World Bank Group Report Launch: Financial Protection of Critical Infrastructure Services

IGNITE PRESENTATIONS
Rural Electrification and Resilience in the Philippines

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National Electrification Administration
Republic of the Philippines

11 March, 2021
NEA’s Insights On Opportunities And Challenges On Strengthening The Resilience Of Infrastructure Services From A Power Utility’s Perspective

Presented by:
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Deputy Administrator for Technical Services

APEC Virtual Workshop on "Financial Resilience of Critical Infrastructure Services against" Disasters"

March 11, 2021, 11AM (Philippine Time)
Outline of Presentation

- About The National Electrification Administration (NEA)
- Impact of Disasters On Distribution System Infrastructures
- Emergency Response Framework And Protocol
- Preparedness And Risk Reduction
- Fund Sources To Cover The Repair Of Damaged Distribution System And Facilities
- Ways Forward To A Resilient Electric Cooperatives (ECs)
About The National Electrification Administration (NEA)

The Creation of the National Electrification of the Philippines

- Created on August 4, 1969
  - Objective the total electrification of the Philippines on an area coverage basis.
New Role of NEA Under the EPIRA

- NEA maintains to provide financial, institutional and technical assistance to the ECs.

- Consequently, NEA had monitored closely the performance of the 119 ECs nationwide to prepare them to operate and compete under the deregulated market and to strengthen their technical and managerial capability and financial viability.
Impact Of Disasters On Distribution System Infrastructures

<table>
<thead>
<tr>
<th>Asset Often Damaged</th>
<th>Non-Network Asset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Asset</td>
<td></td>
</tr>
<tr>
<td>Poles</td>
<td>Communication Antenna Poles</td>
</tr>
<tr>
<td>Cross-arms</td>
<td></td>
</tr>
<tr>
<td>Conductors, Wires, Cables</td>
<td></td>
</tr>
<tr>
<td>Distribution Transformers</td>
<td></td>
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<tr>
<td>Kilowatt-hours Meters</td>
<td>Office Building</td>
</tr>
</tbody>
</table>
### Impact Of Disasters On Distribution System Infrastructures

<table>
<thead>
<tr>
<th>ECs (count)</th>
<th>2020 Disaster</th>
<th>Damage Cost (PHP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Volcanic Eruption Taal (Alert Level 4) (January 2020)</td>
<td>792,538</td>
</tr>
<tr>
<td>11</td>
<td>Tropical Cyclone (Typhoon) Ambo (May 2020)</td>
<td>183,680,717.91</td>
</tr>
<tr>
<td>17</td>
<td>Tropical Cyclone Quinta (Typhoon) (October 2020)</td>
<td>174,847,064.52</td>
</tr>
<tr>
<td>14</td>
<td>Tropical Cyclone Rolly (Super Typhoon) (November 2020)</td>
<td>692,513,255.85</td>
</tr>
<tr>
<td>1</td>
<td>Tropical Cyclone (Tropical Storm) Siony (November 2020)</td>
<td>1,933,256.75</td>
</tr>
<tr>
<td>40</td>
<td>Tropical Cyclone Ulysses (Typhoon) (November 2020)</td>
<td>213,652,079.35</td>
</tr>
<tr>
<td>1</td>
<td>Tropical Cyclone Vicky (Tropical Storm) (December 2020)</td>
<td>2,630,310.27</td>
</tr>
</tbody>
</table>

**Total** 1,270,049,222.65
The Aftermath:
Catanduanes/FICELCO (Super Typhoon Rolly)
The Aftermath:
Catanduanes/FICELCO (Super Typhoon Rolly)
The Aftermath: Catanduanes/FICELCO (Super Typhoon Rolly)
The Response:
PRRD Task Force Kapatid
The Rehabilitation: PRRD Task Force Kapatid
The Rehabilitation: PRRD Task Force Kapatid
The Rehabilitation:
PRRD Task Force Kapatid
The **Emergency Response Framework** basically provide the protocols, response-period and guidance to the Electric Cooperatives (ECs) and its National and Regional Associations the direction for a **coordinated emergency response** to any eventuality and/or a disaster, whether it is natural or non-natural based on the ECs' established Emergency Response Organization (ERO) and Emergency Response Plan (ERP).

![Diagram of Emergency Response Organization](researchgate.net)
Emergency Response Framework

**NATIONAL ELECTRIFICATION ADMINISTRATION**
- Technical Services
- Disaster Risk Reduction and Management Department

**NEA COMMAND CENTER**

**NATIONAL ELECTRIC COOPERATIVES ASSOCIATION (PHILRECA)**
- 16 REGIONAL ELECTRIC COOPERATIVES ASSOCIATIONS (RECA I, NELECA, CORECA, CLECA, CALABARZON, MIMAROPA, BECA, ECAR, CEVECA, FRECOR VIII, RENECA, NOREMCA, SEMECA, CEMRECA, CRECA, ARMM)

**121 ELECTRIC COOPERATIVES**

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Emergency Response Protocol

**Provide directions to the ECs in coordination with their National/Regional ECs Associations**
- Monitor, coordinate, assist the EC’s power restoration
- Coordinate with concerned NGAs and stakeholders

**Coordinate with NEA and disaster affected EC/s on the additional resources of unaffected ECs from other regions for rapid power restoration**

**Coordinate with NEA and disaster affected EC on the additional resources of unaffected ECs within the region for rapid power restoration**

**Activate Emergency Response Organization (ERO) to implement Emergency Response Plan (ERP).**
- Coordinate with NEA, National and Regional EC’s Associations, concerned NGAs, LGUs and stakeholders
### Emergency Response-Period

<table>
<thead>
<tr>
<th>(Day -N to Day 0)</th>
<th>(Day -N to Day 0)</th>
<th>(Day -N to Day 0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activate (virtual) NEA Command Center as the need arises</td>
<td>NEA advise all Electric Cooperatives (ECs) to anticipate, prepare, mitigate and respond accordingly by activating their Emergency Response Organization (ERO) whether in full or in partial to implement without delays when the need arises to implement the appropriate Emergency Response Plan (ERP).</td>
<td>Coordinate with the ECs’ National/Regional Associations for possible deployment of Power Restoration Rapid Deployment Task Force Kapatid (PRRD TFK) to EC/s that would be affected</td>
</tr>
</tbody>
</table>

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**Emergency Response Framework And Protocol**
Emergency Response Period

(Day +1 to Day +7)

NEA monitor affected EC’s power situation/ restoration and damage assessment

(Day +1 continuous)

Affected EC/s assess damage and restore distribution system and facilities that are not affected and temporarily shut-off (for safety reason.)

(Affected EC/s continue the repair of damaged distribution system and facilities and power restoration until 100% power restored at household level.)

Affected EC’s distribution system and facilities lightly damaged.

NEA, ECs and MCOs: Partners in Rural Electrification and Development

“The 1st Performance Governance System: Institutionalized National Government Agency”

Emergency Response Framework And Protocol
Emergency Response Period:

(Day +1 to Day +30)
- NEA monitor affected EC’s power situation/restoration and damage assessment.

(Day +1 continuous)
- Affected EC/s assess damage and restore distribution system and facilities that are not affected and temporarily shut-off for safety reason.

(Day +5 to Day +30)
- NEA assist EC’s power restoration.
- Affected EC/s and PRRD TFK to continue the repair of damaged distribution system and facilities and power restoration until 100% power restored at household level.

Affected EC’s distribution system and facilities moderately/severely damaged.
## Preparedness Best Practices

<table>
<thead>
<tr>
<th>Preparedness and Risk Reduction</th>
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<tbody>
<tr>
<td><strong>NEA, ECs and MCOs: Partners in Rural Electrification and Development</strong></td>
<td></td>
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<tr>
<td><strong>The 1st Performance Governance System: Institutionalized National Government Agency</strong></td>
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<tr>
<td><strong>NEA</strong></td>
<td></td>
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<tr>
<td><strong>Preparedness and Risk Reduction</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Preparedness Best Practices</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Manpower orientation, seminar and drill exercises of Emergency Response Organization and Emergency Response Plan respectively</strong></td>
<td>Capability Building</td>
</tr>
<tr>
<td><strong>Inventory of equipment and materials</strong></td>
<td>Stocking</td>
</tr>
<tr>
<td><strong>Pre Procurement of equipment and materials</strong></td>
<td>Pre-stocking</td>
</tr>
<tr>
<td><strong>Pre-hiring of manpower services</strong></td>
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</table>
**Preparedness and Risk Reduction**

<table>
<thead>
<tr>
<th>Risk Reduction Best Practices</th>
<th></th>
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<tbody>
<tr>
<td>Replacement of old poles</td>
<td>Routine Maintenance</td>
</tr>
<tr>
<td>Vegetation along the distribution line’s ROW</td>
<td></td>
</tr>
<tr>
<td>Underground distribution line standard</td>
<td>Mitigation</td>
</tr>
<tr>
<td>Additional down guy standard for new and existing distribution lines</td>
<td>Mitigation</td>
</tr>
<tr>
<td>Insertion of pole between existing long span distribution line</td>
<td>Mitigation</td>
</tr>
<tr>
<td>Re-routing or relocation of existing critical facilities out-off identified hazards</td>
<td>Mitigation</td>
</tr>
<tr>
<td>Facilities for construction are subjected to vulnerability and risk assessment.</td>
<td>Anticipation</td>
</tr>
</tbody>
</table>

Note: Mitigations are based on Vulnerability and Risk Assessments
The First Performance Governance System – Institutionalized National Government Agency

NEA, ECs and MCOs: Partners in Rural Electrification and Development

Fund Sources To Cover The Repair of Damaged Distribution System and Facilities

- Electric Cooperatives Emergency and Resiliency Fund (ECERF)
- National Disaster Risk Reduction and Management Council Fund (NDRRMCF)
- Reinvestment Fund For Sustainable CAPEX (RFSC)
- NEA’s Calamity Loan Window
Ways Forward For A Resilient Electric Cooperatives

Revisiting the NEA standards on:

- Equipment and materials
  (starting with the poles as the main support structure of the distribution lines)

- Quality Control of equipment and materials

- Construction of distribution systems

- Maintenance of distribution systems

- Initial Discussion On Parametric Insurance
End of Presentation