



EMBRACING A CULTURE OF RESILIENCE IN THE ENERGY SECTOR

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Presentation Outline

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DOE MANDATE



Mandated by RA 7638 (Department of Energy Act of 1992) to **prepare, integrate, coordinate, supervise and control** all plans, programs, projects and activities of the Government relative to energy **exploration, development, utilization, distribution and conservation.**



PH Government Initiatives



Disaster Relief &
Response



Disaster Risk
Reduction



NDRRMC with 44 member agencies

Republic Act 10121

Strengthens the Philippine Disaster Risk Reduction & Management (DRRM) System

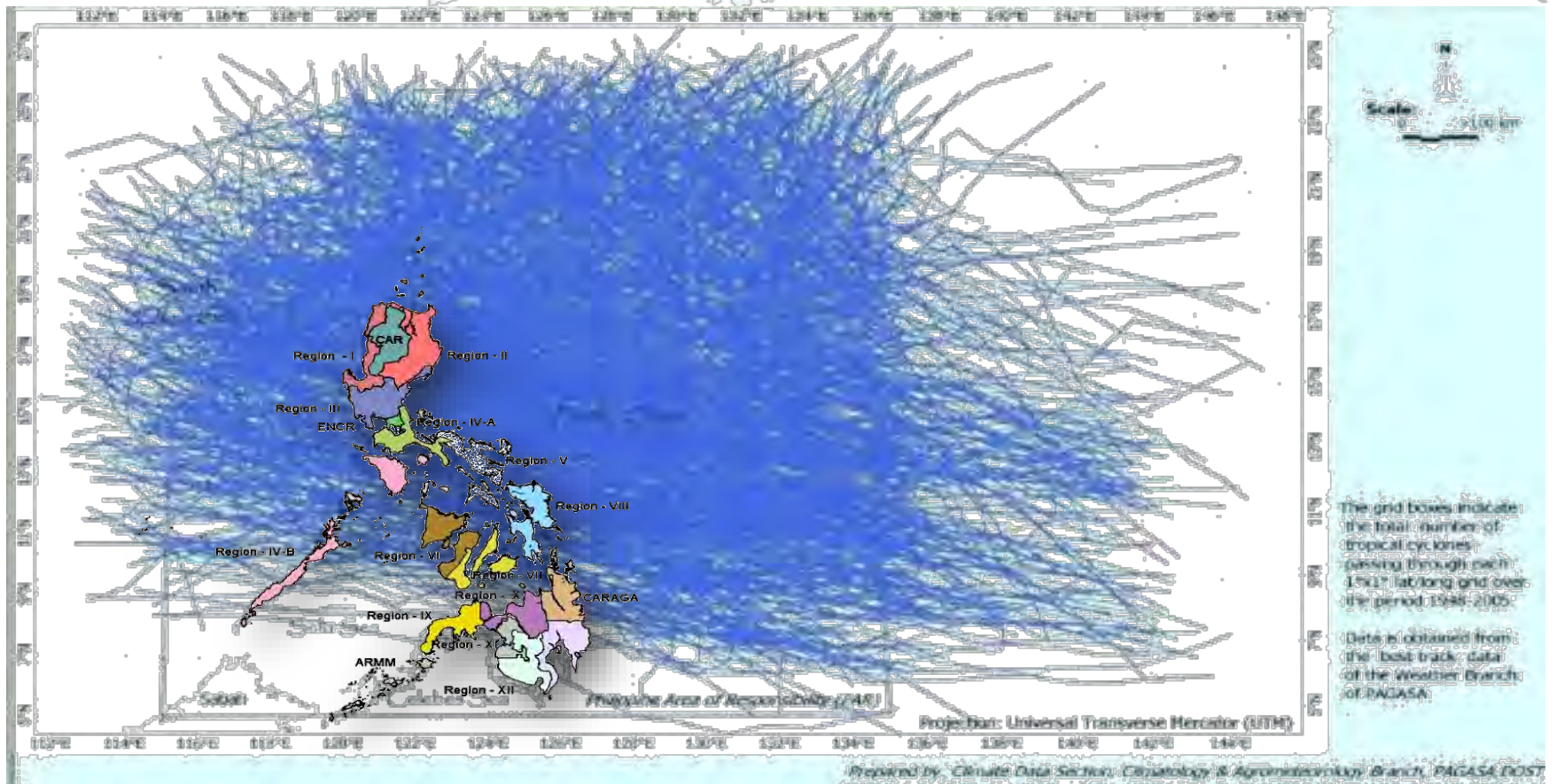


Natural Hazard Setting in the Philippines

- Bounded by bodies of water
- Part of **Ring of Fire**
- Part of **Earthquake Zone**
- Average **20 tropical cyclones** per year enter Philippine Area of Responsibility; 9 across the country per year



Actual Tropical Cyclone Tracks (1948-2010)





Floods



Storm Surges



Earthquakes



Tsunami



Volcanic Eruptions



Landslides



Drought

NATURAL HAZARDS

HUMAN-INDUCED HAZARDS



Fire



Industrial Accidents



Maritime Accidents



Pollution



Aircraft Crash/Land Accidents



Civil Disturbance



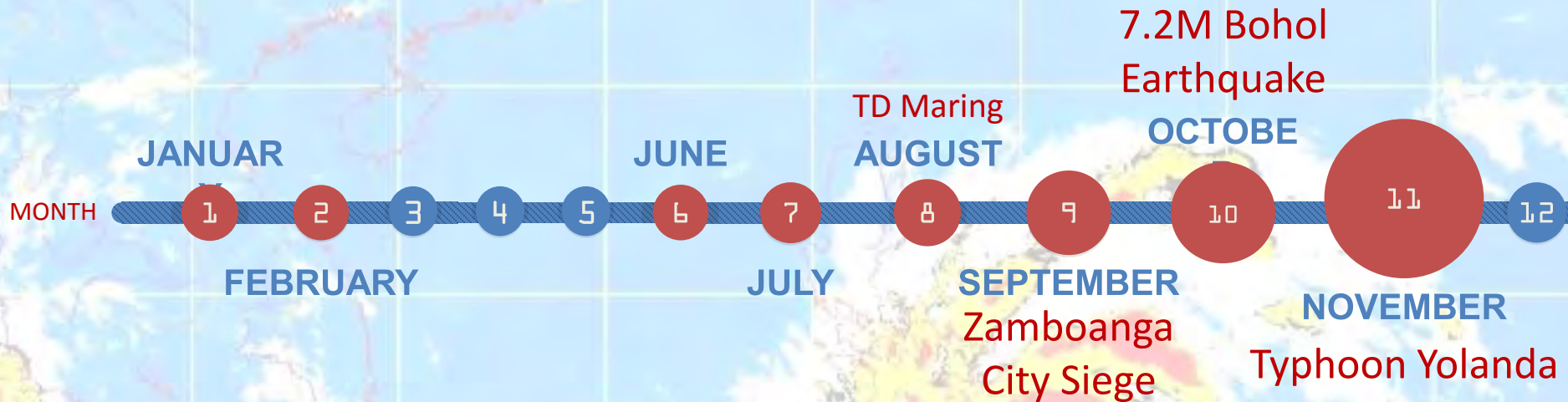
Terrorism



Armed Conflict



YEAR 2013: A SERIES OF *DISASTERS*



- ❖ Natural hazard: Total of **25** Typhoons (higher than the average), Earthquake
- ❖ Human-Induced: Terrorism/Armed Conflict
- ❖ Damages in the Energy System:
 - Transmission Lines & Facilities – **toppled/bombed**
 - Substations & Distribution Lines – **damaged/toppled**
 - Power Plant Facilities (Ex. Geothermal Power Plant, NPC Power Barge 103) - **damaged**



Super Typhoon “Yolanda” (2013)



Tacloban City before and after the storm surge



EFFECTS IN THE ENERGY SECTOR

Power to be restored to Leyte, Samar in 6 weeks

By: Ronnel W. Domingo - @inquirerdotnet Philippine Daily Inquirer / 10:35 PM November 13, 2013



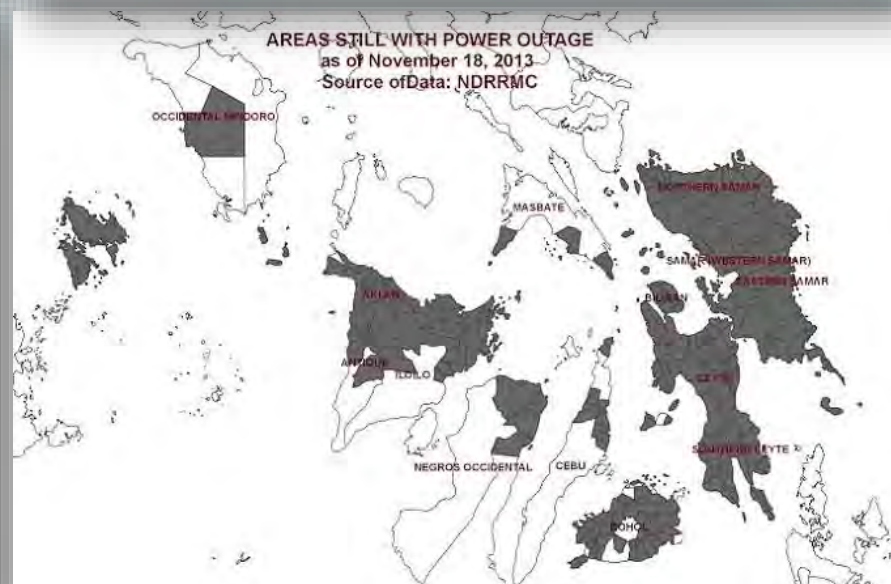
<http://newsinfo.inquirer.net/526827/power-to-be-restored-to-leyte-samar-in-6-weeks>

Daanbantayan street in northern Cebu after the supertyphoon Yolanda. TONEE DESPOJO/CEBU DAILY NEWS FILE PHOTO

Yolanda-hit Leyte geothermal plant key to restoring power in Visayas

Published November 18, 2013 7:36pm

By DANESSA O. RIVERA, GMA News



- ❖ Toppled 248 transmission towers and 318 poles
- ❖ 19 high-voltage lines out of commission and damaged seven substations
- ❖ Power supply deficit: **200 MW**
- ❖ Incurred damage cost: **PhP89.6 billion**
- ❖ Add'l Cost of Repair, Restoration, & Rehab: **PhP2.5B**

- ❖ 650 MW facility out due to damaged cooling towers of geothermal power plant
- ❖ Incurred damage cost
- ❖ Rehabilitation cost: **PhP4.3B** (for 1 power plant alone)
- ❖ Decrease in Sales of Electricity
- ❖ Foregone revenues



EFFECTS IN THE ENERGY SECTOR

Cagayan de Oro News

NGCP Marawi loses 150 MW: 2 Towers Collapsed, Bombed by Armed Men

October 31, 2015 • by Nicole • Add Comment • 2 min read



<http://aboutcagayandeoro.com/ngcp-marawi-loses-150-mw-2-towers-collapsed-bombed-by-armed-men/>



EFFECT TO CONSUMERS

BusinessMirror

top news ▾

world ▾

business ▾

sports ▾

opinio

NGCP seeks to raise electricity rates in Visayas after repair and rehab of Yolanda-damaged transmission lines

By **Lenie Lectura** - November 10, 2014

THE National Grid Corporation of the Philippines (NGCP) proposes to collect from its Visayas customers additional charges for the costs it incurred in the repair and rehabilitation of its transmission assets damaged by Super typhoon Yolanda last year.

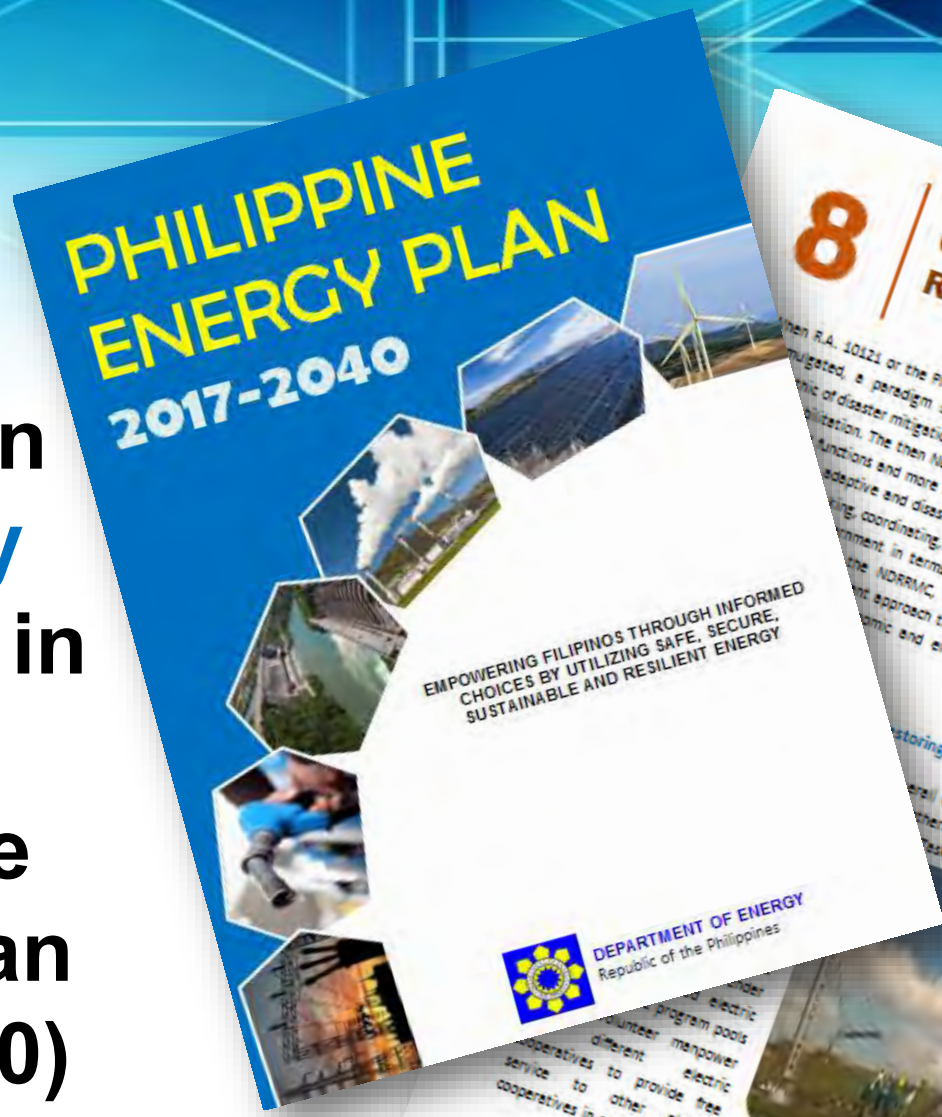
In a filing with the Energy Regulatory Commission dated November 5, the NGCP is seeking provisional authority to implement and bill the force majeure (FM)-pass amounts starting January 2015 billing month to December 2020.

For 2015 it proposes to collect from its customers in the Visayas an additional P0.1874 per kilowatt-hour (kWh); P0.0257 per kWh in 2016; P0.0241 per kWh in 2017; P0.0227 per kWh in 2018; P0.0214 per kWh in 2019; and P0.0201 in 2020.

<https://businessmirror.com.ph/ngcp-seeks-to-raise-electricity-rates-in-visayas-after-repair-and-rehab-of-yolanda-damaged-transmission-lines/>



Integration of Energy Resiliency in the Philippine Energy Plan (2017- 2040)



INSTITUTIONALIZATION OF ENERGY RESILIENCY

Department Circular (DC2018-01-0001)

Adoption of Energy Resiliency in the Planning And Programming of the Energy Sector to Mitigate Potential Impacts of Disasters

Published at:

The Manila Times and The Philippine Star

Date Published:

01/27/2018



Republic of the Philippines
DEPARTMENT OF ENERGY
(Kagawaran ng Enerhiya)

DEPARTMENT CIRCULAR NO. DC2018-01-0001

ADOPTION OF ENERGY RESILIENCY IN THE PLANNING AND PROGRAMMING OF THE ENERGY SECTOR TO MITIGATE POTENTIAL IMPACTS OF DISASTERS

WHEREAS, Republic Act (R.A.) No. 7638 or the Department of Energy Act of 1992 declares the policy of the State to ensure a continuous, adequate, and economic supply of energy with the end in view of ultimately achieving self-reliance in the country's energy requirements.

WHEREAS, Section 37 of the R.A. No. 9136 or the "Electric Power Industry Reform Act of 2001" (EPIRA), mandates the Department of Energy (DOE), in addition to its powers and functions under R.A. No. 7638, to supervise the restructuring of the electricity sector, and undertake the formulation of policies for planning and implementation of a comprehensive program for the efficient supply and economical use of energy. This is consistent with the approved national economic plan and with the policies on environmental protection and conservation and maintenance of ecological balance, and provides a mechanism for the integration, rationalization, and coordination of the various energy programs of the Government.

WHEREAS, R.A. No. 8479 or the Downstream Oil Industry Deregulation Act of 1998 declares the policy of the State to liberalize and deregulate the downstream oil industry in order to ensure a truly competitive market under a regime of fair prices, adequate and continuous supply of environmentally-clean and high-quality petroleum products.

WHEREAS, the R.A. No. 10121 or the Philippine Disaster Risk Reduction and Management Act of 2010, declares among others, as the policy of the State, to institutionalize the policies, structures, coordination, mechanisms and programs with continuing budget appropriation on disaster risk reduction from national down to local levels towards building a disaster-resilient nation and communities.

WHEREAS, the country is vitally dependent on the supply of energy and any sustained failure in the energy system would have drastic consequences and impact on the country's economy and to people's daily life.

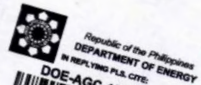
WHEREAS, the Philippines is one of the most vulnerable countries to natural and human-induced hazards.

WHEREAS, among the primordial effects of disasters is the disruption in the delivery of energy to end-users due to damaged facilities, causing serious hazard to public health and safety, huge economic and financial losses, and interruption of vital public

of
io Global City, Taguig City, Metro Ma

2018 at DC

ALFONSO G. CUSI
Secretary



Republic of the Philippines
DEPARTMENT OF ENERGY
IN REPLYING P.L.S. CITE:
DOE-ACC-18006457

AN 17 2018



Energy Resiliency Policy



LEGAL BASIS

- **Republic Act 7638** or the Department of Energy Act of 1992 and
- **Republic Act 10121** or the Philippine Disaster Risk Reduction and Management Act of 2010
- Promote planning and investment on energy resiliency to ensure nation's energy infrastructure continues to deliver while anticipating and reducing vulnerabilities

GUIDING PRINCIPLES

1. **Strengthens the existing energy infrastructure**
2. **Implements the “build back better” principle** in terms of reconstruction and rehabilitations of damaged infrastructure;
3. **Improves existing operational, maintenance and practices** to ensure continuous operations and energy supply; and
4. **Develops resiliency standards** that will be used as basis in future construction of energy facilities.



SCOPE AND APPLICATION



**Energy
Resource**



Renewable



Power



Oil



Utilization





FUNDING SOURCES



TASK FORCE ON ENERGY RESILIENCY



**The Task Force may invite other agencies and government instrumentalities or affected stakeholders from the agency sectors, as may be deemed necessary, to attain the objectives of this Circular.*

Created to oversee the implementation of the Energy Resiliency Policy and being empowered with coordination, integration, supervision, monitoring & evaluation functions related to Energy Resiliency

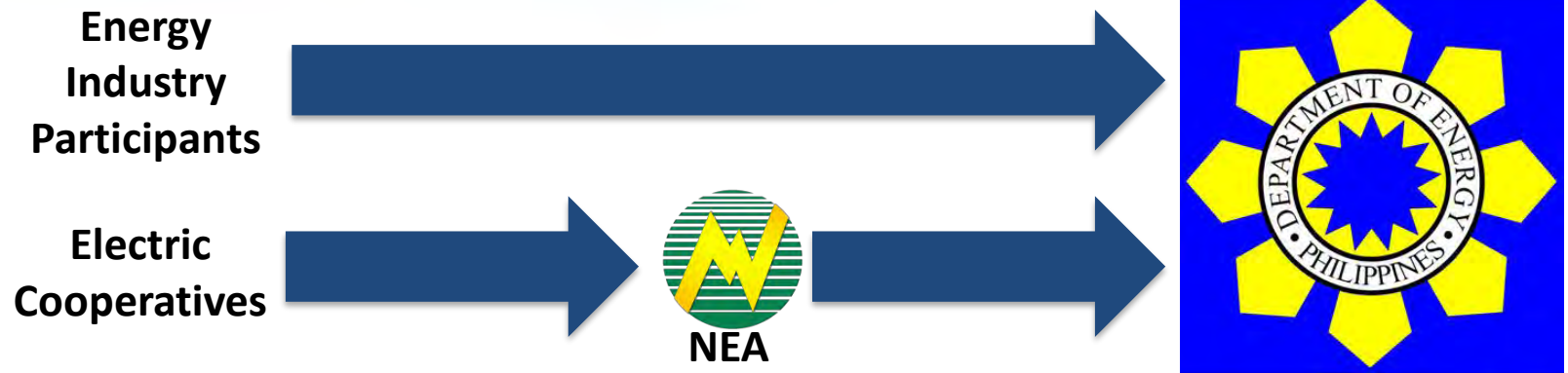


RESILIENCY COMPLIANCE PLAN

6

months - submission

DEADLINE: 30 JULY 2018



updated every 3 years

Compliance, Monitoring, Enforcement & Post-evaluation



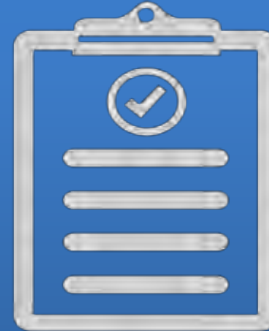
CATEGORIES IN THE RESILIENCY COMPLIANCE PLAN



Strengthening
Infrastructure



Systems



Stockpiling



Response and
recovery



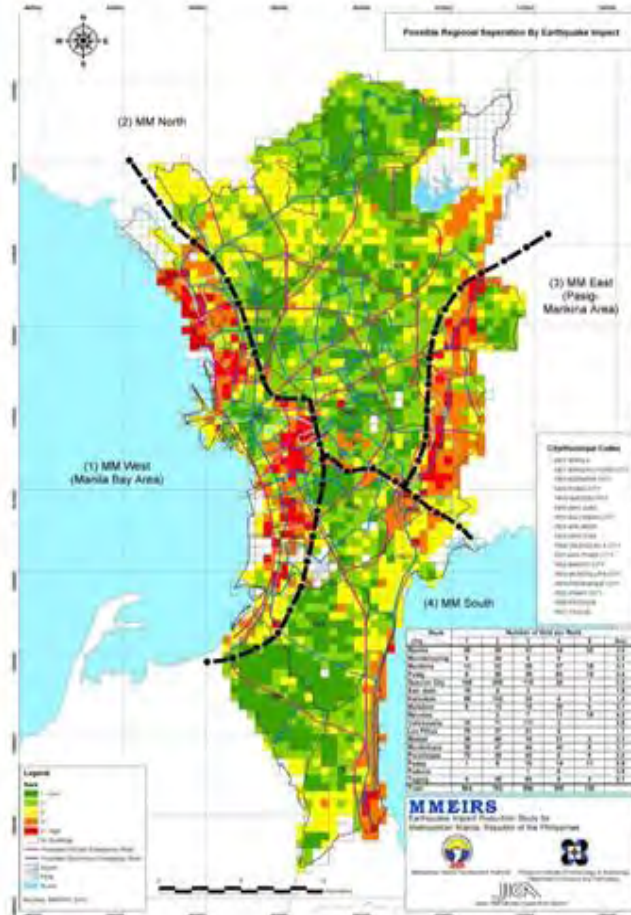
CATEGORIES	Project Name	Project Description	Project Benefit	Project Start Date	Project Completion Date	Total Project Cost	Status (P, OG, PL, C)*	Yearly Disbursement			
								2017	2018	2019	2020 and Beyond
STRENGTHENING INFRASTRUCTURE											
SYSTEMS ➤ Persons ➤ Facilities ➤ Standard Operating Procedures (SOPs) ➤ Product / Content											
STOCKPILING ➤ Inventory											
RESPONSE & RECOVERY ➤ Pre ➤ During ➤ Post											
Others											

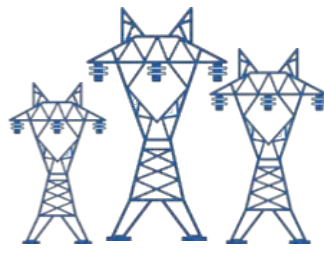
*P: Proposed, OG: On-going, PL: Pipeline, C=Completed

RESILIENCY COMPLIANCE PLAN TEMPLATE



MAGNITUDE 7.2 EARTHQUAKE (“THE BIG ONE”)





“THE BIG ONE” EARTHQUAKE SCENARIOS*



BAD Scenario:
Power and communication facilities remain operational



WORSE Scenario:
50% of power, energy and communication facilities are no longer operational



WORST Scenario:
80% of power, energy and communication facilities are no longer operational

*Based on the Metro Manila Earthquake Impact Reduction Study (MMEIRS)



Energy

Contingency Plan

Guiding Principles

- Priority in the **RESTORATION OF ELECTRIC SERVICE** shall be given to installations vital to national security
- Priority in the **ALLOCATION OF PETROLEUM PRODUCTS** shall be given to vital and strategic activities
- Associated effects on **DOMESTIC SOCIO-POLITICAL STABILITY SHALL BE ADDRESSED IMMEDIATELY** by agency concerned



POWER

Preparedness Plan

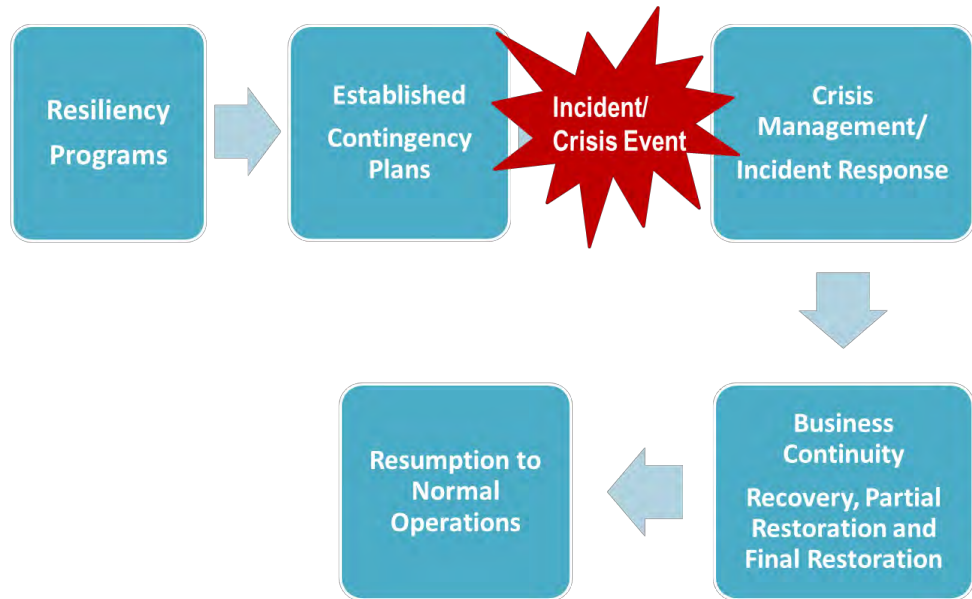


Business Continuity Plans

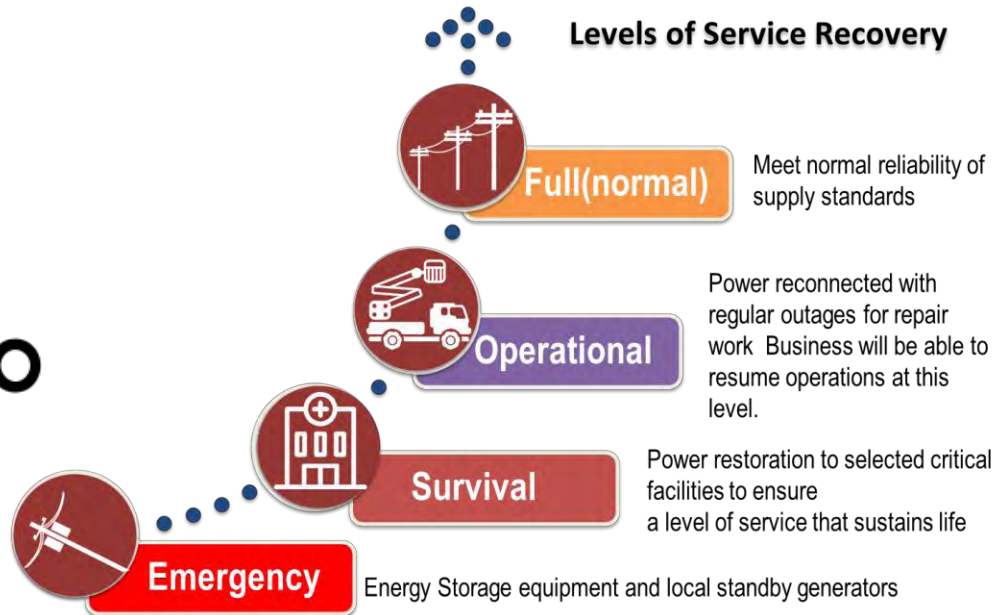
TRANSMISSION



*Business Continuity Management System
ISO 22301*



DISTRIBUTION



OIL

Contingency Plan

- Assumptions
- Execution
- Phases
 - ✓ Predict
 - ✓ Prepare
 - ✓ Perform



INTERNAL SUPPLY DISRUPTION

Triggered by events such as;

- (a) calamities,
- (b) labor disputes,
- (c) community disputes, and
- (d) other localized supply distribution problems such as fires/ major accidents, stopping operations in refineries and bulk distribution points and preventing deliveries to/from depots or retail outlets.



FORCED CLOSURE

Forced closure of strategic facilities such as refineries and major depots like those in Batangas, are examples, and the major oil companies have their own respective contingency measures thus no longer discussed in the plan.



EMERGENCY POWERS

The President may exercise emergency powers to effectively deal with the oil supply shortage and the economic and socio-political disruptions it could entail



ANTI-GOVERNMENT FORCES

Anti-government forces may attempt to take advantage of the crisis and initiate actions to further destabilize the situation



ASSUMPTIONS



Execution

1. Initiate efforts and coordinate with the local oil industry players and other concerned government agencies to stabilize domestic oil supply
2. Spearhead an inter-agency effort through the Energy Contingency Task Force (ECTF) to address the threat of an oil shortage.

PREDICT

- Pre-contingency Scenario
- Intensifying intelligence collection
- DFA could set-up an **“Early Warning” system**
- DOE to coordinate with the local oil supplies
- DOE shall request mobilization of the ECTF

PREPARE

- Preparatory activities in anticipation of the situation deteriorating to a higher level – supply diversification, building up oil inventories and foreign exchange, and securing of energy facilities

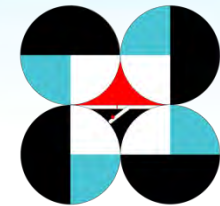
PERFORM

- Implementation of fuel allocation, rationing and conservation schemes
- Possible declaration of a crisis situation to the President
- De-facto partial and temporary suspension of RA 8479
- Regulation of local prices of petroleum
- Reduction in allocation of a particular industry





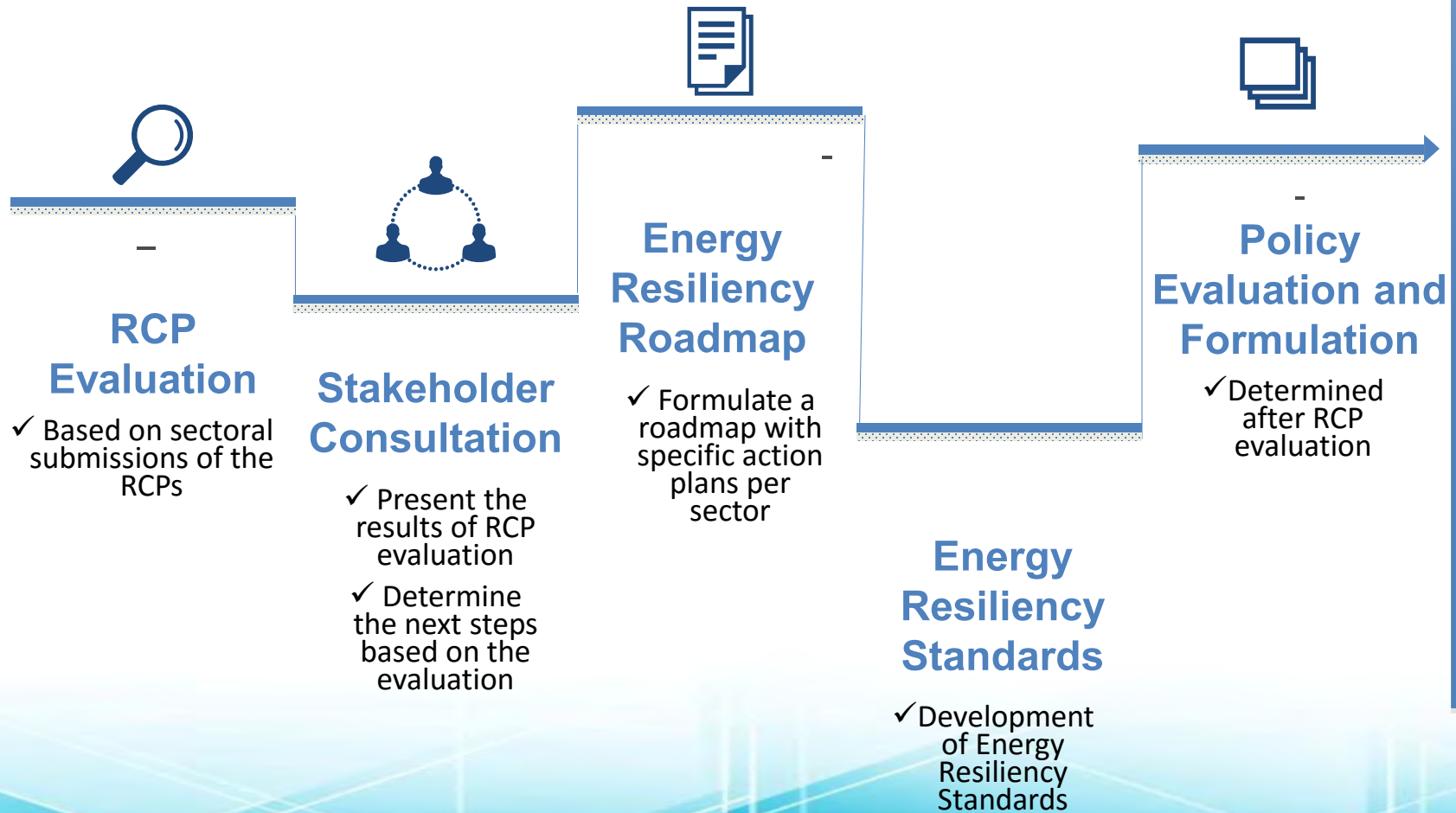
PARTNERSHIP



MOA signing between DOE and PHIVOLCS on the capacity enhancement of the energy sector on hazard, risk assessment, and exposure database development through the use of the REDAS software
Signed: 16 MARCH 2018



WAY AHEAD





Thank You!



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