Chapter XI. EMBRACING A CULTURE OF RESILIENCY IN THE ENERGY SECTOR

The Department of Energy (DOE) renders efficient services through formulation and implementation of policies and programs that are relevant to the emerging needs of the energy sector to improve the quality of life of all Filipinos. Among the priorities within the planning horizon is to ensure an energy system that is resilient from risks and vulnerabilities of both natural and human-induced hazards.

The promulgation of the *Philippine Disaster Risk Reduction and Management Act of 2010 or Republic Act (RA) No. 10121* resulted in a paradigm shift – from disaster-centered response into four (4) thematic areas covering disaster mitigation, disaster preparedness, disaster response and disaster recovery and rehabilitation. Towards the goal of a ***"safer, adaptive and disaster-resilient communities,"*** the National Disaster Risk Reduction & Management Council (NDRRMC)[116] has been strengthened to serve as the country's focal entity in terms of disaster risk reduction. On the other hand, the DOE, pursuant to its mandate of ensuring energy access, shall formulate policies and establish standard operating procedures to have a coherent coordination mechanism among energy industry participants.

It is within these premises where the Energy Resiliency Policy (ERP) has been formulated to guide the energy industries in adopting measures to enhance reliability and security of the energy system. While still in its infancy stage, the ERP has gained traction from the industry to focus on cooperation and partnership between the government and the private sector, and among energy participants as the benefits of working together in times of disasters are realized.

A. ASSESSMENT

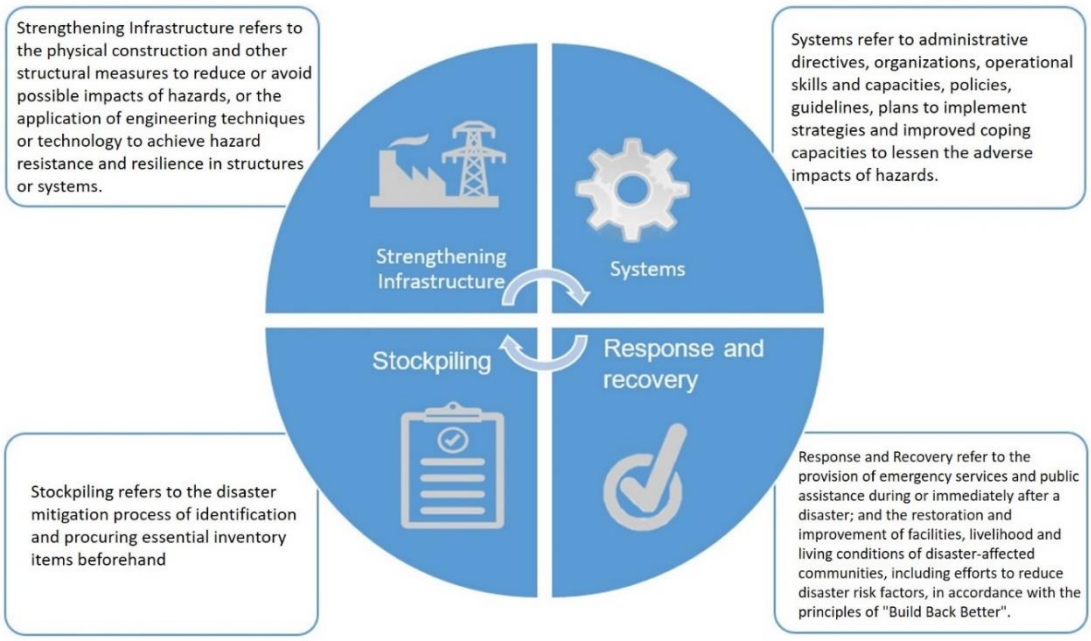
ADOPTION OF THE ENERGY RESILIENCY POLICY

On 17 January 2018, Secretary Alfonso G. Cusi signed Department Circular (DC) No. 2018-01-0001 titled *"Adoption of Energy Resiliency in the Planning and Programming of the Energy Sector to Mitigate Potential Impacts of Disasters,"* which aims to:

- Institutionalize the development, promotion and implementation of a comprehensive Resiliency Compliance Plan (RCP) to strengthen the capacity, promote a safety culture and disaster preparedness, and improve response mechanisms of the energy sector;

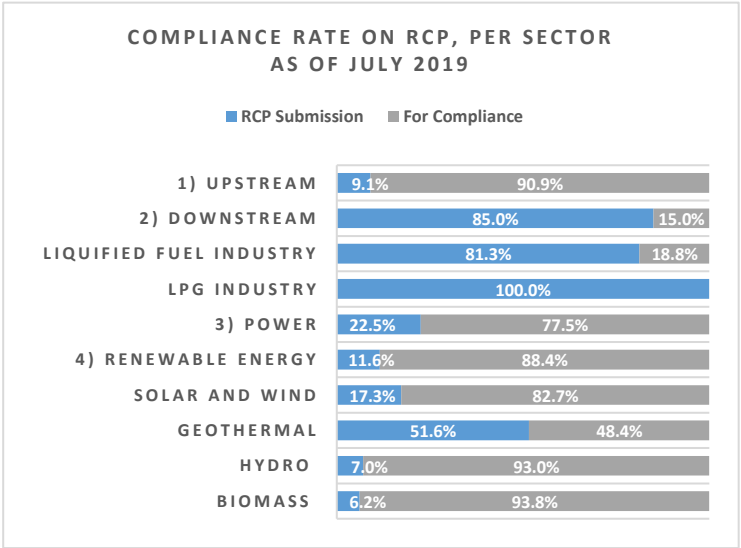
[116] Formerly known as the National Disaster Coordinating Council (NDCC).

Figure 92. RESILIENCY COMPLIANCE PLAN CATEGORIES



- Strengthen existing infrastructure facilities to adapt and withstand adverse conditions and disruptive events;
- Incorporate mitigation improvements into the reconstruction and rehabilitation of damaged infrastructure in accordance with the *Build Back Better* principles;
- Improve operational and maintenance standards and practices to ensure efficient restoration of energy supply in the aftermath of disruptive events; and
- Develop resiliency standards for future construction of energy facilities to ensure minimal damage and adoption of measures for timely recovery and restoration of energy supply.

Figure 93. COMPLIANCE RATE OF RCP SUBMISSION VS ACTIVE PROJECTS, By Sector



The RCP intends to mainstream disaster risk reduction programs into planning and investments to ensure continuous delivery and enhance existing energy infrastructure. It provides both engineering and non-engineering measures to ensure infrastructure and human resource disaster preparedness. Likewise, it encompasses activities such as stockpiling, system development and planning, response and recovery including disaster protocols (*Figure 93*). As of 30 July 2019, a total of 147 RCPs were submitted to the DOE across the different sectors (*Figure 92*).

Preparing and Planning for the "BIG" One

The Philippine Institute of Volcanology and Seismology (PHIVOLCS) recorded an average of 20 earthquakes a day. The "Big One" remains a big threat with an estimated magnitude of 7.2 (intensity VIII) resulting from the movement of the West Valley Fault (WVF) system that will affect Metro Manila and other neighboring regions through massive destruction to infrastructure and facilities, among others.

During the signing of MOA with the DOST-PHIVOLCS on the use of REDAS software

The DOE already started looking into the preparedness measures to ensure availability of energy supply in the event of an earthquake. This initiative has been established even before the passage of Executive Order (EO) No. 52 titled *"Creating the Program Management Office for Earthquake Resiliency of the Greater Metro Manila Area"* on 8 May 2018. This sets the proactive approach of the energy sector in tackling energy resiliency issues and concerns.

On 16 March 2018, the DOE in partnership with the Department of Science and Technology (DOST) – PHILVOLCS signed a Memorandum of Agreement (MOA) titled *"Capacity Enhancement of the Energy Sector on Hazard, Risk Assessment and Exposure Database Development through the use of the* Rapid Earthquake Damage Assessment System (REDAS) *Software."* The REDAS, a locally developed software, provides a quick and near real-time simulated earthquake hazard information to help disaster managers assess the distribution and extent of the impacts of a strong earthquake. The software could help the energy sector decide and prioritize the deployment of timely operations. Further, it serves as a tool in convincing land use planners, policymakers, city and town development planners, and even local government executives to consider earthquake hazards in their planning and development efforts to have a long-term mitigation of seismic risks. On 02-07 September 2019, the DOE personnel, along with the representatives from the National NEA, participated in the REDAS training at Kasa Luntian in Tagaytay City.

REDAS participants from various DOE Units and NEA together with the trainers from the DOST-PHIVOLCS led by Deputy Director Bartolome C. Bautista.

As an off-shoot activity, a Focus Group Discussion (FGD) with about 15 energy industry players was conducted on 11 September 2019. The FGD was conducted to address issues and concerns raised during the workshop on the Updating of the National Contingency Plan for the "Big One",

specifically on determining a collective Recovery Time Objective (RTO) for the industry, information sharing and classification of confidentiality, sharing of resources and deployable assets, stockpiling and cross-training, to name a few.

The DOE also participated in various workshops on the standardization of the BCP template, development of the Public Service Continuity Plan (PSCP) and harmonization of the National Contingency Plan in preparation for the "Big One."

Updating of the National Energy Contingency Plan

The Workshop on updating the NECP was held on July 24-25, 2019 at F1 Hotel Manila, Bonifacio Global City, Taguig City.

The *National Energy Contingency Plan* (NECP) was developed to address both oil and power supply disruption. It was guided by the principles of prioritization in the restoration of electricity service for installations vital to national security, allocation of petroleum products for critical and strategic activities, and considerations of associated effects on domestic socio-political stability that shall be addressed immediately by concerned agencies.

The updating of NECP seeks to cover the following: (1) exposure database of energy facilities; (2) identify possible scenario and assumptions (including associated effects on domestic socio-political stability arising from energy interruptions); (3) develop the concept of operations indicating the proposed systems and capabilities that may be employed to achieve the desired objectives; and (3) develop an organizational structure, including command structure and control mechanisms, for emergencies and disasters and harmonize it with other plans.

Participants from the Power & Oil Sectors during the NECP Writeshop at Quest Hotel, Clark, Pampanga

As the National Capital Region (NCR) was among the pilot areas for the Nationwide Simultaneous Earthquake Drill, MERALCO was given opportunity to test its BCP and re-validate its coordination mechanisms during disasters on 14 November 2019. The simulation exercise was evaluated by the Office of Civil Defense (OCD-NCR) and the DOE. Results of the exercise showed improvement in some of the response protocols, but MERALCO was generally able to perform those indicated in its BCP.

Opening Ceremony of the 4th Quarter NSED at MERALCO Compound attended by Pasig Mayor Vico Sotto, Usec. Lopez of DOE, Usec. Solidum of DOST-PHIVOLCS, President Rene Meily of PDRF, and Other Officials from MERALCO, OCD and PNP

The DOE likewise conducted a seminar / forum on resiliency planning for the downstream oil industry 8players to revisit and/or improve their respective Downstream Oil Contingency Plans and the Downstream Oil industry Resiliency Plans on 20 - 22 November 2019. The activity with a theme "Resiliency: Beyond Business Continuity, HOPE" provided current challenges the industry must prepare for and address relative to mitigating the impact of natural disasters.

Strengthening Partnerships

To further widen the reach of promoting energy resiliency, the DOE and the Safety and Health Association of the Philippine Energy Sector, Inc. (SHAPES Inc.) entered into an MOU on 17 August 2018 detailing the engagement of different stakeholders in supporting the development and implementation of policies, strategies, programs and activities to institutionalize mechanisms to prepare for, respond to and recover from disasters.

MOU between the DOE and the PDRF on 27 November 2018

Recognizing the participation of private industry players in the energy sector, the TFER pursued such partnership for the implementation of policy framework, strategies, programs and activities to link government agencies, private sector organizations and other partners to attaining a resilient energy sector.

SECURING ENERGY FACILITIES DURING EMERGENCIES AND DISASTERS

TROPICAL CYCLONE

The geographical location of the Philippines makes the country one of the most vulnerable to natural hazards, experiencing about an average of 20 tropical cyclones per year causing flash floods, storm surges and landslides. The Task Force on Energy Resiliency (TFER), created under DC 2018-01-0001, monitored and responded to the following tropical cyclones, which affected the country:

2018

- ***Typhoon "Ompong" (International Name: Mangkhut)*** recorded peak intensity of 205 kilometer per hour (kph) and made landfall on 15 September 2018 over the remote portion of Baggao, Cagayan. It was the strongest tropical cyclone to hit the country affecting mostly the energy facilities in Northern Luzon and some parts of Southern Luzon. The National Electrification Administration (NEA) activated its Task Force Kapatid, a bayanihan program that mobilized 43 contingents from the different electric cooperatives (ECs) and private distribution utilities (DUs) to hasten the power restoration efforts in Cagayan.

- ***Typhoon "Rosita" (International Name: YUTU)*** entered the country on 27 October 2018, barely a month after the devastation of Typhoon Ompong and only a few days after the completion of power restoration efforts of the affected ECs. Following the track of Typhoon Ompong, it affected the Northern and Central Luzon with an intensity of 200 kilometer per hour (kph). Typhoon Rosita affected Northern and Central Luzon.

- ***Tropical Depression Samuel*** had maximum sustained winds of 55 kph and gustiness up to 65 kph and made landfall on 21 November 2018 affecting energy facilities in some parts of the Visayas region and Southern Luzon.

- ***Tropical Depression Usman*** was the last recorded tropical cyclone towards the end of 2018 but eventually weakened into a Low-Pressure Area (LPA) upon landfall in the vicinity of Eastern Samar on 29 December 2018. There were no significant effects reported during the LPA. However, the consistent moderate to heavy rains affected some energy facilities in Luzon and Visayas regions.

2019

While people expected 2019 to be the tipping point of catastrophic earthquakes, two (2) waves of Typhoons still made landfall before the end of the year *(Table 66)*. On 25 November 2019, Typhoon "Tisoy" initially formed as a tropical depression in the Pacific and developed into a Category 4-equivalent typhoon before making a landfall on 05 December 2019 in the Bicol Region, which left heavy damages in the sector. Followed by Typhoon "Ursula" that a made landfall just before the Christmas day and affected mostly the provinces in Visayas region.

Bayanihan Efforts: Contingents from Other Electric Cooperatives Assist in Bringing Power of Affected Areas

- ***Typhoon "Tisoy" (International Name: Kammuri)*** had a maximum sustained wind from 165 kph to 215 kph, which caused severe damages in the energy facilities in Regions III, CALABARZON, MIMAROPA, V, VIII, CARAGA and CAR. The energy family continued working together for the immediate full restoration of energy services, specifically in the Southern Luzon area.

Table 66. SUMMARY OF EFFECTS OF TYPHOONS TISOY AND URSULA

TROPICAL CYCLONE	 POWER GENERATION	 TRANSMISSION	 DISTRIBUTION	 OIL SUPPLY
Typhoon Tisoy 30 November– 05 December 2019 **Highest winds:** 215 kph **Areas/Regions Affected:** Regions III, CALABARZON, MIMAROPA, V, VIII, CARAGA and CAR	▪ NPC reported 47 affected Diesel Power Plants (DPPs) / Power Barges in the areas of Mindoro, Romblon, Marinduque, Quezon, Aurora, Isabela, Catanduanes, Albay, Camarines Norte, Camarines Sur, Masbate and Samar.	**Albay** ▪ Affected Customer: 2nd District ▪ Affected Lines: three (3) Transmission Lines ▪ Structure Damage Assessment: 19 toppled towers **Camarines Sur** ▪ Affected Customer: Camarines Sur Electric Cooperative (CASURECO) I, II, III, IV ▪ Structure Damage Assessment: 94 leaning poles, 86 toppled poles, eight (8) broken poles, three bended poles **Sorsogon** ▪ Affected Customer: Sorsogon Electric Cooperative (SORECO) I and II ▪ Structure Damage Assessment: six (6) bend / broken / cut poles, 56 leaning poles, 31 toppled poles	▪ Affected ECs: 27 ▪ Total Household Connection: 2,547,751 ▪ Preliminary Assessment of Damage: PhP911.7 million **Task Force Kapatid** ▪ Line Workers: 465 ▪ Boom Trucks / Utility Vehicle: 96	▪ Most of oil companies reported enough supply and operational. However, some retail outlets were closed due to damages in Bicol.
Typhoon Ursula 23 - 28 December 2019 **First landfall:** 24 December 2019 **Highest winds:** 180 kph **Areas/Regions Affected:** Eastern Visayas, Northeastern Mindanao, Bicol Region, Central Visayas, CALABARZON, MIMAROPA and Western Visayas	▪ As a safety protocol, the NPC-SPUG power plants in Bicol suspended operations due to strong winds and heavy rainfall.	**Panit-an-Nabas 138 kV** ▪ Affected Customer: Major backbone, no customer connected ▪ Structure Damage Assessment: 14 toppled towers **Nabas – Avon 69 kV** ▪ Affected Customer: No load ▪ Structure Damage Assessment: two toppled pole and one (1) leaning pole **Northern Leyte (Ormoc-San Isidro & Babatngon-Apitong-Arado)** ▪ Affected Customer: Don Orestes Romualdez Electric Cooperative (DORELCO), Leyte Electric Cooperative (LEYECO) II and III ▪ Structure Damage Assessment: 12 toppled poles and 15 leaning poles **Eastern Samar (Paranas-Taft-Borongan-Quinapondan)** ▪ Affected Customer: Eastern Samar Electric Cooperative (ESAMELCO) ▪ Structure Damage Assessment: 11 toppled poles and three leaning poles **Negros Oriental (Amlan-Guihulngan)** ▪ Affected Customer: Negros Oriental Electric Cooperative (NORECO) I and II ▪ Structure Damage Assessment: one toppled pole **Iloilo (Concepcion-Sara-Estancia)** ▪ Affected Customer: Iloilo Electric Cooperative (ILECO) III ▪ Structure Damage Assessment: five (5) toppled poles, five leaning poles and one broken pole **Capiz (Panit-an-Sapian)** ▪ Affected Customer: Capiz Electric Cooperative (CAPELCO) ▪ Structure Damage Assessment: one leaning pole **Aklan (Nabas-Sapian)** ▪ Affected Customer: Aklan Electric Cooperative (AKELCO) Structure Damage Assessment: one toppled pole and one leaning pole **Antique (Nabas-Culasi)** ▪ Affected Customer: Antique Electric Cooperative (ANTECO) ▪ Structure Damage Assessment: No damage	▪ Affected Electric Cooperative: 18 ▪ Total Household Connection: 1,617,749 ▪ Preliminary Assessment of Damage: PhP579.5 million **Task Force Kapatid** ▪ Line Workers: 507 ▪ Boom Trucks / Utility Vehicle: 77	▪ 18 retails stations were rendered unoperational due to damages in Capiz, Aklan, Leyte and Biliran. ▪ Price freeze on petroleum products took effect in the areas placed under a State of Calamity.

- ***Typhoon "Ursula" (International Name: Phanfone)*** entered the country nearly a month after while power restoration of energy facilities from the effects of Typhoon Tisoy was still on-going. On 23 December 2019, Typhoon Ursula barreled through Central Visayas leaving devastation to a lot of areas.

With the magnitude of effects brought by both Typhoon Tisoy and Ursula, the NEA's Task Force Kapatid was activated and mobilized more than 972-line workers and 173 boom trucks / utility vehicles from assisting electric cooperatives from all over the country. MERALCO also joined the Task Force to assist in the power restoration in the Bicol Region.

EARTHQUAKES

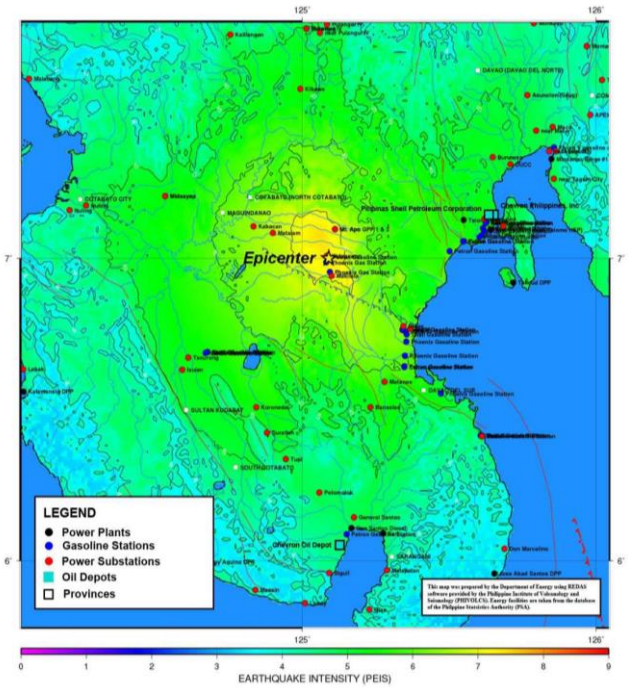
- ***Magnitude 6.1 Earthquake in Castillejos, Zambales.*** On 22 April 2019, an earthquake with a magnitude 6.1 shook the provinces of Zambales, Pampanga and vicinity. The epicenter was located 18 kilometers east of Castillejos, Zambales, on a mountainous area and at a depth of 10 kilometers.

  Immediately after the earthquake, the TFER alerted its members to activate their respective Operation Centers, conduct continuous monitoring of the situation, undertake precautionary measures in their areas of responsibility, activate action plans and/or contingency plans, adopt and implement mitigating measures, and regular submission of status of facilities/systems/ areas, as well as any emerging problem that may affect energy supply. The National Grid Corporation of the Philippines (NGCP) immediately activated its 24/7 monitoring for the status of transmission facilities in Luzon. On the other hand, the NEA advised all the concerned ECs to take appropriate contingency measures to mitigate the impacts of potential threats that might affect electricity service to the consumers. *Table 67* shows the affected regions and provinces by the earthquake.

  After the conduct of restoration efforts in the affected franchise areas, MERALCO dispatched canter vehicles and generator sets with floodlights to Porac, Pampanga to support the search and rescue operations in the collapsed supermarket caused by the earthquake.

- ***Magnitude 6.5 Earthquake in San Julian (Eastern Samar).*** A day after the devastation of the magnitude 6.1 in Zambales, a magnitude 6.5 earthquake hit San Julian in Eastern Samar on 23 April 2019. The earthquake shook the Visayas provinces including nearby provinces in the Bicol Region.

  An outright assessment was done by members of the TFER. Power plants were reported on normal operation. In terms of transmission system, restoration of power transmission lines was conducted to the entire franchise of Northern Samar Electric Cooperative (NORSAMELCO), specifically the Paramas – Quinapondan line.



Intensity Map generated through the Rapid Earthquake Damage Assessment System (REDAS) by the Information Technology and Management Services of Magnitude 6.5 Earthquake in Tulunan (Cotabato)

Table 67. SUMMARY OF EFFECTS OF 2019

EARTHQUAKE	 POWER GENERATION	 TRANSMISSION	 DISTRIBUTION	 OIL SUPPLY
Magnitude 6.1 Earthquake in Castillejos, Zambales 5:11 pm, 22 April 2019	▪ Four power plants went on unplanned / forced outage with total capacity of 780MW.	▪ Eight transmission lines were isolated.	▪ One private distribution and 15 ECs were affected.	▪ A price freeze for household liquefied petroleum gas (LPG) and kerosene products after the declaration of State of Calamity in Pampanga on 22 April 2019.
Magnitude 5.9 Earthquake in Itbayat (Batanes) 4:16 am, 27 July 2019	▪ Itbayat DPP went on automatic shutdown at 4:20 am. At 11:00 am, Itbayat DPP was ready for operation and waiting for signal to operate from BATANELCO.	▪ Not applicable	BATANELCO ▪ Out of 885 households, 113 were totally damaged by the earthquake. ▪ Date/Time Off: 3:50 am, 27 July 2019 ▪ Date Restored: 02 August 2019	▪ Petron gasoline station in Basco, Batanes was under normal operation but advised to stop operations due to aftershocks. ▪ No reported damages on fuel station in Basco, Batanes. Fuel supply was normal at 60 kiloliter (kl) per month.
Cotabato Fault System Earthquake Series	▪ MGPP and MAGPP Units 1 and 2 were affected.	▪ The Mindanao transmission backbone remained intact. However, the NGCP's Kidapawan substation suffered damages.	▪ DASURECO and COTELCO were affected.	▪ Nine gasoline stations in some parts of Cotabato and Digos were temporarily closed due to minor damages and/or precautionary safety measure.
Ms6.9 Earthquake in Davao Del Sur 2:11 pm, 15 December 2019	▪ Five power plants with total capacity of 309 MW went on unplanned / forced outage but were restored immediately.	▪ Power transmission services of Mindanao remained normal. ▪ The Mindanao Grid remained intact. However, three transmission lines tripped due to the earthquake.	▪ DASURECO and COTELCO were affected.	▪ Two gasoline stations in Digos were unoperational due to structural damage.

- ***Magnitude 5.9 Earthquake in Itbayat (Batanes).*** On 27 July 2010, at 4:16 AM, a Magnitude 5.6 earthquake were recorded in Itbayat (Batanes). Itbayat Diesel Power Plant went on automatic shutdown but was ready for operations afterwards. Batanes Electric Cooperative (BATANELCO) reported that 113 households were totally damaged by the earthquake and power was restored on 2 August 2019. Supply of petroleum products was on normal operation with no reported damages.

- ***Cotabato Fault System Earthquake Series.*** Months after the earthquake experiences of Luzon and Visayas, Mindanao was shook by Magnitude 6.3 earthquake with an epicenter in Tulunan (Cotabato) on 16 October 2019. Days after, another strong earthquake with Magnitude 6.6 hit the same municipality. Mindanao Geothermal Power Plant (MGPP) and Mt. Apo's Geothermal Power Plant (MAGPP) Units 1 and 2 went on preventive shutdown. The NGCP's Kidapawan substation suffered damages but Mindanao transmission backbone remained intact. Davao Del Sur Electric Cooperative (DASURECO) and Cotabato Electric Cooperative (COTELCO) were affected and nine (9) gasoline stations in some parts of Cotabato and Digos temporarily closed due to minor damages and for precautionary safety measure.

- ***Magnitude 6.9 Matanao, Davao Del Sur Earthquake.*** Still planning for the rehabilitation of areas affected by Cotabato Fault System Earthquake Series, a strong Magnitude 6.9 shook the whole province of Davao Del Sur and nearby areas. As reported, five power plants with aggregated supply of 309 MW went on unplanned outage but immediately restored. Further, Mindanao transmission backbone remained intact. DASURECO and COTELCO reported damages to their franchise areas. Oil supply remained sufficent even though two gasoline stations in Digos became unoperational.

SYNCHRONIZED BARANGAY AND SANGGUNIANG KABATAAN ELECTION (BSKE) 2018 AND NATIONAL MID-TERM ELECTIONS 2019

With the ERP serving as an overarching policy, the DOE issued DC 2018-05-0014 "*Creating the Energy Task Force Election (ETFE) to "Ensure Adequate and Reliable Energy Supply Before, During and After Elections."* The said Circualr served as a guidepost in securing energy facilities to maintain undisruptive supply of energy during the conduct of elections. The ETFE was composed mainly of representatives from the energy family, key support organizations and the security group.

Synchronized Barangay and Sangguniang Kabataan Election (BSKE) 2018

Adequate and reliable power supply was ensured before, during, and after the BSKE 2018, though there were reports of isolated line tripping in some areas that were immediately restored/responded by the concerned agencies. The active participation of the energy family in the BSKE 2018 was recognized by the Commission on Elections (COMELEC) with the commendation award given to the DOE for ensuring sufficient power supply during the election.

2019 National Mid-term Election

The COMELEC Resolution No. 10471 deputized government agencies to provide sufficient uninterrupted electrical power supply and secure the transmission infrastructure and facilities during critical days of the election. In view of this, the ETFE was activated and a series of preparedness meetings were held.

The DOE, as the Chair of the TFER, activated the ETFE on 04 February 2019 through DC 2018-05-0014 that defined responsibilities of the agencies including the tasks for monitoring and reporting of preparedness measures, status of facilities and other incidents monitored.

Energy Secretary Alfonso G. Cusi *received a commendation from the COMELEC Acting Chairman Al A. Parreño on 23 August 2018 for ensuring sufficient power supply during the nationwide Sangguniang Kabataan Elections on 14 May 2018.*

For proper and effective coordination among the concerned agencies, energy family and the security group, the Energy Command Center was activated on 10 May 2019 located at the DOE premises. Likewise, Command Centers of the power sector located nationwide were activated as well from 12-14 May 2019, while the DOE technical personnel were detailed in the COMELEC Monitoring and Command Center (CMCC) in Parañaque City. The NEA Power Task Force Election (NPTE) 2019 was created pursuant to the NEA Office Order No. 2019-033 to ensure a 24-hr operation of the ECs before, during and after elections. On the other hand, the TransCo was tasked to oversee the operations status of the grid through the NGCP's National and Regional Command and Control Centers.

The NPC set up the Operation Center Head Office located at the NPC compound in Quezon City that functioned as the central point for receiving reports from Mindanao and Satellite Operation Centers in off-grid areas. The Mindanao Satellite Operation Center located in the NPC Mindanao Office in Iligan City was the focal point for receiving reports from the Agus and Pulangi hydro plants, while the Satellite Operation Centers located in various locations were the focal points for receiving reports in off-grid areas.

COVID-19 RESPONSES AND MEASURES

On 07 February 2020, the DOE called an emergency meeting with Downstream Oil Industry Stakeholders in connection with the **Department of Health (DOH) Memorandum Circular No. 2020-04** on the "**Guidelines at All Seaports for Prevention and Spread of 2019-N-COV**" to ensure sufficient oil supply for the country. The oil companies ensured one-two months sufficient supply.

Presidential Proclamation No. 922 or the "Declaration of a State of Public Health Emergency throughout the Philippines" was issued on 09 March 2020 to mobilize government and non-government agencies to respond to the threat due to the developing situation on COVID-19. Further, Proclamation No. 922 states that the outbreak of COVID-19 constitute an emergency that threatens national security which requires a whole-of-government response.

In response, the DOE issued a Memorandum on 14 March 2020 to all government agencies, LGUs and energy-related service providers regarding the Implementation of the Memorandum from the Office of the Executive Secretary dated 13 March 2020 on *Ensuring the Unimpeded Delivery of Energy Services* that covers the following:

- Movement of energy-related goods;
- Movement of energy personnel;
- Management of permits; and,
- Adherence to health precautionary measures.

Likewise, the DOE established a ***Bayanihan Energy Service 24/7*** hotlines to cater to all energy-related concerns during the Enhanced Community Quarantine (ECQ).

On 18 March 2020, a Memorandum from the Energy Secretary was issued calling on **public and private power sector corporations to defer payments of obligations and dues for 30 days** after the conclusion of the ECQ period on 14 April 2020.

Energy Secretary Alfonso G. Cusi during the Senate Committee of the Whole briefing on crucial sector updates amid the COVID-19 situation in the Philippines on 21 May 2020

Upon the passage of Republic Act No. 11469 or "*Bayanihan to Heal as One Act*," Secretary Cusi released a Special Order for the Creation of an "*Energy Committee under the Bayanihan to Heal as One Act*," to ensure compliance to the said Act on 02 April 2020.

The DOE also directed the power stakeholders to submit their respective Business Continuity Plan (BCP) under the ECQ and further expanded to include energy resource development and downstream oil stakeholders.

On 6 April 2020, Secretary Cusi issued DC 2020-04-0008 titled ***"Rationalizing the Utilization of ER 1-94 Fund by Host Local Government Units in Response to COVID-19 Public Health Emergency,"*** which provides for the utilization of such funds by the host LGUs to strengthen their programs and measures against COVID-19 during this period. The funds can be used for the following:

- Facilitation of mass testing by providing and constructing facilities and/or acquiring proper medical testing kits to detect COVID-19;
- Provision of an emergency subsidy in the form of non-food to low income households while the State of Public Health Emergency is still in effect; and

- Adoption of measures to minimize disruption in the supply chain, among others.

On 07 May 2020, an *Advisory on Providing Grace Period to all Power Sector Bills Falling Due During the ECQ as extended until 15 May 2020* was released for guidance of all electric power industry participants. All bills being paid during the extended grace period shall bear no interest, penalties, fees and charges.

In response to the issued Administrative Order (AO) of the DOH, the DOE released Department Order (DO) 2020-04-007 on 29 April 2020 titled "Providing for Minimum Health Standards for COVID-19 Mitigation to DOE Personnel and its Workplace and Shared for Application to All Players and Stakeholders in the Entire Energy Industry."

As a result of submitted BCPs of the energy stakeholders, the DOE issued COVID-19 Response Protocol through AO 2020-05-0001 on 21 May 2020. The Protocol's general framework is based on the following interventions: (1) Prevention, (2) Detection, (3) Isolation, (4) Treatment, (5) Reintegration to the Workforce, and (6) Adapting to the "New Normal.

For the DOE and its attached agencies, the COVID-19 Response Protocol shall be incorporated in their respective Public Service Continuity Plans, while energy industry players are required to incorporate the same into their BCPs, or their equivalent.

Subsequently, a PSCP was released through DO 2020-06-001 on 26 June 2020 to established protocols, measures and strategies for managing the immediate consequences of the COVID-19 pandemic for DOE.

Energy Secretary Alfonso G. Cusi asked the executives of the Manila Electric Company (MERALCO) to explain to explain the spike in May bills and other related complaints including the convenience fee on 26 May 2020

Effects of Taal Volcano Eruption 2020

Still coping with the series of disaster in 2019, on 12 January 2020, DOST-PHIVOLCS raised the Taal Volcano alert status to ALERT LEVEL 4. Upon receipt of the alert status, the Task Force on Energy Resiliency (TFER) alerted its members pursuant to the Department Circular No. DC2018-01-001.

The phreatic or steam-driven activity of Taal Volcano progressed into MAGMATIC ERUPTION and generated 800-meter tall dark gray steam-laden plumes that drifted to the general southwest. On January 12, 2020, the System Operation declared Market Intervention at 1807H for the trading interval 1900H due to un-implementable Real Time Dispatch (RTD) at Group 3 (Ilijan, San Lorenzo and Sta Rita Power Plants) due to line constraint. On January 17, 2020, Market intervention initiated by System Operator was lifted at 0355H, Market resumed for 0500H (0401H-0500H) trading period.

The National Grid Corporation of the Philippines (NGCP) implemented contingency measures and reported the affected six (6) transmission lines.

The National Electrification Administration reported two (2) affected electric cooperatives: Batangas I Electric Cooperative, Inc. and Batangas II Electric Cooperative, Inc., with a total 251,917 household connections in 349 barangays. In terms of MERALCO franchise areas, a total of 183,538 affected customers were recorded in provinces of Cavite and Laguna due to ash fall.

A State of Calamity (SOC) has been declared in the entire province of Batangas and prompted price freeze for household LPG and kerosene products.

The Oil Industry Management Bureau accounted 22 gasoline stations in Batangas, two (2) in Laguna and seven (7) in Cavite that became not operational due to ash fall and other restrictions.

Immediately after the eruption, the Department of Energy (DOE) conducted electrical inspections of service drops, panel conditions, and load types of lighting, fans, and charging to ensure that proper power services are being provided in the evacuation centers on the affected areas. Further, the DOE team distribution of emergency lights, portable solar power lamps, solar power banks, and clothing to volunteers.

B. PLANS AND PROGRAMS

Cognizance of the vital contribution of energy in fuelling the economy, any disruption or failure in the energy system would have negative consequences on the country's economic activities and daily life of the people. With this backdrop, the development of the energy sector Disaster Risk Reduction and Management (DRRM) plans, policies, programs, and standards operating procedures is crucial to ensuring continuous delivery of energy services to the economy and the public.

The energy sector is moving toward mainstreaming the culture of resiliency through strengthening the energy infrastructure, establishing standards and systems, formulating response and recovery protocols, mitigation/contingency plans and activities to address the impacts of disasters on energy supply and services. Integrating energy resiliency into development planning and disaster operations of the energy sector will propel the formulation of DRRM plans, frameworks and policies of the energy sector, conduct of operations during emergencies and disasters and ensure building back better reconstruction and rehabilitation of affected energy facilities. Key activities initially identified are:

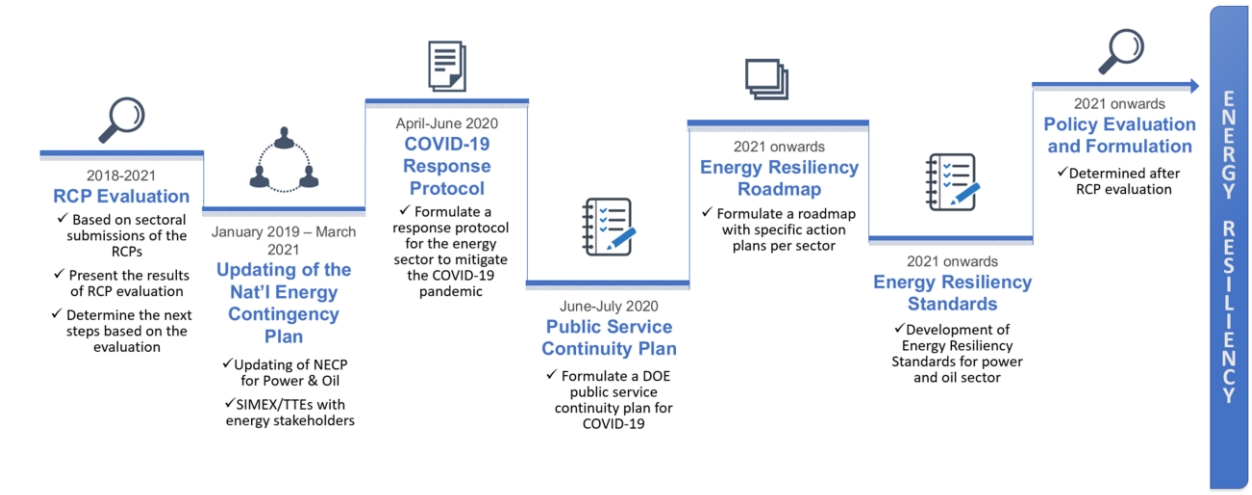
- Developing a sector-based preparedness plan encompassing capacity building, energy response activities including standard operating procedures and other operational manuals linkages;
- Designing and programming the disaster risk and reduction (DRR) activities of the energy sector;
- Conducting researches on related DRR programs, policies, and activities of the energy sector;
- Formulating DRRM risk assessment and plan, framework and policies of the energy sector;
- Disseminating information and raise public awareness of DRRM related activities of the energy sector;
- Conducting continuous monitoring and mobilizing personnel during emergencies;
- Establishing linkages with the stakeholders before, during and after emergencies and disasters;
- Conducting comprehensive damage and loss assessment in the energy sector;
- Conducting periodic monitoring and inspection of rehabilitation programs and projects of the energy sector;
- Formulating standards for rehabilitation development for inclusion in the DRR measures in the energy sector; and,
- Assisting in processing and evaluating proposals for funding of projects and activities.

WAY FORWARD

Energy resiliency remains a flagship program of the DOE. With lessons learned from previous tropical cyclones, earthquakes and even human-induced disasters, the promulgation of the ERP propelled the advocacy to mainstream energy resiliency into programs, plans and activities of all industry participants.

With the changing landscape of disaster risk reduction, the energy resiliency put priority actions *(Figure 94)* to improve the whole value chain of the sector in terms strengthening the ability of the energy system to withstand the impact of hazards and recover from any disruption of the energy supply.

Figure 94. WAY FORWARD



The submission of the RCP, along with the set programs, paves the way for the formulation of the ERP that constitutes short-, medium- and long-term plans, programs and activities. The NECP for oil and power will also be updated to strengthen preparedness, mitigation, and response and recovery measures to have continuous energy supply during emergencies and disasters. It is the government's priority to have a faster recovery from projected threat of the "Big One." As an end goal and to institutionalize resiliency mechanisms, energy resiliency standards will be formulated to safeguard energy facilities. As a contribution to the fight against COVID-19 pandemic and for future similar diseases, the DOE formulated COVID-19 Response Protocol and the PSCP shall be updated periodically.

With an overall objective of mainstreaming the DRRM plans, frameworks and policies into the energy sector, the Energy Resiliency Roadmap, together with the development of the Energy Resiliency Standards, will set the course and direction of the sector toward achieving a higher level of resiliency to disaster. This will be developed in sectoral approach to include the upstream oil and gas, downstream oil and gas, power, renewable energy, and energy utilization. The roadmap will be aligned and guided with the principles stipulated in the Energy Resiliency Policy.

Moving forward for an energy resilient Philippines with a shared vision of stable, secure, sufficient, accessible and reasonably-priced energy, the DOE continues to strive for greater energy supply security as a precursor for sustainable economic development.