annual Certification	-	50,000	50,000
Total	\$ 90,320	\$ 89,552	\$ (768)
Compliance Enforcement			
ERO SEL Annual Certification	\$ -	\$ 50,000	\$ 50,000
Workshop Facilitation	-	19,000	19,000
Total	\$ -	\$ 69,000	\$ 69,000
Reliability Assessment and Performance Analysis			
RADS Maintenance and Support	\$ 40,320	\$ 39,552	\$ (768)
GADS/TADS/DADS Maintenance and Support	149,250	92,955	(56,295)
MIDAS Maintenance and Support	-	85,696	85,696
Power System Analysis Support	63,000	-	(63,000)
Probabilistic and Emerging Risk and Technology Analysis	500,000	65,000	(435,000)
Research Projects	-	100,000	100,000
Workshop Facilitation	-	20,000	20,000
Total	\$ 752,570	\$ 403,203	\$ (349,367)
Event Analysis			
Event Analysis Review Support	\$ 10,000	\$ 30,000	\$ 20,000
TEAMS Maintenance and Support	-	85,590	85,590
Total	\$ 10,000	\$ 115,590	\$ 105,590
Situation Awareness			
Situation Awareness Software Support	\$ -	\$ 15,000	\$ 15,000
Total	\$ -	\$ 15,000	\$ 15,000
E-ISAC			
Security Consulting	\$ 35,000	\$ 75,000	\$ 40,000
Events and Outreach	325,000	551,500	226,500
Projects and Systems	1,052,500	878,983	(173,517)
Operations	-	494,435	494,435
Partnerships	-	400,000	400,000
CRISP	6,677,500	6,325,723	(351,777)
Total	\$ 8,090,000	\$ 8,725,641	\$ 635,641
Personnel Certification			
System Operator Testing Expenses and Examination Development	\$ 112,000	\$ 113,650	\$ 1,650
Job Task Analysis	-	50,000	50,000
Continuing Education Audit and Review Services	95,000	100,000	5,000
SOCED Database Improvements & Support	75,000	125,000	50,000
Total	\$ 282,000	\$ 388,650	\$ 106,650
Training and Education			
ERO Enterprise and Industry Learning and Development Support	\$ 110,000	\$ 170,000	\$ 60,000
Total	\$ 110,000	\$ 170,000	\$ 60,000
General and Administrative			
Communications Support	\$ 20,000	\$ 20,000	\$ -
Total	\$ 20,000	\$ 20,000	\$ -
Information Technology			
Applications Enhancements, Support, and Ongoing Operations	\$ 1,805,692	\$ 1,635,625	\$ (170,067)
Total	\$ 1,805,692	\$ 1,635,625	\$ (170,067)
Human Resources			
Training and Development	\$ 500,000	\$ 450,000	\$ (50,000)
Compensation Consulting	125,000	100,000	(25,000)
Employee, Industry, and Board Surveys	100,000	-	(100,000)
Software Support and Other Services	35,000	60,000	25,000
Total	\$ 760,000	\$ 610,000	\$ (150,000)
Finance and Accounting			
Finance and Accounting Support	\$ 175,000	\$ 125,000	\$ (50,000)
Total	\$ 175,000	\$ 125,000	\$ (50,000)
Legal & Regulatory			
Internal Audit Support	\$ 300,000	\$ 200,000	\$ (100,000)
Workshop Facilitation	-	10,000	10,000
Total	\$ 300,000	\$ 210,000	\$ (90,000)
Total Consultants & Contracts	\$ 12,435,902	\$ 12,691,813	\$ 255,911

Exhibit C – Capital Financing

The company is securing a capital financing program in July 2020 for \$8.0 million as a funding source for major software application development projects and hardware equipment that primarily benefits the ERO Enterprise. The \$8.0 million non-revolving credit facility will be available to finance certain capital expenditures made from July 2020 to December 2021. Authorized annual borrowings under the facility are limited to the amount approved by the Board and FERC in each year's BP&B. NERC plans to finance \$2.0 million of the ERO SEL project costs late in 2020. The interest rate for the credit facility is floating, and NERC projects the average interest rate during 2021 for the ERO SEL project borrowing will be 3.0%. Borrowings under the credit facility for the ERO SEL will be amortized over a five-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 2021 capital (fixed asset) budget of approximately \$2.8M, and is assuming no loan borrowing through the capital financing program in 2021.

NERC Capital Budget	2020 Budget	2021 Budget	Increase(Decrease)	
ERO Application Development	\$ 2,007,000	\$ 1,850,000	\$ (157,000)	-7.8%
Hardware (storage, servers)	685,000	660,000	(25,000)	-3.6%
Other Equipment	250,000	50,000	(200,000)	-80.0%
NERC & E-ISAC Capital Software	1,264,349	191,500	(1,072,849)	-84.9%
Leasehold Improvements	500,000	-	(500,000)	-100.0%
Total	\$ 4,706,349	\$ 2,751,500	\$ (1,954,849)	-41.5%

	Year-End Outstanding Debt Balance				
	Prior Years Actual	2020 Projected	2021 Budget	2022 Projected	2023 Projected
Prior Years (2017 - 2019 Borrowings)	\$ -	\$ -	\$ -	\$ -	\$ -
2020 Projection	-	2,000,000	1,625,000	1,243,000	850,000
2021 Budgeted	-	-	-	-	-
2022 Projected	-	-	-	-	-
2023 Projected	-	-	-	-	-
Total Outstanding Balance	\$ -	\$ 2,000,000	\$ 1,625,000	\$ 1,243,000	\$ 850,000

	Future Annual Payments for Debt Service			
	2020 Projected	2021 Budget	2022 Projected	2023 Projected
Prior Years - Principal	\$ -	\$ -	\$ -	\$ -
2020 Projection	-	375,000	382,000	393,000
2021 Budgeted	-	-	-	-
2022 Projected	-	-	-	-
2023 Projected	-	-	-	-
Interest Expense	-	55,000	48,000	37,000
Total Principal and Interest Costs	\$ -	\$ 430,000	\$ 430,000	\$ 430,000

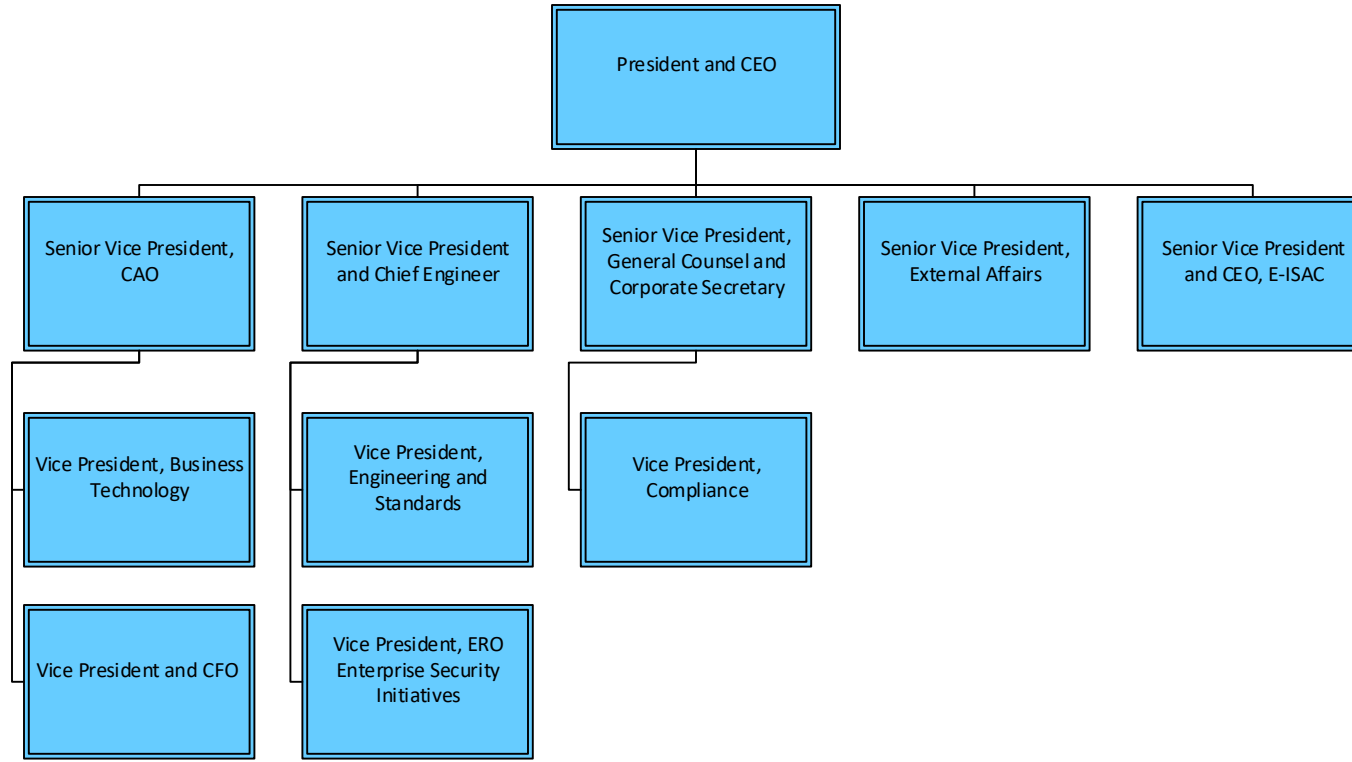
Exhibit D – Reserve Amounts

Reserves

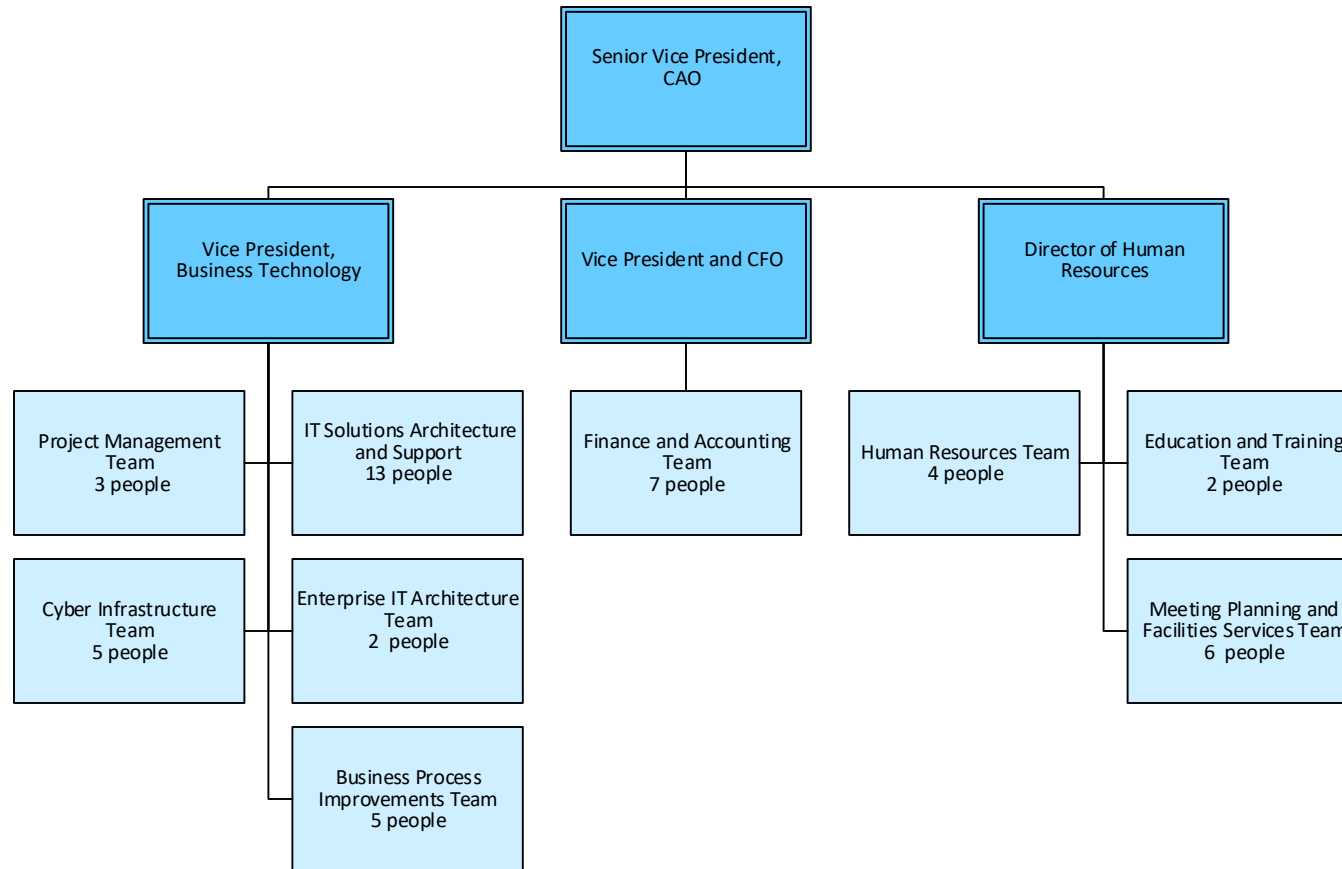
NERC is proposing an overall reserve budget of \$10.8M across all categories of reserves. This represents an increase of \$2.0M (22.8%) from the total reserve amounts included in NERC's 2020 budget. The reserve categories are as follows:

- **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 \$1.1M at December 31, 2021.
- **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 2021 System Operator Certification Reserve is budgeted at \$921k at December 31, 2021, and is 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 2021 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% of the company's total expense and fixed asset budget, except as otherwise approved by the Board after review and recommendation by the 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 \$1.8M of the Operating Contingency Reserve for funding for the 2021 budget, resulting in a projected Operating Contingency Reserve of approximately \$5.8M at December 31, 2021, which is 8.0% of total budgeted operating and fixed asset (capital) costs. The projected reserve is higher than target to provide additional reserves during uncertain economic conditions, allowing funding for the deferred projects resulting from cost savings efforts in 2020 and 2021 discussed above if needed.
- **Assessment Stabilization Reserve** – To date, this reserve has been funded entirely by previously received penalties and is projected to have a balance of \$2.5M as of January 1, 2021. This includes \$1.0M in penalty money received for the 12 months ended June 30, 2020. For purposes of the company's 2021 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 stabilize and 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.

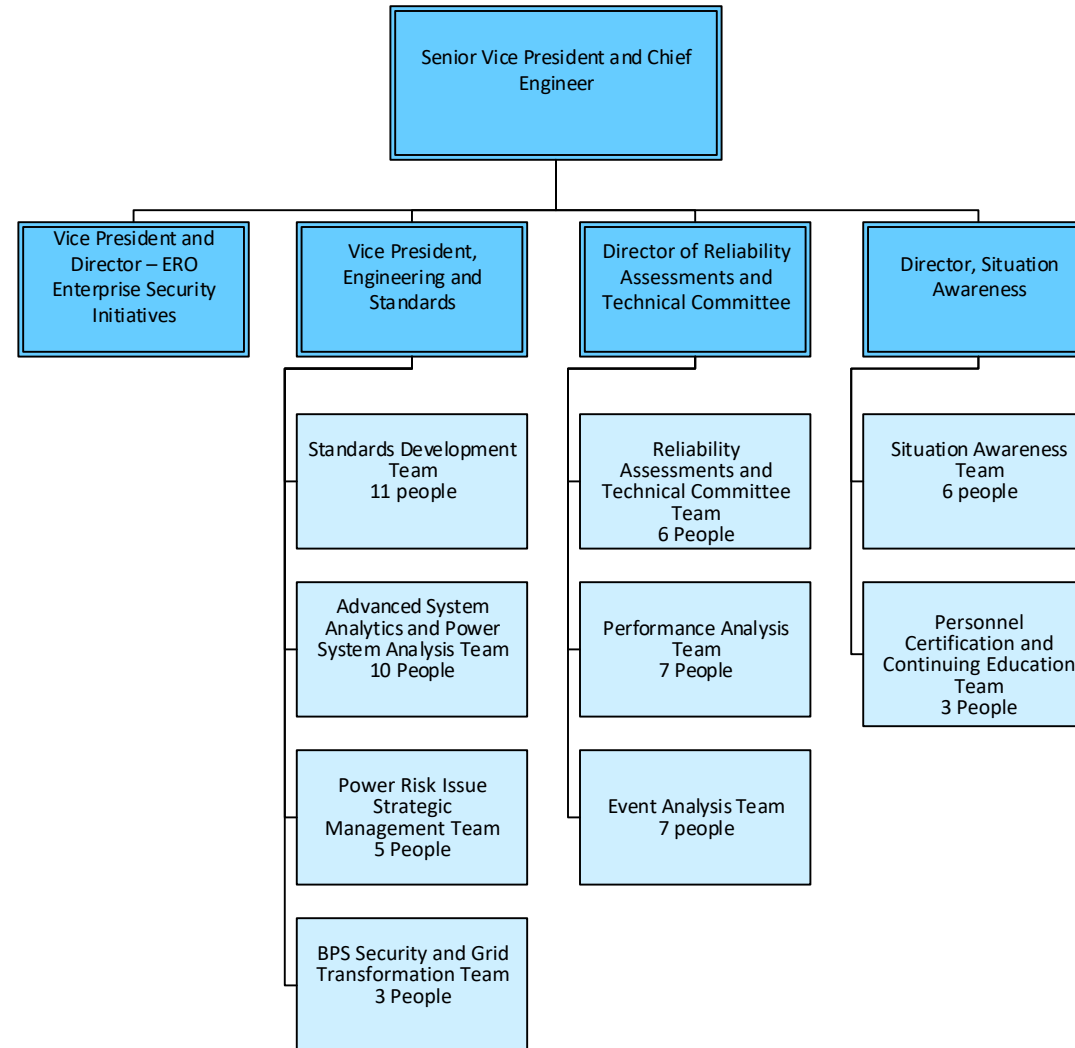
NERC Staff Organization Chart – Budget 2021



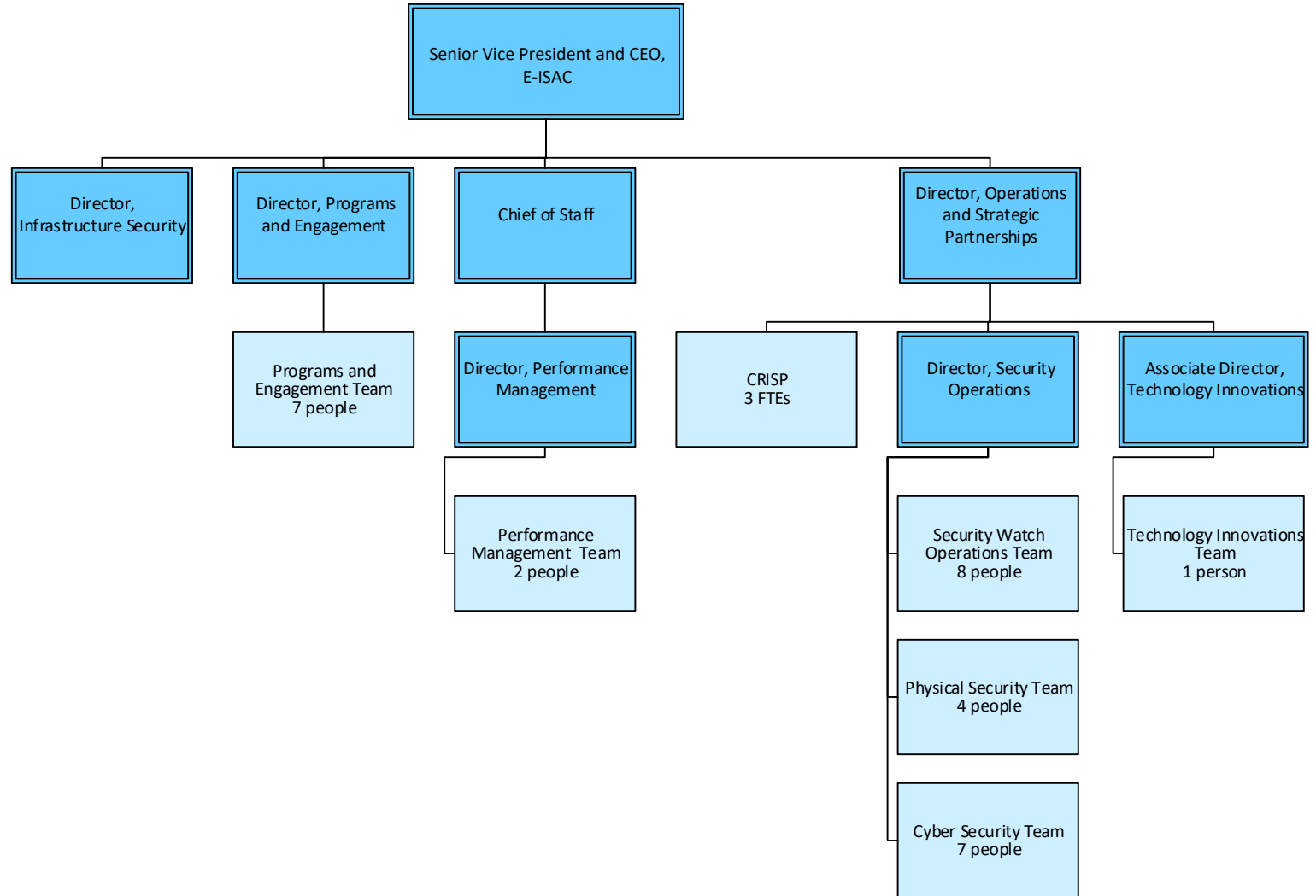
IT, Finance, HR and Admin Support



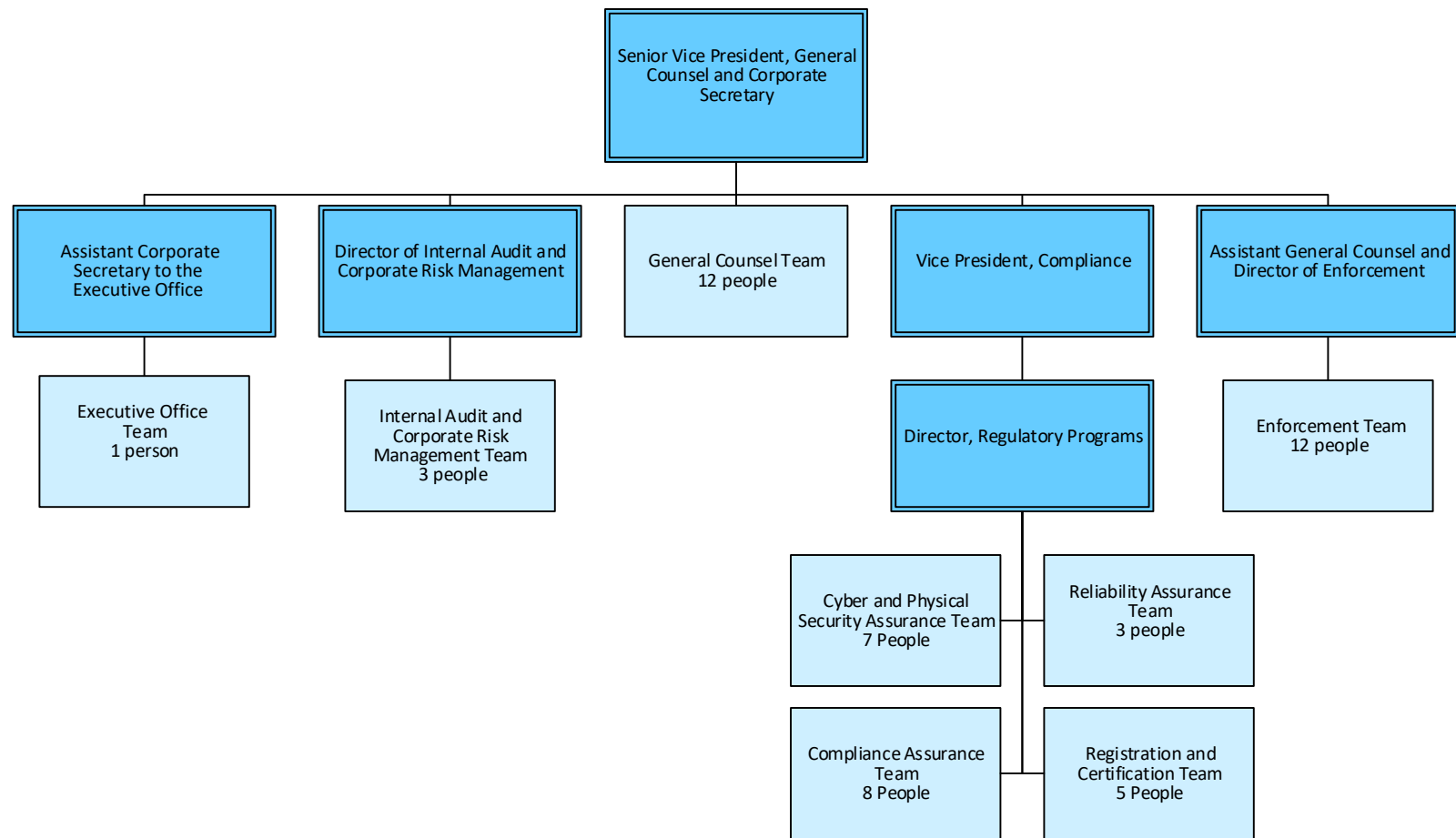
Engineering & Standards and Reliability Assessments & Performance Analysis



Electricity Information Sharing and Analysis Center



Executive, Legal and Regulatory, Internal Audit and Corporate Risk Management, and Compliance Enforcement



External Affairs

