

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

2022 Business Plan and Budget

Draft 2

July 15, 2021

**RELIABILITY | RESILIENCE | SECURITY
RELIABILITY | ACCOUNTABILITY**



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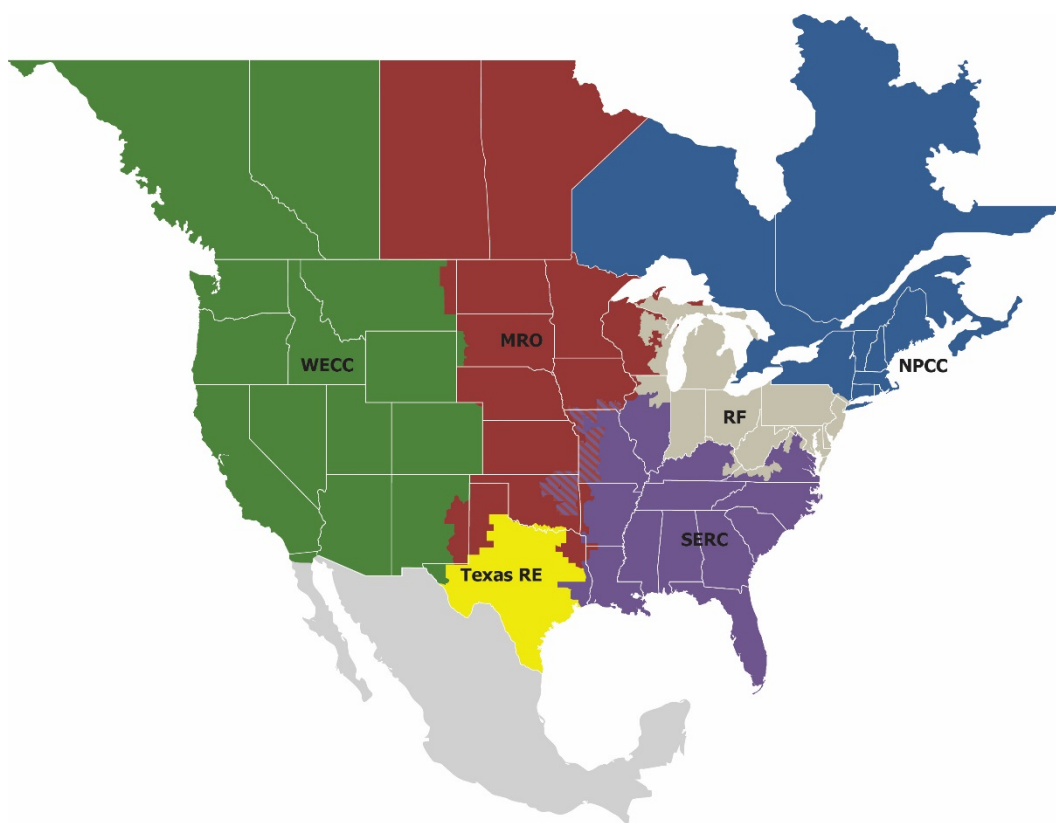
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Preface

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

The North American Electric Reliability Corporation (NERC) is a not-for-profit entity organized under the New Jersey Nonprofit Corporation Act. NERC's area of responsibility spans the continental U.S. and portions of Canada and Mexico. Entities under NERC's jurisdiction are the users, owners, and operators of the bulk power system (BPS)¹—a system that serves the needs of nearly 400 million people.

Electric Reliability Organization

The Federal Energy Regulatory Commission (FERC) certified and has oversight of NERC as the Electric Reliability Organization (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 works 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

A 12-member Board of Trustees (Board), comprised of 11 independent trustees and NERC's president and chief executive officer 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, corporate 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, including 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 Standards, compliance, and enforcement activities focus on the [Bulk Electric System \(BES\)](#), 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 the knowledge and skills to perform 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 events as well as measures ongoing trends to determine root causes, uncover lessons learned, and issue findings as recommendations, guidelines, and actions 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 the REs to perform aspects of the ERO functions described through delegation agreements. FERC has approved delegation agreements between NERC and the six REs. These agreements describe the authorities delegated and responsibilities assigned to the REs 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) situation awareness and infrastructure security. NERC expects REs 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 pursuant to Section 215. In Canada, NERC's authorities are established by MOUs and regulations previously mentioned. In this Business Plan and Budget (BP&B), *Exhibit A – Application of NERC Section 215 Criteria* summarizes the major activities NERC proposes to undertake in 2022 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 and, once approved, NERC's annual funding is provided primarily through assessments to load-serving entities. These assessments are allocated on a net-energy-for-load (NEL) basis. Equivalent funding mechanisms are provided in Canada, subject to the specific laws and regulations of each province. RE 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 REs are included in the overall NERC assessments to load-serving entities.

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).

ERO Enterprise Model and Transformation

The vision of the ERO Enterprise, which is comprised of NERC and the six REs, is a high reliable and secure North American BPS. Its mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid. The ERO Enterprise is a collaborative group of organizations with distinct roles between NERC and the REs. The ERO Enterprise strives for consistency where necessary, but recognizes that each RE addresses reliability in unique ways based on its own challenges and stakeholder needs. This model effectively blends a continent-wide scope with flexibility and responsiveness, and provides the resources to tackle emerging issues while simultaneously enabling innovative and distinctive approaches to reliability risks and challenges.

Within the ERO Enterprise model, NERC has unique responsibilities to oversee ERO program areas, set qualifications and expectations for the performance of delegated activities, and assess, train, and give feedback to corresponding RE programs. The REs have a mirrored set of responsibilities, providing input into the overall development of each program area, providing training and development to meet qualifications, and ensuring delegated functions are completed. Both NERC and the REs have an obligation to meet professional standards of independence and objectivity.

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.

Building upon these commitments, the ERO Enterprise is now engaging in a collaborative process to accelerate its transformation through diverse activities, including ERO Enterprise-wide town halls, joint leadership training sessions, and work among ERO Enterprise Collaboration Groups.



ERO Enterprise Strategic and Operational Planning

NERC and the REs 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 Board on December 12, 2019, and reaffirmed by ERO Enterprise leadership in September 2020, 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 REs 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 BP&B may reference how activities support each of the strategic focus areas.

Since risks to reliability and security are fluid and can be impacted by recent events, NERC and each RE 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 The [2021 ERO Work Plan Priorities](#) were approved by the Board in November 2020. NERC management and the Board evaluate annual work plan priorities throughout the year.

Introduction and Executive Summary

TOTAL RESOURCES (in whole dollars)				
	2022 Budget	U.S.	Canada	Mexico
Statutory FTEs	223.72			
Non-statutory FTEs	-			
Total FTEs	223.72			
Statutory Expenses	\$ 85,009,534			
Non-Statutory Expenses	\$ -			
Total Expenses	\$ 85,009,534			
Statutory Fixed Asset Additions	\$ 4,118,750			
Non-Statutory Fixed Asset Additions	\$ -			
Total Fixed Asset Additions	\$ 4,118,750			
Statutory Funding of Reserves	\$ 229,604			
Non-Statutory Funding of Reserves	\$ -			
Total Working Capital Requirement	\$ 229,604			
Net Financing Activity	\$ (1,100,000)			
Total Statutory Funding Requirement	\$ 88,257,888			
Total Non-Statutory Funding Requirement	\$ -			
Total Funding Requirement	\$ 88,257,888			
	TOTAL	US	CANADA	MEXICO
Statutory Funding Assessments	\$ 78,387,280	\$ 70,691,258	\$ 7,432,831	\$ 263,191
Non-Statutory Fees	\$ -	\$ -	\$ -	\$ -
NEL	4,469,657,994	3,944,336,587	510,636,231	14,685,176
NEL%	100.00%	88.25%	11.42%	0.33%

2022 Business Plan and Budget Summary

Budget Reporting Format and Presentation

The North American Electric Reliability Corporation (NERC) and the Regional Entities' (REs') budgets are comprised of both operating and fixed asset (capital) costs as well as net financing activity (if applicable). 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 and financing activity, are shown on a Statement of Activities and Fixed Asset Expenditures report (SOA report) in this business plan and budget (BP&B) document, which is provided at both the total entity and departmental levels. These reports include funding, expenses, and financing activity for the current budget year and prior budget year to show year-over-year changes.

Overview of 2022 Budget and Funding Requirements

NERC's 2022 expense and fixed asset budget, including financing activity, is approximately \$88.0M, which is an increase of approximately \$5.1M (6.2%) from the 2021 budget. Total expenses are increasing approximately \$5.7M (7.2%) over 2021. The total fixed asset budget is approximately \$4.1M, an increase of \$1.4M (49.7%) from 2021, which includes the acquisition of \$2.1M in capital lease assets (primarily for the replacement of existing leased audio visual equipment), offset by corresponding lease proceeds reflected in financing activity. Future annual lease payments are anticipated to remain near current levels, with a minimal net impact on the annual budget. Approximately \$9.0M (10.2%) of NERC's 2022 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's proposed 2022 assessment is approximately \$78.4M, which is an increase of approximately \$6.4M (8.9%) from the 2021 assessment. Factors contributing to the difference between the proposed 2022 budget and assessment include assumptions regarding other funding sources, such as third-party funding for CRISP and fees collected to fund the System Operator Certification program. Additionally, the allocation of the assessment among U.S. and Canadian entities will reflect the final determination of credits for certain costs for Canadian entities pursuant to *NERC's Expanded Policy on Allocation of Certain Compliance and Enforcement Costs*, which was included in NERC's filing to the Federal Energy Regulatory Commission (FERC) requesting acceptance of the NERC 2009 BP&B.⁷

NERC Rules of Procedure (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 of Trustees (Board) and FERC approved the creation of the Assessment Stabilization Reserve (ASR), 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 may be 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. The 2021 assessment did not reflect a release of funds from the ASR due to cost savings efforts to maintain a relatively flat budget, as well as the use of Operating Contingency Reserves (OCR) to fund final year costs associated with the development of the Compliance Monitoring and Enforcement Program (CMEP) Align tool. NERC did not collect any penalties during the 12 months ended June 30, 2021, and is not proposing to deposit any funds into the ASR. Further, NERC management is not recommending a release of funds from the ASR to offset 2022 assessments in order to preserve these funds to stabilize assessments in future years.

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

Key 2022 Budget Considerations

NERC was able to achieve a virtually flat 2021 budget and assessment to provide relief to industry during the uncertainty of the pandemic. This was accomplished by (1) not adding any full-time equivalents (FTEs); (2) reducing meetings and travel expenses (assuming continued pandemic conditions); (3) narrowing the scope of or deferring, but not eliminating, consulting, contract, and professional services resources and certain system enhancements; and (4) using OCR to fund the final year development costs for Align of \$1.8M. Additionally, cost savings efforts in 2020 allowed NERC to increase its OCR and cash fund Align development costs originally budgeted to be financed and cash fund a portion (\$1.8M) of the initial \$3.8M investment for the CMEP ERO Secure Evidence Locker (SEL) tool in 2020, which reduced future year debt service requirements.

From supply chain compromises to several cyber breaches and cold and record heat weather-related events, there has been an alarming increase in reliability and security risks to the bulk power system (BPS). While NERC remains sensitive to the economic uncertainties facing the industry as we navigate and eventually emerge from the COVID-19 pandemic, there is the need to thoughtfully balance current fiscal concerns with the extraordinary costs to nearly 400 million North American citizens if adequate and preventive measures are not taken in response to these risks. In support of the ERO Enterprise's mission to assure the effective and efficient reduction of risks to the reliability and security of the grid, NERC's 2022 BP&B reflects immediate needs to continue to reliably and securely support the BPS as well as a measured return to items deferred in 2021.

Priority Risks to Reliability and Security

The 2022 budget ensures NERC has adequate resources to focus on priority risks, including BPS and cyber security, fuel and energy assurance, and weatherization. This includes personnel and contract support in the Reliability Standards, Reliability Assessment and Performance Analysis (RAPA), Electricity Information Sharing and Analysis Center (E-ISAC), and CRISP areas, as well as data management tool enhancements. The budget also ensures NERC is properly resourced with respect to its own internal cyber security and system administration needs.

Internal Audit Support

The 2022 budget reflects necessary support to complete FERC-mandated CMEP audits of the REs, as well as audits related to ERO Enterprise IT security and post-implementation of Align.

Meetings and Travel

After a decrease of \$1.1M in this expense category for the 2021 budget due to the assumption of continued pandemic conditions, NERC is planning for a partial return to in-person meetings and related travel in 2022. This includes certain in-person meetings for larger-scale groups, including but not limited to the Board, Member Representatives Committee (MRC), Reliability and Security Technical Committee (RSTC), and ERO Enterprise leadership. Smaller stakeholder and ERO Enterprise meetings will primarily continue to realize the efficiencies of virtual meeting formats.

Office Leases

The successful demonstration of remote work capabilities during the pandemic and upcoming office lease expirations or early termination options provide NERC an opportunity to transition to a shared in-office workplace model with the goal of retaining the efficiencies of a more flexible remote work policy and reducing annual lease costs without impacting the effectiveness of operations, including stakeholder collaboration. In collaboration with NERC team members and the MRC, NERC has been working on long-term lease strategies for its two office locations. The 2022 budget reflects savings over 2021 based on new lease assumptions for the Washington, D.C. office while assuming the existing rent schedule for the Atlanta office as options continue to be explored for that facility.

Strategic Workforce Management

NERC is a knowledge-based organization. As the challenges to the reliability and security of the BPS evolve at the same time as the competition for talent increases, NERC's need to improve its ability to retain, engage, and attract top talent is critical. Moving to a more remote workforce, reducing the office footprint, and managing employee wellbeing through the pandemic accelerated the urgency to shift from a tactically focused people management model to a more sustainable people-centered organization. NERC is implementing a "People Strategy" designed to create an employee experience that meets the needs of an evolving workforce. This three-year plan brings core Human Resources (HR) functions in-house and leverages external support for specific expertise. New FTEs included in the 2022 budget in support of this plan are being offset by the repurposing of open positions within the company.

The return of investments related to 2021 deferrals as well as the need for adequate resources to meet work plan priorities and important strategic objectives are contributing to an increased demand on the NERC 2022 budget. In support of the proposed 2022 budget, assessment, and FTEs, NERC notes the following key historical information and considerations:

- Average annual total budgeted FTE growth since 2013, including proposed 2022 FTEs, is 2.1%.
- The total number of staff, excluding E-ISAC and CRISP, IT, and RAPA, is less in 2022 than in 2013.
- Total budget, assessment, and FTEs are lower than pre-pandemic projections for 2022 in the 2020 BP&B. Notably, these numbers are lower while including approximately \$1.4M in annual costs for the ERO SEL that were not part of the 2022 projection in the 2020 BP&B.⁸
- NERC's two-year (2021 and 2022) average budget and assessment increase is 3.2% and 4.5%, respectively.

Key 2022 Budget Assumptions

Personnel

Personnel costs are increasing \$3.8M (7.8%) from 2021. This includes a total of 223.7 FTEs, which incorporates a 6.0% reduction (vacancy rate) for attrition and hiring delays, which is the same rate applied in previous years. NERC is proposing to add 14 new positions, offset by a reallocation of 3 open positions, resulting in a net increase to headcount of 11 (10.3 FTEs). These positions support the following focus areas and strategies (FTEs by department are discussed later in this section):

- Reliability Standards – 2 positions
 - Critical Infrastructure Protection (CIP) standards revisions necessitated by the escalating threat environment and recent supply chain compromises
 - RSTC-identified changes to operations and planning standards
 - Increased activity related to the overall rapid transformation of the grid, especially in the areas of renewable resources and extreme events
- Analytics – 2 positions
 - BPS security, including cyber awareness and supply chain compromise, and incorporation of cyber security into system models
 - Risks related to transformation of the grid, including energy and fuel assurance and weatherization

⁸ Annual costs include debt service, software licenses and maintenance, certification, and an incremental FTE.

- E-ISAC and CRISP – 5 positions
 - Strengthening analytical capabilities and leveraging of threat intelligence
 - Identifying and sharing operational technology (OT) risks and mitigation strategies
 - Overall execution of the long-term strategy and related initiatives, such as coordination with the downstream natural gas sector
- Internal cyber security and system administration – 2 positions
 - Managing cyber threats increasing in sophistication and frequency
 - Supporting ERO Enterprise applications and infrastructure
- Strategic workforce management (People Strategy) – 3 positions
 - Retaining, engaging, and attracting top talent
 - Shifting to a more remote workforce and managing employee wellbeing
 - Bringing core functions in-house to create a more sustainable organization

The 2022 personnel budget reflects market-based compensation for personnel and medical and dental benefit plan costs. This includes (1) a 2.5% increase over actual 2021 base salaries for merit adjustments and up to 0.5% for equity and market adjustments,⁹ which is the same assumption as in the 2021 budget, and (2) anticipated increases for medical and dental benefit plan costs, which are lower than previous year estimates due to an improved loss ratio trend. 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 2022. A breakdown of Personnel expenses is provided in Table B4 – Personnel.

Meetings and Travel

Meetings and travel expenses are increasing \$406k (18.5%) from 2021. NERC is planning for a partial return to in-person meetings and related travel in 2022, particularly for the Board, MRC, RSTC, and ERO Enterprise leadership, while continuing to leverage efficiencies of virtual meeting formats for smaller groups. The 2022 budget for meetings and travel expenses is 22% lower than the pre-pandemic 2020 budget for these expenses. A breakdown of Meeting and Travel expenses is provided in Table B5 – Meetings & Travel.

Consulting, Contractors, and Professional Services

Consultants and contracts costs are increasing \$983k (7.7%) and Professional Services expenses are increasing \$303k (13.9%) from 2021. As mentioned above, in 2021 NERC narrowed the scope of or deferred these resources during the economic uncertainties of the pandemic. This included consulting and contract work in the RAPA area, as well as reduced consulting, contractor, and professional services support for Administrative Programs. The 2022 budget reflects a measured return to this work, as well as funding for current needs, including support for Internal Audit and the People Strategy discussed above. An overview of budgeted expenses for professional services and consultants and contracts are shown on Table B-9 – Professional Services and in *Exhibit B – Consultants and Contracts Costs*, respectively.

⁹ This is a placeholder amount; actual increases will be evaluated by the Board at year-end.

Office Costs

Office costs are increasing \$563k (5.5%) from 2021. The majority of this increase is for software licenses and support for CRISP OT and analytics (much of which is participant-funded) and annual escalation cost estimates for software used by the program areas and IT, with an increased focus on enhancing NERC's cybersecurity posture. Office Costs by category are shown on Table B8 – Office Costs.

Office Rent

As discussed above, NERC has been evaluating lease options for both its Atlanta and Washington, D.C. offices. The 2022 budget reflects savings over 2021 based on new lease assumptions for the Washington, D.C. office while assuming the existing rent schedule for the Atlanta office as options continue to be explored for that facility. See Table B-7 – Rent for current assumptions.

Fixed Asset (Capital) Budget and Capital Financing

NERC's fixed asset budget includes IT equipment and servers, including leased equipment (capital lease assets), and capital software. The 2022 fixed asset budget is approximately \$4.1M, an increase of \$1.4M (49.7%) from 2021. This includes \$2.0M for a new audio visual equipment lease and \$100k for laptop leases, which are offset by corresponding lease proceeds reflected in financing activity. Excluding these capital lease assets, NERC's fixed asset budget is \$2.0M, which represents a decrease of \$823k (23.9%) from 2021. This decrease is primarily due to the planned completion of development for Align in 2021, for which \$1.8M was budgeted.¹⁰ This decrease is offset by funding for ongoing enhancements and maintenance for Align and the ERO SEL, and a return to investment in NERC's suite of data management tools after the 2021 deferrals discussed above, which include (1) data management systems supporting the technical analysis areas, such as generating ability data (including solar and wind), transmission availability data, and data to inform reliability assessments and event analysis; and (2) situation awareness tools. These systems are discussed within the applicable program areas of Section A. A breakdown by fixed asset category is provided in Table B-12 – Fixed Assets.

NERC's capital financing program was established to fund certain ERO Enterprise software projects to help spread these investment costs over multiple years and reduce the volatility of annual assessments. The 2022 budget currently assumes no loan borrowing through the capital financing program, and \$375k of loan principal payments and \$55k of interest payments for the borrowing for the ERO SEL. Further information regarding capital financing can be found in *Exhibit C – Capital Financing*. As noted above, the 2022 budget also assumes \$2.1M for financing lease proceeds for audio visual equipment and laptops, as well as approximately \$625k of financing lease payments. 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 2022 versus 2021 total budget comparison by program area. The amounts reflect all direct and indirect departmental costs, including fixed asset expenditures. Costs incurred for Administrative Programs (overhead) 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. The Administrative Programs encompass a number of necessary support functions, including IT, Legal, Internal Audit, Corporate Risk Management (CRM), Finance and Accounting, and HR. It also includes General and Administrative (G&A) functions, which include the Chief Executive Officer, the Chief Engineer, the Chief Administrative Officer, and their support staff, as well as External Affairs staff.

¹⁰ The \$1.8M was part of the 2021 budget but funded fully by OCR and therefore did not affect 2021 assessments.

2022 versus 2021 Total Budget by Program

Total Budget	2021 Budget	2022 Budget	Increase (Decrease)	
Reliability Standards	\$ 7,856,641	\$ 9,430,925	\$ 1,574,284	20.0%
CMEP	21,014,178	19,509,934	(1,504,243)	-7.2%
RAPA	12,631,436	14,775,082	2,143,646	17.0%
Event Analysis	4,287,213	3,782,150	(505,063)	-11.8%
Situation Awareness	4,450,989	5,076,614	625,625	14.1%
Personnel Certification	1,736,522	1,827,619	91,097	5.2%
Training and Education	1,084,523	1,025,014	(59,510)	-5.5%
NERC Budget, excluding E-ISAC	\$ 53,061,501	\$ 55,427,337	\$ 2,365,837	4.5%
E-ISAC (non-CRISP)	\$ 21,625,531	\$ 23,637,696	\$ 2,012,165	9.3%
E-ISAC (CRISP)	8,196,207	8,963,250	767,044	9.4%
Total E-ISAC Budget	\$ 29,821,738	\$ 32,600,947	\$ 2,779,209	9.3%
Total Budget	\$ 82,883,239	\$ 88,028,284	\$ 5,145,045	6.2%

The primary areas of increase are in Reliability Standards, RAPA, Situation Awareness, E-ISAC, and CRISP. These increases are mainly due to the addition of incremental or reallocated FTEs (see the FTEs by department section below) which also results in higher allocations of indirect costs and fixed assets from the Administrative Programs. The increase in RAPA is also due to the resumption of reliability and technical analysis consulting work and data management system enhancements, and the increases in Situation Awareness and CRISP are also related to additional software costs, all of which are discussed above.

The primary areas of decrease are in Event Analysis and the CMEP, which includes the Compliance Assurance, Compliance Enforcement, and Organization Certification and Registration departments. These decreases are predominately due to a reallocation of FTEs to other program areas, which also results in lower allocations of indirect costs and fixed assets from the Administrative Programs. See further discussion below.

The following table presents a 2022 versus 2021 comparison of budgeted FTEs by department, reflecting 2022 additions, reallocations, 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 or during a portion of the year, converted to a full-time basis. See Appendix 1 for a 2022 organization chart.

2022 versus 2021 FTEs by Department

FTEs*	2021 Budget	2022 Budget	Increase (Decrease)
Reliability Standards	16.92	19.74	2.82
CMEP	35.72	33.84	(1.88)
RAPA	25.38	26.32	0.94
Event Analysis	7.52	6.58	(0.94)
Situation Awareness	6.58	7.52	0.94
Personnel Certification	2.82	2.82	-
Training and Education	1.88	1.88	-
Administrative Programs	77.08	81.08	4.00
NERC FTEs, excluding E-ISAC	173.90	179.78	5.88
E-ISAC (non-CRISP)	36.66	40.01	3.35
E-ISAC (CRISP)	2.82	3.94	1.12
Total E-ISAC FTEs	39.48	43.95	4.47
Total FTEs	213.38	223.72	10.34

**Reflects 2022 additions and transfers between departments, anticipated timing of 2022 hires, and assumes 6% attrition in all programs*

In support key focus areas and strategies, in 2022 NERC is adding 14 new positions (see related discussion on pages 9 and 10) offset by a repurposing of 3 open positions, resulting in a net increase of 11 headcount (10.3 FTEs). The table above reflects these positions as well as other reallocations as follows:

- Reliability Standards – The increase of 2.82 FTEs reflects the addition of one reallocated open position from RAPA and the addition of two positions for increased Reliability Standards activity.
- CMEP – Reflecting continued program maturation, the decrease of 1.88 FTEs is due to the reallocation of two open positions to Administrative Programs in support of the People Strategy.
- RAPA – The increase of 0.94 FTEs reflects the addition of two positions for reliability and security analytics and modeling, offset by a reallocation of one open position to Reliability Standards.
- Event Analysis and Situation Awareness – The decrease of one FTE from Event Analysis and the corresponding increase in Situation Awareness is related to a repurposing of a position that was previously budgeted in the Event Analysis department for organizational structure purposes; the core resources for and investments in the Event Analysis program remain the same as 2021.
- E-ISAC and CRISP – The increase of 4.47 FTEs reflects the addition of four positions in E-ISAC for analytics and overall strategy execution, and one in CRISP for OT program support. This is offset by the reallocation of one open position from E-ISAC to Administrative Programs in support of the People Strategy. The net FTE number also reflects a partial direct allocation of a project manager in IT in lieu of a contract resource.
- Administrative Programs – The increase of 4.00 FTEs reflects the addition of five positions. This includes two in IT for cybersecurity and system administration, offset by the partial direct allocation of a project manager to E-ISAC and CRISP, as well as two additional positions in HR and one in External Affairs in support of the People Strategy. The new FTE resources in support of the People Strategy are being offset by the repurposing of open positions within the company.

Reserves

NERC is proposing an overall reserve budget of \$11.5M across all categories of reserves. This represents an increase of \$636k (5.9%) from the total reserve amounts included in NERC's 2021 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, 2022.
- **System Operator Certification Reserve** – Includes surplus funding from operator certification fees that are above incurred expenses and shall be used solely to support operator certification needs. The 2022 System Operator Certification Reserve is budgeted at \$710k at December 31, 2022, 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 \$800k in the 2022 budget.
- **OCR** – 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 OCR requires a reserve target of 3.5–7.0% of the company's total expense and fixed asset budget (less CRISP and System Operator Certification budgets), except as otherwise approved by the Board after review and recommendation by the Board's 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 projecting an OCR of approximately \$6.3M at December 31, 2022, which is 8.1% of budgeted operating and fixed asset costs, and is slightly higher than the target maximum range of the current policy. NERC believes that maintaining a slightly higher OCR than policy target range is prudent to maintain adequate reserve levels to accommodate potential one-time costs associated with any Atlanta office lease change decisions. The current policy target range will be evaluated further with the FAC and Board in 2021.
- **ASR** – To date, this reserve has been funded entirely by previously received penalties and is projected to have a balance of \$2.5M as of December 31, 2022. NERC did not collect any penalties during the 12 months ended June 30, 2021, and is not proposing to deposit any funds into the ASR. Further, NERC management is not recommending a release of funds from the ASR to offset 2022 assessments in order to preserve these funds to stabilize assessments in future years.

The following table is a statement of activities and fixed asset expenditures comparing the 2021 budget, 2021 projection, and 2022 budget.

Introduction and Executive Summary

Statement of Activities and Fixed Asset Additions 2021 Budget & Projection, and 2022 Budget								
STATUTORY								
	2021	2021	Variance	2022	Variance	% Inc	2022 Budget	Variance to
	Budget	Projection	2021 Projection v 2021 Budget Over(Under)	Budget	2022 Budget v 2021 Budget Over(Under)	Over	2022 Budget Prior Draft	Prior Draft Over(Under)
Funding								
NERC Funding								
NERC Assessments	\$ 72,011,373	\$ 72,011,374	\$ -	\$ 78,387,280	\$ 6,375,906		\$ 79,149,191	\$ (761,912)
Penalties Released*	-	-	-	-	-		-	-
Total NERC Funding	\$ 72,011,373	\$ 72,011,374	\$ -	\$ 78,387,280	\$ 6,375,906	8.9%	\$ 79,149,191	\$ (761,912)
Third-Party Funding (CRISP)	\$ 7,064,343	\$ 7,062,839	\$ (1,504)	\$ 7,917,385	\$ 853,042		\$ 7,503,963	\$ 413,422
Testing, Renewal, & Continuing Ed Fees	1,801,634	1,556,737	(244,897)	1,756,723	(44,911)		1,756,723	-
Services & Software	60,000	60,000	-	60,000	-		60,000	-
Miscellaneous	-	60,500	60,500	60,000	60,000		60,000	-
Interest & Investment Income	218,200	22,000	(196,200)	76,500	(141,700)		76,500	-
Total Funding (A)	\$ 81,155,551	\$ 80,773,450	\$ (382,101)	\$ 88,257,888	\$ 7,102,337	8.8%	\$ 88,606,377	\$ (348,490)
Expenses								
Personnel Expenses								
Salaries	\$ 36,636,628	\$ 37,219,426	\$ 582,798	\$ 39,557,528	\$ 2,920,900		\$ 39,725,323	\$ (167,796)
Payroll Taxes	2,122,568	2,171,877	49,308	2,310,836	188,267		2,315,465	(4,630)
Benefits	5,703,799	5,283,304	(420,495)	6,038,487	334,688		6,069,424	(30,937)
Retirement Costs	3,726,439	3,831,436	104,997	4,059,585	333,146		4,076,587	(17,002)
Total Personnel Expenses	\$ 48,189,435	\$ 48,506,043	\$ 316,608	\$ 51,966,435	\$ 3,777,000	7.8%	\$ 52,186,800	\$ (220,365)
Meeting & Travel Expenses								
Meetings & Conference Calls	\$ 890,751	\$ 557,300	\$ (333,451)	\$ 1,132,550	\$ 241,799		\$ 1,142,233	\$ (9,683)
Travel	1,310,997	468,213	(842,784)	1,475,500	164,503		1,469,500	6,000
Total Meeting & Travel Expenses	\$ 2,201,748	\$ 1,025,513	\$ (1,176,235)	\$ 2,608,050	\$ 406,302	18.5%	\$ 2,611,733	\$ (3,683)
Operating Expenses, excluding Depreciation								
Consultants & Contracts	\$ 12,691,813	\$ 13,984,289	\$ 1,292,476	\$ 13,674,800	\$ 982,987		\$ 13,727,252	\$ (52,452)
Office Rent	3,603,442	3,603,442	-	3,243,277	(360,165)		3,644,747	(401,470)
Office Costs	10,185,789	10,515,967	330,178	10,749,222	563,433		10,731,000	18,222
Professional Services	2,185,100	2,376,957	191,857	2,488,100	303,000		2,448,100	40,000
Miscellaneous	100,150	104,150	4,000	144,650	44,500		144,650	-
Total Operating Expenses, excluding Depreciation	\$ 28,766,294	\$ 30,584,805	\$ 1,818,511	\$ 30,300,049	\$ 1,533,755	5.3%	\$ 30,695,749	\$ (395,700)
Total Direct Expenses	\$ 79,157,477	\$ 80,116,361	\$ 958,885	\$ 84,874,534	\$ 5,717,057	7.2%	\$ 85,494,281	\$ (619,747)
Indirect Expenses	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
Other Non-Operating Expenses	\$ 129,661	\$ 129,661	\$ -	\$ 135,000	\$ 5,339	4.1%	\$ 135,000	\$ -
Total Expenses (B)	\$ 79,287,138	\$ 80,246,022	\$ 958,885	\$ 85,009,534	\$ 5,722,396	7.2%	\$ 85,629,281	\$ (619,747)
Change in Net Assets (=A-B)	\$ 1,868,413	\$ 527,428	\$ (1,340,985)	\$ 3,248,354	\$ 1,379,941		\$ 2,977,096	\$ 271,258
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 2,751,500	\$ 3,376,250	\$ 624,750	\$ 4,118,750	\$ 1,367,250	49.7%	\$ 2,143,750	\$ 1,975,000
Financing Activity								
Loan or Financing Lease - Borrowing (-)	(100,000)	(800,000)	(700,000)	(2,100,000)	(2,000,000)		(100,000)	(2,000,000)
Loan or Financing Lease - Principal Payments (+)	944,601	944,601	-	1,000,000	55,399		1,000,000	-
Net Financing Activity (D)	\$ 844,601	\$ 144,601	\$ (700,000)	\$ (1,100,000)	\$ (1,944,601)	-230.2%	\$ 900,000	\$ (2,000,000)
Total Budget (=B+C+D)	\$ 82,883,239	\$ 83,766,873	\$ 883,635	\$ 88,028,284	\$ 5,145,045	6.2%	\$ 88,673,031	\$ (644,747)
Change in Working Capital (=A-B-C-D)	\$ (1,727,688)	\$ (2,993,423)	\$ (1,265,735)	\$ 229,604	\$ 1,957,292		\$ (66,654)	\$ 296,258
FTEs	213.38	210.35	(3.03)	223.72	10.34	4.8%	223.72	0.00

*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 2023 and 2024

NERC is currently developing preliminary operating and fixed asset projections for 2023 and 2024. Significant assumptions considered in preparing these projections include:

- Salary and benefit increases consistent with 2022 assumptions;
- Gradual increase in meetings and travel expenses that are still below pre-pandemic levels;
- Continued Washington, D.C. office lease savings while assuming the existing rent schedule for the Atlanta office as options continue to be explored for that facility;
- Debt service repayment obligations in connection with the company's Capital Financing Program, including financing for the ERO SEL; and
- Continued resource additions and enhancements to data management systems as a result of 2020 and 2021 deferrals and to adequately address priority BPS reliability and security risks.

While NERC was able to reduce certain human resource and technology investments in the 2020 and 2021 periods, this was a deferral of short-term cost impacts and not an elimination of these strategies. Since the bulk of NERC's budget consists of people and technology, continued investments in human resources and software tools are necessary to support of NERC's strategic goals and mission. NERC's preliminary 2023 budget projection is \$92.5M (5.1% increase over 2022) and its assessment projection is \$82.7M (5.5% increase over 2022). In 2024, the budget projection is \$97.2M (5.1% increase over 2023) and the assessment projection is \$86.9M (5.1% increase over 2023). As with all future year projections, these numbers only reflect calculations based on management's preliminary discussions (i.e., the projections are not Board-endorsed or approved) and the assessment projections do not consider the use of reserve funds to help mitigate assessment increases, a decision that would be made during the 2023 and 2024 BP&B processes. Resource needs are also under continuous strategic review, and technology projects are subject to scoping, requirements building, and business case development as applicable.

As mentioned earlier, NERC continues to be sensitive to the economic uncertainties facing the sector resulting from the COVID-19 pandemic. NERC commits to thoughtfully balancing fiscal concerns with the evolution of BPS risk into different arenas, judicious use of reserves to manage assessment increases, ongoing assessment of the effectiveness and efficiency of its program areas, and ensuring that its budgets for 2023 and 2024 reflect activities that focus on the highest risks to reliability and security.

Introduction and Executive Summary

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

	2022 Budget	2023 Projection	\$ Change 23 vs 22	% Change 23 vs 22	2024 Projection	\$ Change 24 vs 23	% Change 24 vs 23
Funding							
ERO Funding							
NERC Assessments	\$ 78,387,280	\$ 82,676,270	\$ 4,288,990	5.5%	\$ 86,910,239	\$ 4,233,969	5.1%
Penalties Released	-	-	-	-	-	-	-
Total NERC Funding	\$ 78,387,280	\$ 82,676,270	\$ 4,288,990	5.5%	\$ 86,910,239	\$ 4,233,969	5.1%
Third-Party Funding							
Testing Fees	\$ 7,917,385	\$ 7,979,206	\$ 61,821	0.8%	\$ 8,381,748	\$ 402,542	5.0%
Services & Software	1,756,723	1,671,250	(85,473)	-4.9%	1,783,325	112,075	6.7%
Miscellaneous	60,000	60,000	-	0.0%	60,000	-	0.0%
Interest & Investment Income	60,000	60,000	-	0.0%	60,000	-	0.0%
	76,500	111,500	35,000	45.8%	111,500	-	0.0%
Total Funding (A)	\$ 88,257,888	\$ 92,558,226	\$ 4,300,338	4.9%	\$ 97,306,812	\$ 4,748,587	5.1%
Expenses							
Personnel Expenses							
Salaries	\$ 39,557,528	\$ 42,150,150	\$ 2,592,622	6.6%	\$ 44,668,504	\$ 2,518,354	6.0%
Payroll Taxes	2,310,836	2,428,007	117,171	5.1%	2,535,613	107,606	4.4%
Benefits	6,038,487	6,616,473	577,986	9.6%	7,157,732	541,259	8.2%
Retirement Costs	4,059,585	4,330,250	270,665	6.7%	4,592,939	262,689	6.1%
Total Personnel Expenses	\$ 51,966,435	\$ 55,524,880	\$ 3,558,445	6.8%	\$ 58,954,788	\$ 3,429,908	6.2%
Meetings & Travel Expenses							
Meetings & Conference Calls	\$ 1,132,550	\$ 1,155,550	\$ 23,000	2.0%	\$ 1,170,000	\$ 14,450	1.3%
Travel	1,475,500	1,631,500	156,000	10.6%	1,730,500	99,000	6.1%
Total Meetings and Travel Expenses	\$ 2,608,050	\$ 2,787,050	\$ 179,000	6.9%	\$ 2,900,500	\$ 113,450	4.1%
Operating Expenses, excluding Depreciation							
Consultants & Contracts	\$ 13,674,800	\$ 13,396,803	\$ (277,997)	-2.0%	\$ 13,798,229	\$ 401,426	3.0%
Office Rent	3,243,277	3,331,170	87,893	2.7%	3,497,840	166,670	5.0%
Office Costs	10,749,222	11,135,179	385,957	3.6%	11,571,569	436,390	3.9%
Professional Services	2,488,100	2,580,100	92,000	3.7%	2,762,100	182,000	7.1%
Miscellaneous	144,650	144,850	200	0.1%	144,750	(100)	-0.1%
Total Operating Expenses, excluding Depreciation	\$ 30,300,049	\$ 30,588,102	\$ 288,053	1.0%	\$ 31,774,488	\$ 1,186,386	3.9%
Total Direct Expenses	\$ 84,874,534	\$ 88,900,032	\$ 4,025,498	4.7%	\$ 93,629,776	\$ 4,729,744	5.3%
Indirect Expenses	\$ -	\$ -	\$ -	0.0%	\$ -	\$ -	0.0%
Other Non-Operating Expenses	\$ 135,000	\$ 135,000	\$ -	0.0%	\$ 135,000	\$ -	0.0%
Total Expenses (B)	\$ 85,009,534	\$ 89,035,032	\$ 4,025,498	4.7%	\$ 93,764,776	\$ 4,729,744	5.3%
Change in Net Assets (=A-B)	\$ 3,248,354	\$ 3,523,194	\$ 274,840	8.5%	\$ 3,542,037	\$ 18,843	0.5%
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 4,118,750	\$ 2,569,000	\$ (1,549,750)	-37.6%	\$ 2,559,000	\$ (10,000)	-0.4%
Financing Activity							
Loan or Financing Lease - Borrowing (-)	(2,100,000)	(100,000)	2,000,000	-95.2%	(100,000)	-	0.0%
Loan or Financing Lease - Principal Payments (+)	1,000,000	1,000,000	-	0.0%	1,000,000	-	0.0%
Net Financing Activity (D)	\$ (1,100,000)	\$ 900,000	\$ 2,000,000	-181.8%	\$ 900,000	\$ -	0.0%
Total Budget (=B+C+D)	\$ 88,028,284	\$ 92,504,032	\$ 4,475,748	5.1%	\$ 97,223,776	\$ 4,719,744	5.1%
Change in Working Capital (=A-B-C-D)	\$ 229,604	\$ 54,194	\$ (175,410)	-76.4%	\$ 83,037	\$ 28,843	53.2%
FTEs	223.72	233.12	9.40	4.2%	241.58	8.46	3.6%

Section A – 2022 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. The Reliability Standards group is focused specifically on the development and improvement of Reliability Standards. The Power Risk Issues and Strategic Management (PRISM) group supports Reliability Standards by providing technical support and develops, supports, and prioritizes the ERO Risk Registry.

Reliability Standards and Power Risk Issue Strategic Management (in whole dollars)					
	2021 Budget	2022 Budget	Increase (Decrease)	2022 Budget - Prior Draft	Variance to Prior Draft Over(Under)
FTE Reporting	16.92	19.74	2.82	19.74	0.00
Personnel Expenses	3,312,011	3,926,928	614,917	4,027,398	(100,469)
Direct Expenses	\$ 3,627,620	\$ 4,321,038	\$ 693,418	\$ 4,372,548	\$ (51,509)
Indirect Expenses	4,087,161	4,916,148	828,986	4,997,174	(81,026)
Other Non-Operating Expenses	-	-	-	-	-
Fixed Asset Additions	82,885	397,858	314,973	121,087	276,771
Financing Activity	58,974	(204,119)	(263,093)	72,652	(276,771)
Total Budget	\$ 7,856,641	\$ 9,430,925	\$ 1,574,284	\$ 9,563,461	\$ (132,536)

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 Bulk Electric System (BES) is planned, operated, maintained, and secured to minimize risks of cascading failures, avoid damage to major equipment, or limit interruptions of the bulk power system (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, consider 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 develops, supports, and prioritizes the ERO Risk Registry, and 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 (REs), 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) and its subcommittees and the Reliability Issues Steering Committee (RISC). 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 BPS risks and 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 reviewed for technical accuracy and completeness.

Tools and Technology

The main tool used by the Reliability Standards program is a standards balloting and commenting system. 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 to serve as a repository to track RISC-identified issues and NERC and RE 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 RE 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. This tool is being developed using in-house resources at NERC on existing internal platforms, and will include RE-facing reports or interfaces. The system will be used to keep the RSTC and other applicable stakeholders updated on project status. Additionally, as the Risk Registry is developed across the ERO Enterprise, PRISM may implement new tools to address risk identification, prioritization, and reporting.

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. The [Standards Efficiency Review Report and Transition Plan](#) outlines one additional recommendation to minimize the need for future standards efficiency review type projects solely dedicated to remove or reduce administrative inefficiencies in the NERC Reliability Standards. As a result, standards development processes will be assessed and recommended standards modifications will be considered by future standard drafting teams and periodic review teams from Phase 1 and Phase 2 recommendations. 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 REs 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 Energy Adequacy. 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);
- Reporting on statistical analysis around misoperations data to identify trends and discrete areas for improvement;
- Conducting Reliability Standards training for NERC and RE staff to enable consistent understandings. The PRISM group has extensive experience in standards development. As a result, the PRISM team provides additional standards training as needed for the ERO Enterprise;
- Refining the cross cutting tool discussed above while prioritizing risks in the Risk Registry;
- 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;
- Supporting the FERC/NERC inquiry into the Texas Winter event of 2021; and
- Executing the work plan for the Energy Reliability Assessment Task Force (ERATF).

2022 Goals and Deliverables

In 2022, 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 to support Reliability Standards by providing technical support throughout the development process.

Future Plans

In 2023 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, restoration, energy management and systemic risks from interdependencies among gas, electric, and communications systems. This may also include seasonal preparation from utilities to ensure reliability during weather or extreme events. 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 increase of 2.82 FTEs reflects the addition of one reallocated open position from Reliability Assessment and Performance Analysis (RAPA) and the addition of two positions for increased standards development activity related to (1) Critical Infrastructure Protection (CIP) standards revisions necessitated by the escalating threat environment and recent supply chain compromises, (2) RSTC-identified changes to operations and planning standards, and (3) the overall rapid transformation of the grid, especially in the areas of renewable resources and extreme events.

Consultants and Contracts

The \$110k for Consultants & Contracts expenses in 2022 is for knowledge-transfer and technical and application support. A comparison of 2021 and 2022 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*.

Other Significant Direct Costs

The \$27k increase for Meetings and Conference Calls in 2022 reflects a return to some in-person meetings following pandemic conditions in 2021, particularly with respect to anticipated increased standards-related activity.

Section A – 2022 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions							
2021 Budget & Projection, and 2022 Budget							
Reliability Standards and Power Risk Issue Management							
	2021	2021	Variance	2022	Variance	2022 Budget	Variance to
	Budget	Projection	2021 Projection	Budget	2022 Budget	2022 Budget	Prior Draft
			v 2021 Budget		v 2021 Budget	Prior Draft	Over(Under)
			Over(Under)		Over(Under)		Over(Under)
Funding							
NERC Funding							
NERC Assessments	\$ 7,833,694	\$ 7,833,694	\$ -	\$ 9,420,030	\$ 1,586,336	\$ 9,552,566	\$ (132,536)
Penalties Released	-	-	-	-	-	-	-
Total NERC Funding	\$ 7,833,694	\$ 7,833,694	\$ -	\$ 9,420,030	\$ 1,586,336	\$ 9,552,566	\$ (132,536)
Third-Party Funding	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Testing, Renewal, & Continuing Ed Fees	-	-	-	-	-	-	-
Services & Software	-	-	-	-	-	-	-
Miscellaneous	-	-	-	-	-	-	-
Interest & Investment Income	22,947	2,059	(20,887)	10,895	(12,052)	10,895	-
Total Funding (A)	\$ 7,856,641	\$ 7,835,753	\$ (20,887)	\$ 9,430,925	\$ 1,574,284	\$ 9,563,461	\$ (132,536)
Expenses							
Personnel Expenses							
Salaries	\$ 2,468,752	\$ 2,751,082	\$ 282,330	\$ 2,951,243	\$ 482,491	\$ 3,033,474	\$ (82,231)
Payroll Taxes	155,276	166,746	11,470	183,584	28,308	187,682	(4,098)
Benefits	415,057	389,118	(25,939)	467,848	52,791	473,275	(5,427)
Retirement Costs	272,927	290,201	17,274	324,253	51,327	332,966	(8,713)
Total Personnel Expenses	\$ 3,312,011	\$ 3,597,147	\$ 285,135	\$ 3,926,928	\$ 614,917	\$ 4,027,398	\$ (100,469)
Meetings & Travel Expenses							
Meetings & Conference Calls	\$ 37,860	\$ 10,000	\$ (27,860)	\$ 65,000	\$ 27,140	\$ 65,000	\$ -
Travel	115,147	41,124	(74,023)	115,000	(147)	115,000	-
Total Meetings & Travel Expenses	\$ 153,007	\$ 51,124	\$ (101,883)	\$ 180,000	\$ 26,993	\$ 180,000	\$ -
Operating Expenses, excluding Depreciation							
Consultants & Contracts	\$ 114,552	\$ 258,146	\$ 143,594	\$ 158,960	\$ 44,408	\$ 110,000	\$ 48,960
Office Rent	-	-	-	-	-	-	-
Office Costs	45,850	68,099	22,249	52,850	7,000	52,850	-
Professional Services	-	-	-	-	-	-	-
Miscellaneous	2,200	2,200	-	2,300	100	2,300	-
Total Operating Expenses, excluding Depreciation	\$ 162,602	\$ 328,445	\$ 165,843	\$ 214,110	\$ 51,508	\$ 165,150	\$ 48,960
Total Direct Expenses	\$ 3,627,620	\$ 3,976,715	\$ 349,095	\$ 4,321,038	\$ 693,418	\$ 4,372,548	\$ (51,509)
Indirect Expenses	\$ 4,087,161	\$ 4,449,579	\$ 362,417	\$ 4,916,148	\$ 828,986	\$ 4,997,174	\$ (81,026)
Other Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 7,714,782	\$ 8,426,294	\$ 711,512	\$ 9,237,186	\$ 1,522,404	\$ 9,369,721	\$ (132,536)
Change in Net Assets (=A-B)	\$ 141,859	\$ (590,540)	\$ (732,400)	\$ 193,740	\$ 51,880	\$ 193,740	\$ -
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 82,885	\$ 73,758	\$ (9,127)	\$ 397,858	\$ 314,973	\$ 121,087	\$ 276,771
Financing Activity							
Loan or Financing Lease - Borrowing (-)	\$ (12,558)	\$ (13,171)	\$ (613)	\$ (290,610)	\$ (278,051)	\$ (13,839)	\$ (276,771)
Loan or Financing Lease - Principal Payments (+)	71,533	75,023	3,491	86,491	14,958	86,491	-
Net Financing Activity (D)	\$ 58,974	\$ 61,852	\$ 2,878	\$ (204,119)	\$ (263,093)	\$ 72,652	\$ (276,771)
Total Budget (=B+C+D)	\$ 7,856,641	\$ 8,561,904	\$ 705,263	\$ 9,430,925	\$ 1,574,284	\$ 9,563,461	\$ (132,536)
Change in Working Capital (=A-B-C-D)	\$ -	\$ (726,150)	\$ (726,150)	\$ -	\$ -	\$ -	\$ -
FTEs	16.92	17.49	0.57	19.74	2.82	19.74	0.00

Compliance Assurance and Organization Registration and Certification

Compliance Assurance and Organization Registration and Certification (in whole dollars)					
	2021 Budget	2022 Budget	Increase (Decrease)	2022 Budget - Prior Draft	Variance to Prior Draft Over(Under)
FTE Reporting	23.50	21.62	(1.88)	20.68	0.94
Direct Expenses	\$ 6,591,671	\$ 6,492,428	\$ (99,243)	\$ 6,259,605	\$ 232,823
Indirect Expenses	5,730,723	5,384,352	(346,371)	5,235,134	149,218
Other Non-Operating Expenses	27,500	27,500	-	27,500	-
Fixed Asset Additions	1,066,217	695,750	(370,468)	386,853	308,896
Financing Activity	270,191	(36,058)	(306,249)	263,612	(299,671)
Total Budget	\$ 13,686,302	\$ 12,563,971	\$ (1,122,331)	\$ 12,172,705	\$ 391,266

Background and Scope

Compliance Assurance

NERC's Compliance Assurance group works collaboratively with the Regional Entities (REs) to ensure effective implementation of risk-based compliance monitoring under the Compliance Monitoring and Enforcement Program (CMEP) across the entire ERO Enterprise. This program ensures that REs 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.

As part of the ERO Enterprise's risk-based CMEP, REs develop Compliance Oversight Plans (COPs) for each registered entity. The COP process provides the risk assessment and planning foundation to inform how and when each RE uses its monitoring processes (tools), including compliance audits, self-certification, and spot checking.

Under the COP approach, each RE assesses, categorizes, and prioritizes the inherent and performance risk of registered entities for CMEP purposes within a RE's larger population of registered entities. The COP is a continuous cycle that, with other COPs, informs the RE's planning and scheduling of compliance monitoring activities. REs also share a summary of the COP with each registered entity.

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

- Oversight of the REs' implementation of the risk-based compliance monitoring program and NERC Rules of Procedure (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 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 RE and industry committees, working groups, and task forces, such as the ERO Risk, Performance, and Monitoring group (NERC and RE collaboration group), NERC Compliance and Certification Committee (CCC), and NERC Reliability and Security Technical Committee (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 Reliability Coordinator (RC), Balancing Authority (BA), or Transmission Operator (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 REs 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 REs' implementation of 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 RE 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 (ORCS);
- 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 the Centralized Organization Registration ERO System (CORES) and the Coordinated Functional Registration (CFR) tool, to REs and registered entities to enhance use 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 RE and NERC workshops and conferences.

Registration and Certification engages with the CCC's 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 RE 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 REs to implement strategic investments in tools that will replace CRATS and the CMEP and Registration data applications used among the REs with single, common applications, known as Align and its associated ERO Secure Evidence Locker (SEL) for CMEP and CORES for Registration. CORES was initially released in 2019 and Align and the ERO SEL launched in 2021. Funding for support of the CRATS application at reduced levels continues to 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 complements 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 provides a platform to enable harmonization of RE practices, driving to a common registered entity experience while facilitating the secure submission, review, and retention of evidence generated during CMEP activities. The first release of Align and the ERO SEL to support self-reporting, self-logging, enforcement, and mitigation occurred in a phased manner across the REs during the first and second quarters of 2021, with two more releases planned in 2021 to support Compliance Assurance activities. For more information, see the [Align Project](#) page on the NERC website.

CORES similarly creates consistent RE 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 ongoing. For more information, see the [CORES Technology Project](#) page on the NERC website.

A BES notification and exception system tool is also used in support of the Registration group's activities. The application allows registered entities to submit to their respective RE 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 REs. As part of that oversight, and in addition to offering regular feedback to the

REs, NERC continues to identify areas for improvement or promoting consistency through training, guidance, or adjustments. For 2022 and beyond, emphasis on oversight related to integrating Align into CMEP activities continues. NERC also produces an ERO Enterprise CMEP annual report, which includes an assessment of the risk-based CMEP implementation.

In addition, during the Coronavirus Pandemic of 2020 and 2021, the ERO Enterprise released guidance that provided regulatory relief related to registered entities' coronavirus response and temporarily expanded the Self-Logging Program. The ERO Enterprise also deferred on-site audits through December 31, 2021, and, during that time, it successfully coordinated remote virtual audits and other activities that were originally scheduled to be on-site. On-site activities will resume as it becomes safe to do so, and in a manner that prioritizes risk.

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 REs to coordinate extensively to harmonize several aspects of CMEP activities, improving overall program execution and alignment.

RE Training

Compliance Assurance provides training to RE staff on critical elements of risk-based compliance monitoring, including enhancements to registered entity Inherent Risk Assessments (IRAs), internal controls reviews, COP development, and Reliability Standards monitoring. NERC also provides training on documentation practices of CMEP work within Align and the ERO SEL. NERC develops this training based on observations from its oversight activities of the REs, 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. Historically, 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:

- 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.

2022 Goals and Deliverables

In 2022, 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:

- As on-site compliance monitoring activities resume, work closely with REs to ensure that 2022 activities are risk-informed and evaluate 2020 and 2021 experiences.
- 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 and inform RE CMEP planning.
- Work closely with NERC’s Enforcement and IT departments, as well as staff in the REs, to maintain and enhance the Align and ERO SEL tools.
- Support the continued 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.
- 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 to explore how the ERO IT platforms can further enhance work products, communication, and data tracking and reporting.

Future Plans

For 2023 and beyond, NERC anticipates continued implementation and enhancement of the Align and ERO SEL tools, 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 REs, 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

Reflecting continued program maturation, the decrease of 1.88 FTEs is due to the reallocation of two open positions in Compliance Assurance to Administrative Programs in support of the People Strategy discussed in the *Introduction and Executive Summary*.

Consultants and Contracts

The \$255k increase for Consultants & Contracts from the 2021 budget to the 2022 budget is primarily related to support for the FERC-mandated CMEP audits of the REs and a post-implementation audit of Align, for which the total budget is split evenly between the Compliance Assurance and Compliance Enforcement areas. The increase also accounts for funding for program process documentation support. A comparison of 2021 and 2022 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*.

Other Significant Direct Costs

Meetings and Conference Calls

The \$30k increase for Meetings and Conference Calls in 2022 reflects a partial return to in-person meetings following pandemic conditions in 2021.

Office Costs

The \$647k for Office Costs in the 2022 budget primarily consists of expenses for software licensing and support for Align and the ERO SEL, for which the total annual cost is split evenly between Compliance Assurance and Compliance Enforcement.

Fixed Asset Additions

The 2022 Fixed Asset budget includes \$250k for ongoing enhancements and maintenance for Align and the ERO SEL, for which the total annual cost is split evenly between Compliance Assurance and Compliance Enforcement, and approximately \$10k for CORES enhancements.

Net Financing Activity

Net financing activity for 2022 includes approximately \$188k for loan principal payments for the ERO SEL capital investment borrowing in 2020, for which the total annual cost is split evenly between Compliance Assurance and Compliance Enforcement.

Section A – 2022 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions							
2021 Budget & Projection, and 2022 Budget							
Compliance Assurance and Organization Registration and Certification							
	2021	2021	Variance	2022	Variance	2022 Budget	Variance to
	Budget	Projection	2021 Projection	Budget	2022 Budget	2022 Budget	Prior Draft
			v 2021 Budget		v 2021 Budget	Prior Draft	Over(Under)
			Over(Under)		Over(Under)		Over(Under)
Funding							
NERC Funding							
NERC Assessments	\$ 13,654,127	\$ 13,654,127	\$ -	\$ 12,552,038	\$ (1,102,089)	\$ 12,161,291	\$ 390,747
Penalties Released	-	-	-	-	-	-	-
Total NERC Funding	\$ 13,654,127	\$ 13,654,127	\$ -	\$ 12,552,038	\$ (1,102,089)	\$ 12,161,291	\$ 390,747
Third-Party Funding	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Testing, Renewal, & Continuing Ed Fees	-	-	-	-	-	-	-
Services & Software	-	-	-	-	-	-	-
Miscellaneous	-	-	-	-	-	-	-
Interest & Investment Income	32,175	2,625	(29,551)	11,933	(20,243)	11,414	519
Total Funding (A)	\$ 13,686,302	\$ 13,656,752	\$ (29,551)	\$ 12,563,971	\$ (1,122,331)	\$ 12,172,705	\$ 391,266
Expenses							
Personnel Expenses							
Salaries	\$ 4,038,791	\$ 3,871,868	\$ (166,923)	\$ 3,759,888	\$ (278,902)	\$ 3,577,127	\$ 182,761
Payroll Taxes	244,418	227,325	(17,094)	224,943	(19,475)	214,906	10,037
Benefits	824,511	713,906	(110,605)	761,083	(63,428)	742,622	18,460
Retirement Costs	449,687	401,195	(48,493)	416,398	(33,290)	397,034	19,364
Total Personnel Expenses	\$ 5,557,407	\$ 5,214,293	\$ (343,114)	\$ 5,162,312	\$ (395,095)	\$ 4,931,689	\$ 230,623
Meetings & Travel Expenses							
Meetings & Conference Calls	\$ 51,742	\$ 16,000	\$ (35,742)	\$ 82,000	\$ 30,258	\$ 82,000	\$ -
Travel	237,413	84,790	(152,623)	251,000	13,587	251,000	-
Total Meetings & Travel Expenses	\$ 289,155	\$ 100,790	\$ (188,365)	\$ 333,000	\$ 43,845	\$ 333,000	\$ -
Operating Expenses, excluding Depreciation							
Consultants & Contracts	\$ 89,552	\$ 89,743	\$ 191	\$ 345,000	\$ 255,448	\$ 345,000	\$ -
Office Rent	-	-	-	-	-	-	-
Office Costs	652,307	643,506	(8,801)	648,866	(3,441)	646,666	2,200
Professional Services	-	-	-	-	-	-	-
Miscellaneous	3,250	3,250	(0)	3,250	-	3,250	-
Total Operating Expenses, excluding Depreciation	\$ 745,109	\$ 736,499	\$ (8,610)	\$ 997,116	\$ 252,007	\$ 994,916	\$ 2,200
Total Direct Expenses	\$ 6,591,671	\$ 6,051,582	\$ (540,089)	\$ 6,492,428	\$ (99,243)	\$ 6,259,605	\$ 232,823
Indirect Expenses	\$ 5,730,723	\$ 5,346,909	\$ (383,815)	\$ 5,384,352	\$ (346,371)	\$ 5,235,134	\$ 149,218
Other Non-Operating Expenses	\$ 27,500	\$ 27,500	\$ (0)	\$ 27,500	\$ -	\$ 27,500	\$ -
Total Expenses (B)	\$ 12,349,894	\$ 11,425,991	\$ (923,904)	\$ 11,904,280	\$ (445,615)	\$ 11,522,239	\$ 382,041
Change in Net Assets (=A-B)	\$ 1,336,408	\$ 2,230,761	\$ 894,353	\$ 659,691	\$ (676,717)	\$ 650,465	\$ 9,226
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 1,066,217	\$ 1,394,001	\$ 327,784	\$ 695,750	\$ (370,468)	\$ 386,853	\$ 308,896
Financing Activity							
Loan or Financing Lease - Borrowing (-)	\$ (17,609)	\$ (366,786)	\$ (349,177)	\$ (318,287)	\$ (300,678)	\$ (14,498)	\$ (303,789)
Loan or Financing Lease - Principal Payments (+)	287,799	283,112	(4,687)	282,228	(5,571)	278,110	4,119
Net Financing Activity (D)	\$ 270,190	\$ (83,674)	\$ (353,864)	\$ (36,059)	\$ (306,249)	\$ 263,612	\$ (299,670)
Total Budget (=B+C+D)	\$ 13,686,302	\$ 12,736,318	\$ (949,984)	\$ 12,563,971	\$ (1,122,331)	\$ 12,172,705	\$ 391,266
Change in Working Capital (=A-B-C-D)	\$ -	\$ 920,434	\$ 920,434	\$ -	\$ -	\$ -	\$ -
FTEs	23.50	22.29	(1.21)	21.62	(1.88)	20.68	0.94

Compliance Enforcement

Compliance Enforcement (in whole dollars)					
	2021 Budget	2022 Budget	Increase (Decrease)	2022 Budget - Prior Draft	Variance to Prior Draft Over(Under)
FTE Reporting	12.22	12.22	0.00	13.16	(0.94)
Direct Expenses	\$ 3,129,467	\$ 3,317,700	\$ 188,233	\$ 3,539,111	\$ (221,411)
Indirect Expenses	2,979,976	3,043,329	63,353	3,331,449	(288,120)
Other Non-Operating Expenses	27,500	27,500	-	27,500	-
Fixed Asset Additions	960,433	496,293	(464,140)	330,725	165,568
Financing Activity	230,499	61,141	(169,358)	235,935	(174,794)
Total Budget	\$ 7,327,875	\$ 6,945,963	\$ (381,912)	\$ 7,464,720	\$ (518,757)

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 REs 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 REs' 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 RE 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 RE 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. As discussed in the *Compliance Assurance and Organization Registration and Certification* section above, NERC has been working closely with the REs to implement strategic investments in tools that will replace CRATS and the CMEP data applications used among the REs with single, common applications, known as Align and its associated ERO SEL. The first release of Align and the ERO SEL to support self-reporting, self-logging, enforcement, and mitigation occurred in a phased manner across the REs during the first and second quarters of 2021, with two more releases planned in 2021 to support Compliance Assurance activities. Funding for support of the CRATS application at reduced levels continue to be needed for historical record maintenance 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 to resolve minimal risk noncompliances more efficiently.

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 REs 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 RE training and education activities. These opportunities focus on identifying gaps in staff knowledge and capabilities related to the risk-based CMEP.

2022 Goals and Deliverables

Specific 2022 objectives for the Enforcement department include continuing to:

- Focus on identifying and mitigating the greatest risks to reliability and security.
- Support the enhancement of the Align and ERO SEL tools.
- Expand risk-based focus in Enforcement.
- Sustain and expand stakeholder outreach.
- With RE and stakeholder feedback, continue evaluation of compliance monitoring and enforcement processes for efficiency.

Future Plans

In 2023 and beyond, NERC and the REs will continue to conduct outreach focused on identification and mitigation of high risk noncompliance, risk assessment, and streamlined resolution of lower risk noncompliance. NERC plans to use existing industry events, such as RE and NERC conferences and industry webinars, to provide information on enforcement activities. Enforcement will continue to identify improvement areas and promotion of alignment through training, guidance, or other adjustments.

Resource Requirements

Personnel

There is no change in FTEs from the 2021 budget to the 2022 budget.

Consultants and Contracts

The increase of \$180k for Consultants & Contracts from the 2021 budget to the 2022 budget is primarily related to support for the FERC-mandated CMEP audits of the REs and a post-implementation audit of Align, for which the total budget is split evenly between the Compliance Assurance and Compliance Enforcement areas. A comparison of 2021 and 2022 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*.

Other Significant Direct Costs

Office Costs

The \$640k for Office Costs in the 2022 budget primarily consists of expenses for software licensing and support for Align and the ERO SEL, for which the total annual cost is split evenly between Compliance Assurance and Compliance Enforcement. The Office Costs budget also includes funding for ongoing support for CRATS for historical records maintenance purposes.

Fixed Asset Additions

The 2022 Fixed Asset budget includes \$250k for ongoing enhancements and maintenance for Align and the ERO SEL, for which the total annual cost is split evenly between Compliance Enforcement and Compliance Assurance.

Net Financing Activity

Net financing activity for 2022 includes approximately \$188k for loan principal payments for the ERO SEL capital investment borrowing in 2020, for which the total annual cost is split evenly between Compliance Assurance and Compliance Enforcement.

Section A – 2022 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions 2021 Budget & Projection, and 2022 Budget							
Compliance Enforcement							
	2021 Budget	2021 Projection	Variance 2021 Projection v 2021 Budget Over(Under)	2022 Budget	Variance 2022 Budget v 2021 Budget Over(Under)	2022 Budget Prior Draft	Variance to Prior Draft Over(Under)
Funding							
NERC Funding							
NERC Assessments	\$ 7,311,144	\$ 7,311,144	\$ -	\$ 6,939,219	\$ (371,925)	\$ 7,457,457	\$ (518,238)
Penalties Released	-	-	-	-	-	-	-
Total NERC Funding	\$ 7,311,144	\$ 7,311,144	\$ -	\$ 6,939,219	\$ (371,925)	\$ 7,457,457	\$ (518,238)
Third-Party Funding	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Testing, Renewal, & Continuing Ed Fees	-	-	-	-	-	-	-
Services & Software	-	-	-	-	-	-	-
Miscellaneous	-	-	-	-	-	-	-
Interest & Investment Income	16,731	1,434	(15,297)	6,744	(9,987)	7,263	(519)
Total Funding (A)	\$ 7,327,875	\$ 7,312,578	\$ (15,297)	\$ 6,945,963	\$ (381,912)	\$ 7,464,720	\$ (518,757)
Expenses							
Personnel Expenses							
Salaries	\$ 1,839,039	\$ 1,916,321	\$ 77,282	\$ 1,838,076	\$ (963)	\$ 2,005,125	\$ (167,048)
Payroll Taxes	115,307	125,045	9,739	122,697	7,390	132,145	(9,449)
Benefits	220,988	197,602	(23,386)	210,112	(10,876)	233,327	(23,215)
Retirement Costs	196,667	209,594	12,927	204,099	7,432	221,798	(17,699)
Total Personnel Expenses	\$ 2,372,000	\$ 2,448,562	\$ 76,562	\$ 2,374,984	\$ 2,984	\$ 2,592,395	\$ (217,411)
Meetings & Travel Expenses							
Meetings & Conference Calls	\$ 6,310	\$ 2,000	\$ (4,310)	\$ 7,000	\$ 690	\$ 7,000	\$ -
Travel	32,645	11,659	(20,986)	30,000	(2,645)	34,000	(4,000)
Total Meetings & Travel Expenses	\$ 38,955	\$ 13,659	\$ (25,296)	\$ 37,000	\$ (1,955)	\$ 41,000	\$ (4,000)
Operating Expenses, excluding Depreciation							
Consultants & Contracts	\$ 69,000	\$ 50,000	\$ (19,000)	\$ 249,000	\$ 180,000	\$ 249,000	\$ -
Office Rent	-	-	-	-	-	-	-
Office Costs	632,612	638,046	5,434	639,816	7,204	639,816	-
Professional Services	15,000	15,000	-	15,000	-	15,000	-
Miscellaneous	1,900	1,900	-	1,900	-	1,900	-
Total Operating Expenses, excluding Depreciation	\$ 718,512	\$ 704,946	\$ (13,566)	\$ 905,716	\$ 187,204	\$ 905,716	\$ -
Total Direct Expenses	\$ 3,129,467	\$ 3,167,167	\$ 37,700	\$ 3,317,700	\$ 188,233	\$ 3,539,111	\$ (221,411)
Indirect Expenses	\$ 2,979,976	\$ 3,247,495	\$ 267,519	\$ 3,043,329	\$ 63,353	\$ 3,331,449	\$ (288,120)
Other Non-Operating Expenses	\$ 27,500	\$ 27,500	\$ -	\$ 27,500	\$ -	\$ 27,500	\$ -
Total Expenses (B)	\$ 6,136,943	\$ 6,442,162	\$ 305,219	\$ 6,388,529	\$ 251,586	\$ 6,898,060	\$ (509,531)
Change in Net Assets (=A-B)	\$ 1,190,932	\$ 870,417	\$ (320,516)	\$ 557,434	\$ (633,498)	\$ 566,660	\$ (9,226)
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 960,433	\$ 1,301,366	\$ 340,933	\$ 496,293	\$ (464,140)	\$ 330,725	\$ 165,568
Financing Activity							
Loan or Financing Lease - Borrowing (-)	\$ (9,157)	\$ (359,172)	\$ (350,015)	\$ (179,901)	\$ (170,745)	\$ (9,226)	\$ (170,675)
Loan or Financing Lease - Principal Payments (+)	239,656	239,746	90	241,042	1,386	245,161	(4,119)
Net Financing Activity (D)	\$ 230,499	\$ (119,426)	\$ (349,925)	\$ 61,141	\$ (169,358)	\$ 235,935	\$ (174,794)
Total Budget (=B+C+D)	\$ 7,327,875	\$ 7,624,101	\$ 296,226	\$ 6,945,963	\$ (381,912)	\$ 7,464,720	\$ (518,757)
Change in Working Capital (=A-B-C-D)	\$ -	\$ (311,523)	\$ (311,523)	\$ -	\$ -	\$ -	\$ -
FTEs	12.22	12.18	(0.04)	12.22	0.00	13.16	(0.94)

Reliability Assessments and Performance Analysis

The Reliability Assessments and Performance Analysis (RAPA) program identifies, prioritizes, and enables activities to reduce known and emerging risks to the BPS. Four primary groups are focused on this program: (1) Reliability Assessments (RA) and Technical Committee; (2) Performance Analysis (PA); (3) Power System Analysis (PSA) and Advanced System Analytics and Modeling (ASAM); and (4) BPS Security and Grid Transformation (SGT).

Reliability Assessments and Performance Analysis (in whole dollars)					
	2021 Budget	2022 Budget	Increase (Decrease)	2022 Budget - Prior Draft	Variance to Prior Draft Over(Under)
FTE Reporting	25.38	26.32	0.94	26.32	0.00
Direct Expenses	\$ 6,554,566	\$ 7,486,899	\$ 932,333	\$ 7,465,839	\$ 21,060
Indirect Expenses	5,873,428	6,554,863	681,435	6,662,898	(108,035)
Other Non-Operating Expenses	-	-	-	-	-
Fixed Asset Additions	118,866	1,005,478	886,611	636,450	369,028
Financing Activity	84,575	(272,158)	(356,733)	96,870	(369,028)
Total Budget	\$ 12,631,436	\$ 14,775,082	\$ 2,143,646	\$ 14,862,057	\$ (86,975)

Background and Scope

Reliability Assessment and Technical Committee

The 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. The RA program is governed by the requirements and procedures identified in Section 800 (801–805) of the NERC ROP. 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 RE 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. 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 PA group monitors the performance of and identifies risks to BPS reliability through analyzing industry data from industry and measuring historic trends. The PA program is governed by the requirements and procedures identified in Section 800 (801, 809, and 811) of the NERC ROP. 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. The PA program also develops the business requirements for all new reliability information data systems, specifically those required by NERC ROP Section 1600 Data Requests. PA program analysts work with internal and external software developers to support the creation, testing, and implementation of data systems.

Power System Analysis and Advanced System Analytics and Modeling

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 balancing (BAL) and modeling (MOD) Reliability Standards. This is particularly important as the system uses new technologies and significant changes in the resource mix occur, with even more projected. PSA staff responsibilities include:

- 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 identification of BES electrical elements necessary for its reliable operation such that these are subject to the Reliability Standards.

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 necessary to reflect actual BES reliability performance and dynamic conditions. As new technology incorporation into the BPS accelerates, there is a need for new and improved models to support simulation of their contributions and impacts on reliability. This facilitates improved design and maximizes incorporation of new technology while maintaining 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 unit (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, 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 work with the Carnegie Mellon Industry Center (CEIC), the Power Systems Energy Research Center (PSERC), the Department of Energy (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: (1) the SOR report and reliability assessments; (2) the FRAA report and other parameters; (3) analytical review of Reliability Standard effectiveness; and (4) various reports on an emergent basis. ASAM also enhances NERC’s credibility by publishing IEEE papers (frequently recognized as “Best Paper”) that advance and gain academic acceptance of new concepts in statistical methods relative to the BPS. ASAM forms strong relationships through its selection of co-authors and co-presenters from industry and academic stakeholders.

BPS Security and Grid Transformation

SGT staff provide technical leadership and coordination for internal and external stakeholder efforts related to “security integration” and “grid transformation” topics. The group develops and promotes strategies for cyber and physical security to be integrated with conventional grid planning, operations, design, and restoration activities. In addition, the group coordinates a number of technical stakeholder groups in the areas of security and emerging grid transformation issues. SGT staff are responsible for:

- Coordinating technical stakeholder groups under the RSTC, including the following:
 - Security Integration and Technology Enablement Subcommittee (SITES)
 - Inverter-Based Resource Performance Working Group (IRPWG)
 - System Planning Impacts from DERs Working Group (SPIDERWG)
 - Synchronized Measurement Working Group (SMWG)
 - Security Working Group (SWG)
 - Supply Chain Working Group (SCWG)
 - Electromagnetic Pulse Working Group (EMPWG)
- Integrating cyber security into all aspects of system planning, operations and restoration;
- Providing vision and strategic leadership for the ERO Enterprise on cyber security during the planning, operating, and recover horizons;
- Supporting efforts to advance the RISC’s security risk mitigation recommendations, helping identify security-related risks, and engaging efforts to mitigate those risks for registered entities;
- Engaging with industry stakeholders and industry forums to advance and enable new technologies in a secure manner;
- Supporting standards development process on engineering and security-related topics, particularly around security enablement and emerging grid technology issues; and
- Coordinating with the Electricity Information Sharing and Analysis Center (E-ISAC) on cross-departmental topics related to security risks.

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
- Engineering software
- Infrastructure and geographic-related vulnerabilities analysis software
- Data management systems, including data for:
 - Generating availability (conventional and wind)
 - Transmission availability
 - Misoperations information
 - Reliability assessments
 - BA submittals
 - Frequency response analysis
 - Inadvertent interchange

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:

- Ensure effective ERS in future resource mix. These efforts are expected to lead to a broad set of recommendations that 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, and assessing the energy management plans and sufficiency for the upcoming season. 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 energy management plans (including plans for managing energy requirements during extreme weather); 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, support for the newly created ERATF will require resources to support energy adequacy challenges. Decarbonization efforts are expected to continue to drive fundamental changes in electricity supply, with significantly higher levels of variable and energy limited resources and decreasing levels of dispatchable synchronous generation. With more of the energy economy dependent on the electricity sector, the reliability and resiliency of the supply of electricity may need to increase to meet societal expectations and requirements. A key capability to achieve this need is the ability to assess whether the expected resources are adequate for meeting electricity demand for the future scenarios that may be encountered. As recent supply deficiency events in 2020 and 2021 have shown, however, traditional resource adequacy processes, based on capacity, metrics, and tools does not provide the level of resiliency required in the context of changing climate, changing resource mix, and extreme weather scenarios. NERC will work with EPRI, DOE, Natural Resources Canada (NRCAN), and external research partners to support the development of resource adequacy processes and tools. These processes and tools are planned to be made available to be applied in various regulatory, market, and system characteristic contexts, with case studies demonstrating their effectiveness.

PA continues to oversee and evaluate reliability trends that identify reliability risks by analyzing generating and transmission availability data, along with reliability metrics and protection and controls system misoperations data. PA is currently expanding the generating data trend analysis and has begun reflecting post-seasonal reliability review, insights from analysis of generating and transmission availability data, 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 use of real-time tools used by the industry to sharpen and fine-tune models as the system evolves with the integration of new technology;
- Conducting detailed forensic analyses of significant system disturbances;
- 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.

2022 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:

- Unacceptable inverter performance
- Increased amounts of DER
- Energy sufficiency
- Extreme weather resilience
- 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 NERC's suite of data management tools. Enhancements and modifications to the following software applications are expected:

- An enhanced system to manage reliability assessment data is envisioned to support the ERO's RA process by streamlining data reporting, analysis, and storage. The system would benefit reliability by establishing a program of record to meet the needs of the ERO's RA functions. Funding in 2022 provides for requirements building for improving this system.
- Funding in 2022 for the systems for conventional generating availability data and transmission availability data provides for continued enhancements, particularly to implement the proposed Section 1600 data request changes for conventional generating availability data. Changes to the data request are expected to be released for public comment in July 2021, with a portion focusing on gathering key data to support trending analysis of unit design.
- The Section 1600 data request for generating availability data that is was released for public comment in June 2021 includes a new request for mandatory utility-scale solar reporting for solar plants that have an installed capacity of 20 MW or greater. The data request also includes major changes to current wind reporting, including event reporting, shared resources with solar reporting, a user interface, validations, and reports. The 2022 budget provides for the development of a system for generating availability data for solar and a rewrite of this system for wind. Some common features will exist, allowing for potential economies of scale.

Future Plans

In 2023 and beyond, NERC will continue to build and maintain the analytical capabilities needed to support the reliability and security of the changing grid. This will include implementing data collection applications to include solar reporting as well as integrating energy storage with the solar and wind facilities, security assessment and design basis, and developing a strategic plan to re-platform data collection applications 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 0.94 FTEs reflects the addition of two positions, one for ASAM and one for SGT, to support increased analytics related to grid transformation, planning and cyber awareness, and incorporation of cyber security into system models. The increase is offset by a reallocation of one open position to Reliability Standards to realign staff with current needs.

Consultants and Contracts

The increase of \$278k for Consultants & Contracts from the 2021 budget to the 2022 budget is primarily a result of a measured return to consulting work reduced or deferred in 2021 due to cost savings efforts, as well as support for the studies and partnerships discussed above. A comparison of 2021 and 2022 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*.

Other Significant Direct Costs

Fixed Asset Additions

The Fixed Asset budget for 2022 includes \$475k for the data system enhancements discussed above.

Section A – 2022 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions 2021 Budget & Projection, and 2022 Budget Reliability Assessment and Performance Analysis							
	2021 Budget	2021 Projection	Variance 2021 Projection v 2021 Budget Over(Under)	2022 Budget	Variance 2022 Budget v 2021 Budget Over(Under)	2022 Budget Prior Draft	Variance to Prior Draft Over(Under)
Funding							
NERC Funding							
NERC Assessments	\$ 12,538,528	\$ 12,538,528	\$ -	\$ 14,700,555	\$ 2,162,027	\$ 14,787,530	\$ (86,975)
Penalties Released	-	-	-	-	-	-	-
Total NERC Funding	\$ 12,538,528	\$ 12,538,528	\$ -	\$ 14,700,555	\$ 2,162,027	\$ 14,787,530	\$ (86,975)
Third-Party Funding							
Testing, Renewal, & Continuing Ed Fees	-	-	-	-	-	-	-
Services & Software	60,000	60,000	-	60,000	-	60,000	-
Miscellaneous	-	-	-	-	-	-	-
Interest & Investment Income	32,908	2,819	(30,089)	14,527	(18,381)	14,527	-
Total Funding (A)	\$ 12,631,436	\$ 12,601,347	\$ (30,089)	\$ 14,775,082	\$ 2,143,646	\$ 14,862,057	\$ (86,975)
Expenses							
Personnel Expenses							
Salaries	\$ 3,830,459	\$ 3,814,388	\$ (16,071)	\$ 4,377,751	\$ 547,292	\$ 4,377,751	\$ -
Payroll Taxes	244,412	237,315	(7,098)	272,752	28,340	272,752	-
Benefits	622,466	534,228	(88,239)	637,359	14,893	642,259	(4,900)
Retirement Costs	425,191	418,243	(6,947)	485,536	60,345	485,536	-
Total Personnel Expenses	\$ 5,122,528	\$ 5,004,174	\$ (118,354)	\$ 5,773,397	\$ 650,869	\$ 5,778,297	\$ (4,900)
Meetings & Travel Expenses							
Meetings & Conference Calls	\$ 168,856	\$ 59,000	\$ (109,856)	\$ 180,000	\$ 11,144	\$ 188,000	\$ (8,000)
Travel	199,429	71,224	(128,205)	207,000	7,571	207,000	-
Total Meetings & Travel Expenses	\$ 368,285	\$ 130,224	\$ (238,061)	\$ 387,000	\$ 18,715	\$ 395,000	\$ (8,000)
Operating Expenses, excluding Depreciation							
Consultants & Contracts	\$ 403,203	\$ 405,439	\$ 2,236	\$ 681,227	\$ 278,024	\$ 647,267	\$ 33,960
Office Rent	-	-	-	-	-	-	-
Office Costs	655,950	651,821	(4,129)	640,675	(15,275)	640,675	-
Professional Services	-	-	-	-	-	-	-
Miscellaneous	4,600	4,600	-	4,600	-	4,600	-
Total Operating Expenses, excluding Depreciation	\$ 1,063,753	\$ 1,061,860	\$ (1,893)	\$ 1,326,502	\$ 262,749	\$ 1,292,542	\$ 33,960
Total Direct Expenses	\$ 6,554,566	\$ 6,196,258	\$ (358,308)	\$ 7,486,899	\$ 932,333	\$ 7,465,839	\$ 21,060
Indirect Expenses	\$ 5,873,428	\$ 5,934,072	\$ 60,644	\$ 6,554,863	\$ 681,435	\$ 6,662,898	\$ (108,035)
Other Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 12,427,994	\$ 12,130,330	\$ (297,664)	\$ 14,041,762	\$ 1,613,768	\$ 14,128,737	\$ (86,975)
Change in Net Assets (=A-B)	\$ 203,442	\$ 471,017	\$ 267,576	\$ 733,320	\$ 529,878	\$ 733,320	\$ -
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 118,866	\$ 101,002	\$ (17,864)	\$ 1,005,478	\$ 886,611	\$ 636,450	\$ 369,028
Financing Activity							
Loan or Financing Lease - Borrowing (-)	\$ (18,010)	\$ (18,036)	\$ (26)	\$ (387,479)	\$ (369,469)	\$ (18,451)	\$ (369,028)
Loan or Financing Lease - Principal Payments (+)	102,585	102,733	148	115,321	12,736	115,321	-
Net Financing Activity (D)	\$ 84,575	\$ 84,697	\$ 122	\$ (272,158)	\$ (356,733)	\$ 96,870	\$ (369,028)
Total Budget (=B+C+D)	\$ 12,631,436	\$ 12,316,029	\$ (315,406)	\$ 14,775,082	\$ 2,143,646	\$ 14,862,057	\$ (86,975)
Change in Working Capital (=A-B-C-D)	\$ -	\$ 285,318	\$ 285,318	\$ -	\$ -	\$ -	\$ -
FTEs	25.38	23.95	(1.43)	26.32	0.94	26.32	0.00

Situation Awareness

Situation Awareness (in whole dollars)					
	2021 Budget	2022 Budget	Increase (Decrease)	2022 Budget - Prior Draft	Variance to Prior Draft Over(Under)
FTE Reporting	6.58	7.52	0.94	7.52	0.00
Direct Expenses	\$ 2,674,692	\$ 3,022,490	\$ 347,798	\$ 3,048,140	\$ (25,650)
Indirect Expenses	1,604,603	1,872,818	268,216	1,903,685	(30,867)
Other Non-Operating Expenses	-	-	-	-	-
Fixed Asset Additions	148,541	259,065	110,524	128,629	130,437
Financing Activity	23,153	(77,759)	(100,913)	27,677	(105,437)
Total Budget	\$ 4,450,989	\$ 5,076,614	\$ 625,625	\$ 5,108,131	\$ (31,517)

Background and Scope

NERC's Situation Awareness group and the REs monitor BPS conditions, significant occurrences and emerging risks, and threats across the 17 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 REs, 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 Real-Time Operating Subcommittee (RTOS) 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 tools related to the following Situation Awareness activities:

- **Resource Adequacy (Area Control Error [ACE] Frequency)** – Continuously monitors key resource adequacy performance metrics, including pre-established thresholds and limits defined in standards, providing alerts to 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** – Facilitates the entering of monthly scheduling data and submittal of monthly inadvertent performance standards reports to NERC and assists in the monitoring and resolution of reliability issues originated by inadvertent interchange imbalances.
- **Frequency Monitoring Network** – Global positioning system (GPS)-synchronized wide-area frequency measurement network that uses high dynamic accuracy frequency disturbance

recorders to measure the frequency, phase angle, and voltage of the power system at ordinary 120V outlets.

- **Intelligent Alarms** – Detects short-term and long-term frequency deviations using data transmitted to NERC by the BAs. When coupled with the Frequency Monitoring Network, allows immediate differentiation of the cause of a frequency deviation—a generator trip or a scheduling error.
- **PowerIQ and Power RT** – Provides more detailed insight into current-day conditions impacting BPS conditions in both normal operations and stressed conditions.
- **Situation Awareness tool** – 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.
- **RC Information System** – Allows RCs to post messages and share operating information in real time.
- **NERC Alerts** – 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.
- **Data collection and analysis tools** – Supports overall data collection and analysis related to Resource Adequacy and Intelligent Alarms and 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;
- Grid transformation (e.g., expansion of variable and distributed energy resources and integration of digital controls and new technologies);
- Extreme natural events;
- Security vulnerabilities (both cyber and physical);
- 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.

The Situation Awareness group is continuing to focus on enhancements to its recently upgraded situation awareness application. The new platform allows users to have a more robust tool to increase situation awareness and the sharing of information with E-ISAC, FERC, and the REs and 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 tool 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. NERC is also implementing a disaster recovery site for this situation awareness tool, which will augment the redundancy inherent to the primary site's application architecture by hosting a second instance of the application in NERC's data center.

2022 Goals and Deliverables

In 2022, the Situation Awareness group will continue to execute the activities discussed above, including continued focus on the situation awareness tool enhancements and the implementation of the disaster recovery site. Additional 2022 plans include (1) examining the importance of having visibility to natural gas situational awareness through enhancing understanding of the tools and methods that are and will be available to monitor natural gas availability, transmission, and distribution across the BES and (2) working with the E-ISAC to increase situational awareness related to physical security.

Future Plans

In 2023 and beyond, efforts related to natural gas and physical security situational awareness will continue. The Situation Awareness group is also evaluating needed upgrades to or replacements of RCIS and the Resource Adequacy Tool.

Resource Requirements

Personnel

The increase of 0.94 FTEs from the 2021 budget to the 2022 budget is the result of a resource reallocation to Situation Awareness from Event Analysis to realign staff with current needs.

Consultants and Contracts

The \$15k for Consultants & Contracts in the 2022 budget is for data collection and analysis software enhancements. A comparison of 2021 and 2022 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*.

Other Significant Direct Costs

Office Costs

The \$84k increase for Office Costs from the 2021 budget to the 2022 budget is primarily due to the addition of software hosting and support costs for the situation awareness tool disaster recovery site discussed above well as annual software license and support escalation assumptions for the suite of Situation Awareness tools.

Fixed Asset Additions

The Fixed Asset budget includes approximately \$82k for two thirds of the situation awareness tool enhancement costs, with the remaining investment budgeted in the E-ISAC fixed asset budget.

Section A – 2022 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions 2021 Budget & Projection, and 2022 Budget							
Situation Awareness							
	2021 Budget	2021 Projection	Variance 2021 Projection v 2021 Budget Over(Under)	2022 Budget	Variance 2022 Budget v 2021 Budget Over(Under)	2022 Budget Prior Draft	Variance to Prior Draft Over(Under)
Funding							
NERC Funding							
NERC Assessments	\$ 4,441,980	\$ 4,441,980	\$ -	\$ 5,072,463	\$ 630,484	\$ 5,103,980	\$ (31,517)
Penalties Released	-	-	-	-	-	-	-
Total NERC Funding	\$ 4,441,980	\$ 4,441,980	\$ -	\$ 5,072,463	\$ 630,484	\$ 5,103,980	\$ (31,517)
Third-Party Funding	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Testing, Renewal, & Continuing Ed Fees	-	-	-	-	-	-	-
Services & Software	-	-	-	-	-	-	-
Miscellaneous	-	-	-	-	-	-	-
Interest & Investment Income	9,009	805	(8,204)	4,150	(4,859)	4,150	-
Total Funding (A)	\$ 4,450,989	\$ 4,442,785	\$ (8,203)	\$ 5,076,614	\$ 625,625	\$ 5,108,131	\$ (31,517)
Expenses							
Personnel Expenses							
Salaries	\$ 993,129	\$ 1,158,421	\$ 165,292	\$ 1,227,161	\$ 234,032	\$ 1,227,161	\$ -
Payroll Taxes	65,048	71,393	6,345	76,087	11,039	76,087	-
Benefits	268,930	247,785	(21,145)	258,757	(10,173)	259,407	(650)
Retirement Costs	111,336	124,012	12,676	134,973	23,636	134,973	-
Total Personnel Expenses	\$ 1,438,443	\$ 1,601,611	\$ 163,168	\$ 1,696,978	\$ 258,535	\$ 1,697,628	\$ (650)
Meetings & Travel Expenses							
Meetings & Conference Calls	\$ 66,310	\$ 61,500	\$ (4,810)	\$ 70,000	\$ 3,690	\$ 70,000	\$ -
Travel	20,774	7,419	(13,355)	22,000	1,226	22,000	-
Total Meetings & Travel Expenses	\$ 87,084	\$ 68,919	\$ (18,165)	\$ 92,000	\$ 4,916	\$ 92,000	\$ -
Operating Expenses, excluding Depreciation							
Consultants & Contracts	\$ 15,000	\$ 15,000	\$ -	\$ 15,000	\$ -	\$ 15,000	\$ -
Office Rent	-	-	-	-	-	-	-
Office Costs	1,133,065	1,187,002	53,937	1,217,412	84,347	1,242,412	(25,000)
Professional Services	-	-	-	-	-	-	-
Miscellaneous	1,100	1,100	-	1,100	-	1,100	-
Total Operating Expenses, excluding Depreciation	\$ 1,149,165	\$ 1,203,102	\$ 53,937	\$ 1,233,512	\$ 84,347	\$ 1,258,512	\$ (25,000)
Total Direct Expenses	\$ 2,674,692	\$ 2,873,632	\$ 198,940	\$ 3,022,490	\$ 347,798	\$ 3,048,140	\$ (25,650)
Indirect Expenses	\$ 1,604,603	\$ 1,802,127	\$ 197,524	\$ 1,872,818	\$ 268,216	\$ 1,903,685	\$ (30,867)
Other Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 4,279,294	\$ 4,675,759	\$ 396,464	\$ 4,895,308	\$ 616,014	\$ 4,951,825	\$ (56,517)
Change in Net Assets (=A-B)	\$ 171,694	\$ (232,973)	\$ (404,668)	\$ 181,306	\$ 9,611	\$ 156,306	\$ 25,000
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 148,541	\$ 161,346	\$ 12,805	\$ 259,065	\$ 110,524	\$ 128,629	\$ 130,437
Financing Activity							
Loan or Financing Lease - Borrowing (-)	\$ (4,930)	\$ (5,151)	\$ (221)	\$ (110,708)	\$ (105,778)	\$ (5,272)	\$ (105,437)
Loan or Financing Lease - Principal Payments (+)	28,084	29,340	1,256	32,949	4,865	32,949	-
Net Financing Activity (D)	\$ 23,153	\$ 24,189	\$ 1,036	\$ (77,759)	\$ (100,913)	\$ 27,677	\$ (105,437)
Total Budget (=B+C+D)	\$ 4,450,989	\$ 4,861,294	\$ 410,305	\$ 5,076,614	\$ 625,625	\$ 5,108,131	\$ (31,517)
Change in Working Capital (=A-B-C-D)	\$ -	\$ (418,508)	\$ (418,508)	\$ -	\$ -	\$ -	\$ -
FTEs	6.58	6.84	0.26	7.52	0.94	7.52	0.00

Event Analysis

Event Analysis (in whole dollars)					
	2021 Budget	2022 Budget	Increase (Decrease)	2022 Budget - Prior Draft	Variance to Prior Draft Over(Under)
FTE Reporting	7.52	6.58	(0.94)	6.58	-
Direct Expenses	\$ 2,389,731	\$ 2,018,854	\$ (370,877)	\$ 2,058,327	\$ (39,473)
Indirect Expenses	1,833,832	1,638,716	(195,116)	1,665,725	(27,009)
Other Non-Operating Expenses	-	-	-	-	-
Fixed Asset Additions	37,190	192,619	155,430	100,362	92,257
Financing Activity	26,461	(68,040)	(94,501)	24,217	(92,257)
Total Budget	\$ 4,287,213	\$ 3,782,150	\$ (505,063)	\$ 3,848,631	\$ (66,482)

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.

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 on the order of 150 events per year on average. The team also conducts calls facilitated by the REs with over 140 registered entities to discuss in detail and finalize root and contributing causes for the categorized events analyzed each year. 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

Event Analysis uses an Event Analysis data management system 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 is used to fuel event cause coding, general system performance analysis, and key performance indicators. Maintenance and incremental improvements to the existing database are the current priorities. Future

upgrades are being informed by in-house prototyping efforts to improve data manipulation. The focus is on tools and methods to support more flexible and nimble analytics.

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 REs 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 Power Human Performance Improvement 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.

2022 Goals and Deliverables

In addition to continuing the activities described above, in 2022 the Event Analysis group will continue to update/upgrade data collection and storage capabilities and capacity for its data management system. 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 human performance events like the annual ERO Enterprise and industry-wide Electric Power Human Performance Improvement Symposium and/or virtual sessions.

Future Plans

In 2023 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 decrease of 0.94 FTEs is related to a repurposing of a position that was previously charged to the Event Analysis department for organizational structure purposes and is being reallocated to the Situation Awareness group to realign staffing with current needs. The core resources for and investments in the Event Analysis program remain the same as 2021.

Consultants and Contracts

The \$118k for Consultants & Contracts in the 2022 budget includes support and maintenance for the Event Analysis data management system and Event Analysis review augmentation. A comparison of 2021 and 2022 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*.

Other Significant Direct Costs

Fixed Asset Additions

The 2022 Fixed Asset budget includes \$60k for Event Analysis data management system enhancements as well as data integration efforts with other ERO data management systems.

Section A – 2022 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions							
2021 Budget & Projection, and 2022 Budget							
Event Analysis							
	2021	2021	Variance	2022	Variance	2022 Budget	Variance to
	Budget	Projection	2021 Projection	Budget	2022 Budget	2022 Budget	Prior Draft
			v 2021 Budget		v 2021 Budget	Prior Draft	Over(Under)
			Over(Under)		Over(Under)		Over(Under)
Funding							
NERC Funding							
NERC Assessments	\$ 4,276,917	\$ 4,276,917	\$ -	\$ 3,778,518	\$ (498,398)	\$ 3,845,000	\$ (66,482)
Penalties Released	-	-	-	-	-	-	-
Total NERC Funding	\$ 4,276,917	\$ 4,276,917	\$ -	\$ 3,778,518	\$ (498,398)	\$ 3,845,000	\$ (66,482)
Third-Party Funding	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Testing, Renewal, & Continuing Ed Fees	-	-	-	-	-	-	-
Services & Software	-	-	-	-	-	-	-
Miscellaneous	-	-	-	-	-	-	-
Interest & Investment Income	10,296	799	(9,497)	3,632	(6,664)	3,632	-
Total Funding (A)	\$ 4,287,213	\$ 4,277,716	\$ (9,497)	\$ 3,782,150	\$ (505,063)	\$ 3,848,631	\$ (66,482)
Expenses							
Personnel Expenses							
Salaries	\$ 1,630,745	\$ 1,333,307	\$ (297,439)	\$ 1,297,758	\$ (332,987)	\$ 1,331,406	\$ (33,647)
Payroll Taxes	85,892	73,817	(12,075)	73,630	(12,263)	74,053	(424)
Benefits	218,265	196,445	(21,820)	205,684	(12,581)	207,652	(1,967)
Retirement Costs	179,177	149,884	(29,293)	145,524	(33,653)	148,958	(3,434)
Total Personnel Expenses	\$ 2,114,080	\$ 1,753,453	\$ (360,627)	\$ 1,722,596	\$ (391,484)	\$ 1,762,069	\$ (39,473)
Meetings & Travel Expenses							
Meetings & Conference Calls	\$ 18,930	\$ 13,000	\$ (5,930)	\$ 35,000	\$ 16,070	\$ 35,000	\$ -
Travel	89,031	31,797	(57,234)	91,000	1,969	91,000	-
Total Meetings & Travel Expenses	\$ 107,961	\$ 44,797	\$ (63,164)	\$ 126,000	\$ 18,039	\$ 126,000	\$ -
Operating Expenses, excluding Depreciation							
Consultants & Contracts	\$ 115,590	\$ 115,590	\$ -	\$ 118,158	\$ 2,568	\$ 118,158	\$ -
Office Rent	-	-	-	-	-	-	-
Office Costs	50,500	49,200	(1,300)	50,500	-	50,500	-
Professional Services	-	-	-	-	-	-	-
Miscellaneous	1,600	1,600	-	1,600	-	1,600	-
Total Operating Expenses, excluding Depreciation	\$ 167,690	\$ 166,390	\$ (1,300)	\$ 170,258	\$ 2,568	\$ 170,258	\$ -
Total Direct Expenses	\$ 2,389,731	\$ 1,964,640	\$ (425,091)	\$ 2,018,854	\$ (370,877)	\$ 2,058,327	\$ (39,473)
Indirect Expenses	\$ 1,833,832	\$ 1,684,351	\$ (149,480)	\$ 1,638,716	\$ (195,116)	\$ 1,665,725	\$ (27,009)
Other Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 4,223,562	\$ 3,648,991	\$ (574,571)	\$ 3,657,570	\$ (565,992)	\$ 3,724,052	\$ (66,482)
Change in Net Assets (=A-B)	\$ 63,651	\$ 628,725	\$ 565,075	\$ 124,580	\$ 60,929	\$ 124,580	\$ -
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 37,190	\$ 28,593	\$ (8,597)	\$ 192,619	\$ 155,430	\$ 100,362	\$ 92,257
Financing Activity							
Loan or Financing Lease - Borrowing (-)	\$ (5,635)	\$ (5,106)	\$ 529	\$ (96,870)	\$ (91,235)	\$ (4,613)	\$ (92,257)
Loan or Financing Lease - Principal Payments (+)	32,096	29,083	(3,013)	28,830	(3,265)	28,830	-
Net Financing Activity (D)	\$ 26,461	\$ 23,977	\$ (2,484)	\$ (68,040)	\$ (94,501)	\$ 24,217	\$ (92,257)
Total Budget (=B+C+D)	\$ 4,287,213	\$ 3,701,560	\$ (585,652)	\$ 3,782,150	\$ (505,063)	\$ 3,848,631	\$ (66,482)
Change in Working Capital (=A-B-C-D)	\$ -	\$ 576,156	\$ 576,156	\$ -	\$ -	\$ -	\$ -
FTEs	7.52	6.78	(0.74)	6.58	(0.94)	6.58	0.00

Electricity Information Sharing and Analysis Center

E-ISAC (including CRISP) (in whole dollars)					
	2021 Budget	2022 Budget	Increase (Decrease)	2022 Budget - Prior Draft	Variance to Prior Draft Over(Under)
FTE Reporting	39.48	43.95	4.47	43.95	-
Direct Expenses	\$ 20,100,328	\$ 21,134,114	\$ 1,033,786	\$ 21,097,508	\$ 36,606
Indirect Expenses	9,315,576	10,944,281	1,628,704	11,124,660	(180,380)
Other Non-Operating Expenses	-	-	-	-	-
Fixed Asset Additions	271,624	976,958	705,334	410,813	566,145
Financing Activity	134,209	(454,407)	(588,616)	161,738	(616,145)
Total Budget	\$ 29,821,738	\$ 32,600,947	\$ 2,779,209	\$ 32,794,720	\$ (193,773)

Background and Scope

In 2017 the E-ISAC, with guidance from the Electricity Subsector Coordinating Council (ESCC) Member Executive Committee (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. In 2020, the strategic plan was reviewed and validated in terms of the primary focus areas. Additionally, the opportunity was taken to identify priority initiatives in the areas of operational technology risk, automated information sharing, and improved operational effectiveness.

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, Pacific Northwest National Laboratory (PNNL), and the Argonne National Laboratory. Using passive information sharing devices (ISD) on participant networks outside boundary firewalls, participant data is collected and then matched against known threat signatures—classified and unclassified—to identify potential threats and provide participants with recommended mitigation steps. Aggregated indicators of compromise and other relevant security information are shared with all E-ISAC members, regardless of participation in CRISP.

PNNL is the primary subcontractor to NERC in connection with the provision of CRISP services to participating utilities. PNNL is a U.S. DOE National Laboratory, operated by Battelle with oversight by the DOE. PNNL is responsible for the deployment of the required technology, supporting infrastructure, analysis, and technical capabilities for CRISP.

The CRISP budget includes two major categories of expense: (1) costs funded fully by CRISP participants (i.e., participant-paid-only costs), which include the contract with PNNL, the annual security review, and any additional programs agreed to be funded exclusively by CRISP participants; and (2) operational and administrative program costs, which are funded 50% by participants and 50% by NERC assessments. These operational and administrative expenses include dedicated personnel for CRISP program management and administration, as well as time allocated from E-ISAC staff for data analysis. For the 2022 CRISP budget

this equates to 3.94 FTEs, as shown on the “CRISP Only” Statement of Activities (SOA) report on page 58. The remaining operational and administrative expenses include hardware and software, other office costs, insurance, professional services, meetings and travel, and indirect cost allocations.

The participant-paid-only costs make up the majority of the CRISP budget, particularly the PNNL contract. For 2022, the total participant-paid-only costs for the CRISP budget is approximately \$7.6M, of which \$5.7M is for the contract with PNNL. These participant-paid-only costs as well as 50% of the CRISP operational and administrative expenses that are paid by CRISP participants are shown on the “Third-Party Funding” line of the “CRISP Only” SOA report on page 53. Also for 2022, CRISP is anticipating to collect an additional \$300k of revenue from participants to fund a CRISP operating reserve (subject to final approval of CRISP members), bringing the total “Third-Party Funding” line to \$7.9M. Funding for the remaining 50% of CRISP operational and administrative costs (less additional funding from interest and investment income) is shown on the “NERC Assessments” line of the “CRISP Only” SOA report.

Stakeholder Engagement and Benefit

Active engagement of members (electricity industry asset owners and operators) and partners (government and other security organizations) expands the breadth of information sources, leverages cross-sector security expertise, and increases the use of shared information. Electric power industry members are the defenders of critical electricity infrastructure and the collection and dissemination of timely and actionable security-related information is a key component of that defense. Therefore, successful engagement with electric industry members and other stakeholders is vital to cyber and physical security risk identification, sharing, analysis, and mitigation.

To this end, in 2020 the E-ISAC increased organizational membership by 31% across both member and partner organizations with a 57% increase in E-ISAC Portal users. Improved process efficiency enabled by customer relationship management (CRM) technology, leveraging industry trade organizations, establishment of a Designated Approving Official (DAO) role for each member organization, and a tighter tie with participation in the upcoming GridEx VI contributed to this increase.

Tools and Technology

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

- The E-ISAC Portal
- Technology funded and supported as part of CRISP
- An E-ISAC data platform
- Industry critical broadcast program (CBP) communication capability
- Incident (case) management and threat intelligence tools
- Various third-party physical and cyber security sharing information services
- A CRM system
- Survey tools and virtual event hub and delivery tools
- Secure text communications for facilitating threat communications among members
- Email, document sharing, and on-line collaboration tools
- Basic data storage and technology infrastructure on premise, in leased data centers, and via various cloud service providers.

Key Efforts Underway

During 2020, despite unprecedented challenges from a global pandemic, closure of offices and a move to a remote work force, and the Solar Winds cyber supply chain compromise, the E-ISAC took steps to improve the efficiency and effectiveness of operations. In support of Focus Areas 3, 4, and 5 of the *ERO Enterprise Long-Term Strategy*, leadership was strengthened and an around-the-clock integrated watch operations team was established. E-ISAC authored and posted 1,195 information shares to the E-ISAC Portal in 2020. This was an increase of over 50% from 2019, with an average of over 120 posts per month for the last three months of 2020. Increased information sharing from members and partners, investments in new third-party security information sharing services, increased staff focus, and the 24x7 watch operations staff all contributed to this increase. Consistent sharing of original and partner-provided analytical tools such as Argonne National Lab’s Protective Measures Index (PMI) tool and associated training was also established. 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 E-ISAC accomplishments include:

- Establishing 24x7 watch operations;
- Initiation of the CRISP OT pilots with Dragos and further planning with DOE on the Essence OT pilot project;
- Supporting U.S. government initiatives, including the Cyberspace Solarium Commission and the National Infrastructure Advisory Council (NIAC);
- Implementing the E-ISAC data platform;
- Increasing information sharing with members and government partners by 57%;
- Operating a CBP to quickly disseminate information regarding imminent threats and other important notifications;
- Transition of new member/partner on-boarding and the case management processes to the Salesforce CRM system and initiation of the effort to migrate the E-ISAC Portal to Salesforce;
- Increasing member/partner membership by 31% within the United States and Canada across all major industry trade groups;
- Operating the industry-supported Physical Security Advisory Group (PSAG), a two-year action plan to expand physical security risk identification, risk mitigation, and preparedness;
- Heightened role and leadership provided to the ESCC and ESCC Tiger Teams;
- Completion of a prototype and discovery task force effort for automated information sharing;
- Entering into detailed collaboration agreements with the Ontario Independent Electricity System Operator (IESO), the Downstream Natural Gas ISAC (DNG-ISAC) and the Multi-State ISAC (MS-ISAC);
- Conducting events such as GridEx and the annual Grid Security Conference (GridSecCon); and
- Further strengthening E-ISAC’s talent pool and analytic capabilities, including both cyber and physical security expertise.

As part of management’s planning efforts for 2021 and 2022, 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. The primary long-term term focus areas of the E-ISAC over the next three to five years are to increase E-ISAC’s analytical capabilities; identify and share operational technology risks and risk mitigation strategies; better leverage classified and other critical threat and intelligence; and evaluate the issues and alternatives to extending services and capabilities to support the downstream natural gas sector. These efforts are directly aligned with the *ERO Enterprise Long-Term Strategy* Focus Area 3 objective to build a strong, E-ISAC-based security capability.

With this focus 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 use supporting security exercises (e.g., GridEx), conferences (e.g., GridSecCon), and other resource intensive activities.

2022 Goals and Deliverables

The E-ISAC remains focused on furtherance of the strategic efforts discussed above as 2022 marks the fifth year of the long-term strategy. Building on its existing foundation and current resources, the E-ISAC 2022 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

- Continuing to build and enrich the value of E-ISAC membership with a specific focus on increasing public power and small and medium sized utility engagement in partnership with trade organizations and in new E-ISAC services developed under the White House 100-day Industrial Control Systems (ICS) Cybersecurity Initiative action plan;
- Strengthening trusted source relationships in both the private sector and government;
- Enhancing engagement within the electricity industry in both the United States and Canada via resumed Industry Engagement Programs, GridSecCon, and increased collaboration with ERO regional offices; and
- Continuing to improve and mature security exercises by expanding and increasing the diversity of participation and developing and refining scenarios to provide meaningful and practical learning opportunities via GridEx VI.

Information Sharing

- Increasing the quality and volume of information shared with E-ISAC from industry, government partners, and trusted third parties (including information from classified sources);
- Strengthening the E-ISAC’s capabilities for information sharing via E-ISAC Portal enhancements and pilot of the automated information sharing capability;
- Improving timeliness and actionable value of information shared from the E-ISAC to industry via a Priority Intelligence Requirements (PIR) process; and
- Continuing to operate the 24x7 watch operations in an effective, efficient, and responsive manner

Analysis

- Effectively collecting data and capturing new information sources via CRISP OT pilot and evaluating and expanding third party tools and data sources;
- Incorporating existing and new tools and techniques into the analysis process; and
- Strengthening analytical capabilities through strategic relationships and hiring, developing, and retaining qualified staff.

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.

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 with stakeholders and government partners to evaluate the benefits, resource requirements, potential challenges, and risks associated with these initiatives, as well as in the formulation of appropriate program activities, budgets, and schedules through transparent resource planning and budget approval processes.

Resource Requirements

Personnel

The increase of 4.47 FTEs reflects the addition of four positions in E-ISAC, particularly related to increasing analytical capabilities and leveraging of threat intelligence and overall strategy execution and operations management, and one in CRISP for OT program support. This is offset by the reallocation of one open position from E-ISAC to Administrative Programs in support of the People Strategy discussed in the *Introduction and Executive Summary*. The net FTE number also reflects a partial direct allocation of a project manager in IT in lieu of a contract resource.

Consultants and Contracts

Consultants & Contracts expenses for the E-ISAC 2022 budget, including CRISP, are approximately \$8.3M, which is a decrease of \$400k from 2021. Excluding CRISP, E-ISAC's Consultants & Contracts expenses are decreasing \$229k over 2021, primarily attributable to a contractor conversion to a NERC employee and use of a NERC IT project manager in lieu of a contract resource (offset by higher spending in personnel expenses) as well as a reduction in biennial GridEx expenses for the 2022 off-year. CRISP's Consultants & Contracts expenses are \$6.2M, which is \$172k less than the 2021 budget, predominantly due to the removal of OT program pilot support. This decrease offset by higher spending in personnel and an increase in PNNL costs for expenses related to new offerings and upgrades, a data backup location, and audit support. A comparison of 2021 and 2022 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*.

Other Significant Direct Costs

Office Costs

The \$385k increase for Office Costs for E-ISAC (including CRISP) from the 2021 budget to the 2022 budget is primarily related to software licenses, support, and maintenance costs for CRISP analytics and OT (much of which is participant-funded).

Fixed Asset Additions

The 2022 Fixed Asset budget for E-ISAC (including CRISP) includes approximately \$42k for one-third of the situation awareness tool enhancements costs (with the remaining two-thirds budgeted in Situation Awareness) and \$50k for equipment and hardware.

Section A – 2022 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions							
2021 Budget & Projection, and 2022 Budget							
E-ISAC (including CRISP)							
	2021	2021	Variance	2022	Variance	2022 Budget	Variance to
	Budget	Projection	2021 Projection	Budget	2022 Budget	2022 Budget	Prior Draft
			v 2021 Budget		v 2021 Budget	Prior Draft	Over(Under)
			Over(Under)		Over(Under)		Over(Under)
Funding							
NERC Funding							
NERC Assessments	\$ 22,673,035	\$ 22,673,035	\$ -	\$ 24,900,480	\$ 2,227,445	\$ 25,207,675	\$ (307,195)
Penalties Released	-	-	-	-	-	-	-
Total NERC Funding	\$ 22,673,035	\$ 22,673,035	\$ -	\$ 24,900,480	\$ 2,227,445	\$ 25,207,675	\$ (307,195)
Third-Party Funding	\$ 7,064,343	\$ 7,062,839	\$ (1,504)	\$ 7,917,385	\$ 853,042	\$ 7,503,963	\$ 413,422
Testing, Renewal, & Continuing Ed Fees	-	-	-	-	-	-	-
Services & Software	-	-	-	-	-	-	-
Miscellaneous	-	60,000	60,000	60,000	60,000	60,000	-
Interest & Investment Income	84,360	9,230	(75,130)	23,082	(61,278)	23,082	-
Total Funding (A)	\$ 29,821,738	\$ 29,805,104	\$ (16,634)	\$ 32,900,947	\$ 3,079,209	\$ 32,794,720	\$ 106,227
Expenses							
Personnel Expenses							
Salaries	\$ 7,283,602	\$ 7,215,324	\$ (68,277)	\$ 8,011,321	\$ 727,719	\$ 8,078,951	\$ (67,630)
Payroll Taxes	413,208	442,070	28,862	480,111	66,903	480,807	(696)
Benefits	990,022	902,311	(87,711)	1,069,032	79,010	1,069,426	(393)
Retirement Costs	776,988	772,202	(4,785)	869,944	92,957	876,464	(6,520)
Total Personnel Expenses	\$ 9,463,819	\$ 9,331,907	\$ (131,912)	\$ 10,430,408	\$ 966,589	\$ 10,505,648	\$ (75,240)
Meetings & Travel Expenses							
Meetings & Conference Calls	\$ 82,812	\$ 92,000	\$ 9,188	\$ 102,000	\$ 19,188	\$ 102,000	\$ -
Travel	214,268	76,524	(137,744)	222,000	7,732	222,000	-
Total Meetings & Travel Expenses	\$ 297,080	\$ 168,524	\$ (128,556)	\$ 324,000	\$ 26,920	\$ 324,000	\$ -
Operating Expenses, excluding Depreciation							
Consultants & Contracts	\$ 8,725,641	\$ 9,533,426	\$ 807,785	\$ 8,325,861	\$ (399,780)	\$ 8,337,097	\$ (11,236)
Office Rent	-	-	-	-	-	-	-
Office Costs	1,469,438	1,720,549	251,111	1,854,095	384,657	1,771,013	83,082
Professional Services	135,000	178,620	43,620	190,000	55,000	150,000	40,000
Miscellaneous	9,350	9,350	-	9,750	400	9,750	-
Total Operating Expenses, excluding Depreciation	\$ 10,339,429	\$ 11,441,945	\$ 1,102,516	\$ 10,379,706	\$ 40,277	\$ 10,267,860	\$ 111,846
Total Direct Expenses	\$ 20,100,328	\$ 20,942,376	\$ 842,048	\$ 21,134,114	\$ 1,033,786	\$ 21,097,508	\$ 36,606
Indirect Expenses	\$ 9,315,576	\$ 9,828,340	\$ 512,764	\$ 10,944,281	\$ 1,628,704	\$ 11,124,660	\$ (180,380)
Other Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 29,415,905	\$ 30,770,716	\$ 1,354,812	\$ 32,078,395	\$ 2,662,490	\$ 32,222,168	\$ (143,773)
Change in Net Assets (=A-B)	\$ 405,833	\$ (965,613)	\$ (1,371,446)	\$ 822,551	\$ 416,718	\$ 572,551	\$ 250,000
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 271,624	\$ 253,274	\$ (18,350)	\$ 976,958	\$ 705,334	\$ 410,813	\$ 566,145
Financing Activity							
Loan or Financing Lease - Borrowing (-)	\$ (28,579)	\$ (28,933)	\$ (354)	\$ (646,952)	\$ (618,373)	\$ (30,807)	\$ (616,145)
Loan or Financing Lease - Principal Payments (+)	162,789	164,802	2,013	192,545	29,757	192,545	0
Net Financing Activity (D)	\$ 134,209	\$ 135,869	\$ 1,660	\$ (454,407)	\$ (588,616)	\$ 161,738	\$ (616,145)
Total Budget (=B+C+D)	\$ 29,821,738	\$ 31,159,860	\$ 1,338,122	\$ 32,600,947	\$ 2,779,209	\$ 32,794,720	\$ (193,773)
Change in Working Capital (=A-B-C-D)	\$ (0)	\$ (1,354,756)	\$ (1,354,756)	\$ 300,000	\$ 300,000	\$ 0	\$ 300,000
FTEs	39.48	38.42	(1.06)	43.95	4.47	43.95	0.00

Section A – 2022 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions							
2021 Budget & Projection, and 2022 Budget							
E-ISAC Only							
	2021	2021	Variance	2022	Variance	2022 Budget	Variance to
	Budget	Projection	2021 Projection	Budget	2022 Budget	2022 Budget	Prior Draft
			v 2021 Budget		v 2021 Budget	Prior Draft	Over(Under)
			Over(Under)		Over(Under)		Over(Under)
Funding							
NERC Funding							
NERC Assessments	\$ 21,577,172	\$ 21,577,172	\$ -	\$ 23,555,615	\$ 1,978,443	\$ 23,813,848	\$ (258,233)
Penalties Released	-	-	-	-	-	-	-
Total NERC Funding	\$ 21,577,172	\$ 21,577,172	\$ -	\$ 23,555,615	\$ 1,978,443	\$ 23,813,848	\$ (258,233)
Third-Party Funding	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Testing, Renewal, & Continuing Ed Fees	-	-	-	-	-	-	-
Services & Software	-	-	-	-	-	-	-
Miscellaneous	-	60,000	60,000	60,000	60,000	60,000	-
Interest & Investment Income	48,360	4,230	(44,130)	22,082	(26,278)	22,082	-
Total Funding (A)	\$ 21,625,531	\$ 21,641,402	\$ 15,870	\$ 23,637,696	\$ 2,012,165	\$ 23,895,930	\$ (258,233)
Expenses							
Personnel Expenses							
Salaries	\$ 6,608,091	\$ 6,538,421	\$ (69,670)	\$ 7,160,834	\$ 552,744	\$ 7,228,465	\$ (67,630)
Payroll Taxes	384,291	414,728	30,437	439,258	54,967	439,954	(696)
Benefits	912,362	797,901	(114,461)	933,864	21,502	934,258	(393)
Retirement Costs	726,065	723,245	(2,820)	800,898	74,833	807,418	(6,520)
Total Personnel Expenses	\$ 8,630,808	\$ 8,474,295	\$ (156,514)	\$ 9,334,855	\$ 704,046	\$ 9,410,095	\$ (75,240)
Meetings & Travel Expenses							
Meetings & Conference Calls	\$ 75,240	\$ 90,000	\$ 14,760	\$ 90,000	\$ 14,760	\$ 90,000	\$ -
Travel	192,901	68,893	(124,008)	200,000	7,099	200,000	-
Total Meetings & Travel Expenses	\$ 268,141	\$ 158,893	\$ (109,248)	\$ 290,000	\$ 21,859	\$ 290,000	\$ -
Operating Expenses, excluding Depreciation							
Consultants & Contracts	\$ 2,399,918	\$ 2,558,901	\$ 158,983	\$ 2,171,041	\$ (228,877)	\$ 2,221,041	\$ (50,000)
Office Rent	-	-	-	-	-	-	-
Office Costs	1,357,910	1,310,644	(47,266)	1,384,704	26,794	1,353,475	31,229
Professional Services	-	-	-	-	-	-	-
Miscellaneous	8,900	8,900	-	9,200	300	9,200	-
Total Operating Expenses, excluding Depreciation	\$ 3,766,728	\$ 3,878,445	\$ 111,717	\$ 3,564,945	\$ (201,783)	\$ 3,583,716	\$ (18,771)
Total Direct Expenses	\$ 12,665,677	\$ 12,511,633	\$ (154,045)	\$ 13,189,800	\$ 524,122	\$ 13,283,811	\$ (94,011)
Indirect Expenses	\$ 8,627,890	\$ 9,129,460	\$ 501,570	\$ 9,963,978	\$ 1,336,088	\$ 10,128,200	\$ (164,223)
Other Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 21,293,567	\$ 21,641,092	\$ 347,525	\$ 23,153,777	\$ 1,860,210	\$ 23,412,011	\$ (258,233)
Change in Net Assets (=A-B)	\$ 331,964	\$ 309	\$ (331,655)	\$ 483,919	\$ 151,954	\$ 483,919	\$ -
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 207,678	\$ 192,731	\$ (14,947)	\$ 897,624	\$ 689,945	\$ 336,668	\$ 560,956
Financing Activity							
Loan or Financing Lease - Borrowing (-)	\$ (26,466)	\$ (27,050)	\$ (584)	\$ (589,003)	\$ (562,537)	\$ (28,048)	\$ (560,956)
Loan or Financing Lease - Principal Payments (+)	150,753	154,078	3,326	175,299	24,546	175,299	-
Net Financing Activity (D)	\$ 124,286	\$ 127,028	\$ 2,742	\$ (413,705)	\$ (537,991)	\$ 147,251	\$ (560,956)
Total Budget (=B+C+D)	\$ 21,625,531	\$ 21,960,852	\$ 335,320	\$ 23,637,696	\$ 2,012,165	\$ 23,895,930	\$ (258,233)
Change in Working Capital (=A-B-C-D)	\$ -	\$ (319,450)	\$ (319,450)	\$ -	\$ -	\$ -	\$ -
FTEs	36.66	35.92	(0.74)	40.01	3.35	40.01	0.00

Section A – 2022 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions							
2021 Budget & Projection, and 2022 Budget							
CRISP Only							
	2021	2021	Variance	2022	Variance	2022 Budget	Variance to
	Budget	Projection	2021 Projection	Budget	2022 Budget	2022 Budget	Prior Draft
			v 2021 Budget		v 2021 Budget	Prior Draft	Over(Under)
			Over(Under)		Over(Under)		Over(Under)
Funding							
NERC Funding							
NERC Assessments	\$ 1,095,863	\$ 1,095,863	\$ -	\$ 1,344,865	\$ 249,002	\$ 1,393,827	\$ (48,962)
Penalties Released	-	-	-	-	-	-	-
Total NERC Funding	\$ 1,095,863	\$ 1,095,863	\$ -	\$ 1,344,865	\$ 249,002	\$ 1,393,827	\$ (48,962)
Third-Party Funding	\$ 7,064,343	\$ 7,062,839	\$ (1,504)	\$ 7,917,385	\$ 853,042	\$ 7,503,963	\$ 413,422
Testing, Renewal, & Continuing Ed Fees	-	-	-	-	-	-	-
Services & Software	-	-	-	-	-	-	-
Miscellaneous	-	-	-	-	-	-	-
Interest & Investment Income	36,000	5,000	(31,000)	1,000	(35,000)	1,000	-
Total Funding (A)	\$ 8,196,207	\$ 8,163,702	\$ (32,505)	\$ 9,263,250	\$ 1,067,044	\$ 8,898,790	\$ 364,460
Expenses							
Personnel Expenses							
Salaries	\$ 675,511	\$ 676,903	\$ 1,392	\$ 850,486	\$ 174,975	\$ 850,486	\$ -
Payroll Taxes	28,917	27,342	(1,575)	40,853	11,936	40,853	-
Benefits	77,660	104,410	26,750	135,168	57,508	135,168	-
Retirement Costs	50,923	48,957	(1,966)	69,046	18,124	69,046	-
Total Personnel Expenses	\$ 833,011	\$ 857,612	\$ 24,602	\$ 1,095,553	\$ 262,543	\$ 1,095,553	\$ -
Meetings & Travel Expenses							
Meetings & Conference Calls	\$ 7,572	\$ 2,000	\$ (5,572)	\$ 12,000	\$ 4,428	\$ 12,000	\$ -
Travel	21,367	7,631	(13,736)	22,000	633	22,000	-
Total Meetings & Travel Expenses	\$ 28,939	\$ 9,631	\$ (19,308)	\$ 34,000	\$ 5,061	\$ 34,000	\$ -
Operating Expenses, excluding Depreciation							
Consultants & Contracts	\$ 6,325,723	\$ 6,974,525	\$ 648,802	\$ 6,154,820	\$ (170,903)	\$ 6,116,056	\$ 38,764
Office Rent	-	-	-	-	-	-	-
Office Costs	111,528	409,905	298,377	469,391	357,863	417,538	51,853
Professional Services	135,000	178,620	43,620	190,000	55,000	150,000	40,000
Miscellaneous	450	450	-	550	100	550	-
Total Operating Expenses, excluding Depreciation	\$ 6,572,701	\$ 7,563,500	\$ 990,799	\$ 6,814,761	\$ 242,060	\$ 6,684,144	\$ 130,617
Total Direct Expenses	\$ 7,434,651	\$ 8,430,743	\$ 996,093	\$ 7,944,314	\$ 509,664	\$ 7,813,697	\$ 130,617
Indirect Expenses	\$ 687,687	\$ 698,881	\$ 11,194	\$ 980,303	\$ 292,616	\$ 996,460	\$ (16,157)
Other Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 8,122,338	\$ 9,129,624	\$ 1,007,286	\$ 8,924,618	\$ 802,280	\$ 8,810,158	\$ 114,460
Change in Net Assets (=A-B)	\$ 73,869	\$ (965,922)	\$ (1,039,791)	\$ 338,633	\$ 264,764	\$ 88,633	\$ 250,000
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 63,946	\$ 60,543	\$ (3,403)	\$ 79,335	\$ 15,389	\$ 74,145	\$ 5,189
Financing Activity							
Loan or Financing Lease - Borrowing (-)	\$ (2,113)	\$ (1,883)	\$ 230	\$ (57,949)	\$ (55,836)	\$ (2,759)	\$ (55,189)
Loan or Financing Lease - Principal Payments (+)	12,036	10,724	(1,312)	17,247	5,211	17,247	-
Net Financing Activity (D)	\$ 9,923	\$ 8,841	\$ (1,082)	\$ (40,702)	\$ (50,625)	\$ 14,487	\$ (55,189)
Total Budget (=B+C+D)	\$ 8,196,207	\$ 9,199,008	\$ 1,002,801	\$ 8,963,250	\$ 767,044	\$ 8,898,790	\$ 64,460
Change in Working Capital (=A-B-C-D)	\$ -	\$ (1,035,306)	\$ (1,035,306)	\$ 300,000	\$ 300,000	\$ -	\$ 300,000
FTEs	2.82	2.50	(0.32)	3.94	1.12	3.94	0.00

Personnel Certification and Continuing Education

Personnel Certification and Continuing Education (in whole dollars)					
	2021 Budget	2022 Budget	Increase (Decrease)	2022 Budget - Prior Draft	Variance to Prior Draft Over(Under)
FTE Reporting	2.82	2.82	-	2.82	-
Direct Expenses	\$ 982,466	\$ 1,097,635	\$ 115,169	\$ 1,082,318	\$ 15,317
Indirect Expenses	687,687	702,307	14,620	713,882	(11,575)
Other Non-Operating Expenses	-	-	-	-	-
Fixed Asset Additions	56,446	56,837	391	17,298	39,539
Financing Activity	9,923	(29,160)	(39,083)	10,379	(39,539)
Total Budget	\$ 1,736,522	\$ 1,827,619	\$ 91,097	\$ 1,823,877	\$ 3,742

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;
- Improving of Provider Renewal Audits process;
- Updating the current SOCCEd platform to coincide with the revised Credential Maintenance Program Manual; and
- Continued improvements to the SOCCEd system to enhance user experiences.

2022 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 2022, 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 2023 and beyond, the Personnel Certification group will focus on transition and implementation plans for the primary activities in 2022. 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 2021 budget to the 2022 budget.

Consultants and Contracts

The \$75k increase for Consultants & Contracts from the 2021 budget to the 2022 budget is primarily attributable to additional support for a credential maintenance research project. A comparison of 2021 and 2022 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*.

Other Significant Direct Costs

There are no significant changes for any other direct costs.

Section A – 2022 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions 2021 Budget & Projection, and 2022 Budget							
Personnel Certification and Continuing Education							
	2021 Budget	2021 Projection	Variance 2021 Projection v 2021 Budget Over(Under)	2022 Budget	Variance 2022 Budget v 2021 Budget Over(Under)	2022 Budget Prior Draft	Variance to Prior Draft Over(Under)
Funding							
NERC Funding							
NERC Assessments	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Penalties Released	-	-	-	-	-	-	-
Total NERC Funding	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Third-Party Funding	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Testing, Renewal, & Continuing Ed Fees	1,801,634	1,556,737	(244,897)	1,756,723	(44,911)	1,756,723	-
Services & Software	-	-	-	-	-	-	-
Miscellaneous	-	500	500	-	-	-	-
Interest & Investment Income	7,200	2,000	(5,200)	500	(6,700)	500	-
Total Funding (A)	\$ 1,808,834	\$ 1,559,237	\$ (249,597)	\$ 1,757,223	\$ (51,611)	\$ 1,757,223	\$ -
Expenses							
Personnel Expenses							
Salaries	\$ 304,433	\$ 319,777	\$ 15,344	\$ 318,852	\$ 14,419	\$ 318,852	\$ -
Payroll Taxes	22,091	23,112	1,021	23,835	1,744	23,835	-
Benefits	44,346	40,535	(3,810)	43,222	(1,124)	43,622	(400)
Retirement Costs	33,665	35,842	2,177	35,638	1,973	35,638	-
Total Personnel Expenses	\$ 404,534	\$ 419,267	\$ 14,733	\$ 421,547	\$ 17,013	\$ 421,947	\$ (400)
Meetings & Travel Expenses							
Meetings & Conference Calls	\$ 20,192	\$ 5,000	\$ (15,192)	\$ 32,000	\$ 11,808	\$ 33,683	\$ (1,683)
Travel	13,190	4,711	(8,479)	14,000	810	14,000	-
Total Meetings & Travel Expenses	\$ 33,382	\$ 9,711	\$ (23,671)	\$ 46,000	\$ 12,618	\$ 47,683	\$ (1,683)
Operating Expenses, excluding Depreciation							
Consultants & Contracts	\$ 388,650	\$ 384,650	\$ (4,000)	\$ 463,188	\$ 74,538	\$ 448,188	\$ 15,000
Office Rent	-	-	-	-	-	-	-
Office Costs	155,600	164,877	9,277	166,600	11,000	164,200	2,400
Professional Services	-	-	-	-	-	-	-
Miscellaneous	300	300	-	300	-	300	-
Total Operating Expenses, excluding Depreciation	\$ 544,550	\$ 549,827	\$ 5,277	\$ 630,088	\$ 85,538	\$ 612,688	\$ 17,400
Total Direct Expenses	\$ 982,466	\$ 978,805	\$ (3,661)	\$ 1,097,635	\$ 115,169	\$ 1,082,318	\$ 15,317
Indirect Expenses	\$ 687,687	\$ 721,865	\$ 34,178	\$ 702,307	\$ 14,620	\$ 713,882	\$ (11,575)
Other Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 1,670,153	\$ 1,700,670	\$ 30,517	\$ 1,799,942	\$ 129,789	\$ 1,796,200	\$ 3,742
Change in Net Assets (=A-B)	\$ 138,681	\$ (141,433)	\$ (280,114)	\$ (42,719)	\$ (181,400)	\$ (38,977)	\$ (3,742)
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 56,446	\$ 54,730	\$ (1,716)	\$ 56,837	\$ 391	\$ 17,298	\$ 39,539
Financing Activity							
Loan or Financing Lease - Borrowing (-)	\$ (2,113)	\$ (2,184)	\$ (71)	\$ (41,516)	\$ (39,403)	\$ (1,977)	\$ (39,539)
Loan or Financing Lease - Principal Payments (+)	12,036	12,440	404	12,356	320	12,356	-
Net Financing Activity (D)	\$ 9,923	\$ 10,256	\$ 333	\$ (29,160)	\$ (39,083)	\$ 10,379	\$ (39,539)
Total Budget (=B+C+D)	\$ 1,736,522	\$ 1,765,656	\$ 29,134	\$ 1,827,619	\$ 91,097	\$ 1,823,877	\$ 3,742
Change in Working Capital (=A-B-C-D)	\$ 72,312	\$ (206,419)	\$ (278,731)	\$ (70,396)	\$ (142,708)	\$ (66,654)	\$ (3,742)
FTEs	2.82	2.90	0.08	2.82	0.00	2.82	0.00

Training and Education

Training and Education (in whole dollars)					
	2021 Budget	2022 Budget	Increase (Decrease)	2022 Budget - Prior Draft	Variance to Prior Draft Over(Under)
FTE Reporting	1.88	1.88	-	1.88	-
Direct Expenses	\$ 610,153	\$ 538,358	\$ (71,795)	\$ 540,358	\$ (2,000)
Indirect Expenses	458,458	468,205	9,747	475,921	(7,717)
Other Non-Operating Expenses	-	-	-	-	-
Fixed Asset Additions	9,297	37,891	28,594	11,532	26,359
Financing Activity	6,615	(19,440)	(26,055)	6,919	(26,359)
Total Budget	\$ 1,084,523	\$ 1,025,014	\$ (59,510)	\$ 1,034,730	\$ (9,717)

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 NERC¹¹ and ERO Enterprise staff 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.

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 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
- Web-based interactive audience response applications

Key Efforts Underway

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

¹¹ NERC's HR budget includes funding for general NERC employee training and development.

- 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 interactive audience response applications;
- Developing Confidential Information e-learning part 1 and the follow up live training (to be converted to e-learning at a later date);
- Developing CMEP e-learning modules for ERO Enterprise auditors, systems training products for data systems, including GADS Wind, and functional program training modules, such as the Cause Analysis e-learning module;
- Supporting the ERO's people plan and cultural initiatives; and
- Developing multi-modal Align training for registered entities, compliance enforcement authorities, and NERC.

2022 Goals and Deliverables

The Training and Education group's deliverables for 2022 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, etc. to reflect the enhancements to the data systems; and
- Design and development of cause analysis training.

Future Plans

In 2023 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 learning products to support NERC's People Strategy;
- 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 2021 budget to the 2022 budget.

Consultants and Contracts

The \$70k decrease for Consultants & Contracts from the 2021 budget to the 2022 budget is due to a reduction in ERO Enterprise transformation related training as current cultural initiatives mature. A comparison of 2021 and 2022 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*.

Other Significant Direct Costs

There are no significant changes for any other direct costs.

Section A – 2022 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions							
2021 Budget & Projection, and 2022 Budget							
Training and Education							
	2021	2021	Variance	2022	Variance	2022 Budget	Variance to
	Budget	Projection	2021 Projection	Budget	2022 Budget	2022 Budget	Prior Draft
			v 2021 Budget		v 2021 Budget	Prior Draft	Over(Under)
			Over(Under)		Over(Under)		Over(Under)
Funding							
NERC Funding							
NERC Assessments	\$ 1,081,949	\$ 1,081,949	\$ -	\$ 1,023,976	\$ (57,973)	\$ 1,033,693	\$ (9,717)
Penalties Released	-	-	-	-	-	-	-
Total NERC Funding	\$ 1,081,949	\$ 1,081,949	\$ -	\$ 1,023,976	\$ (57,973)	\$ 1,033,693	\$ (9,717)
Third-Party Funding	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Testing, Renewal, & Continuing Ed Fees	-	-	-	-	-	-	-
Services & Software	-	-	-	-	-	-	-
Miscellaneous	-	-	-	-	-	-	-
Interest & Investment Income	2,574	228	(2,346)	1,038	(1,536)	1,038	-
Total Funding (A)	\$ 1,084,523	\$ 1,082,177	\$ (2,346)	\$ 1,025,014	\$ (59,510)	\$ 1,034,730	\$ (9,717)
Expenses							
Personnel Expenses							
Salaries	\$ 226,511	\$ 235,503	\$ 8,992	\$ 234,880	\$ 8,369	\$ 234,880	\$ -
Payroll Taxes	18,582	18,410	(171)	18,880	298	18,880	-
Benefits	63,864	49,935	(13,929)	49,040	(14,824)	51,040	(2,000)
Retirement Costs	25,471	26,513	1,042	26,357	886	26,357	-
Total Personnel Expenses	\$ 334,429	\$ 330,362	\$ (4,067)	\$ 329,158	\$ (5,271)	\$ 331,158	\$ (2,000)
Meetings & Travel Expenses							
Meetings & Conference Calls	\$ 1,262	\$ 1,000	\$ (262)	\$ 2,000	\$ 738	\$ 2,000	\$ -
Travel	3,297	1,178	(2,119)	3,500	203	3,500	-
Total Meetings & Travel Expenses	\$ 4,559	\$ 2,178	\$ (2,381)	\$ 5,500	\$ 941	\$ 5,500	\$ -
Operating Expenses, excluding Depreciation							
Consultants & Contracts	\$ 170,000	\$ 110,000	\$ (60,000)	\$ 100,000	\$ (70,000)	\$ 100,000	\$ -
Office Rent	-	-	-	-	-	-	-
Office Costs	100,465	100,690	225	103,000	2,535	103,000	-
Professional Services	-	-	-	-	-	-	-
Miscellaneous	700	700	-	700	-	700	-
Total Operating Expenses, excluding Depreciation	\$ 271,165	\$ 211,390	\$ (59,775)	\$ 203,700	\$ (67,465)	\$ 203,700	\$ -
Total Direct Expenses	\$ 610,153	\$ 543,930	\$ (66,223)	\$ 538,358	\$ (71,795)	\$ 540,358	\$ (2,000)
Indirect Expenses	\$ 458,458	\$ 481,243	\$ 22,785	\$ 468,205	\$ 9,747	\$ 475,921	\$ (7,717)
Other Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 1,068,610	\$ 1,025,173	\$ (43,437)	\$ 1,006,562	\$ (62,048)	\$ 1,016,279	\$ (9,717)
Change in Net Assets (=A-B)	\$ 15,913	\$ 57,004	\$ 41,092	\$ 18,451	\$ 2,539	\$ 18,451	\$ -
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 9,297	\$ 8,181	\$ (1,116)	\$ 37,891	\$ 28,594	\$ 11,532	\$ 26,359
Financing Activity							
Loan or Financing Lease - Borrowing (-)	\$ (1,409)	\$ (1,461)	\$ (52)	\$ (27,677)	\$ (26,268)	\$ (1,318)	\$ (26,359)
Loan or Financing Lease - Principal Payments (+)	8,024	8,322	298	8,237	213	8,237	-
Net Financing Activity (D)	\$ 6,615	\$ 6,861	\$ 245	\$ (19,440)	\$ (26,055)	\$ 6,919	\$ (26,359)
Total Budget (=B+C+D)	\$ 1,084,523	\$ 1,040,215	\$ (44,308)	\$ 1,025,014	\$ (59,510)	\$ 1,034,730	\$ (9,717)
Change in Working Capital (=A-B-C-D)	\$ -	\$ 41,962	\$ 41,962	\$ -	\$ -	\$ -	\$ -
FTEs	1.88	1.94	0.06	1.88	0.00	1.88	0.00

Administrative Programs

Administrative Programs (in whole dollars)										
	Direct Expenses, Fixed Assets, & Net Financing Activity			FTEs			2022 Budget - Prior Draft	Prior Draft Over(Under)	2022 FTE - Prior Draft	Prior Draft Over(Under)
	2021 Budget	2022 Budget	Increase (Decrease)	2021 Budget	2022 Budget	Increase (Decrease)				
General & Administrative	\$ 11,304,770	\$ 11,736,346	\$ 431,576	17.86	18.80	0.94	\$12,199,060	\$ (462,714)	18.80	-
Legal and Regulatory	4,631,911	5,123,376	491,465	15.98	15.98	-	5,058,376	65,000	15.98	-
Information Technology	12,936,602	14,026,598	1,089,996	26.32	27.50	1.18	14,251,534	(224,936)	27.50	-
Human Resources & Administration	2,775,720	3,852,313	1,076,593	9.40	11.28	1.88	3,823,373	28,940	11.28	-
Finance and Accounting	2,052,043	2,186,385	134,342	7.52	7.52	-	2,178,185	8,200	7.52	-
Total Administrative Programs	\$ 33,701,046	\$ 36,925,018	\$ 3,223,972	77.08	81.08	4.00	\$37,510,528	\$ (585,510)	81.08	-

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 (G&A); (2) Legal and Regulatory; (3) IT; (4) Human Resources (HR) & 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.

G&A

The G&A 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 for (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 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 internally with staff and 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 REs. 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; and
- 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; and
- Managing internal communications in coordination with HR.

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 REs with international borders;
- Acting as the primary liaison with Canadian provincial, federal, and industry stakeholder groups related to reliability (e.g., Canada’s Energy and Utility Regulators [CAMPUT], NRCAN);
- 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 external and internal communication efforts as well as in the legislative and regulatory arenas related to reliability and security matters. As a registered lobbying organization, tracking and monitoring advocacy efforts for reliability and security could potentially trigger additional reporting requirements, calling for more vigilance in tracking costs. Additionally, communications activities are increasing to support NERC's People Strategy, transformation efforts and further coordination across the ERO Enterprise, the E-ISAC, and a potential future website redesign.

Resource Requirements

External Affairs staff is increasing by 0.94 FTEs from the 2021 budget to the 2022 budget due to the reallocation of an open position from Compliance Assurance to External Affairs for an employee communications position in support of the People Strategy discussed in the *Introduction and Executive Summary*. There is \$20k for Consultants & Contracts in the 2022 budget for general communications support. A comparison of 2021 and 2022 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*. The 2022 budget for External Affairs also includes \$40k for Professional Services for government relations support.

Board Costs

The following table details the Board costs included in the total G&A expenses.

Board of Trustee Expenses	2021 Budget	2022 Budget	Increase (Decrease)	
Meeting and Travel Expenses				
Quarterly Board Meetings	\$ 145,130	\$ 240,000	\$ 94,870	65.4%
Trustee Travel	97,934	160,000	62,066	63.4%
Total	\$ 243,064	\$ 400,000	\$ 156,936	64.6%
Professional Services				
Independent Trustee Fees	\$ 1,392,500	\$ 1,580,000	\$ 187,500	13.5%
Trustee Search Fees	50,000	-	(50,000)	-100.0%
Total	\$ 1,442,500	\$ 1,580,000	\$ 137,500	9.5%
Total	\$ 1,685,564	\$ 1,980,000	\$ 294,436	17.5%

The \$157k increase for meeting and travel expenses from the 2021 budget to the 2022 budget is primarily due to the planned return to in-person Board meetings and related travel, which is discussed in the *Introduction and Executive Summary*. The \$187k increase for independent trustee fees is predominately related to the addition of one Board member and planned increases to Trustee compensation.

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 REs. Additionally, the Legal and Regulatory department includes the Internal Audit and Corporate Risk Management (CRM) functions, explained further below.

Internal Audit and Corporate Risk Management

The Internal Audit group performs independent, objective activities (i.e., audits and assessments) designed to add value and improve NERC and RE 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.

Internal Audit specifically engages with the CCC to collaborate on monitoring of the ERO Enterprise as contemplated by ROP Sections 406, 506, and Appendix 4A. Internal Audit also collaborates with NERC’s CMEP and ORCP teams to take an ERO Enterprise-wide approach to the CMEP and ORCP self-certification process. Internal Audit, the CCC, and the Board Enterprise-wide Risk Committee (EWRC) collectively provide oversight regarding NERC’s and the ERO Enterprise’s compliance with relevant portions of the ROP, allowing for timely reporting and consistent remediation effort, as necessary.

The Corporate Risk Management (CRM) process focuses on ERO Enterprise corporate financial, operational, legal, regulatory and compliance risks. NERC’s current enterprise risk management (ERM) process is conducted annually, based on the Committee of Sponsoring Organization of the Treadway Commission (COSO) framework. The process considers the ERO Enterprise-wide strategic plans and goals and determines the applicability of other inputs, such as the RISC report, LTRA, and the annual CMEP report. Risk is also identified via interviews or surveys with program management, executives and the Board. The results of the ERM process serve as a roadmap in developing the company’s corporate risk, compliance, and ethics framework. The CRM group is continuing to work with the REs 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 2022 and beyond, Internal Audit will continue to perform risk-based audits and participate in special projects that will provide value to NERC and the ERO Enterprise. Internal Audit and CRM 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 Internal Audit and CRM activities.

Resource Requirements

There is no change in FTEs from the 2021 budget to the 2022 budget in the Legal and Regulatory area. There is a \$100k increase for Contracts & Consultants from the 2021 budget to the 2022 budget primarily due to Internal Audit support for an ERO Enterprise IT security audit (support for FERC-mandated CMEP audits of the REs is budgeted in the Compliance Assurance and Enforcement areas, as discussed in those sections). A comparison of 2021 and 2022 budgeted expenses is 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 2022 is \$21k more than 2021.

Information Technology

NERC’s IT department provides the technology needed for the organization to meet ERO statutory obligations. IT also supports, configures, and secures NERC 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 adoption of an

enterprise IT investment planning methodology that ensures major projects have compelling business cases, 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 five key areas: Cyber security, ERO Enterprise new functionality, ERO Enterprise applications, E-ISAC, and NERC infrastructure support.

Cyber Security. Cyber threat volume and sophistication continues to increase while time to respond is minimal. This is seen outside of NERC in recent events related to zero day supply chain attacks (e.g., SolarWinds), vulnerabilities and breaches (e.g., Microsoft Exchange), and ransomware events (e.g., Colonial Pipeline). Potential threat actors include criminal groups to highly active nation states. The burden for alert and incident response, vulnerability management, patching, and keeping systems up to date is at an all-time high. Since security must be applied to the full application and infrastructure lifecycle, NERC IT continues to take a defense in depth best practice approach and enhance and mature its cyber security program to protect NERC assets and the availability, integrity, and confidentiality of the data NERC stewards. This includes requirements for additional dedicated highly skilled cyber security personnel and additional technology procurement, including enhanced identity management, data protection, and security monitoring systems and services.

ERO Enterprise New Functionality. This includes technologies designed to improve or add capability to the registered entities, REs, 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 REs to implement strategic investments in tools to support key ERO statutory functions. These tools replace various manual processes and numerous applications 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 used by NERC and the REs 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 evidence and data; and;
 - The CORES system, which provides a single tool for use in Entity Registration.

CORES was initially released in 2019, and ongoing enhancements are continuing. The first release of Align and the ERO SEL to support self-reporting, self-logging, enforcement, and mitigation occurred in a phased manner across the REs during the first and second quarters of 2021, with two more releases planned in 2021 to support Compliance Assurance activities. Continued enhancements for these tools are budgeted for 2022 and beyond. 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 upgraded situation awareness tool provides near real-time information to NERC, FERC, and the REs 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, a disaster recovery site is being implemented to augment the redundancy inherent to the primary site's application architecture by hosting a second instance of the application in NERC's data center. 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 those related to generating availability, transmission availability, and event analysis data. Enhancements and modifications to existing software applications are expected in 2022 and beyond, as well as the development of a system for data associated with solar energy storage and requirements building for a more functional system for data supporting reliability assessments. 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 REs 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. For more information, see the *Electricity Information Sharing and Analysis Center* section.

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 2023 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, the suite of data management and E-ISAC systems, as well as potential upgrades to the NERC website.

Resource and Other Requirements

The increase of 1.18 FTEs in IT from the 2021 budget to the 2022 budget is the result of two additional positions for internal cyber security and system administration, offset by a partial direct allocation of a project manager to E-ISAC and CRISP. There is a \$98k increase for Consultants & Contracts expenses from the 2021 budget to the 2022 budget primarily for additional ERO application and infrastructure support that was reduced in scope in 2021 as a part of cost savings efforts. A comparison of 2021 and 2022 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*.

A \$140k increase in Office Costs from the 2021 budget to the 2022 budget is primarily a result of annual escalation estimates for existing software licenses and support, as well as for enhanced security solutions. The IT Fixed Asset budget includes \$675k for planned technology equipment replacements, as well as \$2.1M for capital lease assets, which includes \$2.0M for a new audio visual equipment lease and \$100k for laptop leases. This \$2.1M is offset by \$2.1M for financing lease proceeds, and the budget for financing lease payments is approximately \$625k.

Human Resources and Administration

The HR 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.

As discussed in the *Introduction and Executive Summary*, NERC's ability to retain, engage, and attract top talent is critical to the mission of the ERO Enterprise. NERC is implementing a "People Strategy" designed to create an employee experience that meets the expectations of an evolving workforce and shift from a tactically focused people management model to a more sustainable people-centered organization. This three-year plan uses existing and new staff to bring core HR functions in-house and leverages external support for specific expertise, particularly in the following areas.

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 will participate in ongoing training and development to improve competencies critical to success and succession planning. NERC will also continue 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 and remote work 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 Corporate Governance and Human Resources Committee (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, including independent analysis of pay equity. 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

HR uses surveys as appropriate, based on business needs, which may include periodic internal employee engagement surveys.

Succession Planning

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

HR Products and Services Automation

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

Resource and Other Requirements

The 1.88 increase in FTEs is in support of the successful execution of the People Strategy previously discussed, and is offset on the company level by the reallocation of one open position in Compliance Assurance to HR and Administration and the repurposing of one open position due to a senior director-level retirement. Consultants & Contracts expenses are increasing by \$260k also in support of the People Strategy, particularly for leadership training and cultural transformation initiatives. A comparison of 2021 and 2022 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*.

Miscellaneous expenses budgeted in the HR area include employee engagement expenses. Employee Engagement expenses are increasing \$44k for costs related to NERC's Employee Resource Groups, which provide employees opportunities to engage, connect, and advance a culture of diversity and inclusion.

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, financial reporting, sales and use tax, and corporate 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

There is no change in FTEs from the 2021 budget to the 2022 budget in the Finance and Accounting area. Consultants & Contracts expenses are increasing \$60k primarily due to the return of consulting and contract support deferred in 2021 as a part of cost savings efforts. A comparison of 2021 and 2022 budgeted expenses is shown in *Exhibit B – Consultants and Contracts Costs*. Outside firm support for legal services, financial statement and savings and investment plan audits, tax compliance services, and retirement plan and advisory consulting are budgeted as Professional Services. The Professional Services budget for Finance and Accounting in 2022 is slightly higher than 2021 due to a return of support that was deferred in 2021 as a part of cost savings efforts.

Section A – 2022 Business Plan and Budget Program Area and Department Detail

Statement of Activities and Fixed Asset Additions 2021 Budget & Projection, and 2022 Budget							
Administrative Programs							
	2021 Budget	2021 Projection	Variance 2021 Projection v 2021 Budget Over(Under)	2022 Budget	Variance 2022 Budget v 2021 Budget Over(Under)	2022 Budget Prior Draft	Variance to Prior Draft Over(Under)
Funding							
NERC Funding							
NERC Assessments	\$ (1,800,000)	\$ (1,800,000)	\$ -	\$ -	\$ 1,800,000	\$ -	\$ -
Penalties Released	-	-	-	-	-	-	-
Total NERC Funding	\$ (1,800,000)	\$ (1,800,000)	\$ -	\$ -	\$ 1,800,000	\$ -	\$ -
Third-Party Funding	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Testing, Renewal, & Continuing Ed Fees	-	-	-	-	-	-	-
Services & Software	-	-	-	-	-	-	-
Miscellaneous	-	-	-	-	-	-	-
Interest & Investment Income	-	-	-	-	-	-	-
Total Funding (A)	\$ (1,800,000)	\$ (1,800,000)	\$ -	\$ -	\$ 1,800,000	\$ -	\$ -
Expenses							
Personnel Expenses							
Salaries	\$ 14,021,169	\$ 14,603,436	\$ 582,267	\$ 15,540,598	\$ 1,519,429	\$ 15,540,598	\$ -
Payroll Taxes	758,335	786,643	28,309	834,316	75,982	834,316	-
Benefits	2,035,351	2,011,439	(23,912)	2,336,350	300,999	2,346,794	(10,444)
Retirement Costs	1,255,330	1,403,750	148,420	1,416,863	161,533	1,416,863	-
Total Personnel Expenses	\$ 18,070,184	\$ 18,805,268	\$ 735,084	\$ 20,128,127	\$ 2,057,943	\$ 20,138,571	\$ (10,444)
Meetings & Travel Expenses							
Meetings & Conference Calls	\$ 436,477	\$ 297,800	\$ (138,677)	\$ 557,550	\$ 121,073	\$ 557,550	\$ -
Travel	385,803	137,787	(248,016)	520,000	134,197	510,000	10,000
Total Meetings & Travel Expenses	\$ 822,280	\$ 435,587	\$ (386,693)	\$ 1,077,550	\$ 255,270	\$ 1,067,550	\$ 10,000
Operating Expenses, excluding Depreciation							
Consultants & Contracts	\$ 2,600,625	\$ 3,022,295	\$ 421,670	\$ 3,218,406	\$ 617,781	\$ 3,357,542	\$ (139,136)
Office Rent	3,603,442	3,603,442	-	3,243,277	(360,165)	3,644,747	(401,470)
Office Costs	5,290,002	5,292,177	2,175	5,375,408	85,406	5,419,868	(44,460)
Professional Services	2,035,100	2,183,337	148,237	2,283,100	248,000	2,283,100	-
Miscellaneous	75,150	79,150	4,000	119,150	44,000	119,150	-
Total Operating Expenses, excluding Depreciation	\$ 13,604,319	\$ 14,180,401	\$ 576,082	\$ 14,239,341	\$ 635,022	\$ 14,824,407	\$ (585,066)
Total Direct Expenses	\$ 32,496,783	\$ 33,421,256	\$ 924,473	\$ 35,445,018	\$ 2,948,235	\$ 36,030,528	\$ (585,510)
Indirect Expenses	\$ (32,571,444)	\$ (33,495,980)	\$ (924,536)	\$ (35,525,018)	\$ (2,953,574)	\$ (36,110,528)	\$ 585,510
Other Non-Operating Expenses	\$ 74,661	\$ 74,661	\$ -	\$ 80,000	\$ 5,339	\$ 80,000	\$ -
Total Expenses (B)	\$ -	\$ (63)	\$ (63)	\$ -	\$ -	\$ -	\$ -
Change in Net Assets (=A-B)	\$ (1,800,000)	\$ (1,799,937)	\$ 63	\$ -	\$ 1,800,000	\$ -	\$ -
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)	\$ -	\$ (63)	\$ (63)	\$ -	\$ -	\$ -	\$ -
Change in Working Capital (=A-B-C-D)	\$ (1,800,000)	\$ (1,799,937)	\$ 63	\$ -	\$ 1,800,000	\$ -	\$ -
FTEs	77.08	77.56	0.48	81.08	4.00	81.08	0.00

Section B – Supplemental Financial Information

Breakdown by Statement of Activity Sections

The following detailed schedules support the consolidated Statement of Activities.

Table B-1 – Total Reserves Analysis

Total Reserves Analysis						
Statutory						
	Total Reserves	Future Obligation Reserve ¹	Operating Contingency Reserve ²	System Operator Certification Reserve	CRISP Reserves	Assessment Stabilization Reserve
Beginning Reserves - 1/1/2021	\$ 14,707,583	\$ 1,657,901	\$ 7,982,913	\$ 996,220	\$ 1,549,549	\$ 2,521,000
Generation or (Use) of reserves from 2021 projections						
Projected 2021 operating results, including debt service and financing	\$ (1,153,427)	\$ -	\$ 112,193	\$ (216,071)	\$ (1,049,549)	\$ -
From 2021 approved addition/(use) of reserves	(2,351,600)	(551,600)	(1,800,000)	-	-	-
Other addition/(use) of reserves	-	-	-	-	-	-
Projected Reserves - 12/31/21	\$ 11,202,556	\$ 1,106,301	\$ 6,295,106	\$ 780,149	\$ 500,000	\$ 2,521,000
Required Working Capital and Operating Reserves - 12/31/22	\$ 11,461,424	\$ 1,135,565	\$ 6,295,106	\$ 709,753	\$ 800,000	\$ 2,521,000
Adjustment in funding to achieve required reserve balance	258,868	29,264	-	(70,396)	300,000	-
Less: Assessment Stabilization Reserve Release - Penalties	-	-	-	-	-	-
Total Adjustments to Reserves	\$ 258,868	\$ 29,264	\$ -	\$ (70,396)	\$ 300,000	\$ -
Assessment Reconciliation						
2022 Expenses, Capital Expenditures & Net Financing	\$ 88,028,284					
Less: Assessment Stabilization Reserve Release - Penalties	-					
Adjustment in funding to achieve required reserve balance	229,604					
Less: Other Funding Sources	(9,870,608)					
2022 NERC Assessment	\$ 78,387,280					

¹As explained in the discussion of reserves in the *Introduction and Executive Summary*, 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.

Table B-2 – Penalties

Penalty Sanctions and Allocation Method

NERC Rules of Procedure (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 of Trustees (Board) approved an updated *Working Capital and Operating Reserves Policy* that was approved by FERC. This updated policy allows NERC, with Board and Federal Energy Regulatory Commission (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 Assessment Stabilization Reserve are allocated to the following statutory programs to reduce assessments: (1) Reliability Standards and Power Risk Issues Strategic Management, (2) Compliance Assurance and Organization Registration and Certification, (3) Compliance Enforcement, (4) Reliability Assessment and Performance Analysis (RAPA), (5) Situation Awareness, (6) Event Analysis, (7) the Electricity Information Sharing and Analysis Center (E-ISAC), including the Cybersecurity Risk Information Sharing Program (CRISP), and (8) Training and Education. Penalty sanctions are allocated based on the number of full-time equivalents (FTEs) in the program divided by the aggregate total FTEs in the programs receiving the allocation.

NERC did not collect any penalties during the period July 1, 2020 to June 30, 2021 and is not requesting to deposit any funds into the Assessment Stabilization Reserve. The 2022 assessment also 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 7/1/2020 and 6/30/2021		
	N/A	\$ -
		<u>\$ -</u>
Penalties received prior to 6/30/2020, held in the assessment stabilization reserve		\$ 2,521,000
Total penalties available on 1/1/2022 to offset assessments		<u>\$ 2,521,000</u>
Adjustments		
Total penalties released to offset assessments in the 2022 Budget		\$ -
Total penalties held in Assessment Stabilization Reserve 12/31/2022		<u>\$ 2,521,000</u>

Table B-3 – Outside Funding

Outside Funding Breakdown By Program (Excludes Any Penalty Releases)	2021 Budget	2022 Budget	Increase (Decrease)
Reliability Standards			
Interest & Investment Income Allocation	\$ 22,947	\$ 10,895	\$ (12,052)
Total	\$ 22,947	\$ 10,895	\$ (12,052)
Compliance Assurance, Certification, and Registration			
Interest & Investment Income Allocation	\$ 32,175	\$ 11,933	\$ (20,243)
Total	\$ 32,175	\$ 11,933	\$ (20,243)
Compliance Enforcement			
Interest & Investment Income Allocation	\$ 16,731	\$ 6,744	\$ (9,987)
Total	\$ 16,731	\$ 6,744	\$ (9,987)
Reliability Assessment and Performance Analysis			
Services and Software	\$ 60,000	\$ 60,000	\$ -
Interest & Investment Income Allocation	32,908	14,527	(18,381)
Total	\$ 92,908	\$ 74,527	\$ (18,381)
Personnel Certification and Continuing Education			
Testing Fees	\$ 520,000	\$ 496,600	\$ (23,400)
Certificate Renewals	800,000	825,000	25,000
Continuing Education Fees	481,634	435,123	2,600
Interest & Investment Income Allocation	7,200	500	(6,700)
Total	\$ 1,808,834	\$ 1,757,223	\$ (2,500)
Training and Education			
Interest & Investment Income Allocation	\$ 2,574	\$ 1,038	\$ (1,536)
Total	\$ 2,574	\$ 1,038	\$ (1,536)
Event Analysis			
Interest & Investment Income Allocation	\$ 10,296	\$ 3,632	\$ (6,664)
Total	\$ 10,296	\$ 3,632	\$ (6,664)
Situation Awareness			
Interest & Investment Income Allocation	\$ 9,009	\$ 4,150	\$ (4,859)
Total	\$ 9,009	\$ 4,150	\$ (4,859)
E-ISAC			
Third Party Funding (CRISP)	\$ 7,064,343	\$ 7,917,385	\$ 853,042
Miscellaneous Funding	-	60,000	60,000
Interest & Investment Income Allocation	84,360	23,082	(61,278)
Total	\$ 7,148,703	\$ 8,000,467	\$ 851,764
Grand Total	\$ 9,144,177	\$ 9,870,608	\$ 775,542

Interest & Investment Income – The \$142k decrease is due to anticipated lower interest rates in 2022.

Testing Fees and Certificate Renewals – The \$23k decrease in testing fees and \$25k increase in certificate renewals reflects the estimate of the numbers of tests and renewals in 2022.

Third Party Funding (CRISP) – The \$853k increase is due to an increase in participant-paid costs for PNNL for expenses related to new offerings and upgrades, a data backup location, and audit support, and for operational technology (OT) program software licenses and support. CRISP is also anticipating to collect an additional \$300k of revenue from participants to fund a CRISP operating reserve (subject to final approval of CRISP members).

Miscellaneous Funding – The \$60k increase reflects revenue related to E-ISAC’s partnership with the Downstream Natural Gas (DNG) ISAC.

Table B-4 – Personnel

Personnel	2021 Budget	2022 Budget	Increase (Decrease)	
Salaries	\$ 36,636,628	\$ 39,557,528	\$ 2,920,900	8.0%
Payroll Taxes	2,122,568	2,310,836	188,267	8.9%
Benefits	5,703,799	6,038,487	334,688	5.9%
Retirement	3,726,439	4,059,585	333,146	8.9%
Total	\$ 48,189,435	\$ 51,966,435	\$ 3,777,000	7.8%
FTEs	213.38	223.72	10.34	4.8%
Cost per FTE				
Salaries	\$ 171,697	\$ 176,817	\$ 5,120	3.0%
Payroll Taxes	9,947	10,329	382	3.8%
Benefits	26,731	26,991	261	1.0%
Retirement	17,464	18,146	682	3.9%
Total	\$ 225,839	\$ 232,283	\$ 6,445	2.9%

The increase in overall Personnel costs is primarily related to the increase of 10.3 FTEs (see the Personnel discussion in the *Introduction and Executive Summary* for more details) and salary and benefit increase assumptions. The 2022 budget for base salaries assumes a 2.5% increase over actual 2021 base salaries for merit adjustments and up to 0.5% for equity and market adjustments, which is the same assumption used in the 2021 budget. The anticipated increase for medical and dental benefit plan costs in 2022 is 7.0%, which is lower than previous year estimates due to an improved loss ratio trend. No other changes to retirement or other benefit plans have been assumed for 2022.

Table B-5 – Meetings & Travel

Meetings & Travel	2021 Budget	2022 Budget	Increase (Decrease)	
Meetings & Conference Calls	\$ 890,751	\$ 1,132,550	\$ 241,799	27.1%
Travel	1,310,997	1,475,500	164,503	12.5%
Total	\$ 2,201,748	\$ 2,608,050	\$ 406,302	18.5%

As discussed in the *Introduction and Executive Summary*, Meetings & Travel expenses are increasing as NERC plans for a partial return to in-person meetings and related travel in 2022, particularly for the Board, Member Representatives Committee (MRC), Reliability and Security Technical Committee (RSTC), and ERO Enterprise leadership, while continuing to leverage efficiencies of virtual meeting formats for smaller groups.

Table B-6 – Consultants and Contracts

Refer to *Exhibit B – Consultants and Contracts Costs*

Table B-7 – Rent

Office Rent	2021 Budget	2022 Budget	Increase (Decrease)	
Office Rent	\$ 3,329,442	\$ 3,119,677	\$ (209,765)	-6.3%
Maintenance	274,000	123,600	(150,400)	-54.9%
Total	\$ 3,603,442	\$ 3,243,277	\$ (360,165)	-10.0%

As discussed in the *Introduction and Executive Summary*, NERC has been working on long-term lease strategies for its two office locations. The 2022 budget reflects savings over 2021 based on new lease assumptions for the Washington, D.C. office while assuming the existing rent schedule for the Atlanta office as options continue to be explored for that facility. The \$150k decrease in maintenance reflects estimates for these expenses for the new Washington, D.C. office lease and recent operating cost trends costs for the Atlanta office.

Table B-8 – Office Costs

Office Costs	2021 Budget	2022 Budget	Increase (Decrease)	
Telephone	\$ 330,800	\$ 333,838	\$ 3,038	0.9%
Internet	294,650	325,783	31,133	10.6%
Office Supplies	276,450	131,350	(145,100)	-52.5%
Computer Supplies	140,250	155,250	15,000	10.7%
Software License and Support	8,022,452	8,582,357	559,905	7.0%
Subscription and Publications	363,299	443,894	80,595	22.2%
Dues	142,445	157,850	15,405	10.8%
Postage	10,500	10,500	-	0.0%
Express Shipping	34,700	34,700	-	0.0%
Copying	39,500	39,500	-	0.0%
Audio/Visual and Hardware Lease	282,743	280,000	(2,743)	-1.0%
Equipment Repair/Service Contracts	130,000	130,000	-	0.0%
Bank Charges	28,000	28,000	-	0.0%
Merchant Card Fees	90,000	95,000	5,000	5.6%
Total	\$ 10,185,789	\$ 10,748,022	\$ 562,233	5.5%

Internet costs are increasing \$31k in 2022 due to the addition of circuits for a disaster recovery site for one of the Situation Awareness tools. Office Supplies are decreasing \$145k and Computer Supplies are increasing \$15k to bring these budgets 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 \$560k increase in 2022 is primarily due to software license and support for CRISP OT and analytics (much of which is participant-funded) and annual escalation cost estimates for software used by the program areas and Information Technology (IT), with an increased focus on enhancing NERC's cybersecurity posture.

Subscription and Publications expenses are increasing \$81k in 2022 for resource and research subscriptions to support the Corporate Risk Management (CRM) and Human Resources (HR) areas.

Table B-9 – Professional Services

Professional Services	2021 Budget	2022 Budget	Increase (Decrease)	
Independent Trustee Fees	\$ 1,392,500	\$ 1,580,000	\$ 187,500	13.5%
Trustee Search Fees	50,000	-	(50,000)	-100.0%
Outside Legal	388,500	430,000	41,500	10.7%
Government Relations	-	20,000	20,000	
Accounting and Auditing Fees	155,000	160,000	5,000	3.2%
Insurance Commercial	185,000	284,000	99,000	53.5%
Outside Services	14,100	14,100	-	0.0%
Total	\$ 2,185,100	\$ 2,488,100	\$ 303,000	13.9%

The \$187k increase for Independent Trustee Fees in 2022 is predominately for the addition of one Board member and planned increases to Trustee compensation. The \$50k decrease for Trustee Search Fees is a result of not having to conduct a search for any Board member replacements in 2022.

The increases in Outside Legal, Government Relations, and Accounting and Auditing Fees in 2022 are a result of a return of support that was deferred in 2021 as a part of cost savings efforts.

The \$99k increase for Insurance Commercial in 2022 is to bring the CRISP liability insurance and NERC property and liability insurance budgets closer to recent actual costs and projected estimates.

Table B-10 – Miscellaneous

Miscellaneous Expenses	2021 Budget	2022 Budget	Increase (Decrease)	
Miscellaneous Expense	\$ 10,250	\$ 10,250	\$ -	0.0%
Employee Rewards and Recognition	20,900	21,400	500	2.4%
Employee Engagement	41,000	85,000	44,000	107.3%
Sponsorships	28,000	28,000	-	0.0%
Total	\$ 100,150	\$ 144,650	\$ 44,500	44.4%

The increase of \$44k for Employee Engagement in 2022 is for expenses related to NERC's Employee Resource Groups, which provide staff connection opportunities to advance a culture of diversity and inclusion.

Table B-11 – Other Non-Operating Expenses

Other Non-Operating Expenses	2021 Budget	2022 Budget	Increase (Decrease)	
Property and Other Tax Expense	\$ 60,000	\$ 60,000	\$ -	0.0%
Interest Expense	69,661	75,000	5,339	7.7%
Total	\$ 129,661	\$ 135,000	\$ 5,339	4.1%

Table B-12 – Fixed Assets

Fixed Asset Additions	2021 Budget	2022 Budget	Increase (Decrease)	
Computer & Software CapEx	\$ 2,091,500	\$ 1,268,750	(822,750)	-39.3%
Furniture & Fixtures CapEx	-	-	-	
Equipment CapEx	660,000	750,000	90,000	13.6%
Leasehold Improvements	-	-	-	
Total	\$ 2,751,500	\$ 2,018,750	\$ (732,750)	-26.6%

Computer & Software CapEx is decreasing \$823k primarily due to the planned completion of development for Align in 2021, offset by funding for ongoing enhancements and maintenance for Align and the ERO Secure Evidence Locker (SEL), and a return to investment in NERC's suite of data management tools that was deferred in 2021 as a part of cost savings efforts. The \$90k increase for Equipment CapEx is for planned IT equipment technology replacements. This table excludes \$2.1M of capital lease assets, which are offset by corresponding lease proceeds.

Table B-13 – 2023 and 2024 Projections

Refer to the *Introduction and Executive Summary* section on page 11 and 12

Section C – Non-Statutory Activity

NERC has no non-statutory activities.

Section D – Consolidated Statement of Activities by Program Area		STATUTORY										General and Administrative (Includes Executive and External Affairs)		Legal and Regulatory (Includes Internal Audit and Corporate Risk Management)		Information Technology	Human Resources and Administration	Accounting and Finance	
		Statutory Total	Reliability Standards and Power Risk Issue Strategic Management	Compliance Assurance and Organization Registration and Certification	Event Analysis	Compliance Enforcement	Personnel Certification	Training and Education	Reliability Assessment and Performance Analysis	Situation Awareness	EISAC (Including CRSP)								
Funding																			
ERO Funding																			
NERC Assessments	\$ 78,387,280	\$ 9,420,030	\$ 12,552,038	\$ 3,778,518	\$ 6,939,219	\$ -	\$ 1,023,976	\$ 14,700,555	\$ 5,072,463	\$ 24,900,480	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Penalties Released	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total NERC Funding	\$ 78,387,280	\$ 9,420,030	\$ 12,552,038	\$ 3,778,518	\$ 6,939,219	\$ -	\$ 1,023,976	\$ 14,700,555	\$ 5,072,463	\$ 24,900,480	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Third-Party Funding	\$ 7,617,385	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,617,385	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Testing Fees	1,756,723	-	-	-	-	1,756,723	-	-	-	-	-	-	-	-	-	-	-	-	-
Services & Software	60,000	-	-	-	-	-	-	60,000	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous	60,000	-	-	-	-	-	-	-	-	60,000	-	-	-	-	-	-	-	-	-
Interest & Investment Income	76,500	10,895	11,933	3,632	6,744	500	1,038	14,527	4,150	23,082	-	-	-	-	-	-	-	-	-
Total Funding (A)	\$ 88,257,888	\$ 9,430,925	\$ 12,563,971	\$ 3,782,150	\$ 6,945,963	\$ 1,757,223	\$ 1,025,014	\$ 14,775,082	\$ 5,076,614	\$ 32,900,947	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Expenses																			
Personnel Expenses																			
Salaries	\$ 39,557,528	\$ 2,951,243	\$ 3,759,888	\$ 1,297,758	\$ 1,838,076	\$ 318,852	\$ 234,880	\$ 4,377,751	\$ 1,227,161	\$ 8,011,321	\$ 4,346,817	\$ 3,246,030	\$ 4,888,306	\$ 1,943,814	\$ 1,115,631	\$ -	\$ -	\$ -	\$ -
Payroll Taxes	2,310,836	183,584	224,943	73,630	122,697	23,835	18,880	272,752	76,087	480,111	202,803	173,300	284,467	103,781	69,955	\$ -	\$ -	\$ -	\$ -
Benefits	6,038,487	467,848	761,083	205,684	210,112	43,222	49,040	637,359	258,757	1,069,032	563,000	460,223	751,720	366,445	194,963	\$ -	\$ -	\$ -	\$ -
Retirement Costs	4,059,585	324,253	416,398	145,524	204,099	35,638	26,357	485,536	134,973	869,944	247,198	349,224	520,772	178,443	121,227	\$ -	\$ -	\$ -	\$ -
Total Personnel Expenses	\$ 51,966,435	\$ 3,926,928	\$ 5,162,312	\$ 1,722,596	\$ 2,374,984	\$ 421,547	\$ 329,158	\$ 5,773,397	\$ 1,696,978	\$ 10,430,408	\$ 5,359,819	\$ 4,228,776	\$ 6,445,264	\$ 2,592,483	\$ 1,501,785	\$ -	\$ -	\$ -	\$ -
Meetings and Travel Expenses																			
Meetings & Conference Calls	\$ 1,132,550	\$ 65,000	\$ 82,000	\$ 35,000	\$ 7,000	\$ 32,000	\$ 2,000	\$ 180,000	\$ 70,000	\$ 102,000	\$ 388,750	\$ 10,000	\$ 148,800	\$ 5,000	\$ 5,000	\$ -	\$ -	\$ -	\$ -
Travel	1,475,500	115,000	251,000	91,000	30,000	14,000	3,500	207,000	22,000	222,000	360,000	55,000	60,000	20,000	25,000	\$ -	\$ -	\$ -	\$ -
Total Meetings and Travel Expenses	\$ 2,608,050	\$ 180,000	\$ 333,000	\$ 126,000	\$ 37,000	\$ 46,000	\$ 5,500	\$ 387,000	\$ 92,000	\$ 324,000	\$ 748,750	\$ 65,000	\$ 208,800	\$ 25,000	\$ 30,000	\$ -	\$ -	\$ -	\$ -
Operating Expenses, excluding Depreciation																			
Consultants & Contracts	\$ 13,674,800	\$ 158,960	\$ 345,000	\$ 118,158	\$ 249,000	\$ 463,188	\$ 100,000	\$ 681,227	\$ 15,000	\$ 8,325,861	\$ 120,000	\$ 310,000	\$ 1,733,406	\$ 870,000	\$ 185,000	\$ -	\$ -	\$ -	\$ -
Office Rent	3,243,277	-	-	-	-	-	-	-	-	3,243,277	-	-	-	-	-	\$ -	\$ -	\$ -	\$ -
Office Costs	10,749,222	52,850	648,666	50,500	639,816	166,600	103,000	640,675	1,217,412	1,854,095	402,950	144,600	4,315,828	268,730	243,300	\$ -	\$ -	\$ -	\$ -
Professional Services	2,488,100	-	-	-	15,000	-	-	-	-	190,000	1,774,000	275,000	-	9,100	225,000	\$ -	\$ -	\$ -	\$ -
Miscellaneous	144,650	2,300	3,250	1,600	1,900	300	700	4,600	1,100	9,750	27,550	-	3,300	87,000	1,300	\$ -	\$ -	\$ -	\$ -
Total Operating Expenses, excluding Depreciation	\$ 30,300,049	\$ 214,110	\$ 997,116	\$ 170,258	\$ 905,716	\$ 630,088	\$ 203,700	\$ 1,326,502	\$ 1,233,512	\$ 10,379,706	\$ 5,567,777	\$ 729,600	\$ 6,052,534	\$ 1,234,830	\$ 654,600	\$ -	\$ -	\$ -	\$ -
Total Direct Expenses	\$ 84,874,534	\$ 4,321,038	\$ 6,492,428	\$ 2,018,854	\$ 3,317,700	\$ 1,097,635	\$ 538,358	\$ 7,486,899	\$ 3,022,490	\$ 21,134,114	\$ 11,676,346	\$ 5,023,376	\$ 12,706,598	\$ 3,852,313	\$ 2,186,385	\$ -	\$ -	\$ -	\$ -
Indirect Expenses	\$ -	\$ 4,916,148	\$ 5,384,352	\$ 1,638,716	\$ 3,043,329	\$ 702,307	\$ 468,205	\$ 6,554,863	\$ 1,872,818	\$ 10,944,281	\$ (11,736,346)	\$ (5,023,376)	\$ (12,726,598)	\$ (3,852,313)	\$ (2,186,385)	\$ -	\$ -	\$ -	\$ -
Other Non-Operating Expenses	\$ 135,000	\$ -	\$ 27,500	\$ -	\$ 27,500	\$ -	\$ -	\$ -	\$ -	\$ 60,000	\$ -	\$ -	\$ 20,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenses (B)	\$ 85,009,534	\$ 9,237,186	\$ 11,904,280	\$ 3,657,570	\$ 6,388,529	\$ 1,799,942	\$ 1,006,562	\$ 14,041,762	\$ 4,895,308	\$ 32,078,395	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Change in Net Assets (=A-B)	\$ 3,248,354	\$ 193,740	\$ 659,691	\$ 124,580	\$ 557,434	\$ (42,719)	\$ 18,451	\$ 733,320	\$ 181,306	\$ 822,551	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Fixed Asset Additions, excluding Right of Use Assets (C)	\$ 4,118,750	\$ 397,858	\$ 695,750	\$ 192,619	\$ 496,293	\$ 56,837	\$ 37,891	\$ 1,005,478	\$ 259,065	\$ 976,958	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Financing Activity																			
Loan or Financing Lease - Borrowing (-)	\$ (2,100,000)	\$ (290,610)	\$ (318,287)	\$ (96,870)	\$ (179,901)	\$ (41,516)	\$ (27,677)	\$ (387,479)	\$ (110,708)	\$ (646,952)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Loan or Financing Lease - Principal Payments (+)	1,000,000	86,491	282,228	28,830	241,042	12,356	8,237	115,321	32,949	192,545	-	-	-	-	-	-	-	-	-
Net Financing Activity (D)	\$ (1,100,000)	\$ (204,119)	\$ (36,058)	\$ (68,040)	\$ 61,141	\$ (29,160)	\$ (19,440)	\$ (272,158)	\$ (77,759)	\$ (454,407)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Budget (=B+C+D)	\$ 88,028,284	\$ 9,430,925	\$ 12,563,971	\$ 3,782,150	\$ 6,945,963	\$ 1,827,619	\$ 1,025,014	\$ 14,775,082	\$ 5,076,614	\$ 32,600,947	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Change in Working Capital (=A-B-C-D)	\$ 229,604	\$ -	\$ -	\$ -	\$ -	\$ (70,396)	\$ -	\$ -	\$ -	\$ 300,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
FTEs	223.72	19.74	21.62	6.58	12.22	2.82	1.88	26.32	7.52	43.95	18.80	15.98	27.50	11.28	7.52	-	-	-	-

Exhibit A – Application of NERC Section 215 Criteria

DISCUSSION OF HOW THE NERC MAJOR ACTIVITIES IN THE 2022 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 2022 Business Plan and Budget meet the NERC written criteria for determining whether a reliability activity is eligible to be funded under §215 of the Federal Power Act (FPA §215). This Exhibit is intended to satisfy Recommendation No. 38 resulting from the financial performance review of NERC conducted by the Federal Energy Regulatory Commission’s (Commission’s) Division of Audits (DA) in 2012–2013 and adopted by the Commission in its November 2, 2012 order on NERC’s 2013 Business Plan and Budget.¹² NERC submitted the written criteria to the Commission in a compliance filing dated February 21, 2013 in Docket No. FA11-21-000.¹³ The Commission approved the NERC written criteria, with modifications, in an order issued in that docket on April 18, 2013.¹⁴ The NERC written criteria as used in this Exhibit incorporate the modifications specified in the Compliance Order.¹⁵

II. Reliability Standards and Power Risk Issue Strategic Management 2022 Major Activities

The major activities of Reliability Standards and Power Risk Issue Strategic Management (PRISM) are described at pages 13–16 of the 2022 Business Plan and Budget. Reliability Standards and PRISM is comprised of the Reliability Standards group, which is focused specifically on the development and improvement of reliability standards; and the PRISM group, which supports Reliability Standards by providing technical support and develops, supports, and prioritizes the ERO Risk Registry. 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.

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

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

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

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

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

For 2022, 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 FERC directives and responding to FERC 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 also including review of standards development processes for efficiency modifications; 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. In 2022, 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 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.

Activities of the PRISM group for 2022 include completing NERC position documents for Distributed Energy Resources (DER), Interconnection Reliability Operating Limits, System Operating Limits, and Energy Adequacy; reporting on statistical analyses around misoperations; conducting Reliability Standards training for NERC and Regional Entity staff; refining the cross-cutting tool to track Reliability Issues Steering Committee (RISC) issues and work plan items from NERC and Regional Entity committees while prioritizing risks in the Risk Registry; measuring the effectiveness of the Electric Gas Working Group industry guidelines on fuel assurance; supporting the FERC/NERC inquiry into the 2021 Texas Winter Event; and executing the work plan for the Energy Reliability Assessment Task Force (ERATF). PRISM will continue to support Reliability Standards by providing technical support during the development process.

The major activities of the Reliability Standards and PRISM 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 2022 Major Activities

The major activities of Compliance Assurance and Organization Registration and Certification and of Compliance Enforcement are described on pages 18–23 and 25–27 of the 2022 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 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 based on customized compliance oversight plans (COPs) for each registered entity;

(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 Regional Entities. Compliance Assurance provides training to Regional Entity staffs on the elements of risk-based compliance monitoring, including enhancements to registered entities' Individual Risk Assessments (IRA), internal controls reviews, COP development, and Reliability Standards monitoring. In addition, in 2022 Compliance Assurance will continue to emphasize oversight relating to integrating the Align application into CMEP activities.

The ongoing and new major activities of the Compliance Assurance group for 2022 will include: (1) as on-site compliance monitoring activities resume, working with Regional Entities to ensure that 2022 activities are risk-informed and evaluate 2020 and 2021 experiences; (2) 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 and inform Regional Entity CMEP planning; (3) working with NERC Enforcement and IT and with Regional Entities to maintain and enhance the Align and ERO SEL tools; (4) supporting continued successful implementation of the Cyber Security Supply Chain Risk Management Reliability Standard; (5) supporting the continued successful implementation of CIP V5 standards and subsequent enhancements as they become effective; (6) monitoring and supporting effective implementation and monitoring of the Physical Security Reliability Standard; (7) enhancing and implementing training to support monitoring of compliance with Reliability Standards, integrating principles from the Compliance Monitoring Competency Guide; (8) continuing feedback to the Reliability Standards group through coordination between the standards and compliance functions to allow for 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; (9) continuing to focus on how registered entities have mitigated reliability and security risks while achieving compliance with Reliability Standards, including internal controls; (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. Organization Registration and Certification works 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 webinars 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 the 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 processes; 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 2022, the major activities of Compliance Enforcement will include: (1) identifying and mitigating the greatest risks to reliability and security; (2) supporting enhancement of the Align and ERO SEL tools, which are being released in a series of releases during 2021; (3) expanding the risk-based focus on Enforcement; (4) sustaining and expanding stakeholder outreach; and (5) with Regional Entity and stakeholder feedback, continue evaluating compliance monitoring and enforcement processes for efficiency.

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 2022 Major Activities

The major activities of Reliability Assessments and Performance Analysis (RAPA) are described at pages 29–35 of the 2022 Business Plan and Budget. RAPA comprises four primary groups: (1) Reliability Assessments and Technical Committee (RATC); (2) Performance Analysis (PA); (3) Power System Analysis (PSA) and Advanced System Analytics and Modeling (ASAM); and (4) BPS Security and Grid Transformation (SGT).

The RATC group, which includes Reliability Assessment staff and 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. The RA program is governed by the requirements and procedures in NERC ROP 801-805. 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 ensuring effective Essential Reliability Services (ERS); advancing the value of the seasonal reliability assessments, including assessing the energy management plans and sufficiency for the upcoming season; advancing probabilistic assessments and evaluations of energy assurance and energy management plans (including plans for managing energy requirements during extreme weather); and enhancing ERO Enterprise-wide effectiveness and efficiency of reliability assurance-related functions. In addition, RATC will support the newly-created ERATF in analyzing energy adequacy challenges resulting from fundamental changes in electricity supply due to decarbonization efforts, including higher levels of variable and energy-limited resources and decreasing levels of dispatchable synchronous generation; and will work with EPRI, DOE, Natural Resources Canada, and external research partners to support development of resource adequacy processes and tools that can more effectively evaluate energy adequacy in light of these changes to the BPS.

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. The PA program is governed by the requirements and procedures in NERC ROP 801, 809 and 811. 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. PA also develops the business requirements for all new reliability information data systems, specifically those required by NERC ROP 1600 data requests; PA analysts work with internal and external software developers to support creation, testing, and implementation of data systems. PA will continue to evaluate reliability trends that identify reliability risks by analyzing generation and transmission availability data, and integration of event analysis and misoperations. PA is also developing reporting requirements for solar and associated energy storage data collection.

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 balancing (BAL) and modeling (MOD) Reliability Standards. PSA assists the RATIC 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 identification of BES electrical elements necessary for reliable operation such that they are subject to Reliability Standards.

ASAM staff provides support for development and improvement of long-term, sustainable interconnection-based power flow, dynamic, and load models necessary to reflect actual BES reliability performance and dynamic conditions, in order to support maintenance of reliable operation of the BPS. 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. ASAM also publishes IEEE papers that advance and gain academic acceptance of new concepts in statistical methods relative to the BPS.

PSA's and ASAM's ongoing major activities include developing technical analyses in key reliability area to address areas of concern, including frequency response, short-circuit strength, inter-area oscillation, DER 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 reliable integration of increased levels of DER by providing technical guidance on key reliability impacts and developing recommended modeling, planning, and operations guidelines to ensure BPS reliability; 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; 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 designers; 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.

SGT provides technical leadership and coordination for stakeholder efforts relating to security integration and grid transformation topics, including by developing and promoting strategies for physical and cyber security to be integrated with conventional grid planning, operations, design, and restoration activities. SGT coordinates a number of technical stakeholder groups in areas of security and emerging grid transformation issues. SGT staff are responsible for coordinating several stakeholder groups under the RSTC; integrating cyber security into all aspects of system planning, operations and restoration; providing vision and strategic leadership for the ERO Enterprise on cyber security during planning, operations, and recovery horizons; supporting efforts to advance the RISC’s security risk mitigation recommendations, helping identify security-related risks, and engaging in efforts to mitigate those risks; engaging with industry stakeholders and forums to advance and enable new technologies in a secure manner; supporting standards development processes on engineering and security-related topics; and coordinating with E-ISAC on topics relating to security risks.

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 2022, the RAPA groups will continue the efforts described above with particular 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: unacceptable inverter performance; increased amounts of DER; energy sufficiency; extreme weather resilience; and cyber security in planning and operations. In addition, the 2022 budget includes funding for various stages of development of several new or enhanced software applications for collection and integration of data, including an enhanced system to manage reliability assessment data; enhancements to systems for conventional generation and transmission availability data; and new and enhanced systems for solar and wind generation availability data.

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.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 major activities of the RAPA program are §801-806 and §809-811.)
- 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 2022 Major Activities

The major activities of Situation Awareness are described at pages 37–39 of the 2022 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 Real-Time Operating 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 Resource Adequacy (Area Control Error Frequency); Inadvertent Interchange; Frequency Monitoring Network; Intelligent Alarms; PowerIQ and PowerRT; Situation Awareness; RC Information System; and NERC Alerts (secure alerting system); as well as data collection and analysis tools.

The ongoing and new major activities of Situation Awareness for 2022 include: ensuring the ERO is aware of all BES events above a threshold of impact; focusing on grid transformation, extreme natural events, and security vulnerabilities (cyber and physical); 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 NERC ROP 810 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 the recently upgraded situation awareness application. NERC is also developing a disaster recovery site for the situation awareness tool. In 2022, Situation Awareness will also continue to enhance natural gas situational awareness and work with 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 provisions for these major activities are ROP 810 and 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 2022 Major Activities

The major activities of Event Analysis are described at pages 41–43 of the 2022 Business Plan and Budget. Event Analysis performs assessments of the reliability and adequacy of the BES to identify potential issues 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 on the order of 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.

Ongoing and new major activities for 2022 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 Electric Power Human Performance Improvement Symposium. (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 2022, Event Analysis will continue to update and upgrade data collection and storage capabilities and capacity for its data management system; 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. Event Analysis will continue to lead the planning and execution of human performance events such as the annual ERO Enterprise and Industry-wide Electric Power Human Performance Improvement Symposium.

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 2022 Major Activities

The major activities of the Electricity Information Sharing and Analysis Center (E-ISAC) are described at pages 45–50 of the 2022 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 24X7 watch in 2020; implementing the E-ISAC data platform; operating a critical broadcast program (CBP) to quickly disseminate information on imminent threats and other important notifications; increasing information sharing with members and government partners; operating the industry-supported Physical Security Advisory Group to expand physical security risk identification, risk mitigation, and preparedness; entering into collaboration agreements with the Independent Electric System Operator, the Downstream Natural Gas ISAC, and the Multi-State ISAC; and further strengthening E-ISAC’s talent pool and analytical capabilities, including both cyber and physical security expertise.

E-ISAC’s major activities for 2022 will continue to focus on three areas: (1) Increasing and enhancing engagement with industry participants. (2) Information sharing – increasing the quality and volume of information shared from industry, government partners, and trusted third parties members; strengthening E-ISAC’s capabilities for information sharing via E-ISAC portal enhancements; improving timeliness and actionable value of information shared from E-ISAC to industry through a Priority Intelligence Requirements process; and continuing to operate the 24X7 watch operations in an effective, efficient, and responsive manner. (3) Analysis – effectively collecting data and capturing new information

sources via the CRISP Operational Technology (OT) pilot and evaluating and expanding third party tools and data sources; incorporating existing and new tools and techniques into the analysis process; and strengthening analytical capabilities through strategic relationships and hiring, developing, and retaining qualified staff.

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 2022 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 54–56 of the 2022 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; improving Provider Renewal Audits; updating the current System Operator Certification Continuing Education Database (SOCCED) platform consistent with the revised Credential Maintenance Program Manual; and continued improvements to the SOCCEd to enhance user experiences. In 2022, the Personnel Certification Group will focus on further development of the credential maintenance portion of the certification program. 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.

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 2022 Major Activities

The major activities of Training and Education are described at pages 58–60 of the 2022 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 Confidential Information e-learning; developing CMEP e-learning modules for ERO Enterprise auditors, systems training products for data systems, and functional program training modules; supporting the ERO’s People Strategy; and developing multi-module Align training for registered entities, compliance enforcement authorities, and NERC. Activities of the Training and

Education Program in 2022 will include development of promotional and training videos, e-learning modules, and instructor-led training for the Align and ERO SEL system software; identification, design, development, and implementation of a management development program and other employee training; updating or enhancing as needed existing instructional design support tools and software; implementing training and adoption for the new Learning Management System among ERO Enterprise employees; continued development of the ERO Enterprise Systems Training Website; updating systems training products for NERC data systems to reflect enhancements to these systems; 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 2022 Major Activities

NERC’s Administrative Services Departments are General and Administrative, Legal and Regulatory, Information Technology (IT), Human Resources (HR) and Administration, and Finance and Accounting. The major activities of these departments are described at pages 62–69 of the 2022 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 the following areas: (1) Cyber security; (2) developing and implementing ERO Enterprise new functionality, including Align, ERO-SEL, and CORES, Situation Awareness tools, and enhancements to data management systems; (3) ERO Enterprise application and infrastructure support, the underlying infrastructure and resources required to support existing and future ERO Enterprise applications; (4) E-ISAC; and (4) NERC infrastructure support, including productivity tools, audio-visual systems, laptops, and business continuity and security technologies.

HR 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 offices, and meeting planning and coordination. HR and Administration is heavily involved in implementing NERC's People Strategy to enhance retention, engagement, and attraction of top talent to carry out the mission of the ERO Enterprise. A key focus of HR and Administration is diversity and inclusion training. Under the direction of the NERC Board Corporate Governance and Human Resources Committee, HR and Administration develops compensation strategy and performs or obtains (through consultants) market compensation studies, effectiveness studies, and other compensation and staffing related studies and surveys 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.

As support functions for all of NERC's statutory programs, the major activities of NERC's Administrative Services Departments satisfy the following criteria:

- I.A: Is the activity necessary or appropriate for Reliability Standards development projects pursuant to the NERC ROP?
- II.A: Is the activity necessary or appropriate for the identification and registration of users, owners, and operators of the BPS that are required to comply with Requirements of Reliability Standards applicable to the reliability functions for which they are registered?
- II.D: Is the activity necessary or appropriate for conducting, participating in or overseeing compliance monitoring and enforcement activities pursuant to the NERC ROP and (through the Regional Entities) the Commission-approved delegation agreements?

- III.C: Is the activity necessary or appropriate for investigating, analyzing, evaluating, and disseminating information concerning, the causes of major events and off-normal occurrences, and/or providing coordination assistance, technical expertise and other assistance to users, owners, and operators of the BPS in connection with BPS major events and off-normal occurrences, but not real-time operational control of the BPS?
- V: Is the activity one that is required or specified by, or carries out, the provisions of NERC’s ROP that have been approved by the Commission as “Electric Reliability Organization Rules” (defined in 18 C.F.R. §39.1) pursuant to FPA §215(f)? (The applicable ROP provisions for ERO Enterprise audits conducted by the Internal Audit group in Legal and Regulatory are §406, §506, and Appendix 4A, and for major activities of Finance and Accounting is §1100.)
- VI: Is the activity necessary or appropriate for the supervision and oversight of Regional Entities in the performance of their delegated responsibilities in accordance with FPA §215, 18 C.F.R. Part 39, the Commission-approved delegation agreement between NERC and the Regional Entity, the NERC ROP, and the applicable provisions of Commission orders.
- IX. Is the activity necessary or appropriate for NERC and Regional Entity committees, subcommittees and working groups engaged in activities encompassed by one or more of the other criteria?
- XI: Is the activity a governance or administrative/overhead function, activity or service necessary or appropriate for the activities encompassed by the other criteria and, in general, necessary and appropriate to operate a functioning organization?

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

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

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

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

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

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

- B. Is the activity necessary or appropriate for providing guidance and assistance to Regional Entities in carrying out Regional Reliability Standards development activities?
 - C. Is the activity necessary or appropriate for information gathering, collection and analysis activities to obtain information for Reliability Standards development, including for purposes of identifying areas in which new Reliability Standards could be developed, existing Reliability Standards could be revised, or existing Reliability Standards could be eliminated, such as:
 - 1. Measuring reliability performance—past, present and future; publishing or disseminating the results of such measurements; analyzing the results of such measurements; identifying and analyzing risks to reliability of the Bulk Power System (BPS)¹⁶ based on such measurements; and/or identifying approaches to mitigating or eliminating such risks?
 - 2. Monitoring, event analysis and investigation of BPS major events, off-normal occurrences and near miss events?
 - D. Is the activity necessary or appropriate for the provision of training and education concerning Reliability Standards development processes, procedures and topics for/to (i) NERC personnel, (ii) Regional Entity personnel, and (iii) industry personnel?
- II. Is the activity necessary or appropriate for the monitoring and enforcement of compliance with Reliability Standards?
- A. Is the activity necessary or appropriate for the identification and registration of users, owners, and operators of the BPS that are required to comply with Requirements of Reliability Standards applicable to the reliability functions for which they are registered?
 - B. Is the activity necessary or appropriate for the Certification of RCs, TOPS, and BAs as having the requisite personnel, qualifications and facilities and equipment needed to perform these reliability functions in accordance with the applicable Requirements of Reliability Standards?
 - C. Is the activity necessary or appropriate for the Certification of system operating personnel as qualified to carry out the duties and responsibilities of their positions in accordance with the Requirements of applicable Reliability Standards?¹⁷
 - D. Is the activity necessary or appropriate for conducting, participating in or overseeing compliance monitoring and enforcement activities pursuant to the NERC ROP and (through the Regional Entities) the Commission-approved delegation agreements?
 - E. Is the activity necessary or appropriate for information gathering, collection and analysis activities to obtain information to monitor and enforce compliance with Reliability Standards, including evaluating the effectiveness of current compliance monitoring and enforcement processes, the need for new or revised compliance monitoring and enforcement processes, and the need for new or different means of training and education on compliance with Reliability Standards, such as:

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

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

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.
 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	2021 Budget	2022 Budget	Increase(Decrease)
Reliability Standards			
Standards and PRISM Application Support	\$ 39,552	\$ 108,960	\$ 69,408
Engineering and Standards Support	75,000	50,000	(25,000)
Total	\$ 114,552	\$ 158,960	\$ 44,408
CMEP			
Compliance Assurance Process Documentation Support	\$ -	\$ 75,000	\$ 75,000
Evidence Locker Annual Certification	100,000	100,000	-
Regional Entity CMEP and Align Post-Implementation Audit Support	-	360,000	360,000
BES Exception Process Application Support	39,552	40,000	448
Workshop Facilitation	19,000	19,000	-
Total	\$ 158,552	\$ 594,000	\$ 435,448
RAPA			
RAPA Application Support	\$ 218,203	\$ 261,227	\$ 43,024
EMP Task Force Support	-	50,000	50,000
Environmental Regulatory, Resource Adequacy, & Emerging Technology Analysis	-	200,000	200,000
Probabilistic Analysis	65,000	50,000	(15,000)
Research Partnerships and Projects	100,000	100,000	-
Workshop Facilitation	20,000	20,000	-
Total	\$ 403,203	\$ 681,227	\$ 278,024
Event Analysis			
Event Analysis Application Support	\$ 85,590	\$ 88,157	2,567
Event Analysis Review Support	30,000	30,000	-
Total	\$ 115,590	\$ 118,157	\$ 2,567
Situation Awareness			
Situation Awareness Application Support	\$ 15,000	\$ 15,000	\$ -
Total	\$ 15,000	\$ 15,000	\$ -
E-ISAC			
Security Consulting	\$ 75,000	\$ 87,950	\$ 12,950
GridEx and Other Events	551,500	278,000	(273,500)
Projects and Systems	878,983	491,843	(387,140)
Operations	494,435	913,248	418,813
Partnerships	400,000	400,000	-
CRISP	6,325,723	6,154,820	(170,903)
Total	\$ 8,725,641	\$ 8,325,861	\$ (399,780)
Personnel Certification			
System Operator Testing Expenses and Examination Development	\$ 113,650	\$ 96,188	\$ (17,462)
Job Task Analysis	50,000	-	(50,000)
Continuing Education Audit and Review Services	100,000	100,000	-
SOCCEC Database Support	125,000	125,000	-
Research Support	-	142,000	142,000
Total	\$ 388,650	\$ 463,188	\$ 74,538
Training and Education			
ERO Enterprise and Industry Learning and Development Support	\$ 170,000	\$ 100,000	\$ (70,000)
Total	\$ 170,000	\$ 100,000	\$ (70,000)
General and Administrative			
Communications Support	\$ 20,000	\$ 20,000	\$ -
Executive Support	-	100,000	100,000
Total	\$ 20,000	\$ 120,000	\$ 100,000
Information Technology			
Applications & Infrastructure, Security, and Ongoing Operations Support	\$ 1,635,625	\$ 1,733,406	\$ 97,781
Total	\$ 1,635,625	\$ 1,733,406	\$ 97,781
Human Resources			
Training and Development	\$ 450,000	\$ 565,000	\$ 115,000
Compensation and Benefits Consulting	100,000	155,000	55,000
Documentation and System Support	60,000	150,000	90,000
Total	\$ 610,000	\$ 870,000	\$ 260,000
Finance and Accounting			
Finance and Accounting Support	\$ 125,000	\$ 185,000	\$ 60,000
Total	\$ 125,000	\$ 185,000	\$ 60,000
Legal & Regulatory			
Internal Audit and Corporate Risk Management Support	\$ 200,000	\$ 300,000	\$ 100,000
Workshop Facilitation	10,000	10,000	-
Total	\$ 210,000	\$ 310,000	\$ 100,000
Total Consultants & Contracts	\$ 12,691,813	\$ 13,674,799	\$ 982,986

Exhibit C – Capital Financing

The company secured 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 \$8.0M non-revolving credit facility is 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 of Trustees and the Federal Energy Regulatory Commission (FERC).

NERC financed \$2.0M for ERO Secure Evidence Locker (SEL) project costs, borrowing \$1.3M in late 2020 and is anticipating to finance the remaining \$700k in 2021. Borrowings under the credit facility for the ERO SEL are amortized over a five-year period, and can be prepaid without penalty. The interest rate for the credit facility is floating, and NERC projects the average interest rate during 2022 for the ERO SEL project borrowing will be 3.0%.

NERC is assuming no loan borrowing through the capital financing program in 2022. The tables below show projected year-end outstanding debt and the future annual payments for debt service.

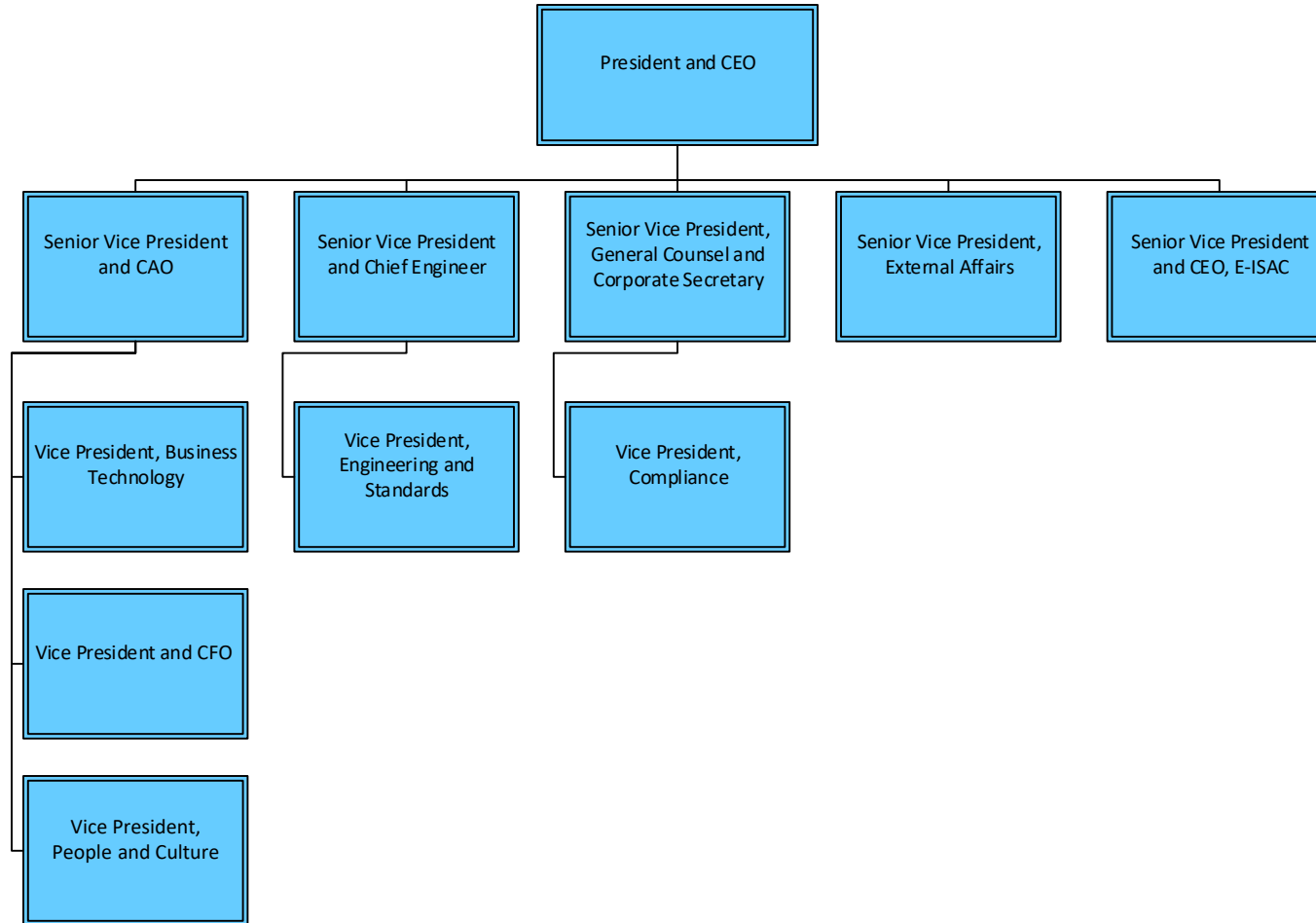
	Year-End Outstanding Debt Balance				
	Prior Years	2021	2022	2023	2024
	Actual	Projected	Budget	Projected	Projected
Prior Years	\$ 1,291,714	\$ 916,714	\$ 672,964	\$ 429,214	\$ 185,464
2021 Projection	-	708,286	\$ 577,036	\$ 445,786	\$ 314,536
2022 Budgeted	-	-	-	-	-
2023 Projected	-	-	-	-	-
2024 Projected	-	-	-	-	-
Total Outstanding Balance	\$ 1,291,714	\$ 1,625,000	\$ 1,250,000	\$ 875,000	\$ 500,000

	Future Annual Payments for Debt Service				
		2021	2022	2023	2024
		Projected	Budget	Projected	Projected
Prior Years - Principal		\$ -	\$ -	\$ -	\$ -
2021 Projection		375,000	375,000	375,000	375,000
2022 Budgeted		-	-	-	-
2023 Projected		-	-	-	-
2024 Projected		-	-	-	-
Interest Expense		55,000	55,000	55,000	55,000
Total Principal and Interest Costs		\$ 430,000	\$ 430,000	\$ 430,000	\$ 430,000

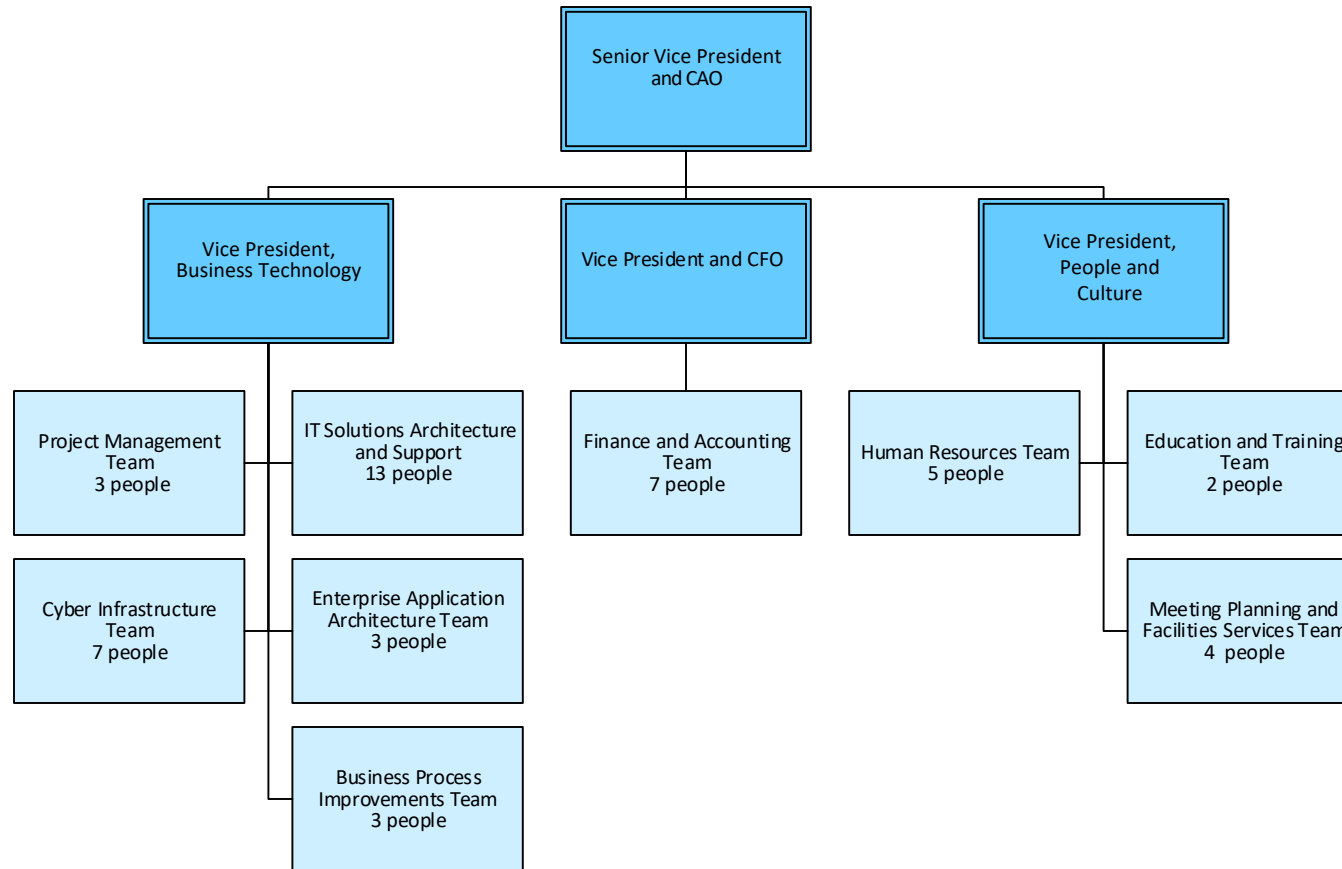
Exhibit D – Reserve Amounts

Refer to the *Introduction and Executive Summary* section on page 9

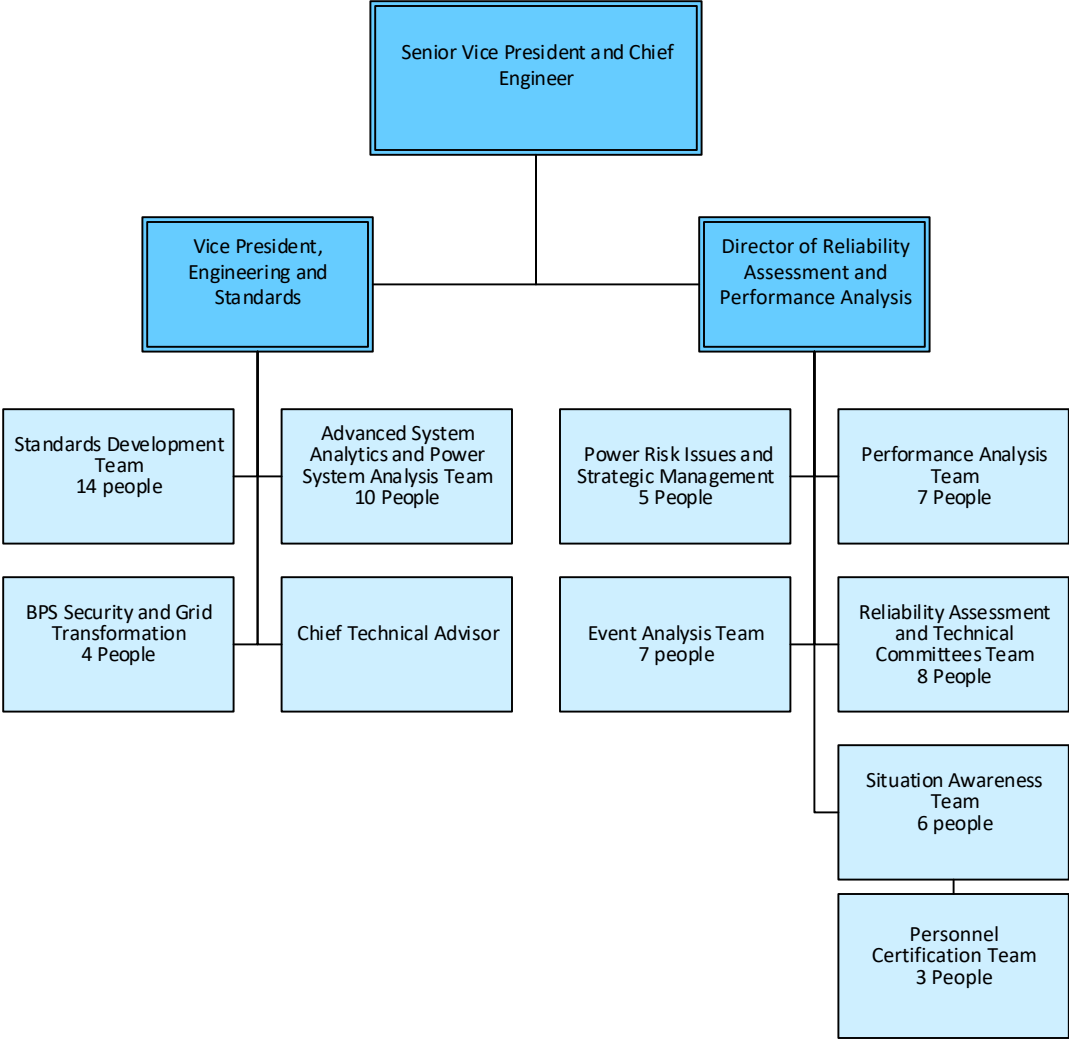
NERC Staff Organization Chart – Budget 2022



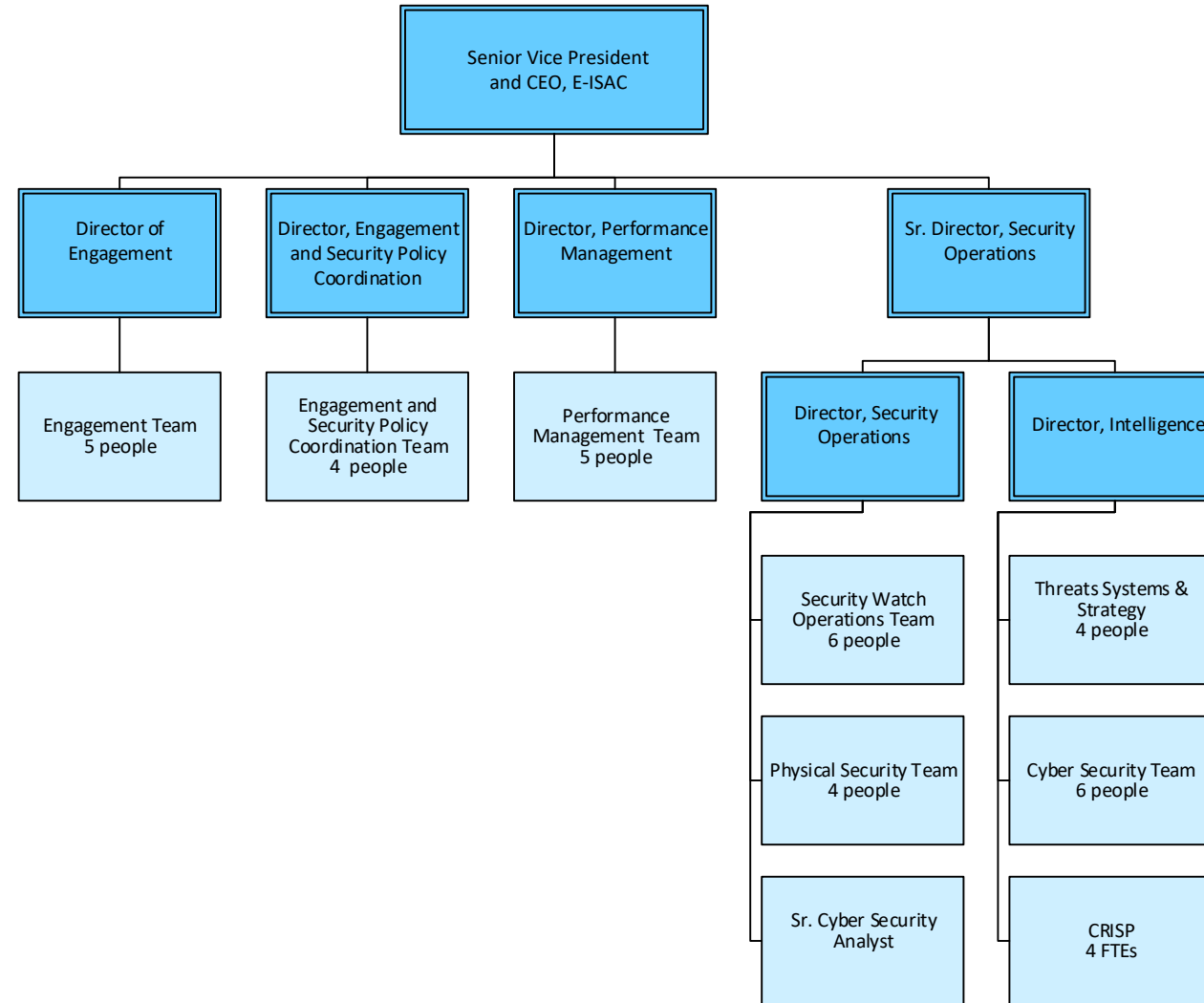
IT, Finance, HR, and Administration



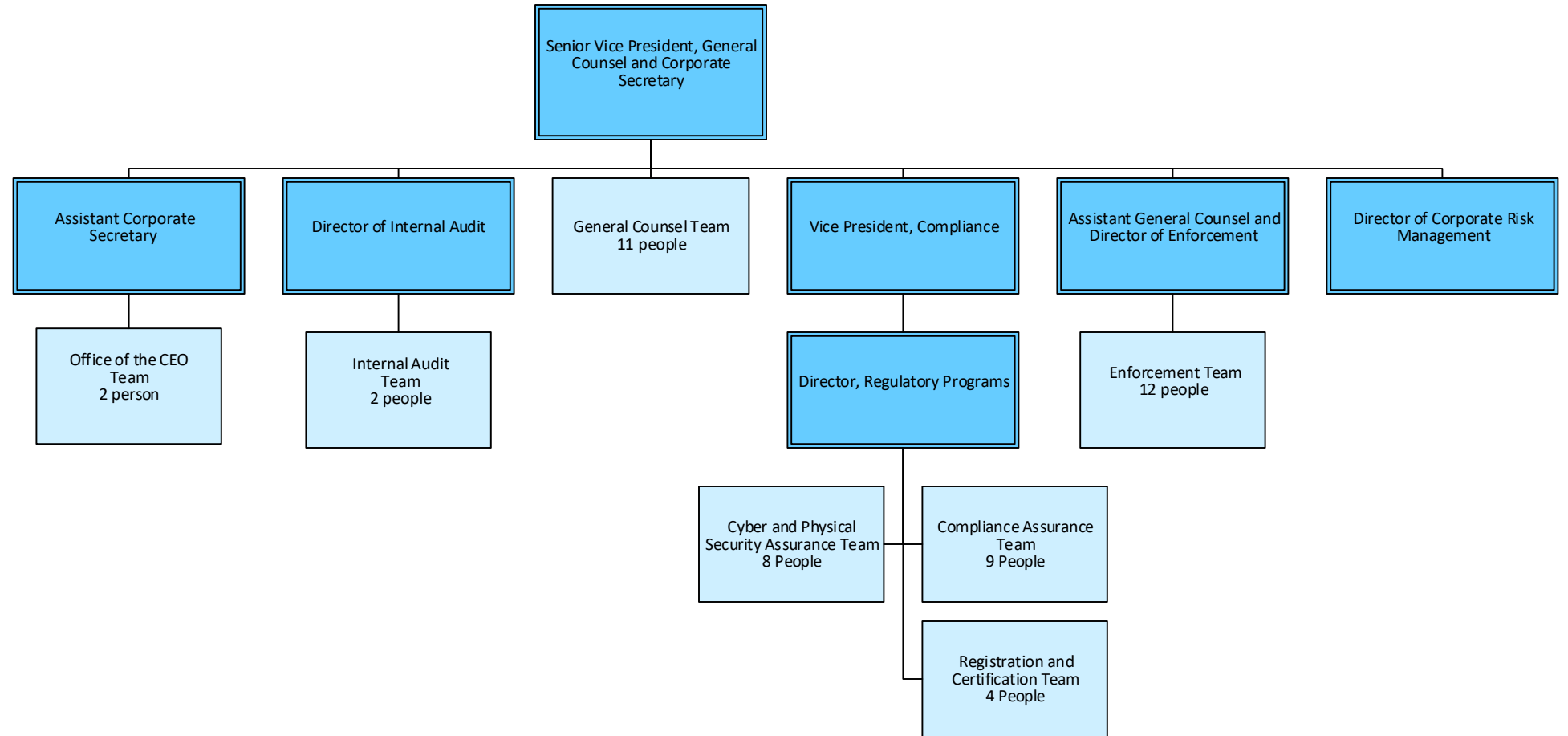
Engineering & Standards, and Reliability Risk Management



Electricity Information Sharing and Analysis Center



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



External Affairs

