**NATIONAL ELECTRIFICATION ADMINISTRATION**
"The 1st Performance Governance System-Institutionalized National Government Agency"
57 NIA Road, Government Center, Diliman, Quezon City 1100

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Management System ISO 9001:2015
www.tuv.com ID 9105082030

June 6, 2017

**MEMORANDUM NO. 2017-016**

TO : **ALL ELECTRIC COOPERATIVES**

SUBJECT : **IMPLEMENTING RULES AND REGULATIONS (IRR) ON EC'S VULNERABILITY AND RISK ASSESSMENT (VRA) AND EMERGENCY RESTORATION PLANNING (ERP)**

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Pursuant to NEA's policy on EC's Vulnerability and Risk Assessment and Emergency Restoration Planning issued to Electric Cooperatives (ECs) on June 15, 2016 its Implementing Rules and Regulations was approved by the NEA Board of Administrators on April 18, 2017 and took effect after fifteen (15) days from its publications and filling at University of the Philippines' Law Center on June 06, 2017.

With the IRR approval, the Electric Cooperatives (ECs) can now carefully assess the vulnerability and risk of their facilities versus different calamities, whether natural or man-made. The mitigation plan as a result of the assessment will be implemented in phases. It will be part of the ECs' approved workplan as their CAPEX projects to be applied to ERC.

To ensure the success of the Disaster Resiliency Program of NEA and ECs, a seminar-workshops will be conducted for the ECs' guidance in the preparation of their facilities' vulnerability and risk assessment and its corresponding mitigations. This also includes the establishment of the EC's emergency and restoration plan, among others. ECs will be notified of the seminar-workshops' schedules accordingly.

All ECs are therefore enjoined to fully adhere to the Policy on Vulnerability and Risk Assessment (VRA) and Emergency Restoration Planning (ERP) and its Implementing Rules and Regulations, which will serve as an instrument in carrying-out the strategic mission of NEA for resilient electric cooperatives.

**EDGARDO R. MASONGSONG**
Administrator

NATIONAL ELECTRIFICATION ADMINISTRATION
Office of the Administrator
NEA-OA24 1110
06/21/17

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June 6, 2017

**THE DIRECTOR**
Office of the National Administrative Register
University of the Philippines Law Center
U.P. Law Center, Diliman
Quezon City

Sir:

Pursuant to Book VII, Chapter 2, Section 3 of the 1987 Administrative Code of the Philippines, we are respectfully submitting to the U.P. Law Center, for filing, publication and recording the attached certified true copies of the **IMPLEMENTING RULES AND REGULATIONS ON VULNERABILITY RISK ASSESSMENT (VRA) AND EMERGENCY RESTORATION PLANNING** promulgated by the National Electrification Administration (NEA) in accordance with its authority under Section 5 of P.D. No. 269 as amended.

Thank you very much for the usual and kind assistance of the U.P. Law Center.

Very truly yours,

**NOLLIE B. ALAMILLO**
Acting Corporate Board Secretary

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**IMPLEMENTING RULES AND REGULATIONS (IRR) OF VULNERABILITY RISKASSESSMENT AND EMERGENCY RESTORATION PLANNING**


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**IMPLEMENTING RULES AND REGULATIONS (IRR)**
**Vulnerability Risk Assessment and Emergency Restoration Planning**

WHEREAS, the frequent occurrence of natural calamities, brought by force majeure events that tend to increase in intensity, adversely affect the pursuit of total electrification in the countryside through the Electric Cooperatives (ECs). Man-made calamities and disasters due to fortuitous events likewise result in the destruction of EC distribution system and facilities;

WHEREAS, it is important for the ECs to adopt a more proactive risk assessment process and to engage in more formal emergency management planning in an effort to protect, provide backup, and facilitate rehabilitation of damaged facilities and enhance restoration of electric service after the occurrence of force majeure and/or fortuitous events;

WHEREAS, pursuant to the National Electrification Administration (NEA) Memorandum No. 2016-007, otherwise known as the "Policy on EC's Vulnerability and Risk Assessment (VRA) and Emergency Restoration Planning (ERP),"NEAhereby issues, adopts and promulgatesthe following IRR for the effective and efficient implementation of this policy.

## RULE I
## GENERAL PROVISIONS

**Section 1. TITLE.**

These Rules and Regulations shall be referred to asthe "Implementing Rules and Regulations" (IRR) of "Policy on EC's Vulnerability and Risk Assessment (VRA) and Emergency Restoration Planning (ERP)".

**Section 2. SCOPE.**

This IRR shall provide for the guidelines in the implementation of this policy to all Electric Cooperatives (ECs).

**Section 3. DEFINITION OF TERMS.**

As used in these Rules, the following terms shall have the following respective meanings:

(1) Force majeure - an event that is a result of elements of nature that cannot be reasonably anticipated or controlled, such as typhoon, storm, tropical depression, flood, forest fire, drought, volcanic eruption, earthquake, tidal wave, storm surge, sinkholes or landslide, or other catastrophes;

(2) Fortuitous event - shall refer to an act of war, sabotage, blockage, terrorism, revolution, riot, insurrection, civil commotion or any violent or threatening action;

(3) Critical assets -shall include facilities, business systems, equipment, manpower, logistics and all other related EC resources that if damaged, destroyed, or otherwise made unavailable would cause significant loss of life, risk to public

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health, social unrest and/or inability to deliver efficient, reliable and sustainable supply of power affecting the viability of the ECs;

(4) Identified threats - are those natural or man-made occurrences which have high probability of damaging or destroying EC assets or causing serious injury or loss of life; and

(5) Vulnerability assessment - is the process of identifying, quantifying, and prioritizing (or ranking) the level of exposure associated with critical assets of an EC in relation to identified threats.

## RULE II
## POLICY ON VRA AND ERP

In line with the "Policy on ECs' Resiliency Program", the EC shall prepare and adopt:

(1) A VRA which identifies the EC's critical assets, determines the probable vulnerability of such critical assets in relation to natural and/or man-made calamities, and defines proactive measures for the protection, backup or replacement of those critical assets which have high probability of damage or destruction due to natural and/or man-made disasters or calamities; and

(2) An ERP which provides details of activities to efficiently restore the EC's system in the event of an isolated or system wide outage resulting from a major disaster or calamity. It defines the chain of command and delegation of authority and responsibility of EC officers and employees before, during, and after the occurrence of a disaster or calamity

**Section 4. OBJECTIVES**

(1) To establish a process for the conduct of VRA and development of ERP;

(2) To mitigate calamity-related damage to the EC distribution system and facilities, and to facilitate rehabilitation/restoration of identified critical assets;

(3) To ensure the EC viability through business continuity planning after the occurrence of calamities or disasters;

(4) To determine the estimated cost of replacement of critical assets; and

(5) To identify possible source of funding for VRA and ERP activities

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## RULE III
## MECHANICS FOR IMPLEMENTATION

### Section 5. VULNERABILITY AND RISK ASSESSMENT (VRA)

The VRA is recognized as an effective decision support tool for determining and prioritizing sites and functions within the areas covered by the ECs and developing a responsive ERP. While it is notfinancially feasible to reduce risk to all potential physical and cyber targets of anelectric system, vulnerability and risk assessments can help ensure that theavailable resources and actions taken are justified and implemented. The VRA will be organized into several sections:

(1) Identifying and quantifying critical assets through the estimated number of affected consumers,loss of revenue, cost of replacing the assets and potential loss of life associated with the loss of the critical asset;

(2) Analysis (or rating) of the various identified threats that may occur based on the Relative Risk Factors (Probability of Threat, Speed of Onset, Forewarning and Duration);

(3) Evaluating critical assets identified as most important in relation to the Relative Risk Factors associated with the top rated (major) identified threats and in terms of the level of concern or vulnerability; and

(4) Mitigating or action plans to protect, replace, or provide redundancy (N-1) for the critical assets, the costs of which should be included in the EC's Capital Expenditure Plan (CAPEX)

An annual review of its VRA shall be undertaken by the EC, or when major system changes are made or a new threat to the electric system has been evaluated or discovered.

### Section 6. EMERGENCY RESTORATION PLANNING (ERP)

The EC shall develop the ERP based on the results of the VRA. The ERP offers the EC the opportunity to prepare a written plan detailing the most efficient means to organize and utilize its resources to restore its system in the event of either an isolated or system wide outage resulting from a major natural disaster or other causes. It is a practical and functional tool which the EC can use to organize and dispatch its initial recovery efforts to restore its system while efficiently utilizing its resources.It should bethe foundation under which a utility, under possible adverse and confusing conditions, can begin to restore its system including both the physical (pole, wires, transformers, etc.,) and cyber (telecommunications, GIS and SCADA) components and efficiently utilize its resources.

The following shall be included in the ERP:

(1) List of key contact emergency telephone/cellphone numbers(emergency agencies, accredited financial institutions, local government units, contractors and equipment suppliers, other electric cooperatives, Task Force Kapatid Chairman, andany additional contacts that they deem suitable for their ERP);

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(2) List of key EC officers and personnel with identified chain of command and delegation of authority and responsibility before, during, and after the occurrence of a disaster or calamity;

(3) Procedures for recovery from loss of power to the headquarters, key offices and/or operation center facilities;

(4) A business continuity section describing a plan to maintain or re-establish business operations including information technology and communications following an event which disrupts business systems; and

(5) Other items identified by the EC as essential for inclusion in the plan;

The EC may conduct periodic simulation of its ERP to ensure familiarity and applicability.

**Section 7. SUBMISSION OF VRA AND ERP (new section)**

The EC shall submit to NEA hard and electronic copies of the VRA and ERP supported by a Board Resolution on or before May of every year and thereafter its amendments. These should have been inputted in the e-ICPM (enhanced Integrated Computerized Planning Model)/ Annual Workplan for affected years of implementation.

The VRA and ERP shall be incorporated in the Cash Operating Budget (COB) and to be submitted on or before September 30 preceding the budget year.

## RULE IV
## VULNERABILITY AND RISK ASSESSMENT (VRA) TEMPLATE

This template is designed to provide a framework for the identification of the EC's critical assets and an assessment of the risk and vulnerability of those assets with regards to natural calamities brought by force majeure events, or from man-made calamities and disasters. The VRA is composed of four (4) sections:

(1) Identification of critical assets and the costs or the effects associated with the loss of those assets;

(2) Identification of the potential threats to the critical assets;

(3) Evaluationand prioritization of the critical assets and potential identified threats taking into account the level of concern regarding those threats; and

(4)Mitigation and action plans the EC has taken (or plan to take) to protect, replace, orprovide redundancy for the critical assets in response to the identified threats.

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**Section 8. RISK ASSESSMENT TEAM**

The EC shall create a Risk Assessment Team (RAT)which will be responsible for conducting the VRA process headed by the General Manager. It shall include representation from all departments within the EC, particularly individuals that have an in-depth knowledge of the systems configuration associated with the electrical infrastructure operations, billing and accounting, key accounts/critical loads, and information technology and communications.Fault tree analysis or flow charts are also good tools to utilize to identify specific events, facilities, and equipment that could result in system failure on some level of criticality.

**Section 9. VULNERABILITY AND RISK ASSESSMENT METHODOLOGY**

**9.1 Critical Assets**

Critical assets are those facilities, business system,equipment, manpower, logistics and all other related resources that if damaged, destroyed or otherwise made unavailable would cause significant loss of life, risk to public health, social unrest, and/or inability to deliver efficient, reliable and sustainable supply of power affecting the viability of ECs.

The EC's critical assets areclassified into Asset Categories which will be reviewed as part of the VRA as follows:

A. Generation Assets
B. Transmission Assets
C. Sub-Transmission Assets
D. Distribution Infrastructures
    D1. Substations
    D2. Distribution Feeder Circuits
    D3. Switches
    D4. Protective Equipment
    D5. Primary Circuits
    D6. Distribution Transformers
    D7. Secondary Circuits
    D8. Service Drop
    D9. KWH Meters
    D10. Embedded Generating Plants
E. Non-Network Assets
    E1.Buildings/Facilities
    E2.Computer and IT Network
    E3.Telecommunications
    E4.Logistics

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E5. Warehouses (Testing/Special Equipment)

E6. Business systems (Trading, Accounting, Human Resource)

F. Critical Service Providers

F1. Hospitals and Emergency Medical Facilities

F2. Fire, Police, and Rescue Facilities

F3. Water pumping stations and Wastewater treatment plants

F4. Evacuation Shelters

F5. Mass Transit (Airports, Bus Terminals, Train Stations, Ports)

F6. Telecommunications Facilities

F7. Critical Flood Control Structures

F8. Facilities to critical government functions

F9. Prisons and Correctional Facilities

G. Critical Suppliers

The Risk Assessment Team, based on their combined knowledge and familiarity with the systems configuration, will identify critical assets (1 to 5 or as determined by the EC) in each of the asset category(see Annex A as Calculation of the Total Critical Asset Value (AV)). Those identified critical assets in each asset category will be ranked based on the following factors:

(1) Estimated number of affected customers;

(2) Financial costs of losing the asset - estimated revenue loss and opportunity cost, increased operating costs or other costs while theasset is not available;

(3) Financial cost of replacing the asset-estimated cost ofreplacement of the asset; and

(4) Lives threatened by loss of asset.

**Calculation of the Total Critical Asset Value (AV)**

The total critical asset value will then be calculated by adding the assigned value for each of the factors (Estimated Number of Affected Consumers, Cost of Revenue Loss, Cost to Replace Asset and Potential Loss of Life), using a scale of 1-5.

**Generation and Transmission**

The EC depends to a large extent on third party generation and transmission arrangements for power supply which is distributed to its customers. The EC can no longer deliver power as expected should the EC lose the ability to receive power from National Grid Corporation of the Philippines (NGCP), the Independent Power Producers (IPPs), or its Embedded Generating Plants.(Annex B)

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### 9.2 Potential Threats

An analysis of the various threats that may occur within the franchise area of the EC must be performed. Through the VRA Template development, the identified threats have been narrowed to initially address 50 threats (Appendix A) which are grouped into the following threat categories:

a. Weather
b. Natural (Geological)
c. Man-made
d. Cyber-Data
e. Information & Technology (IT)
f. Office, Billing, Accounting, Warehouse
g. Operations

The rating of the threat takes into account the following factors with corresponding suggested rating scales:

Probability of Threat **(PR)** : Probability of occurrence during the next 5 years

1 -Not Probable

2 -Somewhat Improbable

3 -Somewhat Probable

4 - Very Probable

| 1<br>**Not Probable** | 2<br>**Somewhat Improbable** | 3<br>**Somewhat Probable** | 4<br>**Very Probable** |
|---|---|---|---|
| The event may occur only in exceptional cases | The event could occur at some time, but probably will not | The event will occur in most or many cases | The event is expected to occur in many or most cases |

Speed of Onset **(SO)** : 1 - Slow onset

2 - Quick onset

Forewarning **(FW)** : 1 -Forewarning is provided

2 -Forewarning is not provided

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Duration **(DU)** : 1 -Duration of the threat is less than 1 month

2 -Duration of the threat is more than 1 month

The **Relative Risk (RR)** is calculated using the following equation:

$$RR = PR \times (SO + FW + DU)$$

**Annex D** provides a list ofall of the potential threats that were analyzed to establish their Relative Risk.

**Annex E** represents the top three (3) potential identified threats for each of the threat category based on their assigned Relative Risk.

### 9.3 Vulnerability and Risk Assessment (VRA) Level for Critical Assets

With the exception of the critical assets associated with service providers (Table E) and Suppliers (Table F) that provide services to the EC, the three (3) critical assets from each of the asset category (Tables A-D) which have the highest calculated critical asset value (AV) will be further evaluated using the top three (3) identified threats in each category that are applicable and which are listed in Appendix B.

Each combination of critical asset and applicable identified threat will then be evaluated in terms of the Level of Concern or Vulnerability that the identified threat poses to the critical asset. The scale for the Level of Concern (LOC) is 1-5 as follows:

1 -Extremely Concerned
2 -Moderately Concerned
3 - Somewhat Concerned
4 -Slightly Concerned
5 - Not At All Concerned

The VRALevel for each threat/critical asset combination is calculated using the following equation and reflected in the VRA Assessment Table (Annex C):

$$\text{VRA Level} = (AV + RR) / LOC$$

Where:

**AV** : Critical Asset Value (Tables A-D)

**RR** : Relative Risk (Appendix B)

**LOC** : Level of Concern

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### 9.4 Mitigation and Action Plans

This section outlines the mitigation and action plans the EC has taken (or plans to take) to either protect, replace, or provide redundancy for thecritical assetswith computed VRA Level greater than 20 as identified in the VRA AssessmentTable.

This section will also include the mitigation and action plans that the EC has taken (or plans to take) to either protect, replace, or provide redundancy to protect the continued electric service for the Critical Service Providers listed in Table E, and to the extent possible ensure the continued services received by the EC from Resource/Service Supplier in Table F.

**Note**

*Narrative regarding the mitigation and action plans associated with each selected threat/critical asset combination is to be provided by the EC.*

## RULE V
## EMERGENCY RESTORATION PLANNING (ERP) TEMPLATE

This template was developed to serve as a guide in the preparation of the EC's written ERP prepared in compliance with NEA's requirements. An effective ERP will enable the EC to restore its system in a safe and timely manner when an emergency occurs. The ERP outlines the management structure, processes and protocols including responsibilities for the EC's emergency response.

The EC shall review this template carefully to determine whether it fits its needs and should customize it to best meet its emergency response requirements. The ERP should be developed by the EC through its unique knowledge of its system, prudent utility practices and in line with its VRA.

### Section 10. EC Preparedness and Strategies

#### 10.1 Key Emergency Contacts

The EC should prepare, update and include in its written ERP its lists of contacts that might be needed to be reached in case of an emergency. These will include:

a. All EC Personnel assigned to emergency response
b. Power Suppliers
c. National Grid Corporation of the Philippines (NGCP)
d. National Transmission Corporation (TransCo)

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e. Department of Energy (DOE)
f. National Electrification Administration (NEA)
g. Task Force Kapatid (TFK) Chairman
h. Material and Equipment Suppliers and contractors
i. Local Government Units (LGUs)
j. Law enforcement and other Emergency Response Offices
k. Medical facilities
l. Others which the EC may need to ask for assistance

**10.2 Training and Drills**

Employees who will be involved in the emergency response shall be provided with a copy of the written ERP and receive necessary training.The ERP shall be uploaded on the EC website for everyone to see. ERP drills which simulate responses to selected disasters shall be conducted periodically for better understanding of the emergency plan,familiarize and reinforce each individual's respective responsibilities in carrying out the ERP.

**10.3 After Emergency Action Review**

The EC shall conduct a post emergency action review as soon as possible following an event in order to determine the effectiveness of the ERP and to identify process improvements that may be needed and incorporated in the written ERP.

**10.4 Communication**

The EC shall prepare, update and include in the written ERP a list of stakeholders, and communicate with all stakeholders as soon as possible regarding all the necessary information when an emergency occurs. This will form part of the EC's strategy to provide accurate and timely information to all stakeholders while managing customer expectations for service restoration.

**10.5 Prioritization**

A strict set of priorities in responding to an emergency should be detailed and included in the written ERP. These priorities should be followed by the EC. Priority ratings should be based upon a number of factors which include public safety considerations, measures that will restore power to the largest number of customers, critical facilities and public services such as hospitals, police and fire stations, among others.

**Section 11. Emergency Restoration Team: Organizational Chart and Responsibilities**

The EC should create an Emergency Restoration Team which may be headed by the General Manager and supported by the different Department Managers to prepare, plan and implement the most efficient means to restore the system in case of an emergency. A detailed list of the Emergency

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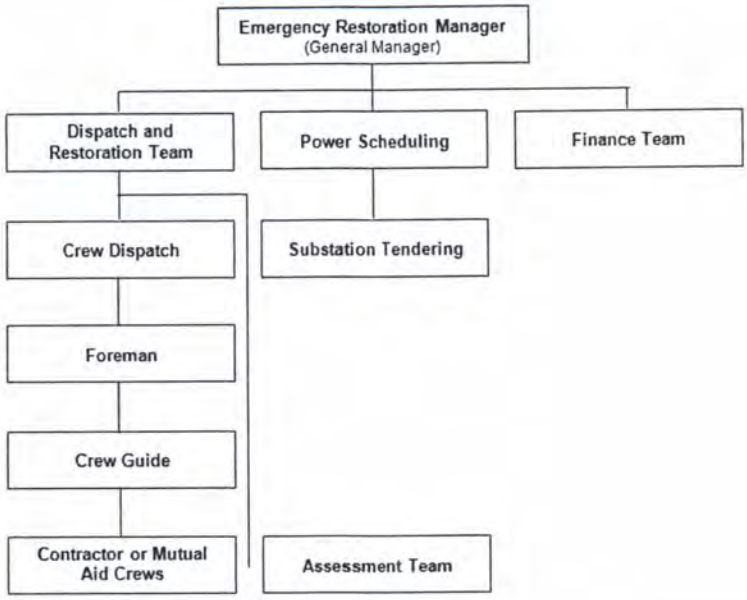
Restoration Team members and their respective roles and responsibilities, including scope of oversight and authority should be included in the written ERP.

An ERP organizational chart is presented below:




### 11.1 Emergency Restoration Manager (ERM)

The Emergency Restoration Manager is responsible for overseeing the emergency restoration process and making all decisions related to the Emergency Restoration efforts.An Alternate Emergency Restoration Manager shall be designated to assume the roles and responsibilities in the absence of the Emergency Restoration Manager. The said designated officials as well as the roles and responsibilities should be outlined in the ERP, as follows:

a. Identify and declare the need for initiating emergency restoration effortsbased on a set of parameters or trigger points set by the EC as indicated in the ERP
b. Oversee the restoration process being undertaken by the different Emergency Restoration Teams
c. Conduct and preside over regular meetings throughout the restoration period
d. Ensure proper and adequate communication with stakeholders including the Board of Directors regarding the extent of damage and progress of restoration
e. Ensure that the proper and necessary documentation is prepared and maintained to enable the EC to apply for any National Disaster Funding, or other funding that is available to reimburse the cost associated with the restoration efforts
f. Make decisions that need to be made

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### 11.2 Dispatch and Restoration Team

The Dispatch and Restoration Team may be headed by the EC Technical Services Department (TSD) Manager (Team Leader) who will be responsible for the crew organization, dispatch, and the restoration process. An Alternate Team Leader shall be designated to assume the roles and responsibilities in the absence of the Dispatch and Restoration Team Leader. The said designated officials as well as the roles and responsibilities should be outlined in the ERP, as follows:

a. Organize crew/s for dispatch
b. Conduct assessment regarding the extent of system damage
c. Assign crew jobs
d. Manage the restoration activities
e. Render daily reports to the Emergency Restoration Manager on the status of therestoration process
f. Coordinate environmental requirements, if needed

#### 11.2.1 Foreman

a. Supervise the restoration activities
b. Evaluate problems in the assigned area and prioritize the most critical job
c. Secure proper clearance on critical concerns with the Team Leader
d. Provide updates to the Team Leader regarding the progress on work assignments

#### 11.2.2 Crew Guide

The Dispatch and Restoration Team Leader should designate employees who will perform the functions of Crew Guide. In case the EC opted to hire contractors and/or mutual aid utility crews, the Crew Guide is responsible for providing assistance to these groups during the emergency restoration process. The assistance to be provided includes getting the crews to designated areas, ensuring that the needed materials are available, restoration works are in accordance with the standards and specifications, among others.

#### 11.2.3 Contractor or Mutual Aid Crews

The EC should maintain records of the facilities or areas which the EC has mutual aid agreement including a copy of the various agreements. It should also include contacts and cellphone numbers of responsible individuals of each of the participating entities. The EC should define the situation when to request for mutual aid and who will be responsible for initiating and managing the mutual aid services.

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### 11.3 Power Scheduling and Substation Tendering

A list of all substations with corresponding power transformer sizes and voltage should be maintained by the EC and included as an integral part of the written ERP. The list also include a record of spare replacement equipment, where these are located, and the estimated time to move the spare equipment to the various substation locations.

The EC should also maintain and refer to the manual pertaining to distribution switching instructions to allow (where possible) load to be transferred from one station area to another to ensure continuity of service when one station is out of service. The distribution switching instructions should be included as part of the written ERP.

In coordination and with direct instruction from the Emergency Restoration Team Leader,power supply dispatching and scheduling commences in areas which are ready and prepared to receive power.Dispatch and restoration activities of emergency crews to affected substation and feeder circuits serving large number of customers and critical service providers such as hospitals, military establishments, fire stations, government offices and cooperative business facilities should be given the highest priority.

### 11.4 Assessment Team

The Dispatch and Restoration Team Leader should assign an Assessment Team to evaluatethe extent of damage to the electric distribution system, prepare damaged report and bill of materials for consideration of the Emergency Restoration Manager. The assigned employees including the team's roles and responsibilities should be included in the ERP.

### 11.5 Finance Team

This Team should be responsible for ensuring that all the EC's finances are dealt with in an appropriate and timely manner in the event of an emergency. The Finance Team ensures that there are funds or credit available for the expenses that may result from a disaster as well as expenses from normal day-to-day business activities. It is responsible for preparing and maintaining the proper and necessary documentation to enable the EC's application for any National Disaster Funding, or other funding that is available to reimburse the cost associated with the restoration efforts. It also reviews and ensures that the Emergency Restoration Teams' expenses are within the approved budget.

## Section 12. Loss of EC Headquarters, Sub-Offices or Warehouse

The EC should develop a plan for temporarily maintaining business in the event an EC building facility is lost or severely damaged during a disaster. Each facility should have a contingency plan that

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includes replacing all equipment, and maintaining all business functions in an alternate location on an interim basis to enable business continuity as soon as possible. This alsoidentifies the responsible personnel, their respective roles and responsibilities to develop and implement a plan for temporarily maintaining business in the event an EC building facility is lost or severely damaged during a disaster.

**Section 13. Information and Technology Security Procedures**

A detailed description of hardware and equipment involved in the information and technology areas including policy and procedures should be prepared to secure the equipment and platforms in each of the EC location. It also details the location for acceptable alternative locations to re-establish or relocate all computer, telecommunications, SCADA and network facilities in the event such actions is necessary. It would likewise address the availability of replacement equipment or backup equipment, where it is located or can be acquired in order to restore information and technology services in an acceptable time frame for business continuity. The employees to be assigned, their respective roles and responsibilities for developing and implementing a plan for restoring the information and technology functions should be included in the ERP.

**Section 14. Recovering from Loss of Power to EC Headquarters, Sub-Offices and other Facilities**

The EC should develop a plan for providing backup power to all EC facilities in case of an extended power outage due to emergencies. It may include the use of on-site generation, or the installation of backup generator/s if readily accessible. The plan should indicate the responsible individual/s at each facility who has been assigned to be responsible for testing, maintaining and operating the backup generator/s. The operating procedure for this purpose is likewise part of this plan to ensure safe and efficient operation of the alternative power source. The employees to be assigned, their respective roles and responsibilities for developing and implementing a plan for providing backup power to all EC facilities in case of an extended power outage due to emergencies should be indicated in the ERP.

## RULE VI
## SEPARABILITY CLAUSE

If any provision of this IRR is declared invalid or unconstitutional, the other provisions not affected there by shall remain valid and subsisting.

## RULE VII
## SEPARABILITY CLAUSE

In the implementation of this Implementing Rules and Regulations, the National Electrification Administration (NEA) may issue additional guidelines or introduce modification thereto through the amendment of its specific provisions as the need arises

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## RULE VIII
## EFFECTIVITY

This Implementing Rules and Regulations shall take effect fifteen (15) days from its publication in at least two newspapers of general circulation and shall remain in effect until otherwise revoked. Let the three (3) copies hereof be filed with the University of the Philippines (UP) Law Center pursuant to Presidential Memorandum Circular No. 11, dated 09 October 1992.

**EDGARDO R. MASONGSONG**
Administrator

NATIONAL ELECTRIFICATION ADMINISTRATION
Office of the Administrator
NEA-CA240603
06/05/17

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**ANNEX A**

For purposes of ranking the identified critical assets based on the different factors, the following rating scales shall be used:

**Estimated Number of Affected Customers**

| Scale | Number |
|---|---|
| 1 | Less than 1,000 |
| 2 | 1,000 to 5,000 |
| 3 | 5,001 to 10,000 |
| 4 | 10,001 to 20,000 |
| 5 | More than 20,000 |

**Estimated Cost Associated with the Loss of Revenue**

| Scale | Estimated Cost (Php) |
|---|---|
| 1 | Less than 100,000 |
| 2 | 100,001 to 1,000,000 |
| 3 | 1,000,001 to 10,000,000 |
| 4 | 10,000,001 to 20,000,000 |
| 5 | More than 20,000,000 |

**Replacement Cost of the Critical Asset**

| Scale | Estimated Cost (Php) |
|---|---|
| 1 | Less than 100,000 |
| 2 | 100,000 to 1,000,000 |
| 3 | 1,000,001 to 10,000,000 |
| 4 | 10,000,001 to 20,000,000 |
| 5 | More than 20,000,000 |

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**Potential Loss of Life Associated with the Loss of the Critical Asset**

| Scale | Probability of Loss of Life |
|---|---|
| 1 | Equal or less than 5% |
| 2 | Greater than 5% but equal or less than 25% |
| 3 | Greater than 25% but equal or less than 50% |
| 4 | Greater than 50% but equal or less than 75% |
| 5 | Greater than 75% |

**ANNEX B**

**Generation and Transmission**

The EC depends to a large extent on third party generation and transmission arrangements for power supply which is distributed to its customers. The EC can no longer deliver power as expected should the EC lose the ability to receive power from National Grid Corporation of the Philippines (NGCP), the Independent Power Producers (IPPs), or its Embedded Generating Plants.

**A. Generation Asset/s**

For the Period of _____

| Table A | Critical Asset/s for Generation (Name of Power Supplier/s) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

**B. Transmission Assets**

For the Period of _____

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| Table B | Critical Asset/s for Transmission (Name of Transmission Asset/s) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

## C. Sub-Transmission Assets

For the Period of _____

| Table C | Critical Asset/s for Sub-Transmission (Name of Sub-Transmission Asset/s) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

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## D. Distribution Infrastructures

For the Period of _____

### D1. Substations

| Table D1 | Critical Asset/s for Substations (Name of Substations) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

### D2. Distribution Feeder Circuits

| Table D2 | Critical Asset/s for Distribution Feeder Circuits (Name Distribution Feeder Circuits) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | Sta. Monica s/s | 5 | 5 | 5 | 0 | 15 |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

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### D3. Switches

| Table D3 | Critical Asset/s for Distribution Line (Name of Line Segment) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

### D4. Protective Equipment

| Table D4 | Critical Asset/s for Protective Equipment (Name of Protective Equipment) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

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### D5. Primary Circuits

| Table D5 | Critical Asset/s for Primary Circuits (Name of Primary Circuits) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

### D6. Distribution Transformers

| Table D6 | Critical Asset/s for Distribution Transformers (Name of Distribution Transformers) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

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## D7. Secondary Circuits

| Table D7 | Critical Asset/s for Secondary Circuits (Name of Secondary Circuits) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

## D8. Service Drop

| Table D8 | Critical Asset/s for Service Drop (Name of Service Drop) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

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## D9. KWH Meters

| Table D9 | Critical Asset/s for KWH Meters (Name of KWH Meters) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

## D10. Embedded Generating Plants

| Table D10 | Critical Asset/s for Embedded Generating Plants (Name of Embedded Generating Plants) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

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## E. Non-Network Assets

For the Period of _____

### E1. Buildings/Facilities

| Table E1 | Critical Asset/s for Buildings/Facilities (Name of Buildings/Facilities) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

### E2. Computer and IT Network

| Table E2 | Critical Asset/s for Computer and IT Network (Name of Computer and IT Network) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

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### E3. Telecommunications

| Table E3 | Critical Asset/s for Telecommunications (Name of Telecommunications) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

### E4. Logistics

Unavailable means of transportation in the EC operation such as service vehicles, boom trucks and maintenance trucks that would affect the delivery of service to the customer.

| Table E4 | Critical Asset/s for Logistics (Name of Logistics) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

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## E5. Warehouses

| Table E5 | Critical Asset/s for Warehouses (Name of Warehouses) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

## E6. Business system

| Table E6 | Critical Asset/s for Business system (Name of Business system) | Assigned Values (Scale: 1-5) | | | | Total Critical Asset Value (e) a+b+c+d |
|---|---|---|---|---|---|---|
| | | Affected Consumers (a) | Cost of Revenue Loss (b) | Cost to Replace Asset (c) | Potential Loss of Life (d) | |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

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## F. Critical Service Providers

The EC provides power to the following critical service providers such as hospitals, police and fire stations, and early warning systems.

For the Period of _____

### F1. Hospitals and Emergency Medical Facilities

| Table F1 | Critical Asset Table for Hospitals and Emergency Medical Facilities<br>(Name of Hospitals and Emergency Medical Facilities) |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

### F2. Fire, Police, and Rescue Facilities

| Table F2 | Critical Asset Table for Fire, Police, and Rescue Facilities<br>(Name of Critical Service Provider) |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

### F3. Water pumping stations and Wastewater treatment plants

| Table F3 | Critical Asset Table for Water pumping stations and Wastewater treatment plants<br>(Name of Water pumping stations and Wastewater treatment plants) |
|---|---|
| 1 | |

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| | |
|---|---|
| 2 | |
| 3 | |
| 4 | |

### F4. Evacuation Shelters

| Table F4 | Critical Asset Table for Evacuation Shelters (Name of Evacuation Shelters) |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

### F5. Mass Transit

| Table F5 | Critical Asset Table for Mass Transit (Name of Mass Transit) |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

### F6. Telecommunications Facilities

| Table F6 | Critical Asset Table for Telecommunications Facilities (Name of Telecommunications Facilities) |
|---|---|
| 1 | |
| 2 | |
| 3 | |

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| | |
|---|---|
| 4 | |

## F7. Critical Flood Control Structures

| Table F7 | Critical Asset Table for Critical Flood Control Structures (Name of Critical Flood Control Structures) |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

## F8. Facilities to critical government functions

| Table F8 | Critical Asset Table for Facilities to critical government functions (Name of Facilities to critical government functions) |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

## F9. Prisons and Correctional Facilities

| Table F9 | Critical Asset Table for Prisons and Correctional Facilities (Name of Facilities to Prisons and Correctional Facilities) |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

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## G. Critical Suppliers

The EC relies on several outside resources, not otherwise evaluated in this report, for providing support to its operations.

For the Period of _____

| Table G | Critical Asset for Critical Suppliers (Name of Suppliers and Products or Services) | |
|---|---|---|
| **Resource** | **Supplier** | **Details** |
| Internet | | The Internet Service Provider (ISP) delivers Internet connectivity for the EC's physical facilities. |
| Fuel | | The EC relies on local gas stations for the fuel for its vehicles/generators/equipment. |
| Security Agency | | The EC relies upon its contracted Security Agency for safeguarding of the premises of its physical facilities. |
| Support for the IT Network | | The following company provides the support for the IT Network and communication system needs of the EC. |
| Water | | The local water utility company delivers continuous supply of water to EC facilities. |
| Billing mailers | | The said company provides all the mailing delivery needs for all outgoing consumer electric bills. |
| Banking | | The majority of the EC bank accounts and funds are stored with the following banks. |
| After hours answering service | | Assignment of responsible person to answer calls after office hours. |

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**ANNEX C**

For the Period of _____

**Identified Threats**

| | Identified Threats | Class. | Probability(0-5) | Speed of Onset (1-2) | Forewarning(1-2) | Duration(1-2) | Relative Risk |
|---|---|---|---|---|---|---|---|
| | **Weather** | | | | | | |
| 1 | Typhoon | Natural | 5 | 2 | 2 | 2 | 30 |
| 2 | Electrical Storm/Lightning | Natural | | | | | |
| 3 | Tornado | Natural | | | | | |
| 4 | Torrential Rains | Natural | | | | | |
| 5 | Flood: Predictable/Seasonal | Natural | | | | | |
| 6 | Flood: Flash/ Storm surge/ Tidal wave | Natural | | | | | |
| 7 | Magnetic Storms (Sun Spots, Radiation) | Natural | | | | | |
| | **Natural (Geological)** | | | | | | |
| 8 | Landslide/Mudslide | Natural | | | | | |
| 9 | Flood: Dam Burst | Natural | | | | | |
| 10 | Earthquake (Magnitude 5 or more) | Natural | | | | | |
| 11 | Volcanic Activity | Natural | | | | | |
| 12 | Land Subsidence/Liquefaction | Natural | | | | | |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 13 | Forest Fire | Natural | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Man-made** | | | | | | | |
| 13 | Misuse of Resources | Human | | | | | |
| 14 | Ineffective Communication | Human | | | | | |
| 15 | Vandalism | Human | 4 | 2 | 2 | 2 | 24 |
| 16 | Arson | Human | | | | | |
| 17 | International Strife | Human | | | | | |
| 18 | Riot/Civil Disorder | Human | | | | | |
| 19 | Loss of Key Staff | Human | | | | | |
| **Cyber-Data** | | | | | | | |
| 20 | Data Theft - Internal | Human | | | | | |
| 21 | Data Theft - External | Human | | | | | |
| 22 | Sabotage: Internal - Network | Human | | | | | |
| 23 | Sabotage: External - Network | Human | | | | | |
| 24 | Human Error: Computer Users | Human | | | | | |
| 25 | Human Error: Network Administrators | Human | | | | | |
| 26 | Human Error: Programming | Human | | | | | |
| **Information Technology IT** | | | | | | | |
| 27 | Telecommunications Failure: Voice | Technical | | | | | |
| 28 | Computer Equipment Failure | Technical | | | | | |
| 29 | Sabotage: Internal - Network | Human | | | | | |
| 30 | Sabotage: External - Network | Human | | | | | |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 31 | Database Corruption | Technical | | | | | |
| 32 | Purchased Software Failure | Technical | | | | | |
| 33 | Hardware Failure | Technical | | | | | |
| 34 | Telecommunications Failure: Data | Technical | | | | | |
| | **Office, Billing, Accounting, Warehouse** | | | | | | |
| 35 | Fraud/Embezzlement | Human | | | | | |
| 36 | Labor Dispute/Strike | Human | | | | | |
| 37 | Fire / Smoke: Internal | Technical | | | | | |
| 38 | HVAC Failure | Technical | | | | | |
| 39 | Structural Failure of Building | Technical | | | | | |
| 40 | Fire / Smoke: External | Technical | | | | | |
| 41 | Toxic Spills Off-Site | Technical | | | | | |
| 42 | Water: Leak/Plumbing Failure | Technical | | | | | |
| 43 | Epidemic | Human | | | | | |
| | **Operations** | | | | | | |
| 44 | Road Closure | Technical | | | | | |
| 45 | Ancillary Equipment Failure | Technical | | | | | |
| 46 | Human Error: Operation - Response | Human | | | | | |
| 47 | Labor Dispute/Strike | Human | | | | | |
| 48 | Communication Equip | Technical | | | | | |
| 49 | Accidental Explosion: On-Site | Technical | | | | | |
| 50 | Epidemic | Human | | | | | |

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**ANNEX D**

## Top 3 Identified Threats for each Threat Category

For the Period of _____

| Identified Threats | | Classification | Relative Risk |
|---|---|---|---|
| **Weather** | | | |
| 1 | Typhoon | Natural | 30 |
| 2 | | | |
| 3 | | | |
| **Natural Geological** | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| **Man-made** | | | |
| 7 | Vandalism | Human | 24 |
| 8 | | | |
| 9 | | | |
| **Cyber-Data** | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |
| **Information Technology IT** | | | |
| 13 | | | |

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| | | | |
|---|---|---|---|
| 14 | | | |
| 15 | | | |
| **Office, Billing, Accounting, Warehouse** | | | |
| 16 | | | |
| 17 | | | |
| 18 | | | |
| **Operations** | | | |
| 19 | | | |
| 20 | | | |
| 21 | | | |

**ANNEX E**

**VRA Assessment Table**

For the Period of _____

| **Table A-D** | **Critical Asset for** _____ | **Applicable Threat No.**(Appendix A) | **Total Critical Asset Value**(AV) | **Relative Risk** (RR) | **Level of Concern**( LOC) | **VRA Level** |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

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