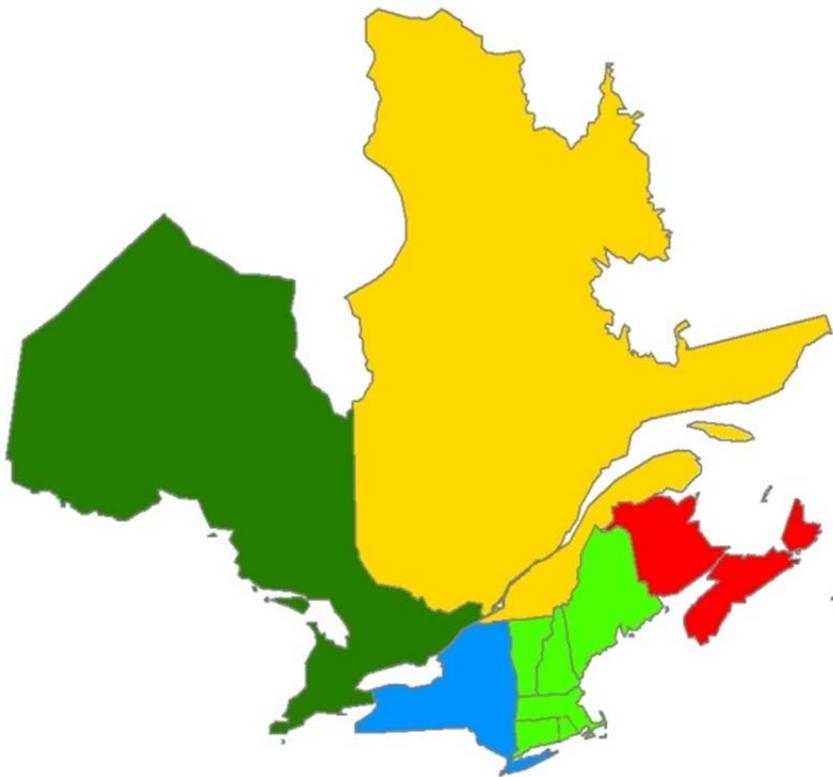




NORTHEAST POWER COORDINATING COUNCIL, INC.  
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# **Northeast Power Coordinating Council, Inc. (NPCC)**

## **2017 Business Plan and Budget**



**Draft 1**  
**Submitted to NERC**  
**April 28, 2016**

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## Introduction

<b>Total NPCC Resources</b>				
(in whole dollars)				
	2016 Budget	U.S.	Canada	Mexico
Regional Entity Division FTEs	36.86			
Criteria Services Division FTEs	2.14			
<b>Total FTEs</b>	<b>39.0</b>			
Regional Entity Division Expenses	\$15,121,054			
Criteria Services Division Expenses	\$1,036,896			
<b>Total Expenses</b>	<b>\$16,157,950</b>			
Regional Entity Division Inc(Dec) in Fixed Assets	<b>\$26,000</b>			
Criteria Services Division Inc(Dec) in Fixed Assets	<b>(\$10,000)</b>			
<b>Total Inc(Dec) in Fixed Assets</b>	<b>\$16,000</b>			
Regional Entity Division Working Capital Requirement**	<b>(\$663,357)</b>			
Criteria Services Division Working Capital Requirement***	<b>(\$85,665)</b>			
<b>Total Working Capital Requirement</b>	<b>(\$749,023)</b>			
Total Regional Entity Division Funding Requirement	\$14,483,697			
Total Criteria Services Division Funding Requirement	\$941,230			
<b>Total Funding Requirement</b>	<b>\$15,424,927</b>			
<b>Regional Entity Division Assessments</b>	<b>\$14,419,697</b>	\$XXX,XXX	\$XXX,XXX	
<b>Regional Entity Division Assessments Percentage</b>	<b>100.0%</b>	XX.X%	XX.X%	
<b>Criteria Services Division Membership Fees</b>	<b>\$941,230</b>	\$XXX,XXX	\$XXX,XXX	
<b>Total NPCC Assessments &amp; Membership Fees</b>	<b>\$15,360,927</b>	\$XXX,XXX	\$XXX,XXX	
NEL	XX	XX	XX	
NEL %	100%	XX.XX%	XX.XX%	

\*\* Refer to Table B-1 on page in Section B.

\*\*\* Refer to the Reserve Analysis on page in Section C.

## 2017 Overview of Total NPCC Resource Requirements

Due to the international nature of NPCC, the total resource requirements including both Regional Entity division and Criteria Services division are identified above. The individual divisional explanations are contained in subsequent sections.

NPCC proposes to decrease its total budget and assessments by -0.3% comprising a Regional Entity increase of 0.5% and a Criteria Services division decrease of -11.3%. The proposed 2017 funding requirements will be satisfied by a Regional Entity division assessment of \$14,419,697 and Criteria Services division fees of \$941,230, for a total of \$15,360,927. This is an overall decrease of -0.3% compared to the 2016 total assessments and fees of \$15,409,738. NPCC believes that the Region remains an effective provider of Regional Entity and Criteria Services division functions. NPCC's corporate culture centers on consistent delivery of excellent results at a cost that is considerate of the longstanding tradition in the Northeast of affordable and reliable electricity.

## Organizational Overview

Northeast Power Coordinating Council, Inc. (NPCC) is a 501(c)(6) not-for-profit corporation in the state of New York responsible for promoting and improving the reliability of the international, interconnected bulk power systems in Northeastern North America through (i) the development of Regional Reliability Standards and compliance assessment and enforcement of continent-wide and Regional Reliability Standards, coordination of system planning, design and

operations, and assessment of reliability (collectively, Regional Entity activities), and (ii) the establishment of Regionally-specific criteria, and monitoring and enforcement of compliance with such criteria (collectively, criteria services activities). NPCC provides the functions and services for Northeastern North America of a cross-border Regional Entity through a Regional Entity division, as well as Regionally-specific criteria services for Northeastern North America through a criteria services division. NPCC's website is [www.npcc.org](http://www.npcc.org).

The NPCC Region covers nearly 1.2 million square miles and is populated by more than 56 million people. NPCC U.S. includes the six New England states and the state of New York. NPCC Canada includes the provinces of Ontario, Québec and the Maritime provinces of New Brunswick and Nova Scotia. In total, from a net energy for load perspective, NPCC is approximately 45% U.S. and 55% Canadian. With regard to Canada, approximately 70% of Canadian net energy for load is within the NPCC Region.

Effective January 1, 2016, NPCC executed an Amended and Restated Regional Delegation Agreement with the North American Electric Reliability Corporation (NERC) that delegates to NPCC certain responsibilities and authorities of a cross-border Regional Entity as defined by *Section 215* of the Federal Power Act in the U.S. In addition, NPCC has executed Memoranda of Understanding or Agreements with Canadian provincial regulatory and/or governmental authorities in Ontario, Québec, New Brunswick and Nova Scotia.

In this 2017 business plan, NPCC has included activities consistent with NERC initiatives including the enhancement of reliability assessments, risk-based registration, risk-based compliance monitoring and enforcement, expanded training for compliance auditing, and increased situation awareness.

It is imperative that NPCC maintain its ability to carry out delegated authorities and responsibilities. NPCC has a flat 2017 targeted staffing level of 39 power industry professionals and support personnel. Details of the 2017 business plans and budget for each program area are included in Section A for the Regional Entity division. The 2017 Regional Entity division schedules are shown in Section B. Section C details the 2017 criteria services division business plan and budget.

## **Membership and Governance**

NPCC monitors approximately 212 registered entities and some 426 functions in the Region for compliance with mandatory Reliability Standards. NPCC currently has approximately members. There are two categories of membership, General and Full. The two categories distinguish between Regional Entity delegated services that are provided in support of the U.S. FERC and Canadian provincial MOUs or Agreements with regulatory and/or governmental authorities, and Criteria Services which FERC references as U.S. non-delegated activities.

General Membership is voluntary and is open to any person or entity, including any entity participating in the Registered Ballot Body of the Electric Reliability Organization (ERO) that has an interest in the reliable operation of the Northeastern North American bulk power system. General Members which are also registered entities within the NPCC Region are subject to compliance with Reliability Standards, consistent with their registration, and also receive additional services from the Regional Entity division of NPCC.

Full Membership is available to Members which are already General Members and participate in electricity markets in the Northeast. Independent system operators (ISOs), Regional

transmission organizations (RTOs), Transcos and other organizations or entities that perform the Balancing Authority function operating in Northeastern North America are expected to be Full Members of NPCC. The New York State Reliability Council and any other sub-regional reliability councils which may be formed are also expected to be Full Members. Full Members are subject to compliance with Regionally-specific more stringent reliability criteria for their generation and transmission facilities on which faults or disturbances can have a significant adverse impact outside of the local area and which are identified utilizing a reliability impact-based methodology, in addition to Reliability Standards, and receive additional services from the Criteria Services division of NPCC, which is not funded through the ERO.

Since January 1, 2012 NPCC is governed by a Board of Directors consisting of seven stakeholder voting sectors consisting of a maximum of two directors per sector, an independent sector consisting of two independent directors, an independent Board Chair with voting rights to preclude board deadlocks, and the President and CEO. Within NPCC, no two sectors can control and no one sector can block action. The voting sectors on the NPCC Board of Directors include:

Sector 1) Transmission Owners

Sector 2) Reliability Coordinators

Sector 3) Transmission Dependent Utilities, Distribution Companies, Load Serving Entities

Sector 4) Generator Owners

Sector 5) Marketers, Brokers and Aggregators

Sector 6) Regulators

Sector 7) Sub-Regional Reliability Councils, Customers, other Regional Entities and Interested Entities

Sector 8) Independent

A Finance and Audit Committee (FAC), a Pension Committee (PC), a Corporate Governance and Nominating Committee (CGNC), and a Management Development and Compensation Committee (MDCC) advise the Board on finance, governance, compensation and human resource matters consistent with their approved charters. The Board endorses a non-employee, Certified Public Accountant for election by the NPCC Members as Treasurer of the corporation. The Treasurer chairs the FAC and works with the Chief Operating Officer who provides oversight of the finances of the corporation. The Treasurer reports to the Board on the corporation's financial position, on FAC activities, on tax code requirements, and on independent annual audit results and accounting practices.

The Regional Standards Committee (RSC), the Compliance Committee (CC), the Reliability Coordinating Committee (RCC), and the Public Information Committee, consistent with their approved scopes, are responsible for various reliability issues. The RSC, CC and RCC also provide technical policy recommendations to the Board. All General and Full Members are eligible for representation on the technical committees.

Industry technical experts from within the membership provide valuable input to the Board through various working groups and task forces as well as the committees. The *Amended and Restated Bylaws* establishes NPCC's independence from users, owners and operators of the bulk power system through the enhanced governance structure while providing fair stakeholder representation in the election of the Board of Directors and officers. The members, from each of the seven stakeholder voting sectors, vote to elect directors in their respective sector. The *Amended and Restated Bylaws* establish criteria for board service for both stakeholder and independent directors. Independent Directors are drawn from diverse backgrounds and possess a

broad range of industry expertise, perspectives, experiences, skill sets and knowledge to contribute to the effective functioning of a hybrid board structure.

Compliance and enforcement activities are carried out by the NPCC compliance staff and are independent of all users, owners and operators of the international bulk electric system. Compliance activities are governed in the United States by the *Amended and Restated Regional Delegation Agreement* between NERC and NPCC, delegating portions of NERC's authority as the ERO to NPCC. NPCC compliance activities in Canada are governed by an individual provincial Memorandum of Understanding (MOU) or Agreements with each province providing the unique parameters for compliance and enforcement activities for each of the provinces. A MOU between the Independent Electricity System Operator in Ontario (IESO), NERC and NPCC establishes roles and responsibilities with regard to that province. NPCC, NERC and the New Brunswick Energy and Utilities Board are parties to a MOU that sets forth reliability activities for New Brunswick. The Régie de l'énergie, NERC and NPCC executed an Agreement regarding the implementation of the Québec reliability standards compliance monitoring and enforcement program. NPCC, NERC and Nova Scotia executed a MOU that sets forth the mutual understanding of the parties in relation to the approval and implementation of NERC Reliability Standards and NPCC Regional reliability criteria for the province of Nova Scotia.

## International Foundation

The Regional Entity functions and services differ according to particular regulatory backstop:

a) U.S. Foundation

The Federal Energy Regulatory Commission (FERC) certified NERC as the Electric Reliability Organization (ERO) on July 20, 2006. The ERO is responsible for developing and enforcing reliability standards within the United States. In executing part of its responsibilities, NERC delegates authority to the Regional Entities to perform certain functions through delegation agreements. Ensuring the reliability of the bulk power system in the State of New York and the six New England States was delegated from NERC to NPCC through the Amended and Restated Regional Delegation Agreement.

b) Ontario

On February 5, 2010, NERC, NPCC and the IESO amended and restated their earlier MOU, dated November 29, 2006, setting forth their mutual understanding as regards NERC's and NPCC's status in Ontario with respect to standard and criteria development, compliance enforcement, and other related matters. The IESO, whose statutory responsibilities include making and enforcing reliability standards, and making and enforcing Ontario market rules that govern the IESO-controlled grid and the wholesale electricity market, was established April 1, 1999 as the Independent Electricity Market Operator in Ontario under the *Electricity Act, 1998* (Ontario). The IESO is subject to the regulatory oversight of the Ontario Energy Board (OEB).

Among other things, the MOU recognizes that NERC and NPCC are standards authorities under the *Electricity Act, 1998* (Ontario). Additionally, under the authority of that same legislation, and as memorialized in the MOU, the NERC reliability standards and NPCC reliability criteria have effect in Ontario. However a 2008 amendment to the Electricity Act, 1998 (Ontario) allows the OEB to review these standards and criteria and issue orders preventing their implementation and remanding them back to NERC and NPCC.

The IESO is subject to compliance monitoring and enforcement by NPCC. The IESO is also subject to compliance monitoring and enforcement of the Ontario market rules by the IESO's

Market Assessment and Compliance Division (MACD) that operates at arm's length from the IESO's business units. The MOU notes that where MACD, NERC, and NPCC engage in investigations pursuant to their respective mandates regarding compliance, MACD can request to take the lead. Moreover, of the three, MACD is the only entity that can assess financial penalties for any Ontario market participant's or the IESO's non-compliance with Ontario market rules, which includes non-compliance with NERC standards and NPCC criteria.

The MOU provides for a peer review process to promote the common compliance and enforcement objectives of NERC/NPCC and MACD. From the perspective of NPCC and NERC, this process, in part, is meant to assure registered entities outside of Ontario that the MACD program is rigorous, thorough and reliable.

The IESO is subject to NPCC assessments of compliance, including audits, as well as NPCC remedial action directives to correct non-compliance. In the event that the IESO disagrees with NPCC's finding of a violation or associated assessment of sanctions in connection with standards and criteria, the IESO has a right to a compliance hearing with NPCC.

c) Québec

The Régie de l'énergie, NERC and NPCC are parties to the May 8, 2009 *Agreement on the Development of Electric Power Transmission Reliability Standards and of Procedures and a Program for the Monitoring of the Application of These Standards for Québec* (the 2009 Agreement). Under the terms of the 2009 Agreement, the Régie de l'énergie, which is charged with ensuring the reliability of the electric transmission in Québec, retained NPCC and NERC as experts to develop reliability standards and monitoring program procedures for the Province.

The Régie de l'énergie, NERC and NPCC are parties to the September 24, 2014, *Agreement on the Implementation of the Québec Reliability Standards Compliance Monitoring and Enforcement Program* (the 2014 Agreement). Through the 2014 Agreement, the Régie de l'énergie retains the services of NPCC to monitor and assess the compliance of registered entities in Québec with the reliability standards adopted by the Régie with respect to electric power transmission in Québec.

On April 1, 2015, the Québec Reliability Standards Compliance Monitoring and Enforcement Program ("QCMEP"), which was developed jointly by the Régie de l'énergie, NPCC and NERC, came into effect. Together, the 2014 Agreement and the QCMEP detail the procedures and program for monitoring and enforcing mandatory electric power transmission reliability standards in Québec. The Hydro-Québec companies, including Hydro-Québec TransÉnergie, Hydro-Québec Distribution and Hydro-Québec Production are subject to voluntary compliance monitoring and enforcement, including comprehensive audits by NPCC.

The Régie de l'énergie is a public body established by the *Act respecting the Régie de l'énergie* (the Act). Pursuant to its authority under the Act, the Régie de l'énergie, through a series of decisions in 2007, designated Hydro-Québec Contrôle des mouvements d'énergie (HQCME), a division of Hydro-Québec TransÉnergie, as the Reliability Coordinator for Québec. In accordance with its mandate and as recognized in the 2009 Agreement, it is this entity that is responsible for the filing with the Régie de l'énergie for approval of reliability standards in Québec. HQCMÉ has filed for the approval of certain reliability standards and the Régie de l'énergie has made certain reliability standards mandatory in Québec and is continuing proceedings to make additional reliability standards mandatory in Québec.

The Hydro-Québec companies, including Hydro-Québec TransÉnergie and Hydro-Québec Production have been subject to voluntarily compliance monitoring and enforcement, including comprehensive audits by NPCC. NPCC plans to continue to these voluntary compliance monitoring and enforcement activities for any standards that have not yet been declared in effect by the Régie de l'énergie. Additionally, NPCC has and continues to proceed with its reliability assurance activities within Québec, including but not limited to events analysis, Reliability Assessment and Performance Analysis and compliance investigations, consistent with the NPCC *Amended and Restated Bylaws*.

d) New Brunswick

The New Brunswick Energy and Utilities Board (“NBEUB”) and NPCC entered into an Agreement dated October 1, 2013, whereby NPCC provides services for the NBEUB. The NBEUB is a not-for-profit corporation which was established on October 1, 2004 under the Electricity Act (NB) and charged with developing and administering the wholesale electricity market and maintaining reliability of the integrated power system in New Brunswick.

Effective October 1, 2013, the Electricity Act (NB) and implementing regulations (together, “NB Electricity Act”) amended how Reliability Standards are approved, monitored, and enforced in the province of New Brunswick. The NB Electricity Act designates NPCC as a compliance body and NERC as a standards body within the meaning of the NB Electricity Act. The October 1, 2013 Agreement between NPCC and the NBEUB is intended to be the preliminary step with respect to the implementation of the NB Electricity Act.

With respect to the approval of reliability standards, the NB Electricity Act provides that all of the NERC Reliability Standards that were effective in New Brunswick prior to October 1, 2013 continue to be effective in New Brunswick after October 1, 2013. Additionally, the New Brunswick Power Corporation is required to file for approval, modification, or retirement of NERC Reliability Standards 60 days after a NERC Reliability Standard is approved, modified, or retired by the Federal Energy Regulatory Commission (“FERC”). The NBEUB rules on the filed Reliability Standard after considering (a) the potential impact on the reliability of the bulk power system, (b) the potential cost and benefits (c) the public interest, and (d) any other factors that the NBUEB considers relevant. The Electricity Act requires the NBEUB to notify NPCC and NERC of an application by the NBPC with respect to reliability standards and provide for a 60 day comment period. The NBEUB is required to approve the reliability standards if there are not substantive modifications proposed from the FERC approved NERC Reliability Standard and there were no substantive comments filed. Amendments to the reliability standard to make them compatible with New Brunswick or Canadian law are considered non-substantive. The approval of reliability standards may be subject to a hearing for several reasons, including substantive comments from NPCC or NERC.

With respect to the monitoring and enforcement of the Reliability Standards in New Brunswick, the NB Electricity Act requires NPCC to identify entities that must register with the NBEUB in the New Brunswick specific registry. Additionally, NPCC is required to carry out the compliance monitoring and assessment for the NBEUB and assist and advise the enforcement for the NBEUB, including financial penalties. NPCC is also permitted to carry out or exercise any power in the implementing regulations that is specific to the NBEUB. Additionally, NPCC has the powers of an inspector, which permits NPCC to audit and spot check entities within New Brunswick.

e) Nova Scotia

Nova Scotia Power Incorporated (NSPI), NPCC and NERC are parties to a May 11, 2010 Memorandum of Understanding regarding the approval and implementation of mandatory NERC reliability standards and NPCC Regional reliability criteria. Pursuant to the MOU's terms, NERC and NPCC filed standards and criteria with the Nova Scotia Utility and Review Board (NSUARB) for approval on June 30, 2010 and June 29, 2010, respectively. A decision from the NSUARB on both NERC and NPCC filings was rendered on July 20, 2011. Hence, the standards and criteria are mandatory in Nova Scotia and NSPI will be subject to the NERC compliance monitoring and enforcement program, as implemented by NPCC.

NPCC will conduct compliance and enforcement activities with respect to the standards and forward any non-compliance information and recommendations to the NSUARB. The NSUARB maintains the final authority with respect to enforcement in Nova Scotia and based on the recommendations from NPCC, may determine whether a violation has occurred and, if so, what remedial measures or non-monetary penalties should be imposed.

## **Regional Entity Division Functional Scope**

NPCC's Regional Entity division functions in support of the ERO include:

- Active participation in the development of North American Reliability Standards for the bulk electric system, and as needed development of Reliability Standards applicable within the NPCC cross-border Regional Entity
- Monitoring and enforcement of approved Reliability Standards, including the registration of responsible entities, and as needed certification of such entities
- Assessment of the present and future reliability of the bulk power system
- Operational coordination and situation awareness support
- Event analysis and identifying lessons learned to improve reliability
- Effective training and education of reliability personnel
- Promoting the protection of critical electric infrastructure

In recognition of the delegated compliance role of Regional Entities as an important means to enhancing reliability, NPCC has designated a significant percentage of its staff resources to compliance monitoring and enforcement. NPCC has also developed and deployed a robust set of online tools for gathering data, analysis, and tracking of compliance information to support its ability to carry out its responsibilities in a cost effective manner.

NPCC has organized the remaining staff into program areas consistent with EPOA 2005 to address the other functions listed above. These experts in operations, planning and reliability analysis assist registered entities in assessing and improving reliability. It is in support of these areas that NPCC engages the majority of industry experts on its technical committees.

## **2017 Key Assumptions and 2017 Goals and Key Deliverables**

NERC and the eight Regional Entities collaborated in the development of a common operating model with complementary roles and responsibilities, an ERO Enterprise Strategic Plan, and a set of business planning assumptions, goals, metrics and key deliverables for the 2016 through 2019 period. The results from that collaboration, which incorporated risks identified by the Reliability Issues Steering Committee, are included as a set of Shared Business Plan and Budget Assumptions that will be contained in Exhibit A to the NERC 2017 Business Plan and Budget

and may be referenced by the users of this document. NPCC activities that support ERO Enterprise Goals are detailed in each of the following program area sections.

### **2017 Overview of Regional Entity Division Cost Impacts**

The proposed Regional Entity division assessment of \$14,419,697 to support the budget is an increase of 0.5% compared to the 2016 assessment of \$14,349,196.

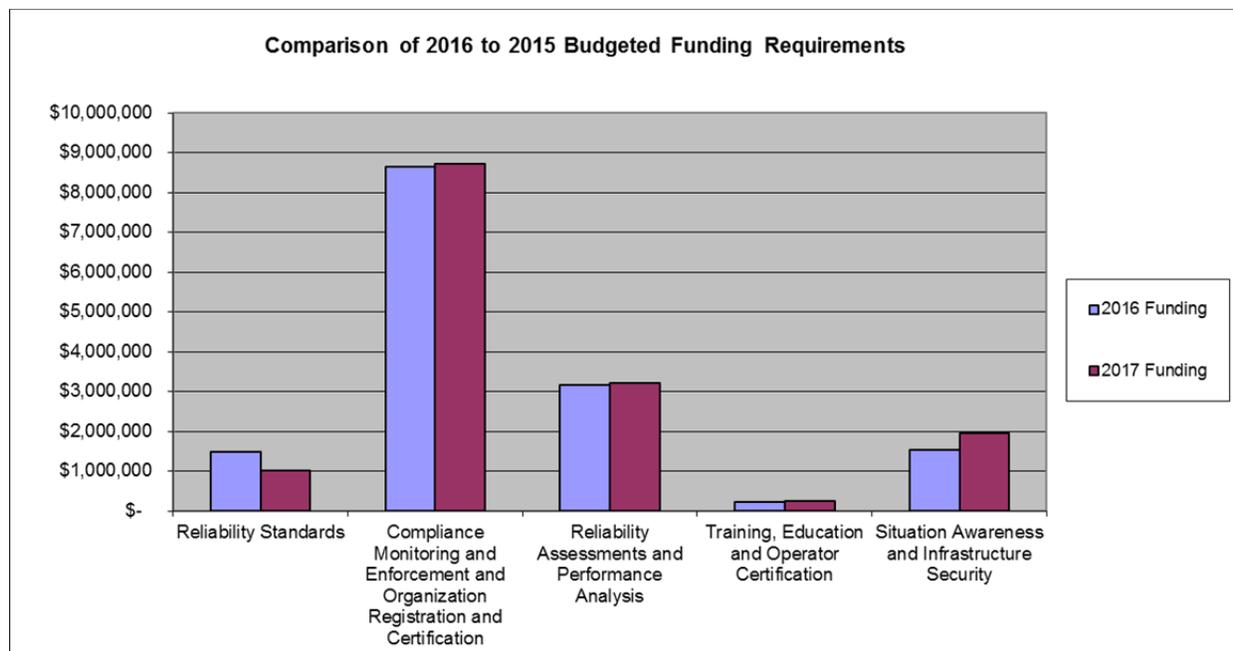
### **2016 Projections**

Current year projections are taken into consideration in development of the budget. Expenses are currently projected to be on budget in all areas or slightly under budget. 2016 Projections reflect expectations based on the first quarter variance report. It is anticipated that projections could change throughout 2016 and would be reflected in each subsequent quarter's variance report.

### Summary by Program

Program	Budget 2016	Projection 2016	Budget 2017	Variance	
				2017 Budget v 2016 Budget	Variance %
Reliability Standards	\$ 1,487,419	\$ 1,487,419	\$ 1,022,328	\$ (465,091)	-31.3%
Compliance Monitoring and Enforcement and Organization Registration and Certification	\$ 8,650,196	\$ 8,650,196	\$ 8,726,049	\$ 75,853	0.9%
Reliability Assessments and Performance Analysis	\$ 3,171,574	\$ 3,171,574	\$ 3,206,966	\$ 35,392	1.1%
Training, Education and Operator Certification	\$ 219,956	\$ 219,956	\$ 248,658	\$ 28,702	13.0%
Situation Awareness and Infrastructure Security	\$ 1,543,852	\$ 1,543,852	\$ 1,943,053	\$ 399,201	25.9%
<b>Total</b>	<b>\$ 15,072,998</b>	<b>\$ 15,072,998</b>	<b>\$ 15,147,054</b>	<b>\$ 74,057</b>	<b>0.5%</b>

This chart does not include allocation of working capital requirements among the Program Areas.



This chart does not include allocation of working capital requirements among the Program Areas.

## Personnel Analysis

Total FTEs by Program Area	Budget 2016	Projection 2016	Direct FTEs 2017 Budget	Shared FTEs <sup>1</sup> 2017 Budget	Total FTEs 2017 Budget	Change from 2016 Budget
<b>REGIONAL ENTITY DIVISION</b>						
<b>Operational Programs</b>						
Reliability Standards	2.93	2.93	1.00	0.93	1.93	-1.00
Compliance Monitoring and Enforcement and Organization Registration and Certification	16.00	16.00	17.00	0.00	17.00	1.00
Training, Education, and Operator Certification	0.10	0.10	0.10	0.00	0.10	0.00
Reliability Assessment and Performance Analysis	5.83	5.83	4.90	0.93	5.83	0.00
Situation Awareness and Infrastructure Security	3.00	3.00	4.00	0.00	4.00	1.00
<b>Total FTEs Operational Programs</b>	<b>27.86</b>	<b>27.86</b>	<b>27.00</b>	<b>1.86</b>	<b>28.86</b>	<b>1.00</b>
<b>Administrative Programs</b>						
Technical Committees and Member Forums	0.50	0.50	0.50	0.00	0.50	0.00
General and Administrative	2.50	2.50	2.50	0.00	2.50	0.00
Information Technology	3.00	3.00	2.00	0.00	2.00	-1.00
Legal and Regulatory	1.00	1.00	1.00	0.00	1.00	0.00
Human Resources	1.00	1.00	1.00	0.00	1.00	0.00
Accounting and Finance	1.00	1.00	1.00	0.00	1.00	0.00
<b>Total FTEs Administrative Programs</b>	<b>9.00</b>	<b>9.00</b>	<b>8.00</b>	<b>0.00</b>	<b>8.00</b>	<b>-1.00</b>
<b>Total FTEs</b>	<b>36.86</b>	<b>36.86</b>	<b>35.00</b>	<b>1.86</b>	<b>36.86</b>	<b>0.00</b>

<sup>1</sup>A shared FTE is defined as an employee who performs both Regional Entity and Criteria Services division functions.

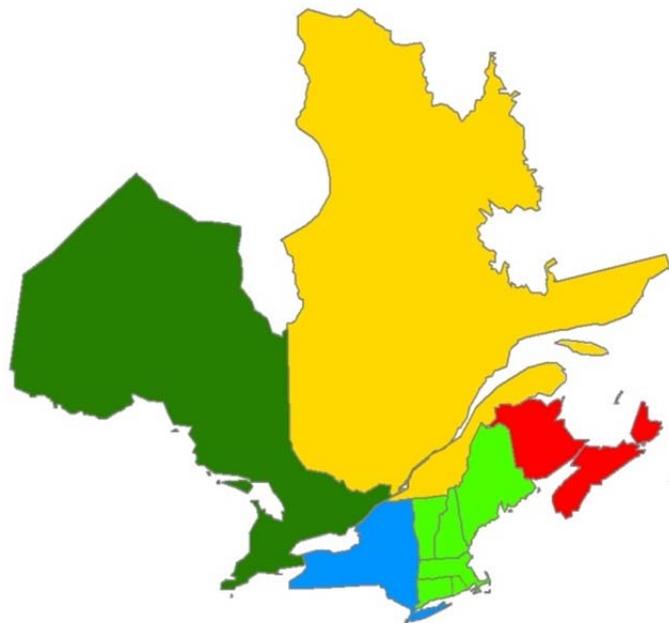
## 2016 Budget and Projection and 2017 Budget Comparisons

<b>Statement of Activities and Capital Expenditures</b>						
<b>2016 Budget &amp; Projection, and 2017 Budget</b>						
<b>REGIONAL ENTITY DIVISION</b>						
				Variance <sup>(2)</sup>		Variance
	2016	2016	2016 Projection	v 2016 Budget	2017	2017 Budget
	Budget	Projection	v 2016 Budget	Over(Under)	Budget	v 2016 Budget
						Over(Under)
<b>Funding</b>						
<b>ERO Funding</b>						
ERO Assessments	\$ 14,349,196	\$ 14,349,196	\$ -	\$ -	\$ 14,419,697	\$ 70,501
Penalty Sanctions <sup>(1)</sup>	67,000	67,000	-	-	-	(67,000)
<b>Total ERO Funding</b>	<b>\$ 14,416,196</b>	<b>\$ 14,416,196</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 14,419,697</b>	<b>\$ 3,501</b>
Membership Dues	-	-	-	-	-	-
Testing Fees	-	-	-	-	-	-
Services & Software	-	-	-	-	-	-
Workshops	64,000	64,000	-	-	64,000	-
Interest	-	-	-	-	-	-
Miscellaneous	-	-	-	-	-	-
<b>Total Funding (A)</b>	<b>\$ 14,480,196</b>	<b>\$ 14,480,196</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 14,483,697</b>	<b>\$ 3,501</b>
<b>Expenses</b>						
<b>Personnel Expenses</b>						
Salaries	\$ 6,561,470	\$ 6,561,470	\$ -	\$ -	\$ 6,758,926	\$ 197,456
Payroll Taxes	399,057	399,057	-	-	404,319	5,262
Benefits	1,364,799	1,364,799	-	-	1,415,603	50,804
Retirement Costs	833,118	833,118	-	-	847,223	14,105
<b>Total Personnel Expenses</b>	<b>\$ 9,158,445</b>	<b>\$ 9,158,445</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 9,426,071</b>	<b>\$ 267,627</b>
<b>Meeting Expenses</b>						
Meetings	\$ 394,000	\$ 394,000	\$ -	\$ -	\$ 377,100	\$ (16,900)
Travel	907,100	907,100	-	-	855,232	(51,868)
Conference Calls	47,000	47,000	-	-	37,000	(10,000)
<b>Total Meeting Expenses</b>	<b>\$ 1,348,100</b>	<b>\$ 1,348,100</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 1,269,332</b>	<b>\$ (78,768)</b>
<b>Operating Expenses</b>						
Consultants & Contracts	\$ 2,223,500	\$ 2,223,500	\$ -	\$ -	\$ 2,009,000	\$ (214,500)
Office Rent	802,500	802,500	-	-	809,700	7,200
Office Costs	639,500	639,500	-	-	679,100	39,600
Professional Services	1,011,000	1,011,000	-	-	1,041,000	30,000
Computer & Equipment Leases	-	-	-	-	-	-
Miscellaneous	41,000	41,000	-	-	50,000	9,000
Depreciation	231,821	231,821	-	-	250,000	18,179
<b>Total Operating Expenses</b>	<b>\$ 4,949,321</b>	<b>\$ 4,949,321</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 4,838,800</b>	<b>\$ (110,521)</b>
<b>Total Direct Expenses</b>	<b>\$ 15,455,866</b>	<b>\$ 15,455,866</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 15,534,203</b>	<b>\$ 78,338</b>
<b>Indirect Expenses</b>	<b>\$ (427,047)</b>	<b>\$ (427,047)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ (413,149)</b>	<b>\$ 13,898</b>
<b>Other Non-Operating Expenses</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Total Expenses (B)</b>	<b>\$ 15,028,819</b>	<b>\$ 15,028,819</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 15,121,054</b>	<b>\$ 92,236</b>
<b>Change in Assets</b>	<b>\$ (548,622)</b>	<b>\$ (548,622)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ (637,357)</b>	<b>\$ (88,735)</b>
<b>Fixed Assets</b>						
Depreciation	\$ (231,821)	\$ (231,821)	\$ -	\$ -	\$ (250,000)	\$ (18,179)
Computer & Software CapEx	276,000	276,000	-	-	276,000	-
Furniture & Fixtures CapEx	-	-	-	-	-	-
Equipment CapEx	-	-	-	-	-	-
Leasehold Improvements	-	-	-	-	-	-
Allocation of Fixed Assets	-	-	-	-	0	-
<b>Inc(Dec) in Fixed Assets (C)</b>	<b>44,179</b>	<b>44,179</b>	<b>-</b>	<b>-</b>	<b>26,000</b>	<b>(18,179)</b>
<b>TOTAL BUDGET (=B+C)</b>	<b>\$ 15,072,998</b>	<b>\$ 15,072,998</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 15,147,054</b>	<b>\$ 74,057</b>
<b>TOTAL CHANGE IN WORKING CAPITAL (=A-B-C)</b>	<b>\$ (592,801)</b>	<b>\$ (592,801)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ (663,357)</b>	<b>\$ (70,556)</b>
<sup>(1)</sup> \$0 of penalty sanctions collected to date and prior to June 30, 2015.						
<sup>(2)</sup> 2015 Projections reflect expectations based on the 1st quarter statement of activities. It is anticipated that projections could change throughout 2015 and would be reflected in each subsequent quarter's statement of activities.						

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## Section A – Regional Entity Division 2017 Business Plan and Budget

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## Section A — 2017 Regional Entity Division Business Plan and Budget

### Reliability Standards Program

<b>Reliability Standards Program Resources</b>			
(in whole dollars)			
	2016 Budget	2017 Budget	Increase (Decrease)
Total FTEs	2.93	1.93	-1.00
Direct Expenses	\$913,958	\$658,082	(\$255,877)
Indirect Expenses	\$584,695	\$372,606	(\$212,089)
Other Non-Operating Expenses	\$0	\$0	\$0
Inc(Dec) in Fixed Assets	(\$11,234)	(\$8,359)	\$2,875
Total Funding Requirement	\$1,487,419	\$1,022,328	(\$465,091)

#### Program Scope and Functional Description

The NPCC Reliability Standards Program Area operates in accordance with NPCC’s filed and approved Delegation Agreement “Exhibit C”, and NERC Rules of Procedure Section 300. The program supports the ERO standards program area roles and responsibilities, the 2017 ERO Enterprise Strategic Plan and 2017-2019 Shared Business Plan and Budget Assumptions. NPCC’s Reliability Standards Program Area provides supporting activities for stakeholders and the ERO for the development of reliability standards which are clear, responsive to reliability and security risks, practical to implement, “results based”, and are cost effective. The primary objectives of NPCC’s Reliability Standards Program Area is to support the development of ERO standards which establishes “results-based” requirements for addressing reliability risks with due consideration given to cost effectiveness. NPCC supports the ERO efforts to develop reliability standards in a timely and efficient manner and which are responsive to FERC Directives and industry risk. The standards must ensure the bulk electric system is planned, operated, and maintained in a manner that minimizes risks of cascading failures, avoids damage to major equipment, is responsive to risks, or limits interruptions of bulk power supply.

At a Regional level, the standards program develops, and maintains NPCC Regional Reliability Standards, ERO Standards Variances for the northeast as required, and ensures that NPCC’s Regional reliability criteria, contained in the form of Directories, are “not inconsistent with” any applicable NERC and Regional Reliability Standards, in accordance with the NERC Rules of Procedure.

The NPCC Reliability Standards Program Area supports and participates in the development, revision, and maintenance of NERC ERO Reliability Standards, initiates new continent-wide reliability standards through the NERC Standards Authorization Request (SAR) process when necessary, and provides a forum for the comprehensive review and improvement of existing and developing reliability standards. NPCC also supports the NERC Enhanced Periodic Review process to review existing NERC standards and participates directly in the activities of the NERC Standing Periodic Review Team to grade existing standards. The NPCC Regional Standards Program Area also facilitates and assists stakeholders with initiating SARs and Requests for Interpretation of ERO standards for those entities within the NPCC footprint. In 2016 NPCC developed feedback mechanisms from the Compliance, Event Analysis, RAPA and

Criteria Services program area which will provide a process to identify and improve standards. The standards program area will receive input from these other program areas and take appropriate action to support the revision, retirement, or development of new standards to improve the ERO set of reliability standards and improve reliability of the Bulk Electric System. To ensure transparency and stakeholder input, many of the activities of the NPCC Reliability Standards Program Area are conducted with oversight and participation from the NPCC Regional Standards Committee (RSC).

The NPCC Reliability Standards Program Area supports the reliability of the bulk electric system by:

- Facilitating active participation of NPCC Regional industry stakeholders in all NERC Reliability Standards activities to promote the development of results-based, cost effective, clear and concise quality standards in a timely and efficient manner.
- Providing selective support for standard development activities as outlined in the NERC 2017-2019 Reliability Standards Development Plan
- Participating in the Enhanced Periodic Review Standing Team for NERC reliability standards which will evaluate the need to revise existing standards
- Providing a forum for all NPCC representatives on the NERC drafting teams to raise issues, socialize concepts, and receive feedback on the standards during the development process to enhance efficiency and timeliness of standards development
- Assisting NERC with the evaluation of the standards from a “cost effectiveness” perspective
- Promoting awareness by holding Regional workshops to provide outreach and conducting Regional Standards Committee meetings to inform and educate stakeholders on standards being developed, modified or maintained.
- Utilizing feedback mechanisms from Compliance, Event Analysis and RAPA to identify and initiate improvements to NERC standards.
- Actively participate and review the work of the NERC Reliability Issues Steering Committee (RISC) which identifies emerging risks to the BES.
- Coordinating and sharing activities with Standards Program Areas from other Regions.
- Developing and maintaining Regional Standards as necessary to address Regional reliability related issues or risks and ensure those standards are “not inconsistent with” the NERC continent wide standards.
- Pursuing retirement of Regional Standards through promoting the reliability objectives of those Regional Standards into the NERC Continent-wide standards and developing Variances to the NERC standards where possible to capture the reliability objectives of the Regional Standards.
- Maintaining and abiding by the NPCC Regional Standard Processes Manual assuring compliance with all FERC filed documents with respect to standards development.

### **2017 Key Assumptions**

- Facilitate stakeholder review, comment on, and develop ballot recommendations or list of Regional issues, for all NERC Reliability Standards Projects under development or revision prior to the end of ballots
- Participate in the northeast stakeholder efforts to develop Standards Authorization Requests (SARs) and Regional SARs to further improve standards in response to any potential inadequacies in reliability or to improve or correct standards.

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- Continually review reliability requirements of ERO and NPCC Regional Standards, NPCC Criteria and ensure consistency and alignment, remove redundancies, and adopt revised Functional Model language when appropriate.
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  - Review all FERC orders and provincial regulations as they relate to the standards, their revision and adoption
  - Conduct and support regulatory and/or governmental provincial filings on a periodic basis based on individual provincial laws and requirements outlined in the Memorandum of Understandings for each province.
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  - Enhance NPCC standards website pages to provide uniform and clear information to the stakeholders while also providing the historical and archived information to support NERC and FERC approvals and expanding requirements

### **2017 Goals and Key Deliverables**

The Reliability Standards program goals and objectives for 2017 are grouped into six categories:

#### 1) Participate in the ERO Results-Based Standards Development

- Participate in the development and revision of the NERC three year Reliability Standards Development Plan through review, commenting, and other RSC activities
- Participate in the NERC Standards Committee strategic initiatives to measure the effectiveness and quality of standards, participate in standards EPR activities, and address any outstanding FERC Directives.
- Support cost effectiveness (CRRA), timely development, and quality of content attributes of new standards
- Participate in the development of ERO Reliability Standards within NERC’s three-year standards work plan with the emphasis placed on reducing the amount of new FERC Directives issues by closer coordination with the Commission staff
- Conduct thorough reviews of all NERC standards being developed or revised and coordinate comments for Northeastern North America driving consensus to the extent possible through the Enhance Periodic Review Standing team and processes
- Assist NERC’s review of all industry “Requests for Interpretations” of standards
- NPCC staff, along with NPCC solicited regional drafting team volunteers, will participate in the drafting of ERO standards affecting or potentially affecting reliability in the Eastern Interconnection and provide support for review and development of comments and propose improvements
- NPCC and its members will review and coordinate potential member’s comments on FERC staff informal assessments as appropriate
- Participate in pre-ballot reviews of ERO standards and provide consensus recommendations of the NPCC Members to the NERC Standards Drafting Team (SDT) and provide a list of any unaddressed issues to allow the Members to cast a ballot based on regional concerns
- Review and identify issues on FERC NOPRs and NOIs for any and all standards related issues as appropriate
- Coordinate and evaluate proposed standards utilizing NPCC’s technical task forces, working groups and committees
- Educate and notify stakeholders and regulators about issues related to standards development through various means such as webinars and workshops

- Provide outreach to industry trade groups such as the North American Generator Forum and North American Transmission Forum
- Provide a forum for NPCC review of proposed and posted standards related documents from the NERC Critical Infrastructure Protection Committee (CIPC) and NPCC Task Force on Infrastructure Security and Technology (TFIST) such as but not limited to whitepapers and technical guidelines
- Participate in NERC’s Standards Committee prioritization process, to identify immediate standards needs and prioritize standards projects based on need
- Participate in the NERC RISC by providing a regional point of contact for all potential reliability related risks and gaps within the Northeast or as noted by NPCC stakeholders
- Participate in and provide support to critical standards, such as CIP, Balancing Authority Controls, Voltage and Reactive Control, Real Time Tools, Frequency Response, etc.
- Identify and initiate regional Variances to the NERC Reliability Standards as soon as possible, allowing incorporation into the continent wide standard at its inception
- Identify potential drivers for standards revisions based on revisions to the BES to a bright line criteria and any document revisions required as a result of consideration of the “Exception Process”.
- Provide continued insights to NERC, based on NPCC experiences, regarding strategy for developing cost effectiveness analysis for standards and support activities to enhance this to identify “benefits” for the draft standards.
- Provide support and assistance to the ERO, as needed, for conducting Quality Review activities on NERC continent-wide standards
- Continue to develop new and innovative processes to better utilize the limited internal and external resources in the Region to enable sufficient technical review of posted standards and related materials
- Support the ERO and the relationships with FERC and applicable provincial governmental authorities for standards development activities as necessary to accomplish the ERO’s strategic goals and objectives
- Participate in the improvement of NERC standards through lessons learned and various regional feedback mechanisms with Compliance, RAPA, Event Analysis, etc.
- Provide support to the Compliance Guidance Policy activities.

## 2) Regional Standards Development

- NPCC does not plan on developing further Regional Standards but reserves the right to do so if a reliability issue exists that is not appropriate for continent-wide development and also will perform clarifications as needed to existing approved Regional Standards
- Conduct reviews for opportunities to include Regional Standards as Variances into the associated NERC continent wide standards as they individually undergo Enhanced Periodic Reviews
- Conduct reviews of regional standards as necessitated by the revision and approval of any associated Continent-wide NERC reliability standards

## 3) Standards Improvement

- Achieve NPCC Northeastern North American reliability goals and objectives by initiating, participating in, and efficiently completing standards related activities
- Leverage internet and web based tools functionality to ensure inter-Regional consistency and quality of Regional Reliability Standards
- Support long-term strategy for standards improvement and initiate implementation

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- Continually identify additional future Regional Standard opportunities if continent-wide standards are not an appropriate solution
  - Ensure the topics addressed by the Reliability Standards parallel changing industry needs
  - Participate in reliability metrics activities to identify potential measures for benchmarking of reliability to determine if an adequate level of reliability is being achieved through the Enhanced Periodic Review Standing Team activities
  - Support and develop cost-effectiveness CRRA analysis activities to determine if any potential incremental increases in costs of implementing a standard have sufficient enough reliability benefit to implement that standard
  - Identify any emerging interconnection wide reliability issues which may need standards solutions and forward to the NERC Reliability Issues Steering Committee.
  - Identify opportunities to increase reliability through the revision of standards and their associated requirements

#### 4) Business Practices Interface

- Coordinate the review of standards through NPCC RSC, staff, and other members participating in activities of the North American Electric Standards Review Board (NAESB)
- Identify potential market related issues for Regional Standards through NPCC RSC coordination and reviews

#### 5) Opportunities for Process Improvement

- Review the NERC Standards Development Process for possible revisions to consider efficient and effective standards development and CRRA while maintaining the ANSI accreditation for standards development
- Refine the records retention programs to ensure sufficient documentation exists for regulatory approvals
- Develop and implement document management systems to allow the efficient and effective revisions of documents, control of authorship and security of documents
- Identify improvements in process for feedback loops to ensure that event analysis, investigation lessons learned, and compliance issues involving violations are fed into the standards program area, as appropriate for review and potential consideration when revising standards
- Support the Functional Model Advisory Group activities to refine functions, tasks and responsibilities of applicable entities as needed
- Solicit and provide outreach to FERC in future revisions to the Regional Standard Processes Manual

#### 6) Communications

- Improve the notifications process to assure awareness of dates and proceedings of all standard development activities
- Strengthen the relationship with the industry's technical committees to ensure adequate input to standards development, such as the North American Generator Forum.
- Participate in NPCC and NERC workshops as necessary, to provide outreach, promote awareness and educate the industry on standards related activities
- Participate in consensus building activities and notification process(es) to engage stakeholders and provide notification to NPCC's subject matter experts for the need to

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review standards. Provide the associated coordination for this review utilizing subject matter experts, both internal and external to the Regional Entity staff

- Promote the requirements and reliability objectives of the NERC standards as appropriate to the NPCC members of the NERC Registered Ballot Body in order to achieve consensus and support of beneficial standards and to promote the ERO Enterprise.

Based on the portion of professional/technical staff time and other resources devoted to Reliability Standards development, NPCC estimates that it will expend approximately 7% of its resources on this activity.

## **Resource Requirements**

### **Personnel**

- Reallocation of staff during 2016 resulted in a decrease of one full time employee in the Reliability Standards program. NPCC anticipates no need to hire additional personnel in this program area in 2017.

### **Consultants and contracts**

- Consultant and contractor costs are expected to remain at 2016 levels due to a full complement of staff and internal subject matter expertise to evaluate standards and criteria and fulfill all ERO delegated functions assigned to the Reliability Standards Program Area.

## Reliability Standards Program

Funding sources and related expenses for the Reliability Standards section of the 2017 business plan are shown in the table below. Explanations of variances by expense category are included with the Supplemental Tables found in Section B.

Statement of Activities and Capital Expenditures 2016 Budget & Projection, and 2017 Budget						
Reliability Standards						
	2016 Budget	2016 Projection	Variance 2016 Projection v 2016 Budget Over(Under)	2017 Budget	Variance 2017 Budget v 2016 Budget Over(Under)	
<b>Funding</b>						
<b>ERO Funding</b>						
ERO Assessments	\$ 1,480,373	\$ 1,480,373	\$ -	\$ 1,022,328	\$ (458,045)	
Penalty Sanctions	7,046	7,046	-	-	(7,046)	
<b>Total ERO Funding</b>	<b>\$ 1,487,419</b>	<b>\$ 1,487,419</b>	<b>\$ -</b>	<b>\$ 1,022,328</b>	<b>\$ (465,091)</b>	
Membership Dues	-	-	-	-	-	
Testing Fees	-	-	-	-	-	
Services & Software	-	-	-	-	-	
Workshops	-	-	-	-	-	
Interest	-	-	-	-	-	
Miscellaneous	-	-	-	-	-	
<b>Total Funding (A)</b>	<b>\$ 1,487,419</b>	<b>\$ 1,487,419</b>	<b>\$ -</b>	<b>\$ 1,022,328</b>	<b>\$ (465,091)</b>	
<b>Expenses</b>						
<b>Personnel Expenses</b>						
Salaries	\$ 548,639	\$ 548,639	\$ -	\$ 370,220	\$ (178,419)	
Payroll Taxes	32,229	32,229	-	21,273	(10,956)	
Benefits	116,140	116,140	-	97,411	(18,729)	
Retirement Costs	61,950	61,950	-	43,020	(18,929)	
<b>Total Personnel Expenses</b>	<b>\$ 758,958</b>	<b>\$ 758,958</b>	<b>\$ -</b>	<b>\$ 531,925</b>	<b>\$ (227,034)</b>	
<b>Meeting Expenses</b>						
Meetings	\$ 20,000	\$ 20,000	\$ -	\$ 13,000	\$ (7,000)	
Travel	125,000	125,000	-	103,157	(21,843)	
Conference Calls	-	-	-	-	-	
<b>Total Meeting Expenses</b>	<b>\$ 145,000</b>	<b>\$ 145,000</b>	<b>\$ -</b>	<b>\$ 116,157</b>	<b>\$ (28,843)</b>	
<b>Operating Expenses</b>						
Consultants & Contracts	\$ 10,000	\$ 10,000	\$ -	\$ 10,000	\$ -	
Office Rent	-	-	-	-	-	
Office Costs	-	-	-	-	-	
Professional Services	-	-	-	-	-	
Computer & Equipment Leases	-	-	-	-	-	
Miscellaneous	-	-	-	-	-	
Depreciation	-	-	-	-	-	
<b>Total Operating Expenses</b>	<b>\$ 10,000</b>	<b>\$ 10,000</b>	<b>\$ -</b>	<b>\$ 10,000</b>	<b>\$ -</b>	
<b>Total Direct Expenses</b>	<b>\$ 913,958</b>	<b>\$ 913,958</b>	<b>\$ -</b>	<b>\$ 658,082</b>	<b>\$ (255,877)</b>	
<b>Indirect Expenses</b>	<b>\$ 584,695</b>	<b>\$ 584,695</b>	<b>\$ -</b>	<b>\$ 372,606</b>	<b>\$ (212,089)</b>	
<b>Other Non-Operating Expenses</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	
<b>Total Expenses (B)</b>	<b>\$ 1,498,654</b>	<b>\$ 1,498,654</b>	<b>\$ -</b>	<b>\$ 1,030,688</b>	<b>\$ (467,966)</b>	
<b>Change in Assets</b>	<b>\$ (11,234)</b>	<b>\$ (11,234)</b>	<b>\$ -</b>	<b>\$ (8,359)</b>	<b>\$ 2,875</b>	
<b>Fixed Assets</b>						
Depreciation	\$ -	-	\$ -	-	\$ -	
Computer & Software CapEx	-	-	-	-	-	
Furniture & Fixtures CapEx	-	-	-	-	-	
Equipment CapEx	-	-	-	-	-	
Leasehold Improvements	-	-	-	-	-	
Allocation of Fixed Assets	(11,234)	(11,234)	-	(8,359)	2,875	
<b>Inc(Dec) in Fixed Assets (C)</b>	<b>(11,234)</b>	<b>(11,234)</b>	<b>-</b>	<b>(8,359)</b>	<b>2,875</b>	
<b>TOTAL BUDGET (=B+C)</b>	<b>\$ 1,487,419</b>	<b>\$ 1,487,419</b>	<b>\$ -</b>	<b>\$ 1,022,328</b>	<b>\$ (465,091)</b>	
<b>TOTAL CHANGE IN WORKING CAPITAL (=A-B-C)</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ -</b>	<b>\$ 0</b>	<b>\$ 0</b>	

## Compliance Monitoring and Enforcement and Organization Registration and Certification Program

<b>Compliance Monitoring and Enforcement and Organization Registration and Certification Program Resources</b>			
(in whole dollars)			
	2016 Budget	2017 Budget	Increase (Decrease)
Total FTEs	16.00	17.00	1.00
Direct Expenses	\$5,367,667	\$5,366,656	(\$1,011)
Indirect Expenses	\$3,192,876	\$3,282,024	\$89,148
Other Non-Operating Expenses	\$0	\$0	\$0
Inc(Dec) in Fixed Assets	\$89,653	\$77,369	(\$12,284)
Total Funding Requirement	\$8,650,196	\$8,726,049	\$75,853

### Program Scope and Functional Description

The Compliance Monitoring and Enforcement and Organization Registration and Certification Program (CORC) Program scope covers: 1) the identification, registration and certification of those entities responsible for meeting the NERC Reliability Standards and any approved Regional Standards; 2) the implementation of the risk-based NERC Compliance Monitoring and Enforcement Program (CMEP) in the United States, including the compliance monitoring, assessment and enforcement of NERC Reliability Standards and Regional Reliability Standards. and 3) the implementation of compliance monitoring, assessment and enforcement recommendations in accordance with individual executed MOUs or Agreements in the Canadian Provinces of Ontario, Québec, New Brunswick and Nova Scotia.

The NPCC Compliance Committee (CC) is charged with providing objective stakeholder policy input to NPCC's implementation of the CMEP in the U.S. and compliance related activities under the above mentioned MOUs in the NPCC portion of Canada. With regard to NERC Reliability Standards and Regional Reliability Standards, the CC provides an oversight role of the independent NPCC compliance staff's implementation of the CMEP. In this oversight role the CC will review and endorse the processes used by the NPCC compliance staff in the conduct of the CMEP.

The NPCC compliance staff makes the initial and final determination of alleged violations and determines appropriate penalties and sanctions in accordance with the NERC *Sanction Guidelines*. To accomplish this objective, NPCC's compliance staff is further divided into four sub- program areas: Compliance Implementation and Registration; Compliance Entity Risk Assessment, Compliance Monitoring; Compliance Enforcement; and Compliance Investigation:

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***Compliance Implementation, Registration and Certification***

The Compliance Implementation and Registration sub-program is responsible for:

- a) Using the risk-based registration model to maintain an accurate registry assuring that all entities that are required to meet the NERC and Regional Reliability Standards have been identified.
- b) Engaging with those registered entities who are requesting that a reduced number of requirements be applicable to them based on registration materiality and other considerations;
- c) Representing NPCC on the NERC –led Review Panel whose role is to make decisions related to resolving any identified registration issues;
- d) Development and maintenance of all CMEP Compliance Procedures, Compliance Instructions and all other CMEP related documentation;
- e) Development and maintenance of Performance Metrics that are used to measure the quality and effectiveness of CMEP Implementation and its impact on the reliability of the Bulk Electric System;
- f) Coordinating the implementation of NPCC Compliance Staff responsibilities as they pertain to the executed MOU with each of the Canadian Provinces in the NPCC Region.
- g) Day-to-day implementation of the CMEP;
- h) Development of annual CMEP Implementation Plan;
- i) Monitoring and assessment of guided self-certification, self-report, exception reporting, periodic data and complaint submittals;
- j) Development and maintenance of CMEP Data Administration Application (CDAA);
- k) Development and maintenance of compliance website.
- l) Continue to support the anticipated expansion of the number of registered entities in NPCC due to the implementation of the FERC Order related to the definition of Bulk Electric System
- m) Conduct certification(s) of newly identified Transmission Operators (TOPs) and the re-certification of entity modifications, as needed.
- n) Maintain database of BES assets subject to NERC and NPCC Reliability Standards
- o) Participation on various NERC and NPCC working groups to influence changes to Compliance processes, and support commonality of registration, monitoring, auditing, and enforcement approaches.

***Compliance Monitoring Program***

The Compliance Monitoring Program is charged with conducting both on-site and off-site compliance audits, spot checks, and guided self-certifications of NERC Reliability Standards in accordance with the NERC Rules of Procedure and associated NPCC procedures developed under the NPCC Compliance Implementation Program. NPCC's Compliance Monitoring Area provides supporting activities by implementation of the risk-based Compliance Monitoring and Enforcement Program (CMEP); and by use of consistent compliance monitoring practices focused on higher reliability risks. NPCC uses risk profiles from the IRAs (inherent risk assessments) as a baseline evaluation of reliability risks of an entity. NPCC also uses IRA summaries to guide its efforts to identifying key focus areas and evolving reliability risks. The result is a list of reliability requirements that merit a continued level of focus.

NPCC also supports the ERO Enterprise learning effort, as well as NERC oversight of program implementation. In collaboration with NERC, NPCC supports outreach programs in new CIP

versions and in implementation of CIP-014 with anticipated expansion in the number of registered entities that require guidance. Compliance engagements are performed on the basis of risk to the BES and take into account the ERO reliability risk priorities. The Reliability Assessment (RA) group performs an Inherent Risk Assessment (IRA) of all registered entities and forwards results to the manager of compliance to develop a schedule. Previous performed IRAs are amended and updated based on identified triggers. The yearly schedule is produced consistent with Risk Assessment of registered entities and the desired frequency of CMEP engagements. The schedule is posted annually on NERC and NPCC public websites.

Flexibility may be used in the predefined frequency based on the risk assessment and performance based assessment of each entity scheduled for an audit, and changes requiring certification. NPCC compliance monitoring is focused on the most significant risks to the BES. CMEP engagement may be in the form of an audit, spot check or guided self-certification and are led by qualified senior NPCC Staff. Compliance Oversight Plans are developed for registered entities to address the relevant risks. NPCC also conducts outreach, training, and education as necessary to support the implementation of new Reliability Standards.

Findings include the identification of any possible violations. Contents and processing of audit and spot check reports are in accordance with NERC directives for reporting. Specific lessons learned are factored into the program to promote continuous improvement and are presented at workshops. An annual comprehensive guided self-certification program is established based on the NERC and NPCC Risk Elements. Spot checks are based on NPCC's assessment of follow-ups on entities that have previously violated a Reliability Standard, follow-up on entities that have been involved in a significant system event, and other requirements which at the discretion of NPCC could pose a higher risk to reliability if not followed properly.

Resources from the Compliance Audit Program are also used to implement the Certification process for entities intending to register as new TOPs, BAs or RCs, as well as certification reviews of changes made by existing TOPs, BAs and RCs that meet the threshold requiring same. These actions are performed in support of the Compliance Registration Program which encompasses the Certification process. Resources for this activity, which is independent of the audit process, depend on the scope, function, and location of the entity being certified.

#### ***Compliance Entity Risk Assessment***

The Entity Risk Assessment group conducts activity that is the basis for CMEP engagement scoping. They conduct an entity's Inherent Risk Assessment prior to scoping the compliance engagement to determine which CMEP tool will be used.

Entity risk also includes an assessment of an entity's Internal Controls which is used for further reducing requirements of the engagement. Internal Controls Evaluation (ICE) is voluntary and must be agreed to by the entity.

#### ***Compliance Investigation***

A Compliance Investigation (CI) may be initiated at any time by NPCC in response to a system disturbance, complaint, or possible violation of a Reliability Standard identified by any other means. The CI process requires the establishment of an investigation team that coordinates with NERC and FERC as necessary; and also coordinates with the Situation Awareness Program Area.

### ***Compliance Enforcement***

In processing identified violations NPCC Compliance Enforcement will strive to promote both timeliness and transparency of compliance results utilizing a risk-based compliance enforcement approach, including those efforts associated with meeting the enforcement metrics described below. In addition NPCC will promote the use of self-identification of non-compliance and implementation of discretion, including increased utilization of streamlined tracks such as FFT and discretion as shown below.

Compliance Enforcement responsibilities:

- a) Issuing all applicable notices including the Notice of Preliminary Screen; Notice of Compliance Exception; Notice of Possible Violation (NOPV), Notice of Find, Fix and Track (FFT) Treatment; Notice of Alleged Violation (NOAV), and the Notice of Confirmed Violation (NOCV);
- b) Conducting comprehensive enforcement investigations based on the facts and circumstances related to all possible violations of Reliability Standards, whether identified in an audit, a self-report, complaint, or other source, and determining whether further action is warranted;
- c) Reviewing, approving, submitting to NERC and tracking the progress of all mitigation plans /mitigating activities associated with confirmed violations;
- d) Coordinating settlement activities once they have been initiated and submitting settlement agreements to NERC for approval;
- d) Identifying and processing applicable moderate violations for the FFT Process;
- e) Administer both the compliance exception process and the self-logging process for identified minimal violations;
- f) Coordinate the identification of possible NERC Reliability Standards revisions and submit issue for proper implementation. Revisions will be based on experiences observed from compliance monitoring activities, enforcement investigations, and event analysis. Work closely with NPCC Reliability Stands Program Area
- g) Follow up on verifying that proposed Reliability Standards have been implemented and are effective in improving the standards.
- h) Participating in the Hearing Process by representing NPCC before the Hearing Body. Compliance Hearings would be conducted at NPCC under the supervision of a qualified, independent hearing officer contracted by NPCC;
- i) Issuing Remedial Action Directives when appropriate; and
- j) Implementing the risk-based compliance enforcement model including :
  - a. Notifying the registered entity, within 60 days on average, whether a non-compliance will proceed through enforcement, be treated as a compliance exception or additional information is needed (“Triage”);
- k) Develop and monitor a set of enforcement metrics that support NERC’s Strategic Plan and Oversight Program

## 2017 Key Assumptions and Cost Impacts

2016	Projected 2017
4 Large On-Site Audits	4 On-Site O&P Audits
9 On-Site CIP Audits	5 On-Site CIP Audits
5 Large Off-Site Audits	30 Off-Site O&P Audits
15 Medium Off-Site Audits	
10 Small Off-Site Audits	
24 Off-Site CIP Audits	25 Off-Site CIP Audits
150 Spot Checks	15 Spot Checks
	25 Guided self-certifications
	35 Inherent Risk Assessments
	10 On-site Internal Control Evaluations
4 TFE Part B reviews	4 On-Site TFE Reviews
100 Violations (Estimated)	100 Violations (Estimated)
Settlements Covering 50 Violations	Settlements Covering 50 Violations
2 Hearings (Unbudgeted)	2 Hearings (Unbudgeted)
1 CI (Estimated)	1 CI (Estimated)
2 Entity Certifications	4 Entity Certifications

- Regarding the Compliance Audit Program, Technical Feasibility Exception (TFE) reviews are conducted both on-site at the entity's facility and at the NPCC offices when possible. TFE's continue to be requested as entities replace and install new equipment/devices/components that meet the criteria set forth in Rules of Procedure Appendix 4D. Compliance estimates four on-site reviews will be performed in 2017.
- Decrease in audit costs reflects Risk Assessment activity that is the basis for entity engagement scoping. The Risk Assessment includes an assessment of an entity's Internal Controls which is used for future reduction in engagement scoping and frequency of engagements.
- Potential increases due to the newly identified role related to implementing the QCMEP in Quebec and the continuing role of implementing the NB CMEP in New Brunswick.
- The 2017 Business Plan projects no increases in Enforcement Processing activities over the 2016 Budget.
- The 2017 Business Plan projects the need for 1 Compliance Investigation. These Compliance Investigations are manpower intensive for NPCC staff (requiring allocation of more resources and potentially higher than normal costs)

## 2017 Goals and Key Deliverables

- Conduct 2017 CMEP consistent with a risk-based compliance monitoring and enforcement model, assessing Inherent Risk Assessment; conducting voluntary Internal Control Evaluation; and expanding the use of compliance exceptions and the self-logging program for disposition of minimal violations. The CMEP would monitor and enforce all applicable NERC Reliability Standards and applicable Regional Reliability Standards.

- Continue to process identified violations as effectively as possible, including the timely identification of a violation and its disposition method (e.g. compliance exceptions; FFT; etc.), and the timely issuance of appropriate notification to the registered entity and NERC;
- Continue to implement settlement process when applicable and send proper notifications to NERC and FERC and continue to enhance the settlement process by modifying existing practices and adopting new practices to reduce the duration of settlement negotiations without sacrificing the rigor and quality of the negotiated settlements;
- Develop and analyze appropriate performance metrics that track settlement process duration and utilize results of analysis to further enhance process.
- Conduct necessary Hearings related to resolution of outstanding disputes regarding violations and/or sanctions. Send results of hearings to NERC and FERC.
- Identify potential issues related to NERC Reliability Standards as a result of compliance monitoring, enforcement and event analysis activities.
- Implement proposed changes to NERC Reliability Standards utilizing existing mechanisms.
- Verify effectiveness of proposed changes to reliability standards.
- Provide detailed response to NERC Annual FFT/Compliance Exception Survey;
- Implement compliance responsibilities identified in the approved Canadian MOUs;
- Annual report to NERC and Régie on NPCC implementation of QCMEP
- Annual report to NERC and New Brunswick Electric Utility Board (NBEUB) on NPCC implementation of NB CMEP.
- Review and revise NPCC Compliance Registry based on FERC approved risk-based approach ;
- Evaluate CMEP and Canadian entity compliance program implementation with the objective of establishing a long-term strategy for compliance improvement, and initiate the implementation of the long term strategy;
- Provide NPCC Regional Entity input, through participation in appropriate NERC compliance committees, on policy and implementation issues related to compliance and enforcement including the development of compliance elements for all new or revised NERC Reliability Standards;
- Provide required information to NERC on a timely basis including reporting of alleged violations and confirmed violations
- Track the progress of, report status of, and approve mitigation plans and mitigating activities;
- Conduct 2017 Compliance Engagement Schedule based on risk to the BES and number of registered entities and promote RAI initiatives by:
  - Utilizing the Audit Checklist and Auditor’s Handbook for all on-site and off-site audits
  - Preparing an Inherent Risk Assessment for all scheduled engagements and Internal Control Assessment for all entities that volunteer for one;
- On-site CIP audits may be combined with scheduled 2017 on-site audits;
- Assure that NPCC Staff is trained to conduct Entity Risk Assessment and CMEP engagements including CIP Compliance Audit training;

- Assure that NPCC Staff is trained to conduct Certification of entities intending to Register as BA, RC or TOP for the first time, or Certification Reviews of changes by existing BAs, RCs or TOPs that meet the criteria requiring a Certification Review;
- Continue to implement compliance reform consistent with a risk-based approach by being an integral participant in committees and workgroups that are involved in the development of policies related to the implementation of a risk-based compliance and enforcement model;
- Continue to expand the utilization of compliance exception and self-logging, as it relates to the processing of minimal violations;
- NPCC will collaborate with NERC to promote better coordination, planning, delivery and management of training efforts across the enterprise through a unified learning management system (LMS), without adversely impacting region-specific training requirements;
- Continue to implement physical security outreach and cyber security outreach by visiting registered entity sites to perform an assessment of their physical security, evaluate their cyber security and supply recommendations for improvements;
- Enhance the CDAA to expand its capabilities from both the registered entity perspective and the NPCC Compliance staff perspective;
- Conduct 2017 Compliance Workshops and interim information sessions for registered entities as necessary as a part of Training and Education program area.
- Continue to promote practices to enhance the benefits of the self-reporting of violations by the registered entity. This could include the emphasis on the benefits of a registered entity improving its internal processes used for identifying and submitting self-reports improvement in the way Regional Entities process self-reports and the streamlining and standardizing of the amount and type of data needed to evaluate a self-report.

Based on the portion of professional/technical staff time and other resources devoted to Compliance monitoring and enforcement and organizational registration and certification, NPCC estimates that it will expend 57% of its resources on this activity.

## **Resource Requirements**

### **Personnel**

- There is an increase of one FTE in 2017 from the 2016 budget. This is the result of reprioritization during 2016 based on the increased activity in the Compliance area related to risk based initiatives and the ongoing effort to reduce consulting and contractor expenses.

### **Consultants and contracts**

- In 2017, contractor costs will continue to decrease due to the implementation of the risk-based approach in 2015. With a risk and performance based assessment of each registered entity, compliance engagements will transition to a periodicity more reflective of the risk profile of the entity such that some will result in audits which are more in-depth while others may have a reduced scope which will result in spot checks or guided self-certifications.

## Compliance Monitoring and Enforcement and Organization Registration and Certification Program

Funding sources and related expenses for the compliance enforcement and organization registration and certification section of the 2017 business plan are shown in the table below. Explanations of variances by expense category are included with the Supplemental Tables found in Section B.

<b>Statement of Activities and Capital Expenditures</b>						
<b>2016 Budget &amp; Projection, and 2017 Budget</b>						
<b>Compliance Monitoring and Enforcement and Organization Registration and Certification</b>						
	2016	2016	Variance	2017	Variance	
	Budget	Projection	2016 Projection	Budget	2017 Budget	
			v 2016 Budget		v 2016 Budget	
			Over(Under)		Over(Under)	
<b>Funding</b>						
<b>ERO Funding</b>						
ERO Assessments	\$ 8,611,718	\$ 8,611,718	\$ -	\$ 8,726,049	\$ 114,331	
Penalty Sanctions	38,478	38,478	-	-	(38,478)	
<b>Total ERO Funding</b>	<b>\$ 8,650,196</b>	<b>\$ 8,650,196</b>	<b>\$ -</b>	<b>\$ 8,726,049</b>	<b>\$ 75,853</b>	
Membership Dues	-	-	-	-	-	
Testing Fees	-	-	-	-	-	
Services & Software	-	-	-	-	-	
Workshops	-	-	-	-	-	
Interest	-	-	-	-	-	
Miscellaneous	-	-	-	-	-	
<b>Total Funding (A)</b>	<b>\$ 8,650,196</b>	<b>\$ 8,650,196</b>	<b>\$ -</b>	<b>\$ 8,726,049</b>	<b>\$ 75,853</b>	
<b>Expenses</b>						
<b>Personnel Expenses</b>						
Salaries	\$ 2,494,251	\$ 2,494,251	\$ -	\$ 2,749,908	\$ 255,657	
Payroll Taxes	166,018	166,018	-	179,504	13,487	
Benefits	491,904	491,904	-	519,457	27,553	
Retirement Costs	268,494	268,494	-	290,486	21,992	
<b>Total Personnel Expenses</b>	<b>\$ 3,420,667</b>	<b>\$ 3,420,667</b>	<b>\$ -</b>	<b>\$ 3,739,356</b>	<b>\$ 318,689</b>	
<b>Meeting Expenses</b>						
Meetings	\$ 32,000	\$ 32,000	\$ -	\$ 23,800	\$ (8,200)	
Travel	355,000	355,000	-	329,500	(25,500)	
Conference Calls	-	-	-	-	-	
<b>Total Meeting Expenses</b>	<b>\$ 387,000</b>	<b>\$ 387,000</b>	<b>\$ -</b>	<b>\$ 353,300</b>	<b>\$ (33,700)</b>	
<b>Operating Expenses</b>						
Consultants & Contracts	\$ 1,560,000	\$ 1,560,000	\$ -	\$ 1,274,000	\$ (286,000)	
Office Rent	-	-	-	-	-	
Office Costs	-	-	-	-	-	
Professional Services	-	-	-	-	-	
Computer & Equipment Leases	-	-	-	-	-	
Miscellaneous	-	-	-	-	-	
Depreciation	-	-	-	-	-	
<b>Total Operating Expenses</b>	<b>\$ 1,560,000</b>	<b>\$ 1,560,000</b>	<b>\$ -</b>	<b>\$ 1,274,000</b>	<b>\$ (286,000)</b>	
<b>Total Direct Expenses</b>	<b>\$ 5,367,667</b>	<b>\$ 5,367,667</b>	<b>\$ -</b>	<b>\$ 5,366,656</b>	<b>\$ (1,011)</b>	
<b>Indirect Expenses</b>	<b>\$ 3,192,876</b>	<b>\$ 3,192,876</b>	<b>\$ -</b>	<b>\$ 3,282,024</b>	<b>\$ 89,148</b>	
<b>Other Non-Operating Expenses</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	
<b>Total Expenses (B)</b>	<b>\$ 8,560,543</b>	<b>\$ 8,560,543</b>	<b>\$ -</b>	<b>\$ 8,648,680</b>	<b>\$ 88,137</b>	
<b>Change in Assets</b>	<b>\$ 89,653</b>	<b>\$ 89,653</b>	<b>\$ -</b>	<b>\$ 77,369</b>	<b>\$ (12,284)</b>	
<b>Fixed Assets</b>						
Depreciation	\$ -	\$ -	\$ -	\$ -	\$ -	
Computer & Software CapEx	151,000	151,000	-	151,000	-	
Furniture & Fixtures CapEx	-	-	-	-	-	
Equipment CapEx	-	-	-	-	-	
Leasehold Improvements	-	-	-	-	-	
Allocation of Fixed Assets	(61,347)	(61,347)	-	(73,631)	(12,284)	
<b>Inc(Dec) in Fixed Assets (C)</b>	<b>89,653</b>	<b>89,653</b>	<b>-</b>	<b>77,369</b>	<b>(12,284)</b>	
<b>TOTAL BUDGET (=B+C)</b>	<b>\$ 8,650,196</b>	<b>\$ 8,650,196</b>	<b>\$ -</b>	<b>\$ 8,726,049</b>	<b>\$ 75,853</b>	
<b>TOTAL CHANGE IN WORKING CAPITAL (=A-B-C)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ (0)</b>	<b>\$ (0)</b>	

## Reliability Assessment and Performance Analysis Program

<b>Reliability Assessment and Performance Analysis Program Resources</b>			
(in whole dollars)			
	2016 Budget	2017 Budget	Increase (Decrease)
Total FTEs	5.83	5.83	0.00
Direct Expenses	\$2,030,523	\$2,106,675	\$76,152
Indirect Expenses	\$1,163,404	\$1,125,541	(\$37,863)
Other Non-Operating Expenses	\$0	\$0	\$0
Inc(Dec) in Fixed Assets	(\$22,353)	(\$25,251)	(\$2,898)
Total Funding Requirement	\$3,171,574	\$3,206,966	\$35,392

### Program Scope and Functional Description

NPCC, through its top technical committee, the Reliability Coordinating Committee (RCC), integrates the deliverables of its Task Force's and Working Group's Reliability Assessment and Performance Analysis related activities. Consistent with the applicable NERC Reliability Standards, these efforts include:

- Reviewing the adequacy of the NPCC systems to supply load considering forecast demand, installed and planned supply and demand resources and required reserves; and,
- Assessing the impact of planned transmission and resource additions or modifications on NPCC system reliability.

Seasonal assessments of the overall NPCC resource adequacy assessments are performed and possible actions to mitigate any potential problems are identified. NPCC reviews operations and disturbances both internal and external to the Region in order to identify any lessons to be learned and recommends any necessary follow-up actions.

If appropriate, enhancements to Regional Standards or NPCC's more stringent, Regionally-specific reliability requirements are also recommended. NPCC promotes and conducts both inter-Area and inter-Regional studies to enhance reliability and operational effectiveness, and provides a forum for the discussion and coordination of operating issues within the NPCC Region and with other Regions.

### 2017 Key Focus Areas

In collaboration with NERC, Key Focus area activities for 2017 include:

- ✓ Integration of RAPA information systems for assessments and associated data requirements, including expanded and enhanced enterprise-wide data collection and analysis systems and capabilities for performance analyses, with a focus on independent and technically sound reliability assessments supporting delivery of high quality reports (e.g., Long-Term Reliability Assessment, short-term special assessments, probabilistic scenario assessments, and the State of Reliability Report).
- ✓ Development of assessment and performance analysis techniques as well as resource capabilities and tools, including probabilistic and scenario evaluations, which address the impacts of new technologies, changing resource or demand resource composition, and environmental related regulations or legislation; support for ERO activities to identify

key reliability risks and appropriate risk control projects designed to enhance reliability or mitigate risks.

- Developing and tracking of metrics associated with Essential Reliability Services;
  - Developing of appropriately tailored analysis and overall assessment, including guidance for registered entities, of high impact, low frequency BES risks, including physical security and geomagnetic disturbance (GMD) vulnerability;
  - Providing technical resources to support up to four short-term special reliability assessments (6-18 month horizon replacing the current summer and winter assessments), which focus on specific reliability issue risk areas and geographic areas with specific reliability concerns, while also allowing for regional assessments;
  - Supporting the common approach developed for NERC reliability assessments to ensure consistent treatment of resource and reliability evaluations;
  - Advancing analytical capabilities for identifying and determining reliability risks and conducting various reliability assessments by:
    - Integrating the analysis and measures of the identified essential reliability services into the NERC 2017 Long-Term Reliability Assessment;
    - Requiring advanced powerflow and stability analysis tools and objective expert input for transmission/deliverability assessments and studies;
    - Maturing and developing interconnection-wide analysis groups to support the assessment of interconnection-wide risks, such as frequency response;
    - Providing technical resources and reliability leadership for the advancement of probabilistic analyses supporting the Long-Term Reliability Assessment;
    - Enhancing the capability for post event analysis, including ensuring the timely and accurate compilation and creation of steady state and dynamic simulation model cases for use in the investigation and analysis of major power system disturbance events.
- ✓ NPCC supports, through the Eastern Interconnection base case designee agreement, the development of long-term sustainable interconnection-wide powerflow and dynamics model cases under Reliability Standards MOD-032 and MOD-033 that exhibit the accuracy and fidelity reflecting actual BES reliability performance and dynamic conditions. Provision of technical resources to support the effective and continuous improvement of the models that incorporate recognition of reliability behavior of loads and generation associated with the changing resource mix.

### **Eastern Interconnection Reliability Assessment Group**

The primary function of the Eastern Interconnection Reliability Assessment Group (ERAG) is to support reliability of the bulk-power system in the Eastern Interconnection through periodic reviews of generation and transmission expansion. These assessments are conducted by the ERAG Steering Committees. The assessment-related activities indicated for the ERAG Management and Steering Committees below, are done in support of ERO Goal 3a. (“3a. “Risks to Reliability are identified and prioritized based on reliability impacts, cost and practicality of assessments, projected resources, and emerging issues.”) In addition, ERAG has the responsibility to facilitate the development of the annual set of seasonal and future steady state and dynamic simulation base cases for use by the Regional Entities and other industry groups in the Eastern Interconnection. This is done through the ERAG Multi-Regional Modeling Working Group (MMWG). The base case compilation and development-related activities indicated for

the ERAG Management and MMWG below are done in support of ERO Goal 3d. (“3d. Reliability models and data accurately represent system behavior and are shared among stakeholders.”) NPCC participates in the ERAG activities as one of the six Eastern Interconnection Regional Entities.

NPCC supports maintenance of the BESnet application and the processing of the Regional BES Exception Requests (ERs), including technical validation of the definition and exception requests periodic reviews of network changes affecting BES determinations, as well as requests for registration and certification reviews. Processing of requests for BES Processing requests for Exceptions are not expected to significantly impact resources requirements in this program area for 2017.

NPCC RAPA staff participates with the ERAG Management Committee, ERAG Steering Committee and ERAG Working Group and acts as the liaison between the ERAG MMWG and the NPCC SS-37 Working Group; activities include:

#### **ERAG Management Committee Activities**

- ✓ Oversee the steady state and dynamic simulation base case data compilation and development;
- ✓ Oversee ERAG Multi-Regional Modeling Working Group (MMWG) changes to the dynamics base cases;
- ✓ Oversee MMWG effort to make necessary changes to the modeling of governor-turbine control systems to achieve frequency response that more closely reflects actual response during system frequency deviation events;
- ✓ Oversee the ERAG assessments of anticipated inter-Regional, inter-Balancing Authority transfer limit conditions and sensitivities. ERAG is considering different assessment approaches to enhance the way assessments are conducted to provide more industry value from the assessment results. Coordinate the effort with NERC Assessment Program staff;
- ✓ Develop ERAG Strategic Direction (i.e. anticipated new developments in MMWG process and system assessments); Resolve any issues with application of the ERAG MMWG non-disclosure agreement process so that base cases and assessments have sufficient protections in place for use and transmittal of confidential data and information; and
- ✓ Develop and approve the ERAG activity budgets.

#### **Multi-Regional Modeling Working Group Items**

- ✓ Facilitate the completion of the steady state and dynamic simulation base case data compilation and development for the 2017 series of cases. This will include 12 steady state base cases and 8 dynamic simulation base cases;
- ✓ Check and confirm that the dynamic model data passes all applicable checks and acceptance criteria. Include 60 second steady state simulation of each case to detect numerical errors;
- ✓ Apply changes to the MMWG dynamics case so they are available for interconnection dynamics studies.
- ✓ Incorporate dispatch information into the future and seasonal ERAG MMWG base cases so that the dispatches are more closely aligned with economic dispatch practices;
- ✓ Apply the web-based System Dynamics Data Base program during the development of the 2017 series of dynamics base cases;

- ✓ Continue to improve the representations of the governor-turbine plant control models at most generators. Recommend the necessary changes in the models for specific generators;
- ✓ Apply MMWG base case non-disclosure agreement process so that MMWG cases continue to have sufficient protections in place for use and transmittal of confidential data and information;
- ✓ Verify that procedures in the MMWG manual are followed.

### **System Assessments**

- ✓ Conduct the 2017 ERAG Assessments and prepare the ERAG Assessment Reports, including, the assessments of anticipated inter-Regional, inter-Balancing Authority transfer limit conditions and sensitivities;
- ✓ Consider different assessment approaches to enhance the way assessments are conducted; and,
- ✓ Coordinate Assessment efforts with the NERC Reliability Assessment and System Analysis (RASA) Program staff to incorporate any risk-based or other approaches to supplement NERC Assessments.

### **NERC Activities**

NPCC will provide the Regional perspective with judicious NPCC RAPA staff participation on selective NERC Planning and Operating Committees and key related NERC Subcommittees, Task Forces and Working Groups which could include:

- ✓ Essential Reliability Services Working Group (ERSWG);
- ✓ Distributed Energy Resources Task Force (DERTF);
- ✓ Load Modeling Task Force (LMTF);
- ✓ Protection System Mis-operations Task Force (PSMTF);
- ✓ Spare Equipment Working Group (SEWG);
- ✓ Demand Response Availability Data System Working Group (DADSWG);
- ✓ Generating Availability Data System Working Group (GADSWG);
- ✓ Transmission Availability Data System Working Group (TADSWG);
- ✓ Modeling Working Group (MWG);
- ✓ Reliability Assessment Subcommittee (RAS);
- ✓ System Analysis and Modeling Subcommittee (SAMS);
- ✓ Performance Analysis Subcommittee (PAS);
- ✓ Misoperation Information Data Analysis System (MIDAS); and,
- ✓ Incorporating any probabilistic reliability metrics required for the 2017 NERC Long-Term Reliability Assessment through the NPCC 2017 Long Range Adequacy Overview.

### **ERO – Executive Management Group (EMG) Activities**

Provide analytic support for the ERO-EMG

- Bulk Electric System Exception Process Working Group (BEPWG);
- ERO-RAPA Group; and,
- Other activities as directed by the ERO-Executive Management Group.

## **2017 Goals and Key Deliverables**

### **Task Force on Coordination of Planning**

The primary mission of the NPCC Task Force on Coordination of Planning (TFCP) is to promote reliability through the coordination of NPCC Area and NERC planning processes and activities.

In addition, the TFCP provides technical support regarding operating expertise to the NPCC Regional Standards Committee and the NPCC Compliance Committee as requested, and provides support and technical input for related BES risks identified by the NERC Reliability Issues Steering Committee (RISC) and the NERC Essential Reliability Services Task Force.

**Key TFCP Reliability Assessment and Performance Analysis Deliverables:**

- Coordinate NPCC responses to NERC Essential Reliability Services Task Force recommendations with the Task Force on Coordination of Operation and the Task Force on System Studies to ensure that developments in the NERC PC and its Subcommittees are addressed;
- Coordinate the development of additional Criteria as necessary, and track any new and developing standards through the Regional Standards Committee (RSC);
- Monitor the development of Bulk Power System (BPS) Regional Standard;
- Monitor the actions of the NERC Systems Analysis and Modeling Subcommittee (SAMS) in the areas of resource adequacy, system protection and system control;
- Oversee the Directory No. 1 Implementation Plan (Dated: September 30, 2015);
- Conduct the annual NPCC Interregional Long Range Adequacy Overview and associated NERC ProbA
- Lead the NPCC Task Forces in reviewing and revising the *A10 Criteria*– NPCC Classification of Bulk Power System Elements;
- Evaluate and approve Area Transmission Reviews;
- Evaluate and approve Area Reviews of Resource Adequacy;
- Coordinate, monitor, review, and make recommendations on the retirement of existing in-service Special Protection Systems (SPS); and the implementation of proposed new or modified Special Protection Systems;
- Review the practice within the NPCC for the use of an SPS with input from the other task force groups;
- Support related reliability activities, including consideration of any requests for sub-regional assessments associated with implementation of the U.S. EPA Clean Power Plan;
- Monitor industry practices and make recommendations to NPCC on transmission adequacy standards related to intermittent generation such as wind or solar-photovoltaic and demand-side resources;
- Coordinate to ensure that further UVLS analysis beyond the initial feasibility/screening study is completed according to schedules set by the RCC and the NERC PC;
- Conduct a review of NPCC Interconnection Assistance Reliability Benefits;.
- Monitor the actions of applicable NERC Subcommittees in the areas of resource adequacy, system protection and system control;
- Review the load shape assumption used in NPCC Multi-Area Probabilistic Reliability Assessments;
- Review and comment on the development of NERC Standards through the RSC;
- Monitor the developments in fuel supply, demand resources, energy efficiency, and conservation methods including all intermittent renewable resources, including embedded distributed resources.
- Support the NPCC Regional Standards Committee "RSC" as required;
- Keep informed on studies and developments with neighboring systems which might impact NPCC;
- Monitor the process for the annual review and updating of the NPCC Electric System Regional Map and the NPCC Load, Capacity, Energy, Fuel and Transmission Report (LCEF&T);

- Facilitate Wide-Area Planning through participation in regional activities and coordinate inter-Area reliability analysis;
- Keep informed of the NERC Planning Committee and other subcommittee activities to determine their impact on the NPCC and any potential adjustments to NPCC Criteria;
- Coordinate with NERC regarding the development of standards for dynamic system controls;
- Review Events Analysis Lessons Learned using the Events Analysis discussion/review template.

### **Task Force on System Studies**

The primary mission of the NPCC Task Force on System Studies (TFSS) is to provide active overall coordination of system studies of the reliability of the interconnected bulk power systems and for the review of certain NPCC documents. In addition, the TFSS provides technical support regarding operating expertise to the NPCC Regional Standards Committee and the NPCC Compliance Committee, and provides support and technical input for related BES risks identified by the NERC Reliability Issues Steering Committee (RISC) and the NERC Essential Reliability Services Task Force.

### **Key TFSS Reliability Assessment and Performance Analysis Deliverables:**

- ✓ Review and recommend approval of Area Transmission Reviews, in accordance with the “Guidelines and Procedures for NPCC Area Transmission Reviews” (Appendix B of Directory No. 1), based on material presented by the Areas. These reviews assess the impact of planned transmission and resource additions or modifications on system reliability, and determine the Area’s conformance with the Basic Criteria. Through the Area Transmission Reviews, re-evaluate the performance and classification of existing SPSs and Dynamic Control Systems, as appropriate;
- ✓ Review and classify new and modified Special Protection Systems, in accordance with the Appendix B, Procedure for the Review of a Special Protection Systems, of NPCC Directory No. 7, “*Special Protection Systems*”;
- ✓ Review and Implement the NPCC A-10 Criteria:
  - Coordinate with TFCP a review and revision of the A-10 document in 2016.
  - Review and recommend approval of changes to the NPCC list of bulk power system elements, in accordance with the “*Classification of Bulk Power System Elements*” (Document A-10); and,
  - Update the NPCC BPS List.
- ✓ Review and process Multiple Circuit Tower exclusions in accordance with NPCC Directory No. 1, Appendix E;
- ✓ Update the Multiple Circuit Tower Exclusion List;
- ✓ Perform bi-annual review and update of the Major Project List;
- ✓ Participate in the development and submission of NPCC comments/inputs into the development of regional and/or continent-wide reliability standards that address the NERC Reliability Standards.
- ✓ As RCC directs, provide support and technical input, for Task Force related BES risks as identified by the NERC Reliability Issues Steering Committee “RISC”;
- ✓ Update the NPCC Electric System Map.

Through the SS-37 Working Group - Annually develop a library of power flow base cases and associated dynamic cases . The NPCC cases will also be used to support the development of the library of power flow and dynamic cases for the Eastern Interconnection; in addition:

- ✓ On an as needed basis, update SS-37 Procedure Manual and other SS-37 documents including the Master Tieline Data and Interchange Schedule;
- ✓ provide mid-term updates to the ten-year-out cases in the NPCC Library;
- ✓ Coordinate with SS-38 to support the performance of event replication by benchmarking against actual system performance;
- ✓ Review existing regional criteria and procedures for validation of data used in power flow and dynamic simulations. If the existing criteria or procedures are found to be deficient, and propose changes to provide for adequate data validation.
- ✓ Coordinate management of governor models used in studies with the SS-38 Working Group.

Through the SS-38 Working Group:

- ✓ Complete to examine the impact of distributed generation;
- ✓ Consider the development of a uniform approach, as requested by TFSP, for identifying BES Elements that meet one or more of the Criteria in R1 of PRC-026-1;
- ✓ Review and develop comment on draft NERC standards, as needed;
- ✓ Work with software vendors and NERC Modeling Working Group (MWG) to enhance the capability for dynamic simulations;
- ✓ Coordinate with SS-37 to perform event replication by benchmarking against actual system performance.

Through the SS-38 Load Modeling Working Group:

- ✓ Continue to investigate the use of dynamic load models for transient stability studies;
  - Investigate the use of load monitoring equipment to aid in the benchmarking of dynamic load models used in transient stability studies.

### **Task Force on System Protection (TFSP)**

The purpose of the NPCC Task Force on System Protection (TFSP) is to promote the reliable and efficient operation of the interconnected bulk power systems in Northeastern North America through the establishment of directories, criteria, guidelines, and procedures and coordination of design, relative to the protection associated with the bulk power systems. In addition, the TFSP provides technical support regarding operating expertise to the NPCC Regional Standards Committee and the NPCC Compliance Committee, and provides support and technical input for related BES risks identified by the NERC Reliability Issues Steering Committee (RISC) and the NERC Essential Reliability Services Task Force.

#### **Key TFSP Reliability Assessment and Performance Analysis Deliverables:**

- ✓ Assess proposed protection systems and special protection systems for compliance with Directory No. 4 and Directory No. 7 ;
- ✓ Participate or serve as lead Task Force in the implementation of applicable Regional NERC Reliability Standards;
  
- ✓ Conduct review/development of the following Documents:
  - Document C-45 - Procedure for Analysis and Reporting of Protection System Misoperations. Update will incorporate new procedure associated with NERC Section 1600 Data Request;

- Develop a new Directory (Directory No. 11) for Disturbance Monitoring to house more specific NPCC criteria, guides, and procedures;
- Serve as lead Task Force working in conjunction with TFCP and TFSS on Directory No. 7 – NPCC Special Protection Systems revisions required to ensure consistency with the development of the new NERC standard on Remedial Action Schemes.
- Develop a New Guideline for Tele-protection Communication Reliability
- ✓ Review and respond to Questions, Requests for Interpretations and/or Clarifications related to NPCC Standards, Directories, and Criteria, as needed;
- ✓ Participate in the ongoing development and submission of NPCC inputs/comments into the development of protection related NERC Reliability Standards;
- ✓ Review NPCC misoperations of protection systems and Special Protection System (aka Remedial Action Schemes) and participate in providing the NPCC input for NERC Metric ALR4-1 on Protection Misoperations;
- ✓ Review and analyze the performance of protection systems of power system disturbances, lessons learned, and events inside as well as outside NPCC;
- ✓ Support NERC in its effort through the ERO-RAPA group to continue relay misoperations performance analysis to reduce protection system misoperations, inform the RCC on relay misoperations trends, and share good practices;
- ✓ Review mitigations and/or progress reports for BPS Risk Reduction Implementation and annually report to the RCC on the status of this implementation;
- ✓ Provide support and technical input for Task Force related BES risks as identified by the NERC Reliability Issues Steering Committee “RISC”. Conduct a thorough review, provide comments as necessary and act on posted materials as directed. Task Force assessments and recommendations will be forwarded to the RCC for approval and submittal to NERC via the NERC Risk Control Process;
- ✓ Collaborate with System Studies on development of disturbance monitoring recommendation for load transformers as part of effort to develop Directory No. 11; and,
- ✓ Maintain ongoing log of protection relay failures.

### **Task Force on Coordination of Operation**

The NPCC Task Force on Coordination of Operation (TFCO) facilitates the coordination of operations among the NPCC Reliability Coordinator areas and adjacent NERC Regions to enhance the reliability of the bulk power system. In addition, the TFCO provides technical support regarding operating expertise to the NPCC Regional Standards Committee and the NPCC Compliance Committee, and provides support and technical input for related BES risks identified by the NERC Reliability Issues Steering Committee (RISC) and the NERC Essential Reliability Services Task Force.

#### **Key TFCO Reliability Assessment and Performance Analysis Deliverables:**

- ✓ Review and analyze the performance of Simultaneous Activation of Reserve (SAR) implementation following an event to enhance the SAR process;’
- ✓ Provide recommendations to enhance the programs of annual the spring and autumn NPCC System Operator Seminars;
- ✓ Share lessons learned among training staff from the NPCC RCs and utilize to make training program enhancements;
- ✓ Develop and securely disseminate the annual compilation of “Facilities for Notification.”
- ✓ Present to the TFCO an annual summary of operating tool failures and lessons learned for the preceding year;

- ✓ Perform a voluntary Critical Operating Tool Analysis Survey accompanied with the previous surveys recommendation to disseminate and assess the implementation of best practices and recommendations;
- ✓ Complete a triennial review of the RC area restoration plans;
- ✓ Support an annual enhanced, wide area restoration drill among the Reliability Coordinator areas of NPCC and their neighboring Reliability Coordinators incorporating the annual review of the NPCC regional restoration plan;
- ✓ Conduct pre-seasonal NPCC Reliability Assessments incorporating multi-area probabilistic reliability simulation results in each assessment. Coordinate the NPCC input for the annual data for the NERC Reliability Assessment Subcommittee.
- ✓ Conduct reviews of applicable NPCC Directories, Criteria, Guides and Procedures in accordance with their applicable review dates:
  - Directory No. 2 – “*Emergency Operations*”
  - Directory No. 5 – “*Reserve*”
- ✓ Assess the dependency of successful system operations on current telecommunication systems.

### **NPCC Regulatory/Governmental Affairs Advisory Group**

The purpose of the NPCC Regulatory/Governmental Affairs Advisory Group is to promote NPCC interaction and coordination with Federal/State/Provincial governmental and/or regulatory agencies on a coordinated Regional basis, and identify and develop policy input for NPCC and Northeast Regional governmental and/or regulatory bodies.

The NPCC Governmental/Regulatory Affairs Advisory Group provides a forum where industry and governmental and/or regulatory representatives can exchange views and strive to develop consensus policy recommendations on reliability issues specific to the NPCC Region (Northeastern United States and Eastern Canada) and share actionable information among NPCC, NERC and other related governmental and/or regulatory agencies related to Regional energy and reliability matters.

Activities for 2017 include continued outreach to NPCC’s state electricity and environmental regulators stressing the importance of understanding the reliability considerations, such as the identified Essential Reliability Services when formulating State Implementation Plans for the EPA Clean Power Plan compliance. This includes focus on issues concerning regional planning, the characteristics of distributed energy resources, the timing of new generation resources and transmission infrastructure projects and use of the rule’s Reliability Safety Valve.

Based on the portion of professional/technical staff time and other resources devoted to Reliability Assessment and Performance Analysis, NPCC estimates that it will expend 21% of its resources on these activities.

### **Resource Requirements**

#### **Personnel**

- NPCC anticipates no need to hire additional personnel in this program area in 2017.

#### **Consultants and contracts**

- Decrease in RAPA consulting and contracts expense is associated with the reallocation of NPCC staff in order to reduce the use of outside contractors.

## Reliability Assessment and Performance Analysis Program

Funding sources and related expenses for the Reliability Assessment and Performance Analysis section of the 2017 business plan are shown in the table below. Explanations of variances by expense category are included with the Supplemental Tables found in Section B.

Statement of Activities and Capital Expenditures						
2016 Budget & Projection, and 2017 Budget						
Reliability Assessment and Performance Analysis						
	2016	2016	Variance	2017	Variance	
	Budget	Projection	2016 Projection	Budget	2017 Budget	
			v 2016 Budget		v 2016 Budget	
			Over(Under)		Over(Under)	
<b>Funding</b>						
<b>ERO Funding</b>						
ERO Assessments	\$ 3,157,554	\$ 3,157,554	\$ -	\$ 3,206,966	\$ 49,412	
Penalty Sanctions	14,020	14,020	-	-	(14,020)	
<b>Total ERO Funding</b>	<b>\$ 3,171,574</b>	<b>\$ 3,171,574</b>	<b>\$ -</b>	<b>\$ 3,206,966</b>	<b>\$ 35,392</b>	
Membership Dues	-	-	-	-	-	
Testing Fees	-	-	-	-	-	
Services & Software	-	-	-	-	-	
Workshops	-	-	-	-	-	
Interest	-	-	-	-	-	
Miscellaneous	-	-	-	-	-	
<b>Total Funding (A)</b>	<b>\$ 3,171,574</b>	<b>\$ 3,171,574</b>	<b>\$ -</b>	<b>\$ 3,206,966</b>	<b>\$ 35,392</b>	
<b>Expenses</b>						
<b>Personnel Expenses</b>						
Salaries	\$ 1,031,149	\$ 1,031,149	\$ -	\$ 1,084,994	\$ 53,845	
Payroll Taxes	64,284	64,284	-	65,373	1,089	
Benefits	212,345	212,345	-	214,688	2,343	
Retirement Costs	116,395	116,395	-	121,271	4,876	
<b>Total Personnel Expenses</b>	<b>\$ 1,424,173</b>	<b>\$ 1,424,173</b>	<b>\$ -</b>	<b>\$ 1,486,325</b>	<b>\$ 62,152</b>	
<b>Meeting Expenses</b>						
Meetings	\$ 45,000	\$ 45,000	\$ -	\$ 20,500	\$ (24,500)	
Travel	186,850	186,850	-	186,850	-	
Conference Calls	-	-	-	-	-	
<b>Total Meeting Expenses</b>	<b>\$ 231,850</b>	<b>\$ 231,850</b>	<b>\$ -</b>	<b>\$ 207,350</b>	<b>\$ (24,500)</b>	
<b>Operating Expenses</b>						
Consultants & Contracts	\$ 374,500	\$ 374,500	\$ -	\$ 413,000	\$ 38,500	
Office Rent	-	-	-	-	-	
Office Costs	-	-	-	-	-	
Professional Services	-	-	-	-	-	
Computer & Equipment Leases	-	-	-	-	-	
Miscellaneous	-	-	-	-	-	
Depreciation	-	-	-	-	-	
<b>Total Operating Expenses</b>	<b>\$ 374,500</b>	<b>\$ 374,500</b>	<b>\$ -</b>	<b>\$ 413,000</b>	<b>\$ 38,500</b>	
<b>Total Direct Expenses</b>	<b>\$ 2,030,523</b>	<b>\$ 2,030,523</b>	<b>\$ -</b>	<b>\$ 2,106,675</b>	<b>\$ 76,152</b>	
<b>Indirect Expenses</b>	<b>\$ 1,163,404</b>	<b>\$ 1,163,404</b>	<b>\$ -</b>	<b>\$ 1,125,541</b>	<b>\$ (37,863)</b>	
<b>Other Non-Operating Expenses</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	
<b>Total Expenses (B)</b>	<b>\$ 3,193,927</b>	<b>\$ 3,193,927</b>	<b>\$ -</b>	<b>\$ 3,232,217</b>	<b>\$ 38,289</b>	
<b>Change in Assets</b>	<b>\$ (22,353)</b>	<b>\$ (22,353)</b>	<b>\$ -</b>	<b>\$ (25,251)</b>	<b>\$ (2,898)</b>	
<b>Fixed Assets</b>						
Depreciation	\$ -	\$ -	\$ -	\$ -	\$ -	
Computer & Software CapEx	-	-	-	-	-	
Furniture & Fixtures CapEx	-	-	-	-	-	
Equipment CapEx	-	-	-	-	-	
Leasehold Improvements	-	-	-	-	-	
Allocation of Fixed Assets	(22,353)	(22,353)	-	(25,251)	(2,898)	
<b>Inc(Dec) in Fixed Assets (C)</b>	<b>(22,353)</b>	<b>(22,353)</b>	<b>-</b>	<b>(25,251)</b>	<b>(2,898)</b>	
<b>TOTAL BUDGET (=B+C)</b>	<b>3,171,574</b>	<b>3,171,574</b>	<b>-</b>	<b>3,206,966</b>	<b>35,392</b>	
<b>TOTAL CHANGE IN WORKING CAPITAL (=A-B-C)</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ -</b>	<b>\$ 0</b>	<b>\$ 0</b>	

## Training, Education, and Operator Certification Program

<b>Training, Education, and Operator Certification Program Resources</b>			
(in whole dollars)			
	2016 Budget	2017 Budget	Increase (Decrease)
Total FTEs	0.10	0.10	0.00
Direct Expenses	\$200,384	\$229,785	\$29,401
Indirect Expenses	\$19,955	\$19,306	(\$649)
Other Non-Operating Expenses	\$0	\$0	\$0
Inc(Dec) in Fixed Assets	(\$383)	(\$433)	(\$50)
Total Funding Requirement	\$219,956	\$248,658	\$28,702

### Program Scope and Functional Description

The NPCC Training, Education, and Operator Certification program supports NERC Rules of Procedure Section 900. The program provides education and training necessary to understand and operate the bulk electric system. The target audience of the program is bulk power system operating personnel - including system operations personnel, operations support personnel (engineering and information technology), supervisors and managers, and training personnel. NPCC staff training and development is incorporated within each respective program area.

### Training Program Background and Description

This NPCC Program establishes and coordinates training for system operators relating to inter-Reliability Coordinator area matters, criteria, terminology, standards and operating procedures and instructions. It includes development and execution training seminars, held twice yearly, at which: 1) potential operational problems for the coming season are discussed, 2) the implementation of NPCC Directories and NERC Standards are discussed, 3) major industry issues that are important for system operators are discussed, 4) significant disturbances are reviewed for lessons learned and 5) table-top drills and communication and coordination exercises are conducted. The seminars promote camaraderie and better communication among system operators from the NPCC Reliability Coordinator (RC) areas and the Nova Scotia Balancing Authority (BA) area.

This Program also provides for: 1) sharing of existing training techniques and methods, 2) evaluation of new techniques and training aids as they become available; 3) opportunities to consolidate training among the NPCC RCs and BAs, which includes opportunities to share training material and training sessions and 4) exchange of information on internal methods of system operator selection and training. The training activities indicated below are done in support of ERG Goal 5b. (“5b. The ERO Enterprise acquires, engages, and retains highly qualified talent suited to the mission.”)

### Funding Drivers and Reliability Benefits

- Provide two high-quality continuing education seminars for system operators
  - System operators participating in the Seminars: 1) get exposure to NPCC issues and current industry operations topics, 2) review recent NPCC or major external disturbances, and 3) review key operations-related content in NPCC Directories and NERC Standards, and 4) participate in hands on “table top exercises”

- pertaining to system operation practices. PJM system operators and trainers are also invited to and normally attend and participate in these seminars.
- Seminar attendees also receive Continuing Education Hours (CEHs) (normally 3.5 to 4 CEHs) and operator trainers from each RC / BA area can utilize the seminar content by including it in their internal training programs to provide CEHs to all system operators
  - The seminars help to improve system operation coordination through better contact among operators
  - Continually review and revise the curriculum of the training seminars to better emphasize NERC standards, Regional Standards and business practices, NPCC wide-area operations and Regionally-specific criteria and procedures.
  - Enhance the system operator's awareness and knowledge of the standards, criteria and procedures they apply in real time operation.
  - Provide more sharing of new training approaches, exchange of information on internal methods of system operator selection, training material and training sessions.
    - Enhance efficiency and cost savings in the training programs in the NPCC RC / BA areas
  - Provide a forum among NPCC RC/BA areas for sharing of approaches to meet the requirements of the NERC PER standards. The sharing of approaches used by some NPCC Areas to address any changes needed to existing system operator training programs due to PER-005-2 requirements is valuable to CO-2 Working Group members.
  - Implement changes needed for the NPCC Reliability Coordinator / Balancing Authority Areas to meet proposed expanded Systematic Approach to Training (SAT) requirement for operations support staff in PER-005-2.
  - NPCC will conduct two Standards and Compliance workshops in 2017, for NPCC Stakeholders, for the express purpose of providing the most current and applicable information related to the development of NERC and Regional Reliability Standards and the implementation of the Compliance Monitoring and Enforcement Program (CMEP).

### 2017 Key Assumptions

NPCC regularly conducts seminars as well as Spring and Fall Standards and Compliance workshops specifically designed, primarily through the conduct of targeted breakout class room sessions and presentations on current industry related activities, to provide for the most efficient exchange of information between the NPCC Compliance and Standards Staff and the NPCC Stakeholders. Presentations in the past have been conducted by FERC, NERC and Stakeholder representatives in addition to NPCC Staff members. To supplement these workshops, NPCC is also considering expanding the use of on-line webinars. These webinars will focus on a specific topic pertinent to developments related to compliance program implementation, standards development or technical topics.

NPCC also regularly conducts spring and fall System Operator Seminars. These seminars involve system operators from the NPCC RC/BA Areas and PJM. These will be held in early May and early November.

### 2017 Goals and Key Deliverables

- Prepare and conduct the 2017 Spring and Fall NPCC System Operator Seminars.
- Implement the PER-005-2 expanded SAT training requirements within the NPCC RC/BA Area programs.

- Expand the content of the Reliability Coordinator training programs, to meet the requirements generated by PER-005-2, as necessary.
- Continue collaboration and sharing of the intended RC/BA approaches, experiences and materials to task identification and training development associated with NERC Standard PER-005-2. Create and expand the restricted-access NPCC repository of training resources and learning verification activities addressing fundamental power system topics, training methods and operation procedure training exercises, which may be shared as elements of operator training in compliance with NERC Standard PER-005, “System Personnel Training”.
- Participate in NERC Staff Training Group activities and provide NPCC input to the development of training policies by this group.

Based on the portion of professional/technical staff time and other resources devoted to training, education, and operator certification, NPCC estimates that it will expend 2% of its resources on this activity.

### **Resource Requirements**

#### **Personnel**

- NPCC anticipates no need to hire additional personnel in this program area in 2017.

## Training, Education, and Operator Certification Program

Funding sources and related expenses for the training, education, and operator certification section of the 2017 business plan are shown in the table below. Explanations of variances by expense category are included with the Supplemental Tables found in Section B.

Statement of Activities and Capital Expenditures						
2016 Budget & Projection, and 2017 Budget						
Training, Education, and Operator Certification						
	2016	2016	Variance	2017	Variance	
	Budget	Projection	2016 Projection	Budget	2017 Budget	
			v 2016 Budget		v 2016 Budget	
			Over(Under)		Over(Under)	
<b>Funding</b>						
<b>ERO Funding</b>						
ERO Assessments	\$ 155,715	\$ 155,715	\$ -	\$ 184,658	\$ 28,943	
Penalty Sanctions	240	240	-	-	(240)	
<b>Total ERO Funding</b>	<b>\$ 155,956</b>	<b>\$ 155,956</b>	<b>\$ -</b>	<b>\$ 184,658</b>	<b>\$ 28,702</b>	
Membership Dues	-	-	-	-	-	
Testing Fees	-	-	-	-	-	
Services & Software	-	-	-	-	-	
Workshops	64,000	64,000	-	64,000	-	
Interest	-	-	-	-	-	
Miscellaneous	-	-	-	-	-	
<b>Total Funding (A)</b>	<b>\$ 219,956</b>	<b>\$ 219,956</b>	<b>\$ -</b>	<b>\$ 248,658</b>	<b>\$ 28,702</b>	
<b>Expenses</b>						
<b>Personnel Expenses</b>						
Salaries	\$ 19,073	\$ 19,073	\$ -	\$ 21,012	\$ 1,939	
Payroll Taxes	1,311	1,311	-	1,396	85	
Benefits	5,452	5,452	-	4,801	(651)	
Retirement Costs	2,397	2,397	-	2,641	244	
<b>Total Personnel Expenses</b>	<b>\$ 28,234</b>	<b>\$ 28,234</b>	<b>\$ -</b>	<b>\$ 29,850</b>	<b>\$ 1,616</b>	
<b>Meeting Expenses</b>						
Meetings	\$ 157,000	\$ 157,000	\$ -	\$ 186,300	\$ 29,300	
Travel	15,150	15,150	-	13,635	(1,515)	
Conference Calls	-	-	-	-	-	
<b>Total Meeting Expenses</b>	<b>\$ 172,150</b>	<b>\$ 172,150</b>	<b>\$ -</b>	<b>\$ 199,935</b>	<b>\$ 27,785</b>	
<b>Operating Expenses</b>						
Consultants & Contracts	\$ -	\$ -	\$ -	\$ -	\$ -	
Office Rent	-	-	-	-	-	
Office Costs	-	-	-	-	-	
Professional Services	-	-	-	-	-	
Computer & Equipment Leases	-	-	-	-	-	
Miscellaneous	-	-	-	-	-	
Depreciation	-	-	-	-	-	
<b>Total Operating Expenses</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	
<b>Total Direct Expenses</b>	<b>\$ 200,384</b>	<b>\$ 200,384</b>	<b>\$ -</b>	<b>\$ 229,785</b>	<b>\$ 29,401</b>	
<b>Indirect Expenses</b>	<b>\$ 19,955</b>	<b>\$ 19,955</b>	<b>\$ -</b>	<b>\$ 19,306</b>	<b>\$ (649)</b>	
<b>Other Non-Operating Expenses</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	
<b>Total Expenses (B)</b>	<b>\$ 220,339</b>	<b>\$ 220,339</b>	<b>\$ -</b>	<b>\$ 249,091</b>	<b>\$ 28,752</b>	
<b>Change in Assets</b>	<b>\$ (383)</b>	<b>\$ (383)</b>	<b>\$ -</b>	<b>\$ (433)</b>	<b>\$ (50)</b>	
<b>Fixed Assets</b>						
Depreciation	\$ -	-	\$ -	\$ -	\$ -	
Computer & Software CapEx	-	-	-	-	-	
Furniture & Fixtures CapEx	-	-	-	-	-	
Equipment CapEx	-	-	-	-	-	
Leasehold Improvements	-	-	-	-	-	
Allocation of Fixed Assets	(383)	(383)	-	(433)	(50)	
<b>Inc(Dec) in Fixed Assets (C)</b>	<b>(383)</b>	<b>(383)</b>	<b>-</b>	<b>(433)</b>	<b>(50)</b>	
<b>TOTAL BUDGET (=B+C)</b>	<b>219,956</b>	<b>219,956</b>	<b>-</b>	<b>248,658</b>	<b>28,702</b>	
<b>TOTAL CHANGE IN WORKING CAPITAL (=A-B-C)</b>	<b>\$ (0)</b>	<b>\$ (0)</b>	<b>\$ -</b>	<b>\$ (0)</b>	<b>\$ (0)</b>	

## Situation Awareness and Infrastructure Security Program

<b>Situation Awareness and Infrastructure Security Program Resources</b>			
(in whole dollars)			
	2016 Budget	2017 Budget	Increase (Decrease)
Total FTEs	3.00	4.00	1.00
Direct Expenses	\$956,690	\$1,188,137	\$231,447
Indirect Expenses	\$598,664	\$772,241	\$173,577
Other Non-Operating Expenses	\$0	\$0	\$0
Inc(Dec) in Fixed Assets	(\$11,503)	(\$17,325)	(\$5,822)
Total Funding Requirement	\$1,543,852	\$1,943,053	\$399,201

### Program Scope and Functional Description

The Situation Awareness and Infrastructure Security Program is the combination of near real time awareness of conditions on the bulk power system with the programs necessary to increase the physical and cyber security of the electricity infrastructure, including the operation and maintenance of tools and other support services for the benefit of Reliability Coordinators and the system operators within the registered entities. Maintaining the real-time awareness of conditions on the interconnected bulk power systems by the NPCC Reliability Coordinator is critical to maintaining reliable operation within NPCC, including the communication of information concerning system conditions and abnormal events among the neighboring system operators responsible for the reliable operation of the bulk power systems. When a disturbance does occur, it is critical to use the event as a learning opportunity and provide a forum for the active coordination of reliability and operation among the NPCC Reliability Coordinator areas and neighboring NERC Regions to enhance the reliability of the interconnected bulk power system through the lessons to be learned which can be gleaned from such an event.

### Event Analysis Program

NERC and the industry follow three avenues in the analysis of a disturbance: the identification of lessons to be learned, a formal cause code analysis and a review of applicable standards.

The Event Analysis Program recognizes that many events which occur on the bulk power system beyond those identified through NERC Reliability Standard EOP-004-2, "Event Reporting," can have varying levels of significance to the electric system, providing otherwise unrealized lessons to be learned from these events and the trending of such events to identify possible reliability concerns. By integrating a "bottom-up" approach to a disturbance review within the framework of the NERC Event Analysis Program, consistency, comparability, flexibility and timeliness in the event analysis process will be promoted by NPCC, the registered entities and NERC in a collaborative initiative. Upon the identification of an event, the goal of the Event Analysis Program is to:

- identify what transpired;
- categorize the event within the NERC Event Analysis Program;
- establish the sequence of events;
- understand the essential root causes of the event;
- identify recommendations or corrective actions; and

- develop and disseminate to the industry lessons to be learned so that the operational reliability of the bulk power system can be further enhanced.

In assessing any system event, it is recognized that, if the timely dissemination of lessons learned from an event or disturbance is to be realized, any potential compliance implications associated with an event must be addressed and dismissed. Throughout an event analysis effort, to make this process successful and complete, and to solidify the “bottom-up” approach, registered entities are encouraged to establish a liaison between the event analysis and compliance functions internal to the registered entity during the event analysis process. This serves to facilitate the development of a registered entity compliance self-assessment report which will perform a sufficiency review of the reliability standards deemed applicable to the event, assisting in the self-reporting of possible violations should any be discovered.

To complete this effort, the entity, the Region and NERC staff will collaborate to assess the NERC Event Analysis Report and perform a formal cause code analysis, identifying a root cause and publish any pertinent lessons learned gathered from the disturbance.

The adoption by NERC of the Event Analysis Program brings clarity and certainty about what system events are relevant to analyze and to what level of detail, targeting potential risks to the reliability of the bulk power system for detailed and in depth analysis; only concise and succinct reviews are desired for more minor events. It also delineates the expectations of roles and responsibilities of the registered entities, NPCC and NERC in a uniform review of system disturbances by the industry, and, ultimately, the program promotes the timely development and dissemination of valuable lessons learned to the industry. The identification and tracking of emerging common risks through the assessment of events will further distinguish trends which may be of concern to reliability. By rigorously pursuing the lesser events on the system and learning from these disturbances, larger events can be avoided or mitigated.

NPCC Staff works step-by-step with the registered entity in the total event analysis process, permitting the entity to assume the primary role in the development of the initial analysis, lessons learned which may benefit the industry and the Standards sufficiency review and cause coding for trending and reporting. NPCC staff, throughout the process, guides, supports and stands as an advocate of the registered entity as they continue to develop an improved culture of reliability and compliance.

### Situational Awareness

#### Operational Status

On an ongoing, but non-real time basis, NPCC monitors the operational status of the bulk power system and coordinates normal and pre-emergency communication, awareness and assistance in addition to the same during an emergency among the Reliability Coordinators within NPCC: the New Brunswick Power Corporation, Hydro-Québec Contrôle de mouvements d'énergie (HQCME, a division of Hydro-Québec TransÉnergie), the ISO New England, Inc., the New York ISO and the Independent Electricity System Operator in Ontario; and its neighboring RCs: the Midcontinent ISO and PJM. The industry is notified of significant bulk power system events that have occurred in one Reliability Coordinator Area, and which have the potential to impact reliability in other NPCC Reliability Coordinator Areas or Regions external to NPCC. These events include contingencies on the bulk power system, potential shortfalls of operating reserve, operating problems, potential security threats and potential threats or disruptions to the cyber systems.

The “NPCC Emergency Preparedness Conference Call Procedures” provide a mechanism that enables the Reliability Coordinator in NPCC, and, as circumstances may require, their counterparts in neighboring Regions, to rapidly communicate the status of current operating conditions, to facilitate the procurement of assistance during emergency conditions and to identify potential physical or cyber threats to the system.

Items of particular concern that can be discussed during the calls may include, but are not limited to, the following: anticipated weather conditions critical to the system or systems experiencing or projecting resource deficiencies; load forecast; largest first and second contingencies; potential need for emergency transfers; operating reserve requirements and expected available operating reserve capacity deficiencies; potential fuel shortages or potential fuel supply disruptions which could lead to energy shortfalls; identified or projected voltage conditions; status of short term transactions; additional capability available within four hours and additional capability available within twelve hours; generator outages; significant transmission outages; expected transfer limits and limiting elements; anticipated implementation of NERC Transmission Loading Relief (TLR); changes in the status of relay protection systems; arming of special protection systems not normally armed; and/or the application of abnormal operating procedures.

NPCC has also established a daily conference call to serve as a complement to the NPCC Emergency Preparedness Conference Call. The participants of the call are the Reliability Coordinators within NPCC and its neighboring RCs, the Midcontinent ISO and PJM. The conference call is implemented through a bridge, the initiation of the call quickly ringing all pre-selected telephones simultaneously. The goal of the call is to alert all Reliability Coordinators of emerging problems. If no system difficulties are anticipated for the day, no unnecessary information is to be discussed. Subjects for discussion are limited to credible events which could impact the ability of an entity to serve its load and meet its operating reserve obligations or would impose a burden to the interconnection, including the following: Projected Load; Adverse Weather; Operating Reserve; Generation; Transmission; and Sabotage. If conditions worsen in the course of the day, the NPCC Emergency Preparedness Conference Call will be implemented.

NPCC also monitors the status of the bulk power system through the NERC Situational Awareness-FERC, NERC, Regions (SAFNR) initiative, a near real-time operating display for the United States portion of the Reliability Coordinators footprints of North America. Transmission voltage levels of 230 kV and above are displayed, and the tool provides the ability to “drill down” to detailed bus information, including generation outputs and bus voltages.

To ensure the capability for continued voice communications among NPCC and its Reliability Coordinators, a satellite telephone network was also established, and it is tested on a monthly basis. This back-up communications system will function in the event of a collapse of the Public Switched Telephone Network (PSTN), permitting continued cross-border voice communications among the Canadian Reliability Coordinators of NPCC, the Reliability Coordinators in the United States as well as NPCC Situation Awareness (SA) staff.

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## Critical Infrastructure Objectives

NPCC's critical infrastructure objectives are defined within the scope of the NPCC Task Force on Infrastructure Security & Technology, (TFIST) and include, but are not confined to:

- Providing a forum for NPCC review of proposed and posted documents from the NERC Critical Infrastructure Protection Committee (CIPC)
- Representing and advocating NPCC's position in the activities of NERC groups involved in the development and/or implementation of physical and cyber security

NPCC's 2017 critical infrastructure goals and objectives, supporting ERO Goal 3.c:

- Monitor the Homeland Security Information Network (HSIN), E- ISAC, NERC Alerts and Canadian Information Sharing and share information with NPCC's CO-8 System Operations Managers Working Group
- Review and submit comments on NERC proposed Reliability Standards, modified Reliability Standards, proposed Guidelines and modified Guidelines related to Infrastructure Security and Technology
- Keep current on all governmental agencies' and others applicable security recommendations and requirements, and keep the RCC and its committees appropriately informed, e.g. Sector Specific Plan.
- Review infrastructure security & technologies and provide recommendations to RCC to enhance physical and cyber security in compliance with NERC guidelines/standards
- Provide recommendations to RCC to enhance physical and cyber security, in compliance with NERC standards, based on assessments of available and emerging infrastructure security technologies, methodologies, and best practices.
- Sponsor periodic workshop presentations to address timely issues and update NPCC Members associated with infrastructure security and technology.
- Since RCC approved the Cross Border Emergency Telecommunications recommendation, insure that suggested annual testing happens and each Area can communicate with each other. [IST-2]
- As RCC directs, provide support and technical input, for Task Force related BES risks as identified by the NERC Reliability Issues Steering Committee "RISC". The Task Force will conduct a thorough review, provide comments as necessary and act on posted materials as directed. Task Force assessments and recommendations will be forwarded to the RCC for approval and submittal to NERC via NPCC Staff and the NERC Risk Control Process

## System Operations Security Objectives

NPCC's system operations security objectives are defined within the scope of the NPCC Task Force on Coordination of Operation (TFCO) and include, but are not confined to:

- Coordinating inter-Regional pre-emergency actions in the event of a threat to the security of the Northeastern North American bulk power supply system
- Assisting in the development of real time operating tools assuring cyber security concerns are addressed

## 2017 Key Assumptions

- 2017The monitoring of Lessons Learned will continue to be a major focus of NERC in 2017. This will include an added aspect of the voluntary Event Analysis Program, in response to a recommendation of the AC Substation Equipment Task Force (ACSETF), to solicit and collect detailed information on station equipment failures, for applicable, qualifying events to aid in future analysis of station equipment failures to identify trends that may be a threat to the reliability of the BES.
- Critical infrastructure protection will fully integrate the requirements of version 5 of the Cyber Standards in 2017.
- NERC will post updates to the critical infrastructure protection (CIP) Standards to address the three FERC Directives and the four industry concerns that were not satisfactory responded to by the version 5 Transition Advisory Group.

## 2017 Goals and Key Deliverables

- Monitor the reliable implementation of version 5 of the Cyber Standards.
- Work directly with applicable NPCC Task Forces to provide an in depth assessment of Lessons Learned unique to the NPCC members and NPCC criteria.
- Promote NPCC's Event Analysis group's established process for sharing and dissemination of the detailed Event Analysis Report information among industry participants (registered entities).
- Take part in the planning of, preparation for and participation in the bi-annual GridEx IV exercise, incorporating the Lessons Learned generated by the GridEx III wide-area exercise.
- Utilize the NPCC's "what if" methodology to examine an event's potential impact under a different set of system conditions, to evaluate the proximity of a particular event to being a significant BPS requiring appropriate level of analysis with due weight to risk and impact.
- Establish a process/procedure for data capture and transfer aspects for post-disturbance (major disturbance and/or blackout events) system analysis, including requirements for regularly scheduled (annual) testing of the procedure implementation.

Based on the portion of professional/technical staff time and other resources devoted to situation awareness and infrastructure security, NPCC estimates that it will expend 13% of its resources on this activity.

## Resource Requirements

### Personnel

- Reallocation of staff during 2016 resulted in an increase of one full time employee in the Situation Awareness and Infrastructure Security program to support increased workload in this area.
- NPCC anticipates no need to hire additional personnel in this program area in 2017.

## Situation Awareness and Infrastructure Security Program

Funding sources and related expenses for the situation awareness and infrastructure security section of the 2017 business plan are shown in the table below. Explanations of variances by expense category are included with the Supplemental Tables found in Section B.

Statement of Activities and Capital Expenditures						
2016 Budget & Projection, and 2017 Budget						
Situation Awareness and Infrastructure Security						
	2016	2016	Variance	2017	Variance	
	Budget	Projection	2016 Projection	Budget	2017 Budget	
			v 2016 Budget		v 2016 Budget	
			Over(Under)		Over(Under)	
<b>Funding</b>						
<b>ERO Funding</b>						
ERO Assessments	\$ 1,536,637	\$ 1,536,637	\$ -	\$ 1,943,053	\$ 406,416	
Penalty Sanctions	7,215	7,215	-	-	(7,215)	
<b>Total ERO Funding</b>	<b>\$ 1,543,852</b>	<b>\$ 1,543,852</b>	<b>\$ -</b>	<b>\$ 1,943,053</b>	<b>\$ 399,201</b>	
Membership Dues	-	-	-	-	-	
Testing Fees	-	-	-	-	-	
Services & Software	-	-	-	-	-	
Workshops	-	-	-	-	-	
Interest	-	-	-	-	-	
Miscellaneous	-	-	-	-	-	
<b>Total Funding (A)</b>	<b>\$ 1,543,852</b>	<b>\$ 1,543,852</b>	<b>\$ -</b>	<b>\$ 1,943,053</b>	<b>\$ 399,201</b>	
<b>Expenses</b>						
<b>Personnel Expenses</b>						
Salaries	\$ 516,951	\$ 516,951	\$ -	\$ 660,213	\$ 143,262	
Payroll Taxes	32,630	32,630	-	42,778	10,148	
Benefits	116,230	116,230	-	160,814	44,584	
Retirement Costs	53,880	53,880	-	72,333	18,453	
<b>Total Personnel Expenses</b>	<b>\$ 719,690</b>	<b>\$ 719,690</b>	<b>\$ -</b>	<b>\$ 936,137</b>	<b>\$ 216,447</b>	
<b>Meeting Expenses</b>						
Meetings	\$ 15,000	\$ 15,000	\$ -	\$ 13,500	\$ (1,500)	
Travel	65,000	65,000	-	78,500	13,500	
Conference Calls	-	-	-	-	-	
<b>Total Meeting Expenses</b>	<b>\$ 80,000</b>	<b>\$ 80,000</b>	<b>\$ -</b>	<b>\$ 92,000</b>	<b>\$ 12,000</b>	
<b>Operating Expenses</b>						
Consultants & Contracts	\$ 157,000	\$ 157,000	\$ -	\$ 160,000	\$ 3,000	
Office Rent	-	-	-	-	-	
Office Costs	-	-	-	-	-	
Professional Services	-	-	-	-	-	
Computer & Equipment Leases	-	-	-	-	-	
Miscellaneous	-	-	-	-	-	
Depreciation	-	-	-	-	-	
<b>Total Operating Expenses</b>	<b>\$ 157,000</b>	<b>\$ 157,000</b>	<b>\$ -</b>	<b>\$ 160,000</b>	<b>\$ 3,000</b>	
<b>Total Direct Expenses</b>	<b>\$ 956,690</b>	<b>\$ 956,690</b>	<b>\$ -</b>	<b>\$ 1,188,137</b>	<b>\$ 231,447</b>	
<b>Indirect Expenses</b>	<b>\$ 598,664</b>	<b>\$ 598,664</b>	<b>\$ -</b>	<b>\$ 772,241</b>	<b>\$ 173,577</b>	
<b>Other Non-Operating Expenses</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	
<b>Total Expenses (B)</b>	<b>\$ 1,555,355</b>	<b>\$ 1,555,355</b>	<b>\$ -</b>	<b>\$ 1,960,378</b>	<b>\$ 405,023</b>	
<b>Change in Assets</b>	<b>\$ (11,503)</b>	<b>\$ (11,503)</b>	<b>\$ -</b>	<b>\$ (17,325)</b>	<b>\$ (5,822)</b>	
<b>Fixed Assets</b>						
Depreciation	\$ -	-	\$ -	\$ -	\$ -	
Computer & Software CapEx	-	-	-	-	-	
Furniture & Fixtures CapEx	-	-	-	-	-	
Equipment CapEx	-	-	-	-	-	
Leasehold Improvements	-	-	-	-	-	
Allocation of Fixed Assets	(11,503)	(11,503)	-	(17,325)	(5,822)	
<b>Inc(Dec) in Fixed Assets (C)</b>	<b>(11,503)</b>	<b>(11,503)</b>	<b>-</b>	<b>(17,325)</b>	<b>(5,822)</b>	
<b>TOTAL BUDGET (=B+C)</b>	<b>1,543,852</b>	<b>1,543,852</b>	<b>-</b>	<b>1,943,053</b>	<b>399,201</b>	
<b>TOTAL CHANGE IN WORKING CAPITAL (=A-B-C)</b>	<b>\$ (0)</b>	<b>\$ (0)</b>	<b>\$ -</b>	<b>\$ (0)</b>	<b>\$ 0</b>	

## Administrative Services

Administrative Services Program Resources						
(in whole dollars)						
	Direct Expenses and Fixed Assets			FTEs		
	2016 Budget	2017 Budget	Increase (Decrease)	2016 Budget	2017 Budget	Increase (Decrease)
Technical Committees and Members Forum	\$71,929	\$72,500	\$571	0.50	0.50	0.00
General and Administrative	\$3,345,139	\$3,495,691	\$150,553	2.50	2.50	0.00
Legal and Regulatory	\$639,905	\$648,680	\$8,775	1.00	1.00	0.00
Information Technology	\$1,233,263	\$1,060,675	(\$172,588)	3.00	2.00	-1.00
Human Resources	\$176,588	\$182,059	\$5,471	1.00	1.00	0.00
Finance and Accounting	\$519,820	\$525,262	\$5,442	1.00	1.00	0.00
Total Administrative Services	\$5,986,643	\$5,984,868	(\$1,775)	9.00	8.00	-1.00

### Program Scope and Functional Description

Administrative services support the previously identified five program areas of: reliability standards; compliance monitoring and enforcement and organization registration and certification; training, education, and operator certification; reliability assessment and performance analysis; and situation awareness and infrastructure security. Administrative services consist of: technical committees and members' forums; general and administrative; legal and regulatory; information technology; human resources; and finance and accounting.

### Methodology for Allocation of Administrative Services Expenses to Programs

NPCC total overhead expenses, such as office rent and office costs, will be charged to the Administrative Services Programs and then reallocated proportionately based on FTE to the programs through Indirect Expenses.

## Administrative Services

Funding sources and related expenses for the Administrative Services section of the 2017 business plan are shown in the table below. Explanations of variances by expense category are included with the Supplemental Tables found in Section B.

Statement of Activities and Capital Expenditures 2016 Budget & Projection, and 2017 Budget						
ADMINISTRATIVE SERVICES						
	2016 Budget	2016 Projection	Variance 2016 Projection v 2016 Budget Over(Under)	2017 Budget	Variance 2017 Budget v 2016 Budget Over(Under)	
<b>Funding</b>						
<b>ERO Funding</b>						
ERO Assessments	\$ (592,801)	\$ (592,801)	\$ -	\$ (663,357)	\$ (70,556)	
Penalty Sanctions	-	-	-	-	-	
<b>Total ERO Funding</b>	<b>\$ (592,801)</b>	<b>\$ (592,801)</b>	<b>\$ -</b>	<b>\$ (663,357)</b>	<b>\$ (70,556)</b>	
Membership Dues	-	-	-	-	-	
Testing Fees	-	-	-	-	-	
Services & Software	-	-	-	-	-	
Workshops	-	-	-	-	-	
Interest	-	-	-	-	-	
Miscellaneous	-	-	-	-	-	
<b>Total Funding (A)</b>	<b>\$ (592,801)</b>	<b>\$ (592,801)</b>	<b>\$ -</b>	<b>\$ (663,357)</b>	<b>\$ (70,556)</b>	
<b>Expenses</b>						
<b>Personnel Expenses</b>						
Salaries	\$ 1,951,407	\$ 1,951,407	\$ -	\$ 1,872,579	\$ (78,828)	
Payroll Taxes	102,585	102,585	-	93,995	(8,590)	
Benefits	422,729	422,729	-	418,433	(4,296)	
Retirement Costs	330,001	330,001	-	317,471	(12,531)	
<b>Total Personnel Expenses</b>	<b>\$ 2,806,722</b>	<b>\$ 2,806,722</b>	<b>\$ -</b>	<b>\$ 2,702,478</b>	<b>\$ (104,244)</b>	
<b>Meeting Expenses</b>						
Meetings	\$ 125,000	\$ 125,000	\$ -	\$ 120,000	\$ (5,000)	
Travel	160,100	160,100	-	143,590	(16,510)	
Conference Calls	47,000	47,000	-	37,000	(10,000)	
<b>Total Meeting Expenses</b>	<b>\$ 332,100</b>	<b>\$ 332,100</b>	<b>\$ -</b>	<b>\$ 300,590</b>	<b>\$ (31,510)</b>	
<b>Operating Expenses</b>						
Consultants & Contracts	\$ 122,000	\$ 122,000	\$ -	\$ 152,000	\$ 30,000	
Office Rent	802,500	802,500	-	809,700	7,200	
Office Costs	639,500	639,500	-	679,100	39,600	
Professional Services	1,011,000	1,011,000	-	1,041,000	30,000	
Computer & Equipment Leases	-	-	-	-	-	
Miscellaneous	41,000	41,000	-	50,000	9,000	
Depreciation	231,821	231,821	-	250,000	18,179	
<b>Total Operating Expenses</b>	<b>\$ 2,847,821</b>	<b>\$ 2,847,821</b>	<b>\$ -</b>	<b>\$ 2,981,800</b>	<b>\$ 133,979</b>	
<b>Total Direct Expenses</b>	<b>\$ 5,986,643</b>	<b>\$ 5,986,643</b>	<b>\$ -</b>	<b>\$ 5,984,868</b>	<b>\$ (1,775)</b>	
<b>Indirect Expenses</b>	<b>\$ (5,986,643)</b>	<b>\$ (5,986,643)</b>	<b>\$ -</b>	<b>\$ (5,984,868)</b>	<b>\$ 1,775</b>	
<b>Other Non-Operating Expenses</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	
<b>Total Expenses (B)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 0</b>	
<b>Change in Assets</b>	<b>\$ (592,801)</b>	<b>\$ (592,801)</b>	<b>\$ -</b>	<b>\$ (663,357)</b>	<b>\$ (70,556)</b>	
<b>Fixed Assets</b>						
Depreciation	(231,821)	(231,821)	\$ -	(250,000)	\$ (18,179)	
Computer & Software CapEx	125,000	125,000	-	125,000	-	
Furniture & Fixtures CapEx	-	-	-	-	-	
Equipment CapEx	-	-	-	-	-	
Leasehold Improvements	-	-	-	-	-	
Allocation of Fixed Assets	106,821	106,821	-	125,000	18,179	
<b>Inc(Dec) in Fixed Assets (C)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	
<b>TOTAL BUDGET (=B+C)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>0</b>	
<b>TOTAL CHANGE IN WORKING CAPITAL (=A-B-C)</b>	<b>\$ (592,801)</b>	<b>\$ (592,801)</b>	<b>\$ -</b>	<b>\$ (663,357)</b>	<b>\$ (70,556)</b>	

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## Technical Committees and Member Forums

### Program Scope and Functional Description

The success of the NPCC programs depends on the active and direct volunteerism and participation of its members. The stakeholders are the source of expertise in the industry. To promote the reliable and efficient operation of the interconnected bulk power systems in Northeastern North America, NPCC invites high level policy makers from Federal, Provincial and State regulatory and/or governmental authorities and senior executives within NPCC and NERC to identify and discuss emerging issues related to the reliability of the NPCC Region.

### 2017 Key Assumptions

- NPCC's standing committee and subgroup structure for effective stakeholder involvement will continue in 2017
- NPCC will continue to utilize methods to encourage active involvement in its Regional programs that require less stakeholder travel and face-to-face meetings, as the economy improves in 2017
- NPCC will continue to invest in technology and innovation to allow efficient collaboration on technical issues related to reliability

### 2017 Goals and Key Deliverables

The 2017 NPCC General Meeting provides an opportunity for NPCC Members to meet high level policy makers from Federal, Provincial and State regulatory and/or governmental authorities and senior NERC and NPCC executives to discuss topics related to the reliable planning and operation of the power system, including consideration of emerging reliability, critical infrastructure and environmental issues.

### 2017 Public Information Committee Goals and Objectives

The objective of the NPCC Public Information Committee is to highlight and summarize NPCC activities and accomplishments in the past year, disseminate and coordinate the appropriate release of information to the media, respond to related requests for information, and coordinate with related NPCC Area, NERC media and public information activities. Activities anticipated include, but are not limited to:

- Conducting the Media Event – release of the Summer 2017 NPCC Reliability Assessment
- Participation in NERC Regional communication initiatives:
  - Regional communications teleconferences as required
  - Coordination of Emergency or Blackout communications plans
  - Coordination with other NERC activities as required (i.e., situation awareness, event analysis, reliability assessments, etc.)

### Resource Requirements

#### Personnel

- NPCC anticipates no need to hire additional personnel in this program area in 2017.

## **General and Administrative**

### **Program Scope and Functional Description**

The NPCC general and administrative function provides executive management of the corporation, management of NPCC office, and other administrative support programs.

NPCC total overhead expenses, such as office rent and office costs, will be charged to the Administrative Services Programs and then reallocated proportionately based on FTE to the programs through Indirect Expenses.

### **Resource Requirements**

#### **Personnel**

- NPCC anticipates no need to hire additional personnel in this program area in 2017.

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## Legal and Regulatory

### Program Scope and Functional Description

NPCC's professional legal services provide counsel to the President and CEO, Board of Directors, Vice President and COO, Treasurer, General Counsel and staff on a wide range of legal and regulatory matters including legislation, corporate law, code of conduct, confidentiality, governance, employment law, tax matters, contract law and other areas affecting NPCC. In support of ERO Goal 5.c., NPCC's in-house counsel evaluates internal controls and corporate, operational, strategic and reputational risk, and participates in risk identification, evaluation and mitigation activities. In-house counsel provides legal advice to advance significant corporate policy and strategic planning initiatives and also provide legal support to other program areas on matters arising in connection with the performance of NPCC's delegated functions. In-house counsel draft agreements and pleadings and provide interpretations of relevant statutes, regulations, court opinions, and regulatory decisions of FERC, state agencies and provincial authorities. Outside counsel, as necessary, reviews items filed with the governmental agencies for legal sufficiency, maintains relationships with U.S. and Canadian jurisdictions and provides contract review.

### Resource Requirements

#### Personnel

- NPCC anticipates no need to hire additional personnel in this program area in 2017.

#### Professional Services

- Professional services expense is projected to remain in line with 2016 levels.

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## Information Technology

### Program Scope and Functional Description

NPCC's Information Technology services ensure information assets and the environment in which they operate are secure and in conformance to NPCC IT Policies and Procedures and all applicable Critical Electric Infrastructure Information protection and Confidentiality requirements. NPCC maintains an offsite backup server for continuity of essential operations in the event that its primary location is unavailable.

NPCC supports the ERO efforts to implement, operate and maintain software tools supporting common enterprise wide operations and leveraging ERO solutions which have been approved by the ERO Executive Management Group (EROEMG), which is comprised of the senior leadership of NERC and each of the Regional Entities. NPCC's budget assumes the availability of enterprise software tools as described in NERC's business plan and budget. If implementation of these software applications is delayed or otherwise not available as planned, NPCC could incur additional costs to implement ERO Enterprise-wide programs pending the availability of these applications.

NERC and the Regional Entities are committed to working collaboratively to minimize duplication of effort and investments, and improve operational efficiency. This collaboration continues to refine existing strategies, governance and procurement practices applicable to the development, operation and maintenance of enterprise architecture, software and data systems supporting complementary and combined NERC and Regional Entity operations.

The NERC information technology budget does not supplant NPCC's need for IT expenditures for specific regional projects and internal region specific IT support needs. NPCC's 2017 Business Plan and Budget assumes agreed-upon ERO Enterprise applications will be available and includes only NPCC costs for region specific support needs.

### 2017 Key Assumptions

- Continue to develop and maintain the compliance portal through collaboration with other Regional Entities and NERC (CUG).
- Support the Event Analysis program through continued participation in the tools used for the tracking and analysis of system events and identification of better practice elements.
- Support the Bulk Electric System Exception Process "BEP" to enable and facilitate tracking and processing of exceptions submitted. Maintenance of the BESNET support services such as updates, patching, coordinating issues with NERC.
- Support Cyber Security Reviews done by compliance to provide advisory role during those reviews.

### 2017 Goals and Key Deliverables

Responsibilities encompass a variety of complex technical, administrative, and supervisory work in the development, installation, and maintenance of information technology systems. IT goals include, but are not limited to:

- Conduct initial implementation and utilization of a document management system
- Create an information security program and environment aimed at reducing breach of security risks
- Determine longer-term software and systems needs and hardware acquisitions
- Develop and implement information security standards and procedures

- Ensure all information systems are functional and secure, and that all applications running on those systems meet business requirements for performance, availability, and security
- Plan and implement organization-wide information systems, services, and network facilities, including local area networks, wide-area networks, and peripheral systems
- Provide outreach and education to NPCC members in IT best practices
- Continually improve Disaster Recovery and Business Continuity policies and practices to ensure continuity and reliability of IT and business related services

## **Resource Requirements**

### **Personnel**

- Reallocation of staff during 2016 resulted in a decrease of one full time employee in Information Technology. NPCC anticipates no need to hire additional personnel in this program area in 2017.
- Increase in operating expenses is primarily related to penetration testing, which will be conducted on an ongoing basis going forward in an effort to increase security.

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## Human Resources

### Program Scope and Functional Description

NPCC has assembled an exceptional team of highly qualified employees to carry out the activities of NPCC. The human resources function, in adherence with applicable federal and state laws, designs, plans, and implements human resources policies and procedures, including: staffing; compensation; benefits; employee relations; training and development; and employee time tracking.

### Resource Requirements

#### Personnel

- NPCC anticipates no need to hire additional personnel in this program area in 2017.

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## Accounting and Finance

### Program Scope and Functional Description

The accounting and finance function directs the overall financial plans and accounting practices of the organization; oversees treasury, accounting, budget, tax, and audit activities; and oversees financial and accounting system controls and standards. NPCC uses a CPA firm to prepare its unaudited statements of activities and financial statements for quarterly reviews. Independent audits have identified this system as a best practice.

### 2017 Goals and Key Deliverables

The objectives are to provide or obtain the financial and accounting services for NPCC and coordinate with NERC requirements:

- Utilize the NERC System of Accounts for consistency
- Utilize an accrual method of accounting for consistency with NERC in methodology
- Alignment of changes in budget and changes in aggregate assessment
- Cash Management
- Budget Development using the NERC budget template formats
- Forecasts and Projections
- Alignment of NPCC Committees, Task Forces and Working Groups with the programs
- Payroll and expense administration
- Preparation of unaudited Quarterly Financial Variance Reports
- IRS Reporting
- Annual Independent Audit initiated by the Regional Entity

### Resource Requirements

#### Personnel

- NPCC anticipates no need to hire additional personnel in this program area in 2017.

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## Regional Entity Assessment Analysis

In the area of assessments there are distinct funding mechanisms as outlined in the following table. For the Regional Entity division, the North American Electric Reliability Corporation (NERC) will assess load serving entities (LSEs) or their designees (within NPCC the designees are the Balancing Authority Areas (BAAs) for New York, New England, New Brunswick, Nova Scotia, Ontario and Québec) based upon 2014 proportional Net Energy for Load (NEL) and other specific program area funding arrangements and make quarterly remittances to the Regional Entity on or about the 15th day of January, April, July and October. For funding associated with the criteria services division, the Independent System Operators/Balancing Authority Areas (ISO/BAAs) will be assessed by NPCC for their proportional share of the divisional budget based upon 2015 NEL within the Region. Non ISO/BAA Full Members will be assessed no membership fee.

### NPCC Cost Allocation Methodology

The accompanying table provides information regarding cost allocation for both the Regional Entity division and the criteria services division of NPCC, including the details associated with the funding of the Compliance Program within the RE division. For purposes of determining assessments to support NPCC's resource requirements, costs are allocated among the BAAs within NPCC as the designees for the load-serving-entities in New York, New England, Ontario, Québec, New Brunswick and Nova Scotia.

In order to reflect and respect the international membership and nature of NPCC, certain reliability assessment costs in response to U.S. only regulatory initiatives and the compliance responsibilities and authorities within the U.S., and the specific compliance responsibilities within each of the Canadian provinces within NPCC, the attendant costs of portions of the compliance program differ among the areas within the Regional Entity. Within the U.S. portion of NPCC all costs attributable to delegated (statutory) functions performed by NPCC, including all compliance functions, are assessed based on a NEL allocation. Within the Canadian portion of NPCC those costs attributable to compliance functions performed by NPCC on behalf of provincial governmental and/or regulatory authorities are allocated consistent with the unique Memoranda of Understanding or Agreements that have been entered into for those provinces. To address these different compliance regimes, NPCC developed a composite cost allocation methodology that allocates U.S. only reliability assessment and compliance costs on a fair and equitable basis within the Regional Entity.

As an initial step of that methodology, the NEL for each of the BAAs and their relative percentage to the NPCC total NEL is calculated for the most recent year for which data is available, the second previous year. In order to establish the RE division funding requirements for each balancing authority area on a NEL basis for all programs except for Compliance the proposed expenses and fixed assets of all other programs are calculated and the adjustment for the RE division cash reserve requirement is identified. Any penalty monies received from NPCC registered entities within the U.S. prior to June 30<sup>th</sup> of the year preceding the business plan and budget year are then allocated among the NPCC program areas based on their FTE ratio and between the U.S. BAAs based on their relative NELs. Consistent with each of the Canadian provincial MOUs and agreements, all penalty monies resulting from compliance actions within Canada, if any, would remain within the applicable province. The total budgeted fees for NPCC workshop participation are indicated as a credit, with the resultant addition being the RE division assessment, without the compliance program costs, calculated on a NEL basis.

In accordance with the *NPCC Amended and Restated Bylaws* the CS division proposed expenses and fixed assets of all programs are calculated and the adjustment for the CS division cash reserve requirement is identified, with the resultant addition being the CS division funding requirement and assessment, calculated on a NEL basis

For costs associated with the RE division compliance program, NPCC's allocation methodology apportions % of the costs for the program, attributed to CORC Fundamentals (CF), between the BAAs in the United States and Canada on a NEL basis.

Audits and Investigations (AI) related costs, representing % of the costs of the compliance program, are allocated between U.S. and Canadian BAAs in NPCC, and among the Canadian provinces, using an audit-based methodology. The audit-based methodology incorporates relative costs based on categories of compliance audits which are reflective of their size and complexity, as well as the differing compliance program implementation models that are utilized in NPCC due to the international nature of the Regional Entity. The portion allocated to the U.S. BAAs in NPCC is calculated using the audit-based methodology, and this amount is then re-allocated between the New York and New England BAAs based on their relative NEL.

The remaining % of the costs of the compliance program represent Mitigation and Enforcement (ME) related costs and are allocated between U.S. and Canadian BAAs in NPCC, and among the Canadian provinces, using an enforcement activity based methodology,. Based on historical data, NPCC reviewed each BAAs percentage of violations, mitigation plans and settlement agreements to determine each BAAs total average percentage of enforcement activities. The portion allocated to the U.S. BAAs in NPCC is calculated using the enforcement activity based methodology, and this amount is then re-allocated between the New York and New England BAAs based on their relative NEL.

Any penalty monies received from NPCC registered entities within the U.S. by June 30th of the year preceding the business plan and budget year are then allocated among the NPCC program areas based on their FTE ratio and between the U.S. BAAs based on their relative NELs, and then added to the total compliance program expenses and fixed assets to yield a total compliance program assessment.

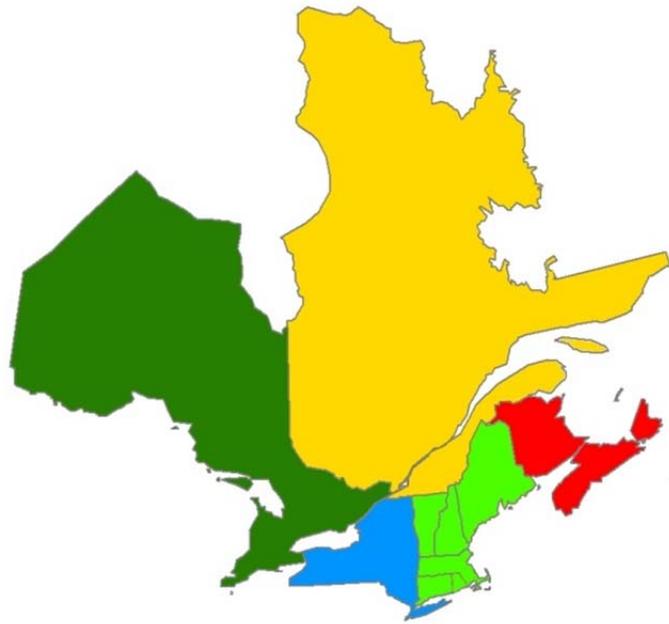
Finally, the total RE division funding requirements and assessments by BAA are tabulated and the total funding requirements and assessments for NPCC, both the RE and CS divisions, are combined.



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## Section B – Supplemental Financial Information 2017 Business Plan and Budget

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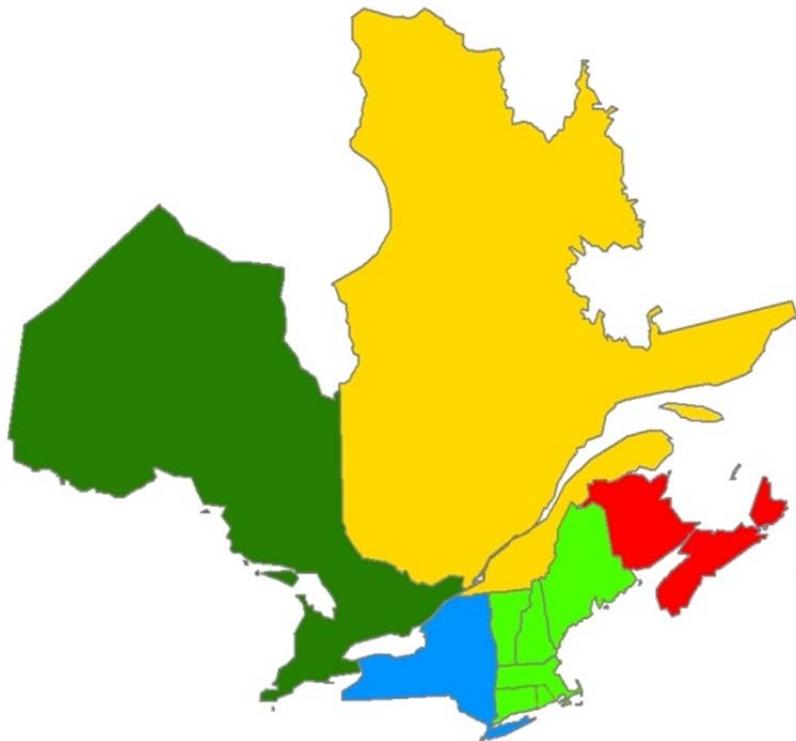




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## Section C – Criteria Services Division Activities 2017 Business Plan and Budget

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## Section C —2017 Criteria Services Division Business Plan and Budget

<b>Criteria Services Division</b>			
(in whole dollars)			
	2016 Budget	2017 Budget	Increase (Decrease)
Total FTEs	2.14	2.14	0.00
Total Direct Expenses	\$738,525	\$623,747	(\$114,778)
Total Indirect Expenses	\$427,047	\$413,149	(\$13,898)
Other Non-Operating Expenses	\$0	\$0	\$0
Working Capital and Operating Reserves Requirement	(\$96,525)	(\$85,665)	\$10,859
Inc(Dec) in Fixed Assets	(\$8,506)	(\$10,000)	(\$1,494)
Funding Requirement	\$1,060,542	\$941,230	(\$119,312)

### NPCC Regionally-Specific Criteria Services Background

NPCC Criteria Services division activities are based on the development, maintenance (including retirement when no longer needed), and promulgation of Regionally-specific more stringent criteria, as well as criteria establishing resource adequacy requirements within the Region. These criteria contain requirements which are more stringent, more specific or augment the existing NERC Reliability Standards requirements. These criteria require continual evaluation to ensure they are “not inconsistent with” any NERC reliability standards as the standards are approved by FERC and the applicable provincial governmental authorities, as per the NERC Rules of Procedure.

### Membership and Governance

Full members are subject to compliance with Regionally-specific criteria, in addition to continent-wide Reliability Standards, and receive criteria-related services from the Criteria Services division.

Full Members, aside from those who perform the Balancing Authority function, are not assessed an annual membership fee. Those that perform Balancing Authority functions are assessed and remit a proportional net energy for load share of expenses for criteria services. NPCC would also directly assign criteria service division costs to a Balancing Authority Area or entity, where significant costs are incurred for that Balancing Authority Area. The funding for NPCC’s Criteria Services division is approved by the NPCC Board of Directors.

### Criteria Services Division Functional Scope

Through its Criteria Services division, NPCC promotes the reliable and efficient operation of the international, interconnected bulk power systems in Northeastern North America through the establishment of Regionally-specific criteria, and monitoring and enforcement of compliance with such criteria.

NPCC provides Full Members with Regional reliability assurance services, and acts as the vehicle through which States and Provinces can fulfill their political mandates, with respect to resource adequacy, as well as overseeing the Northeastern North American electric infrastructure.

## Major 2017 Assumptions and Cost Impacts

The Criteria Services division services are expected to remain stable throughout 2017

- The Criteria Compliance Enforcement Program (CCEP) review and evaluation process is the mechanism for monitoring key criteria attributes as determined by the respective NPCC Task Forces and the CC. in 2012.
- Past non-compliances, if any, followed the due process stated in the CCEP-1 process document and proper resolution/enforcement action taken.

## 2017 Primary Goals and Objectives

- Continue with the development and maintenance of a set of NPCC Directories which are “not inconsistent with” the NERC Reliability Standards and which clearly delineate the more stringent NPCC criteria requirements
  - The combination of North American and more-stringent NPCC Regional criteria provide for consistency and operational clarity while providing more robust defense in–depth, results based, criteria requirements to ensure BPSBPS reliability
  - Continually review the criteria found in the NPCC Directories and the ERO standards to ensure no redundancies or inconsistencies exist.
  - Retire Directories and/or Criteria which have been overtaken by improved NERC standards
  - Continually file revised and updated more stringent requirements with the New York State Department of Public Service and Canadian Provinces as applicable
- Review, maintain, and revise the NPCC Regional Reliability Directories to facilitate compliance assessments and ensure the Criteria portions of the Directories are “not inconsistent” with, nor duplicative with, the approved and effective NERC Standards.
- The criteria services division and CCEP Working Group (reporting to the Compliance Committee) will work with the various Task Forces to develop Criteria Compliance Reporting Forms for any additional NPCC Directories to ensure that the more stringent or Regionally-specific criteria is being met.
- The criteria services division and CCEP working group will work with TFCO, TFCEP, TFSS, and TFSP to review criteria and measures within each specific NPCC Directory to identify and develop them into specific reporting forms for approval.
- Continually review impact of Bulk Electric System definition on Directory and Criteria content and compliance reporting.
- Continually review potential impacts of Sector or NPCC organizational changes on the Directories and Criteria by performing a review of enforcement and arbitration processes as needed
- Assist Legal with preparation of revised Directories for Regulatory filings with the individual Provinces in accordance with their respective Memorandum of Understandings (MOUs) as well as the State of New York Public Service Commission

- Facilitate any requested clarifications for NPCC Criteria with the necessary subject matter experts and also identify any other potential opportunities for clarifications of the Criteria.
- Conduct review of the following Documents;
  - Directory#2 –*Emergency Operations* –the TFCO will review criteria in accordance with the NPCC Reliability Assurance Program (NRAP).
  - Directory#5- *Reserve* –the TFCO will review the criteria in consideration of recent revisions to the NERC BAL standards.
  - Directory 7 – NPCC Special Protection Systems – Serve as lead Task Force working in conjunction with TFCP and TFSS on revisions required to ensure consistency with the development of the new NERC standard on Remedial Action Schemes.
  - A-10 - *Classification of Bulk Power System Elements*-the TFCP will coordinate a periodic review of the methodology in accordance with the NPCC Reliability Assurance Program (NRAP).
  - Review and respond to Requests for Clarifications to existing NPCC Standards, Directories, and Criteria

### **NPCC Reliability Directory Maintenance and Development**

The NPCC Regional Reliability Directories were developed to demonstrate that the NPCC more stringent criteria are “not inconsistent with” the NERC Reliability Standards as mandated by the NERC Rules of Procedure. The conversion of NPCC’s criteria into Directories was undertaken to remove any redundancies with the NERC or NPCC Regional Reliability Standards and to clearly delineate the more stringent NPCC criteria requirements, assign Functional Model designations to those responsible for compliance and create measurable compliance criteria. Subsequent to the initial establishment of the Directories, which also organized functionally related B Guidelines and C Procedures into a single Directory, the Directories were further reviewed to translate existing criteria language into a “requirement type” format. The development of the criteria into NERC style requirements facilitates the NPCC Region’s CCEP and also ensures the delineation of the more stringent and more specific Regional criteria from the latest approved and effective set of NERC ERO standards.

In 2017, work will continue with the maintenance, revision, or potential retirement of individual Directories to address any actual or anticipated redundancies with new or modified NERC or NPCC Reliability Standards. 2016The ongoing review and maintenance of the Directories will require Task Force and Criteria Services staff to support this effort and to serve as subject matter experts. In addition to the ongoing review of the criteria within the Directories for potential duplicity with the NERC standards, any Directories that have not had the criteria translated into NERC style requirements will also be reviewed in order to achieve criteria ‘requirements’ which are clear, concise and measurable. Also, a standards style template will be applied to the existing Directories to make them more consistent with the look of the standards. As NERC standards improve the need for NPCC Directories and the amount of criteria contained therein will decrease over time, however in the interim, significant review is necessary to ensure the criteria remain “not inconsistent with” the NERC standards as outlined in the NERC Rules of Procedure. NPCC will conduct internal reviews of all draft standards against Regional criteria and utilize subject matter experts to identify reliability and compliance related concerns. NPCC will file the revised NPCC Directories and notifications of retirements of Directories with the Canadian

governmental and/or provincial Regulatory authorities within the NPCC “footprint”, on an as needed basis, in accordance with established provincial procedures and agreements executed with NPCC.

The following Directories will either be under revision or reviewed for further development based on a schedule set forth in the NPCC Reliability Assessment Program:

### **NPCC Operations and Planning Directories**

The following Directories are envisioned to remain active for 2017.

#### *Directory #1, Design and Operation of the Bulk Power System.*

This Directory documents NPCC’s Regionally-specific, more stringent criteria, and demonstrates coordination and consistency with all the existing NERC TPL, BAL, IRO, INT, MOD, TOP, PRC and VAR standards. The NPCC TFCP and TFCO completed a review of the Directory#1 criteria in 2015, during which the criteria was translated into NERC style requirements and revisions were enacted to ensure consistency with recent changes to the TPL and TOP standards.

#### *Directory #2, Emergency Operations*

This Directory documents NPCC’s Regionally-specific, more stringent criteria, and demonstrates coordination and consistency with all the existing NERC EOP and TOP standards. The NPCC Task Force on Coordination of Operation will lead this review and revision.

#### *Directory # 4, System Protection Criteria*

This Directory documents NPCC’s Regionally-specific, more stringent criteria, and demonstrates coordination and consistency with certain applicable NERC PRC standards. The NPCC Task Force on System Protection will lead this review and revision.

#### *Directory # 5, Reserve*

This Directory documents NPCC’s Regionally-specific, more stringent criteria, and demonstrates coordination and consistency with all the existing applicable NERC BAL, INT, and IRO standards. The NPCC Task Force on Coordination of Operation will lead this review and revision and ensure consistency with the BAL standards.

#### *Directory # 7, Special Protection Systems*

This Directory documents NPCC’s Regionally-specific, more stringent criteria for application and approval of SPS. The NPCC Task Force on System Protection will lead this review and revision and ensure consistency with the Remedial Action Scheme PRC-012 standard.

#### *Directory # 8 System Restoration*

This Directory documents NPCC’s Regionally-specific, more stringent criteria with which each applicable entity must plan for and perform power system restoration following a major or a total blackout, and demonstrates coordination and consistency with applicable NERC EOP standards. The NPCC Task Force on Coordination of Operation will lead this review and revision.

Directory # 11, *Disturbance Monitoring Equipment*,

This directory documents NPCC’s Regionally-specific, more stringent criteria, and demonstrates coordination and consistency with certain existing NERC PRC standards. The NPCC Task Force on System Protection anticipates the development and approval of Directory#11 in order to facilitate the retirement of PRC -002-NPCC-1 and will lead this review and revision.

Directory # 12, *Automatic UFLS Program Requirements*,

This Directory documents NPCC’s Regionally-specific, more stringent criteria, and demonstrates coordination and consistency with certain existing NERC and NPCC PRC standard(s). The NPCC Task Force on System Studies will lead this review and revision until such time as the NPCC PRC-006-01 UFLS Regional Standard is approved by the NPCC membership, NERC BOT, the FERC and all the applicable governmental authorities in the Provinces of Canada within NPCC’s footprint.

### **NPCC Criteria Compliance Background**

The NPCC criteria services division assures the reliable operation of the bulk power system through implementation of a comprehensive compliance program. This program which includes monitoring, assessing and enforcing compliance with the more stringent, Regionally specific NPCC Criteria requirements, is known as the NPCC Criteria Compliance and Enforcement Program (CCEP) described in process document CCEP-1. This program was developed by the criteria services division and the CCEP Working Group under the purview of the NPCC Compliance Committee. The results of this program support the various Task Forces in their assessments of the NPCC criteria in meeting their goals for the Reliability Coordinating Committee as stated in Section A of this Business Plan.

The more stringent, Regionally-specific NPCC Criteria requirements reflect the unique operational and planning aspects of the bulk power system within the NPCC Region and are included in the NPCC “A” documents and their successors, the NPCC Directories.

NPCC issues non-monetary sanctions to enforce compliance with NPCC Criteria.

- The CCEP program is described in document CCEP-1, *NPCC Criteria Compliance and Enforcement Program (CCEP) Process Document*
- The implementation plan is described in document CCEP-2, *Implementation Plan for 2011 NPCC Criteria Compliance and Enforcement Program*
- On April 5, 2011, the above became effective upon Full Member approval of CCEP-1, and CCEP-2 and retired the following
  - NPCC Criteria A-8, Reliability Compliance and Enforcement Program (RCEP)
  - NPCC Guide B-22, Guidelines for Implementation of the NPCC Inc. Compliance Program
  - NPCC Procedure C-32, Review Process for NPCC Reliability Compliance Enforcement Program
  - Each of the above have been annotated as “retired effective 4/5/11 upon Full Member approval of CCEP-1... and CCEP-2...” on the NPCC public website

- The CCEP-1 document recognizes the applicability of NPCC’s Regionally-specific, more stringent reliability criteria to the Full Members of NPCC, consistent with the *Amended and Restated ByLaws*, and respects the provisions of the several Canadian Memoranda of Understanding in the execution of the processes described
- Provides a comprehensive CCEP Process Diagram showing the process of evaluating and approving Criteria Certification submittals, and additional processes and responsibilities in the event that non-compliances, disputes and sanctions arise
- Describes the roles and responsibilities of Reporting Members, the CC, the RCC and the Enforcement Panel in the compliance review and enforcement process
- Describes Levels of Non-Compliance, associated non-monetary Sanctions, Lateness Policy and the Arbitration/Dispute Resolution process
- Addresses Mitigation Plans for any violations under the enforcement process; and
- Lists the mandatory Certification Forms to be submitted for review by the Task Forces to ensure compliance with NPCC Directories are being met

The CCEP currently requires annual submittal of Certification Forms by the Reliability Coordinators and Balancing Authorities to confirm compliance with various NPCC Directories. Currently the required Certification forms are for Directory #1- *Area Transmission Review*, Directory #8 - *Key Facility List*, Directory #9 – *Generator Real Power Verification*, Directory #10 - *Verification of Generator Gross and Net Reactive Power Capability*, and Directory #12 - *UFLS Program Requirements*. In 2016 NPCC will consider an expansion of the CCEP to include compliance assessment activities to other active Directories.

The CCEP identifies those specific NPCC Directories that are subject to monitoring, assessment and enforcement.

The NPCC Compliance Committee (CC) has final approval of compliance assessments related to CCEP. The CCEP describes the roles and responsibilities of committees and panels used to resolve contested compliance and/or sanction or penalty determinations related to NPCC Directories.

## **Explanation of Significant Variances – 2017 Budget versus 2016 Budget**

### **Resource Requirements**

#### **Personnel**

- NPCC anticipates no need to hire additional personnel in this program area in 2017.

## 2016 Budget and Projection and 2017 Budget Comparisons

<b>Statement of Activities and Capital Expenditures</b>						
<b>2016 Budget &amp; Projection, and 2017 Budget</b>						
<b>CRITERIA SERVICES DIVISION</b>						
	2016 Budget	2016 Projection	Variance 2016 Projection v 2016 Budget Over(Under)	2017 Budget	Variance 2017 Budget v 2016 Budget Over(Under)	
<b>Funding</b>						
<b>ERO Funding</b>						
ERO Assessments	\$ -	\$ -	\$ -	\$ -	\$ -	
Penalty Sanctions	-	-	-	-	-	
<b>Total ERO Funding</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	
Membership Dues	1,060,542	1,060,542	-	941,230	(119,312)	
Testing Fees	-	-	-	-	-	
Services & Software	-	-	-	-	-	
Workshops	-	-	-	-	-	
Interest	-	-	-	-	-	
Miscellaneous	-	-	-	-	-	
<b>Total Funding (A)</b>	<b>\$ 1,060,542</b>	<b>\$ 1,060,542</b>	<b>\$ -</b>	<b>\$ 941,230</b>	<b>\$ (119,312)</b>	
<b>Expenses</b>						
<b>Personnel Expenses</b>						
Salaries	\$ 393,882	\$ 393,882	\$ -	\$ 401,142	\$ 7,260	
Payroll Taxes	23,275	23,275	-	23,301	26	
Benefits	88,412	88,412	-	69,100	(19,313)	
Retirement Costs	144,950	144,950	-	42,605	(102,345)	
<b>Total Personnel Expenses</b>	<b>\$ 650,519</b>	<b>\$ 650,519</b>	<b>\$ -</b>	<b>\$ 536,147</b>	<b>\$ (114,372)</b>	
<b>Meeting Expenses</b>						
Meetings	\$ 6,500	\$ 6,500	\$ -	\$ 5,000	\$ (1,500)	
Travel	46,000	46,000	-	51,600	5,600	
Conference Calls	-	-	-	-	-	
<b>Total Meeting Expenses</b>	<b>\$ 52,500</b>	<b>\$ 52,500</b>	<b>\$ -</b>	<b>\$ 56,600</b>	<b>\$ 4,100</b>	
<b>Operating Expenses</b>						
Consultants & Contracts	\$ 25,000	\$ 25,000	\$ -	\$ 18,000	\$ (7,000)	
Office Rent	-	-	-	-	-	
Office Costs	-	-	-	-	-	
Professional Services	-	-	-	-	-	
Computer & Equipment Leases	-	-	-	-	-	
Miscellaneous	2,000	2,000	-	3,000	1,000	
Depreciation	8,506	8,506	-	10,000	1,494	
<b>Total Operating Expenses</b>	<b>\$ 35,506</b>	<b>\$ 35,506</b>	<b>\$ -</b>	<b>\$ 31,000</b>	<b>\$ (4,506)</b>	
<b>Total Direct Expenses</b>	<b>\$ 738,525</b>	<b>\$ 738,525</b>	<b>\$ -</b>	<b>\$ 623,747</b>	<b>\$ (114,778)</b>	
<b>Indirect Expenses</b>	<b>\$ 427,047</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 413,149</b>	<b>\$ (13,898)</b>	
<b>Other Non-Operating Expenses</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	
<b>Total Expenses (B)</b>	<b>\$ 1,165,572</b>	<b>\$ 1,165,572</b>	<b>\$ -</b>	<b>\$ 1,036,896</b>	<b>\$ (128,677)</b>	
<b>Change in Assets</b>	<b>\$ (105,031)</b>	<b>\$ (105,031)</b>	<b>\$ -</b>	<b>\$ (95,665)</b>	<b>\$ 9,365</b>	
<b>Fixed Assets</b>						
Depreciation	\$ (8,506)	(8,506)	\$ -	\$ (10,000)	\$ (1,494)	
Computer & Software CapEx	-	-	-	-	-	
Furniture & Fixtures CapEx	-	-	-	-	-	
Equipment CapEx	-	-	-	-	-	
Leasehold Improvements	-	-	-	-	-	
Allocation of Fixed Assets	-	-	-	-	-	
<b>Inc(Dec) in Fixed Assets (C)</b>	<b>(8,506)</b>	<b>(8,506)</b>	<b>-</b>	<b>(10,000)</b>	<b>(1,494)</b>	
<b>TOTAL BUDGET (=B+C)</b>	<b>1,157,066</b>	<b>1,157,066</b>	<b>-</b>	<b>1,026,896</b>	<b>(130,171)</b>	
<b>TOTAL CHANGE IN WORKING CAPITAL (=A-B-C)</b>	<b>\$ (96,525)</b>	<b>\$ (96,525)</b>	<b>\$ -</b>	<b>\$ (85,665)</b>	<b>\$ 10,859</b>	

## Personnel Analysis

Total FTE's by Program Area	Budget 2016	Projection 2016	Direct FTEs 2017 Budget	Shared FTEs <sup>1</sup> 2017 Budget	Total FTEs 2017 Budget	Change from 2016 Budget
<b>CRITERIA SERVICES DIVISION</b>						
<b>Operational Programs</b>						
Reliability Standards	1.07	1.07	1.00	0.07	1.07	0.00
Compliance Enforcement and Organization Registration and Certification	0.00	0.00	0.00	0.00	0.00	0.00
Training and Education	0.00	0.00	0.00	0.00	0.00	0.00
Reliability Assessment and Performance Analysis	1.07	1.07	1.00	0.07	1.07	0.00
Situation Awareness and Infrastructure Security	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total FTEs Operational Programs</b>	<b>2.14</b>	<b>2.14</b>	<b>2.00</b>	<b>0.14</b>	<b>2.14</b>	<b>0.00</b>
<b>Administrative Programs</b>						
Member Forums	0.00	0.00	0.00	0.00	0.00	0.00
General and Administrative	0.00	0.00	0.00	0.00	0.00	0.00
Information Technology	0.00	0.00	0.00	0.00	0.00	0.00
Legal and Regulatory	0.00	0.00	0.00	0.00	0.00	0.00
Human Resources	0.00	0.00	0.00	0.00	0.00	0.00
Accounting and Finance	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total FTEs Administrative Programs</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Total FTEs</b>	<b>2.14</b>	<b>2.14</b>	<b>2.00</b>	<b>0.14</b>	<b>2.14</b>	<b>0.00</b>

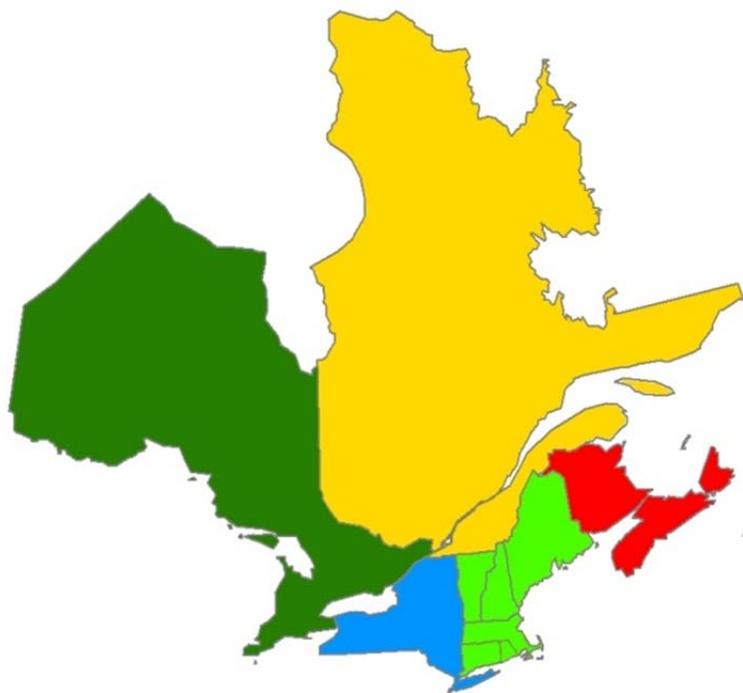
<sup>1</sup>A shared FTE is defined as an employee who performs both Regional Entity and Criteria Services division functions.



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Section D – Additional Consolidated Financial  
Statements  
2017 Business Plan and Budget

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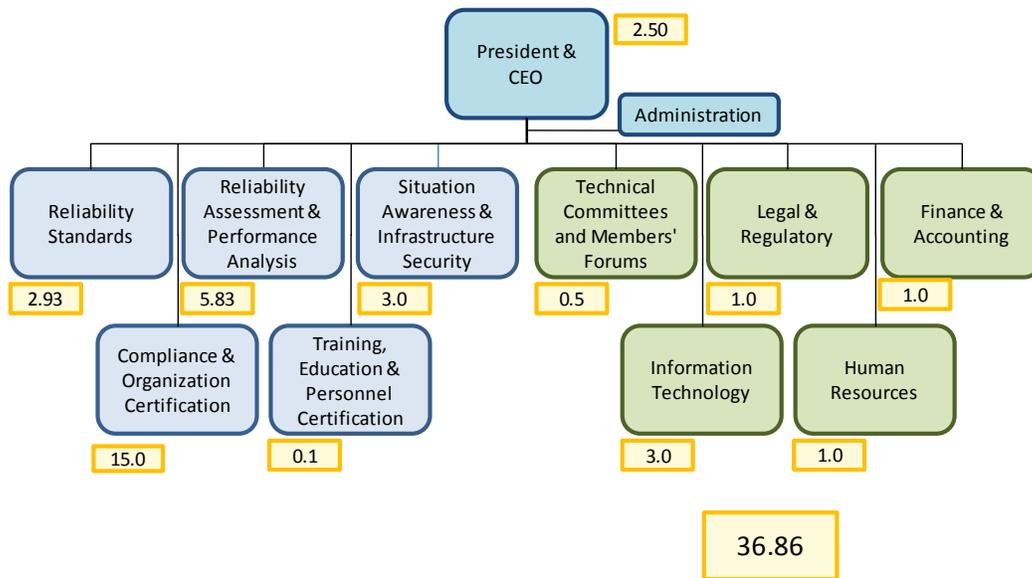




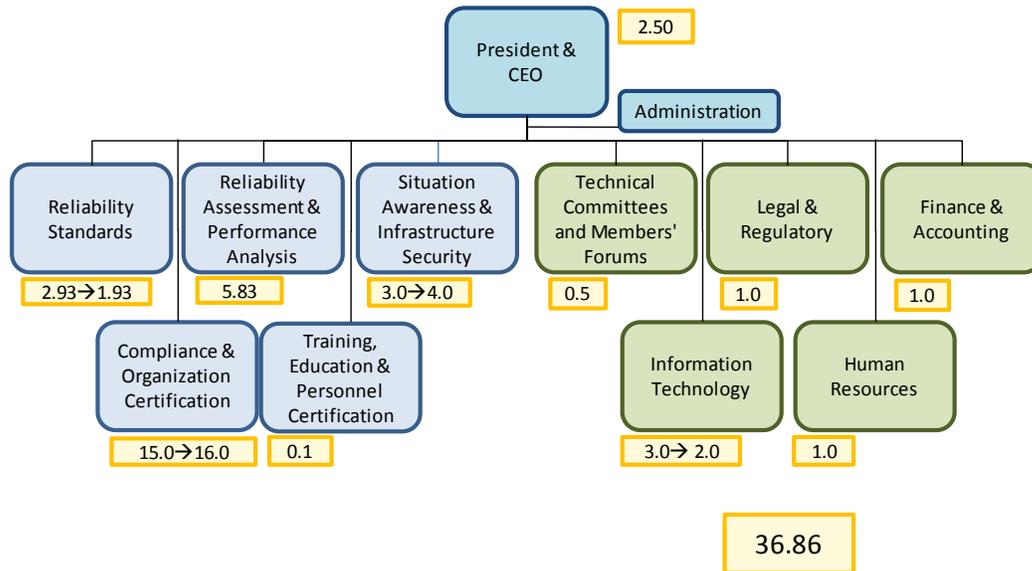


## Appendix A Staff Allocations

2016 Budget Staff Allocations - RE Division

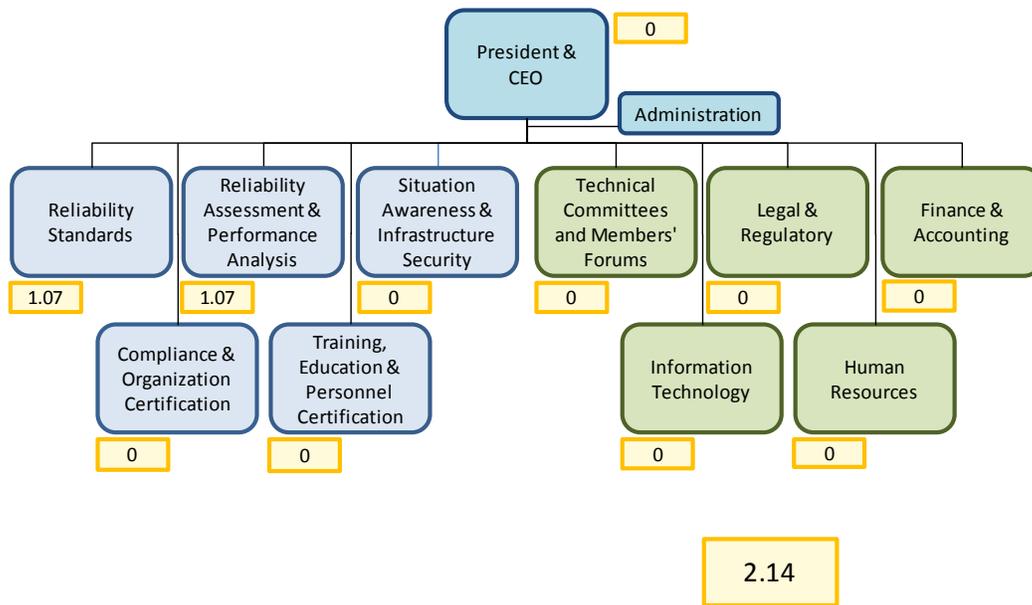


2017 Budget Staff Allocations - RE Division

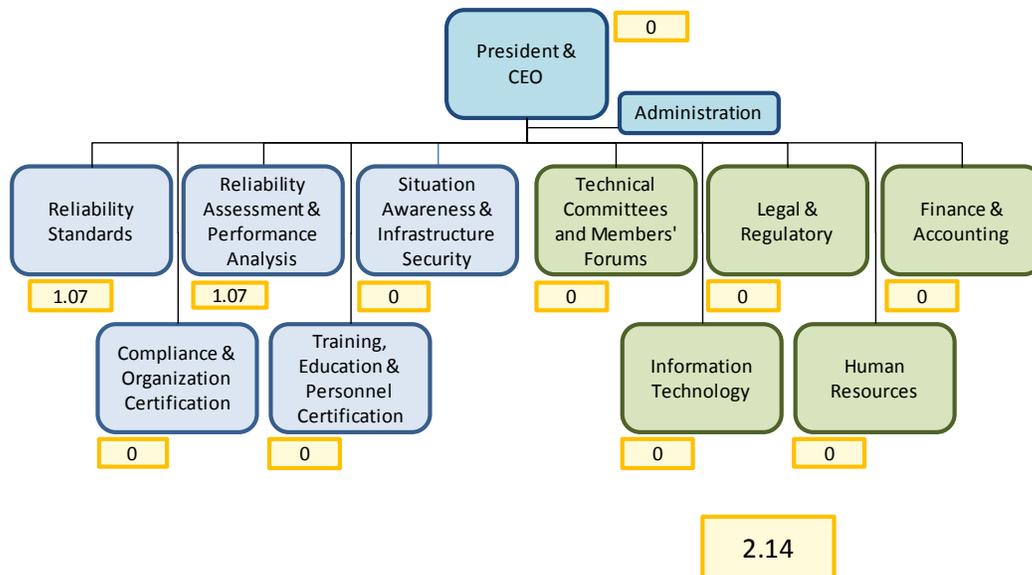


Section D — Additional Financial Statements

2016 Budget Staff Allocations - CS Division



2017 Budget Staff Allocations - CS Division



## Appendix B Acronyms

This section lists acronyms used in this document.

Acronym	Definition
AI	Audits and Investigations
BAA	Balancing Authority Area
BEPWG	BES Exception Process Working Group
BES	Bulk Electric System
BOT	Board of Trustees
BPS	Bulk Power System
CC	Compliance Committee
CCEP	Criteria Compliance Enforcement Program
CDAA	CMEP Data Administration Application
CEAP	Cost Effective Analysis Process
CEH	Continuing Education Hour
CGNC	Corporate Governance and Nominating Committee
CIPC	Critical Infrastructure Protection Committee
CIPIS	Critical Information Protection Information Sharing
CMEP	Compliance Monitoring and Enforcement Program
CORC	Compliance Monitoring and Enforcement and Organization Registration and Certification Program
CUG	Consortium Users Group
DADS	Demand Availability Data System
DADSWG	Demand Response Availability Data System Working Group
ERA	Entity Reliability Assessment
ERAG	Eastern Interconnection Reliability Assessment Group
ERO	Electric Reliability Organization
EUB	Electric Utility Board
EUB	Energy and Utilities Board
FAC	Finance and Audit Committee
FERC	Federal Energy Regulatory Commission
FFT	Find, Fix, Track
GADS	Generator Availability Data System
GADSWG	Generating Availability Data System Working Group
GMD	Geomagnetic Disturbance
HQCMÉ	Hydro-Québec Contrôle des mouvements d'énergie
HSIN	Homeland Security Information Network
ICE	Internal Controls Evaluation
IED	Intelligent Electronic Device
IERP	Independent Experts Review Panel Report
IESO	Independent Electricity System Operator
ISO	Independent System Operator
ITSG	IT Steering Group
LCEFT	Load, Capacity, Energy, Fuels, and Transmission
LMS	Learning Management System
LMWG	Load Modeling Working Group
LSE	Load Serving Entity
MACD	Market Assessment and Compliance Division of the IESO
MDCC	Management Development and Compensation Committee
ME	Mitigation and Enforcement
MMWG	Multi-Regional Modeling Working Group
MOU	Memorandum of Understanding
MPLS	Multiprotocol Label Switching
MVWG	Model Validation Working Group
NAESB	North American Electric Standards Review Board

## Section D — Additional Financial Statements

Acronym	Definition
NEL	Net Energy for Load
NERC	North American Electric Reliability Corporation
NOAV	Notice of Alleged Violation
NOCV	Notice of Confirmed Violation
NOPR	Notice of Proposed Rulemaking
NOPV	Notice of Possible Violation
NPCC	Northeast Power Coordinating Council, Inc.
NRAP	NPCC Reliability Assessment program
NSPI	Nova Scotia Power Incorporated
NSUARB	Nova Scotia Utility and Review Board
OEB	Ontario Energy Board
PAS	Performance Analysis Subcommittee
PC	Pension Committee
PMOS	Project Management Oversight Subcommittee
PSMTF	Protection System Mis-operations Task Force
PSTN	Public Switched Telephone Network
QCMEP	Québec Reliability Standards Compliance Monitoring and Enforcement Program
RADS	Reliability Assessment Data System
RADWG	Reliability Assessment Data Working Group
RAS	Reliability Assessment Subcommittee
RC	Reliability Coordinator
RCC	Reliability Coordinating Committee
RISC	Reliability Issues Steering Committee
RSAW	Reliability Standards Audit Worksheet
RSC	Regional Standards Committee
RTO	Regional Transmission Organization
SAFNR	Situational Awareness-FERC, NERC, Regions
SAMS	System Analysis and Modeling Subcommittee
SAR	Standards Authorization Request
SAT	Systematic Approach to Training
SBS	Standards Balloting System
SCPS	Standards Committee Process Subcommittee
SDT	Standards Drafting Team
SEDS	Spare Equipment Database System
SEDTF	Spare Equipment Database Task Force
SPS	Special Protection Systems
TADS	Transmission Availability Data System
TADSWG	Transmission Availability Data System Working Group
TFCO	Task Force on Coordination of Operation
TFCP	Task Force on Coordination of Planning
TFE	Technical Feasibility Exception
TFIST	Task Force on Infrastructure Security and Technology
TFSP	Task Force on System Protection
TFSS	Task Force on System Studies
TLR	Transmission Loading Relief
TOP	Transmission Operator
UFLS	Underfrequency Load Shedding
UVLS	Under-Voltage Load Shedding
VRF	Violation Risk Factor
VSL	Violation Security Level

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