

3rd Renewable Energy (RE) Congress and Exhibit, and 1st iCREATE RE-Building Better: Strengthening the Role of Renewable Energy in Recovery and Development 18 December 2020, Philippines

About the RE Congress-iCREATE

On 18 December 2020, the Center for Empowerment, Innovation and Training on Renewable Energy (CentRE) and Ateneo de Davao University-Center for Renewable Energy and Appropriate Technologies (AdDU-CREATE), together with the Mindanao Development Authority and Friedrich Ebert Stiftung-Philippines Office, jointly convened the 3rd Renewable Energy (RE) Congress and Exhibit, and 1st International Conference on Renewable Energy and Appropriate Technologies (iCREATE) under the theme “REbuilding Better: Strengthening the Role of Renewable Energy in Recovery and Development. The event was held in cooperation with the Mindanao Renewable Energy Research and Development Center (MREC) and New Energy Nexus-Philippines.

The December 18 plenary sessions were preceded by deep dive sessions on December 11 and 14 during which RE practices in disadvantaged and climate-vulnerable areas in the country were shared, and iCREATE paper presentations were discussed focusing on technological advances in RE.

The RE Congress and Exhibit is a flagship project of the CentRE that began in 2018, in partnership with the Friedrich Ebert Stiftung-Philippines Office. It is envisaged as the CentRE’s contribution to the growth of RE industry, particularly of micro-renewables. The first RE Congress and Exhibit took place in Quezon City, followed by the joint RE Congress-Sustainable Energy Ecosystems International Conference (SEECON) in Cebu City in 2019 initiated by the University of San Carlos – Center for Research on Energy Systems and Technologies. These enabled exchanges on RE policies, technologies and practices, and linked various energy stakeholders – people’s organizations, academe, national and local government units, parishes, electric cooperatives, workers, youth, and other industry players.

The iCREATE is an international conference initiated by AdDU-CREATE to bring together key stakeholders of the energy industry and appropriate technologies in Mindanao and Southeast Asia in order to tackle the state of R&D in this field and use the available research to feed the discussions on the issues and sustainable solutions suitable for the Philippines, particularly in Mindanao. It is envisioned to become a premier platform to exchange research ideas, experiences, technical, social, economic, and policy innovations on renewable energy and appropriate technology deployment in Mindanao and the broader Southeast Asian region.

The RE Congress-iCREATE aims to synergize research and development efforts on sustainable energy systems and appropriate technologies for the Philippines and Southeast Asia, with a particular focus on tackling challenges and solutions to make clean energy accessible, affordable, sustainable, resilient, adaptive, inclusive, and responsive especially amid socio-economic, climate, and health crises.

CONGRESS SUMMARY

This summary captures the highlights of a 6-hour program of presentations focusing on societal, financial, and technical perspectives and meaningful cooperation among various sectors that RE advocates, innovators, researchers, and policymakers should take note of in their push towards a more sustainable development path for the future. The event took place on the 18th of December 2020 and was held via Zoom and Lyon virtual platforms.

This RE Congress with its theme, **“RE-Building Better: Strengthening the Role of Renewable Energy in Recovery and Development”** tackled RE initiatives, researches, and policy developments towards strengthening the role of RE and accelerating its deployment in the country.

The plenary sessions and prior deep dive sessions all together gathered some 300 resource persons and participants in a virtual space, all with the shared goal to help boost the various sectors of our society (such as women, farmers, marginalized communities, labor force, etc.) by furthering the development of RE and increasing the stakeholders' awareness on the financial support programs suitable for their RE projects. Participants included RE advocates, members of various local government units (LGUs) and electric cooperatives (ECs), non-government organizations (NGOs), people's organizations, financial institutions, social impact and innovation investors, students and faculty of several academic institutions here and abroad, and guests from national government institutions.

The Congress began with the introduction by Atty. M. Cecilia G. Dalupan, president of the Center for Empowerment, Innovation and Training on Renewable Energy (CentRE), followed by the welcome remarks made by Rev. Fr. Joel Tabora SJ, President of Ateneo de Davao University (AddU), and messages from Mindanao Development Authority (MinDA) Undersecretary Janet Lopez and Friedrich Ebert Stiftung Philippines Office Resident Representative Dr. Johannes Kadura. The opening session set the context for the 3rd Renewable Energy (RE) Congress and Exhibit, and the 1st International Conference on Renewable Energy and Appropriate Technologies (iCREATE), held in this time of the COVID-19 pandemic and economic difficulties. The opening ceremonies were followed by the opening of the floor to the four sessions and the presentations for each session's theme. It concluded with a call for action to take several keywords to heart: *Imperative, Just Energy Transition, and Inclusive Recovery*.

OPENING SESSION

Atty. M. Cecilia G. Dalupan, CentRE President and COO of WeGen Distributed Energy Philippines, welcomed the guests and participants of the plenary session to the virtual RE Congress and iCREATE 2020.

In her introduction, she explained the rationale and objectives of this year's event, stressing its special significance amid this year of the pandemic.

She introduced the Center for Empowerment, Innovation, and Training for Renewable Energy (CentRE) as a multi-stakeholder organization that works closely with the government, academe, and other stakeholder groups to transform the energy sector to one that is cleaner, safer, provides more affordable energy, and one that is ready to respond to the crisis of climate change. She stated the objectives of the organization and the 3rd RE Congress to forge a path for a future where the transition to RE is more fully realized and to achieve this by creating meaningful collaboration among stakeholders from the government, civil society, the private sector, and community-based organizations. She highlighted our collective, urgent, and continuing mission of supporting and collaborating with research institutions and RE advocates across sectors to pursue responsive energy policy reforms and an institutional framework that enables a 100% transition to RE.

On behalf of the CentRE leadership and the entire membership, she paid tribute to RE trailblazers that the community has lost recently, among them Benguet Electric Cooperative (BENECO) General Manager Gerardo ("Gerry") P. Verzosa, former Senator and Chair of the Climate Change Commission Heherson "Sonny" T. Alvarez, and the CentRE's own founding member, board director and vice president – Engr. Roberto "Obet" Verzola.

She ended her address with a message welcoming innovative ideas, cooperation, and collaboration.

A video presentation followed to honor and remember with gratitude Engr. Roberto “Obet” Verzola, who was instrumental in the formation of the CentRE and in realizing the RE Congress and Exhibit as the CentRE’s flagship program. The tribute ended with the entire community’s deepest gratitude for his contributions in pursuing social and ecological justice in the country.

Welcome remarks were then given by **Rev. Fr. Joel Tabora SJ, President of Ateneo de Davao University**. In his remarks, he invoked the teachings of Pope Francis in his encyclical, *Laudato Si’: On Care for Our Common Home*, calling for ecological conversion in today’s society. He warned of the dangers that convenient technologies pose if these continuously feed into consumerism as well as the equally alarming threat of casting those who may be technologically illiterate to barren undeveloped communities. The vicious cycle of consumerism, according to Rev. Fr. Tabora, will lead to a technocratic paradigm that will ravage the earth of all its resources and eat away a hole inside each of us consumers that will never be satisfied with all the improving technologies.

Rev. Fr. Tabora concluded however with the solution to this potentially dooming path — reconciliation with creation. He offered the solution of reconciliation with oneself, with creation and humanity, and with God so that humanity will come to true reconciliation with its environment. He left us with a reminder that the mere improvement of technologies without an examination of ourselves and our behavior will result in missing true opportunities for recovery and renewal.

Speaker Janet Lopez, on behalf of Sec. Emmanuel Piñol, Undersecretary (Usec.) for Mindanao Development Authority (MinDA) gave a brief and insightful message on Mindanao’s resilience even during these challenging times, illustrated specifically through its agricultural sector.

By staying afloat even during the country’s worst economic contraction, Mindanao’s agricultural sector is now calling for its long-needed development to harness its untapped strength. Usec. Lopez gave suggestions as to how this can be achieved: through promoting energy conservation methods, having a “not business as usual” mindset, and by mainstreaming energy efficiency to help deal with the challenges the future may and will bring.

The Opening Session concluded with remarks from **Dr. Johannes Kadura, Resident Representative of the Friedrich-Ebert-Stiftung (FES) Philippines Office**. In his message, Dr. Kadura highlighted the theme of the RE Congress in relation to this year – a year also to prove that renewable energy as an alternative energy system is not only another business agenda as it is cheaper than coal, but a sustainable one that can withstand pandemics. Renewable energy systems are self-sustaining as these can provide a direct energy source to households or those working from home even when power utilities cannot operate on full capacity.

He also reminded that in the political quake due, by large, to the shift in RE, the most stable point must come from the movements that have been pushing for RE for the longest time.

He also challenged the CentRE to become a force in advancing the role of RE amid pandemics, disasters, ecological crises, and geopolitical dynamics. He ended by reminding everyone that 2020 is a start of a decade for proving that the future can change course and everything is all up to us and our actions.

SESSION 1: RENEWABLE ENERGY INDUSTRY SITUATION IN THE PHILIPPINES

This session tackled key policy issues and developments related to RE deployment in the Philippines. As the RE share declines in the past years, keynote speakers shared how the Philippines can get back on

track in meeting the RE goals especially with key RE programs taking place such as the Renewable Portfolio Standards, Green Energy Option Program and RE Market.

Ms. Grace Yeneza, managing director of Preferred Energy Inc., was the moderator for this session. In her introduction, she gave an overview of the session proceedings as one to discuss the current developments in the RE sector and how the Philippines can get back on track to meeting the goals set under the RE Act in 2008. Finally she asked the attendees to take note of the key RE programs that will be presented and are to soon take off as well as the challenges that need to be overcome.

Keynote speaker, **Atty. Monalisa C. Dimalanta, chair of the Philippine National Renewable Energy Board (NREB)**, presented the National Renewable Energy Board's (NREB) Proposed 2021-2040 Plan with its theme, *"Getting Back on Track: Reclaiming our Energy Sustainable Future"*. In her presentation, she stressed how RE can play a role in the recovery of the country, and how the new 20-year plan National Renewable Energy Program (NREP) will address the challenges the country is currently facing in meeting its prior goals.

She started by giving a background of the RE policies that have been around since 1992—initially made through the Department of Energy (DOE) Charter having its policy on energy self-reliance. Since then, the Electric Power Industry Reform Act (EPIRA) and the RE Act of 2008 have been passed. With EPIRA encouraging the private sector to participate and invest in the privatization and restructuring of the electricity sector and to lead the promotion of RE and indigenous resources development, and the RE Act of 2008 calling for the accelerated exploration of the RE resources BiGSHOW (an aptly coined term for the six mature RE technologies: Biomass, Geothermal, Solar, Hydro, Ocean, and Wind energies), it was expected that RE utilization within the country would have been great enough to lead to energy self-sufficiency. However fast forward to 2019, the set goals of NREP 2010 have yet to be reached: with less than a third of the set targets being reached.

She stressed that attention should be given to the alarming downward trend of RE shares in the power generation sector since the enactment of the RE Act of 2008. What started as 33.9% of power shares generated by the RE sector in 2008 has now dwindled to a mere 20.8% in 2019—a reversal of what was expected for its growth. With these numbers, she spoke of the high chance that the 2030 goals set will not be reached, and it will have severe effects not only for the country's chance to be labelled as an RE country, but also the chance for energy self-sufficiency and reliance of the country.

She emphasized the connection between environmental sustainability and energy security as they go hand-in-hand regarding the energy trilemma. With RE shares going down, it meant that the energy self-sufficiency index goes down translating to more electricity being imported. Energy affordability, being another leg of the trilemma, is also part of the problem currently faced by the country for years now.

She sparked hope as she introduced hosts of solutions made to take into consideration the challenges faced since the RE Act of 2008 was implemented and the current NREP passed. Key changes were noted for the new 2021-2040 NREP such as:

Alignment with the Department of Energy (DOE) Energy and Power Development Planning

She explained how the existing NREP is a listing of the RE capacities to be used for potential resource assessment. For the new plan, it will be designed to cater to the prospective demand of the people. They wanted to make use of the projected numbers coming from the utilities and used for the power development plan to get a clear picture of the energy demand in the upcoming years. She pointed out that by doing so, it will make it easier for the DOE Planning to incorporate the 2021-2040 NREP to its core planning and will be made more mainstream.

Target-Driven: From Aspiration to Imperative

She expressed here how the original NREP has set an aspirational target of 35% and is clearly not being met. To address this, she pointed out how it is about time to make the target an imperative. By using a program, a simulation and trajectory of where and what the energy supply mix will look like if the parameter is *hard-set* at 35% total RE share by 2030 was obtained complete with ways on how to achieve the target.

Demand-responsive and Cost-sensitive

Levelized Cost of Electricity (LCoE) was used for all the RE technologies used in the software making it cost-sensitive.

Inclusive, Comprehensive, and Synergistic

Off-grid and remote areas were also included in the planning and software simulations.

To make sure that the 2021-2040 NREP is made as comprehensive as it could be, key inputs for the NREP model were also shared during her presentation: demand data, supply data, grid assumptions, and cost assumptions. With the demand and supply data, more conservative numbers than the ones used by DOE for the projected growth rates were used for the former and, for the latter, the assumption that all existing plants will be used and no degradation or retirement will take place was set. Furthermore, generation data from WESM was used to reflect seasonality of intermittent RE plants and unit size limitations set by the Energy Regulatory Commission (ERC) was placed for the supply data. For the grid assumptions, inter-island transmission capacity with the transmission development plan (TDP) were used but failed to incorporate intra-island transmission lines due to the lack of data and time-constraint. Finally, cost assumptions were based on the DOE Cost Assumptions Book and the pricing for LNG.

With these parameters cleared out, she continued to present the key highlights that resulted from NREB's simulation.

Key Takeaways and Highlights of the NREP Modelling

- ❖ By 2030, 50% of new build capacity will be for RE new builds (mainly solar, wind, hydro, biomass) and 70% of new plants by 2040. For this, geothermal was not part of the RE resources that were to be accommodated by new builds due to it being too costly during its exploration phase.
- ❖ The supply of energy generated by RE will be 37.3% by 2030 and 55.8% by 2040 under the assumption that the RE total generation share would come from existing and new builds.
- ❖ The need for an increase of mandated RE shares of retail electricity suppliers by the Renewable Portfolio Standard (RPS) from the current 1% share to 2.53% by 2023 and so on.
- ❖ With the Base Case of having 2.53% RPS, ave. LCoE was estimated to be around P3.18/kWh.

- ❖ In terms of capacity, 5.8GW of new RE build will be needed by 2030 and 22.4GW by 2040. By doing so, coal will go down to 41.0% by 2030 and 29.7% by 2040. All of this with the assumption that existing coal plants are still operating without new coal plant build.
- ❖ It is imperative to implement the new RPS to 2.53% by 2030 to achieve 37.3% RE by 2030 and 55.8% by 2040.
- ❖ Cost-competitiveness of RE will still rise due to the continuous lowering of RE expenses due to new technologies.

She proceeded to clarify the ways from which we will proceed given this data with a new agenda entitled, *“Road to Energy Autonomy: The Philippine Energy Agenda”*. Here she asks the relevant stakeholders to state clear expectations and targets for each part of the agenda from designing and tracking targets to checking the viability and sustainability of RE projects by using a *Whole-of-Government* and *Whole-of-Society* approach. She ends her presentation by quoting Dr. Angela Wilkinson of the World Energy Council and by requesting the audience to change their way of viewing energy—to *humanize energy*—and to view it not as a technical requirement but as a key element in the development of people’s lives.

The second speaker was **Engr. Jose “Viking” Logarta Jr., former energy policy adviser for the Institute for Climate and Sustainable Cities (ICSC) and outgoing board chair of CentRE**, who presented on his topic: *“The Urgent Policy Concerns to Accelerate RE Deployment”*.

In his presentation, he reported on the declining costs of variable renewable energy (VRE) so much so that least-cost expansion models already deter coal entry as early as 2021 and as late as 2028. These models also herald the aggressive entry of VRE, especially solar due to its technological maturity. Yet, if one examines the assumptions of these models versus actual procurement procedures by utilities from independent power producers (IPPs), the model results cannot be realized. That is why there is still a need for government intervention in terms of mandates such as the RPS, and cost-effective compliance via green auctions. For government to rally support for its mandates, including the recently announced coal moratorium, it will have to implement models where procedures and data assumptions are publicly debated, and transparent.

The first session ended with a Question and Answer (Q&A) portion for speakers Atty. Dimalanta and Engr. Logarta. Three questions were raised during this section of the program.

What happens if the stakeholders are not able to comply with the RPS set for 2023 and the new RE builds? Is there any existing strategy or compliance measure to do that?

[From Atty. Dimalanta] The DOE imposes penalties for those not meeting the required RPS (currently at 1%). However, instead of looking at the RPS as a requirement we want stakeholders to think of it as their contribution to the RE sector. There are enabling programs looked at by DOE such as green energy auctions as the accompanying tool for RPS. Green energy auctions would act as a centralized procurement system for the RE requirements that will then be allotted corresponding to the percentages of the utilities that still require RE certificates where these certificates will serve as their means of compliance for RPS.

Is there any aspect in the plan right now that focuses on Off-Grid, as some islands are still underserved or unserved at all? Can you elaborate on how NREB will be looking at this?

[From Atty. Dimalanta] To finalize that part of the plan, the optimal supply mix for each off-grid area is needed and is currently being obtained through an exercise conducted by ECs in off-grid areas. A baseline stemming from these data coming from the ECs will be used as areas will be clustered according to their energy demands. However, aside from this there needs to be a developmental plan where RE goes hand-in-hand with the activities done within the community. Just putting up the plant does not mean that the community can afford it. There needs to be a plan for the community to be able to graduate from the subsidy program through the development of their livelihood sectors.

How can communities have access to means (technology, capacity, and finance such as the Green Climate Fund), so that these LGUs can benefit from their local resources and transforming them from consumers to producers?

[From Atty. Dimalanta] The DOE has already signed a joint circular with the Department of Interior and Local Government (DILG), called The LGU Code, wherein it promotes the adoption of a localized renewable energy program (LREP). LGUs are encouraged to have their own local RE plan as they know their resources better than anyone. If the LGUs can identify their resources, come up with, and adopt a LREP, then that can provide a framework for the development plan. On a national scale, the PPP center is creating models and programs for investors to look at for the development of LREPs.

SESSION 2: RE FOR COVID, DISASTERS AND ECONOMIC RECOVERY

The COVID-19 has dealt a blow to many countries. With a 5.2% forecast in global GDP contraction, this will plunge most countries into recession. Pre-dating COVID are hosts of disasters that visit the country almost annually. Through the years, they have only grown stronger, with our country being along the typhoon belt. As the country is faced with pressing and unprecedented challenges brought by the COVID-19 pandemic and frequent natural disasters, this session will show how RE can help in empowering local government units in their recovery efforts and how it can provide jobs to the people.

The moderator for this session was **Miss Jenina Joy Chavez, coordinator of Action for Economic Reforms-Industrial Policy Team**. She opened the floor by recounting the effects the pandemic has on the economic growth of most countries, particularly of our country. She relates how prior to the pandemic, the country has also seen its fair share of annual disasters in the form of typhoons and hurricanes. She addresses the need for this session as she introduced the speakers taking part of it.

The first speaker to take the virtual stage was **Assistant Secretary Romeo M. Montenegro, deputy executive director and head of Investments Promotion, International Relations & Public Affairs, Mindanao Development Authority**. With his presentation, *“Powering Agriculture: The role of RE in Mindanao’s food production and economic recovery”*, he recalled how Mindanao has experienced a major power crisis in the previous years hence reverting back to more reliable sources that can supply higher base loads opening the opportunity for coal plants to take majority of the power generation shares of Mindanao in the last five years.

Due to this, *The Mindanao Energy Plan 2013-2030* was pursued by the Mindanao Power Monitoring Committee in collaboration with DOE and MinDA where it features a long-term energy plan to ensure

energy security, achieve optimal energy pricing, and develop a sustainable energy system with incentives and policies comparable to fossil fuel. With the power outlook for Mindanao in the years 2016-2040, projections show additional expected capacity of 10,200 MW for the island's development. With this he expressed his hope for the government to join hands with the private sector to inject more RE technologies to meet the expected demand 20 years from now.

After laying down the foundation about Mindanao's RE capacity potential, he further emphasized how programs leveraging the untapped potential of the agricultural sector will lead to the island's and the country's overall economic growth. Showcasing the programs MinDA has coordinated, he presented strong evidence that revenue and opportunities can be increased for local communities should RE technologies support value-adding produce and focusing on value-chains manufacturing.

He invited the audience to understand the Water-Food-Energy Nexus supporting the claim of energy's role in the increased productivity of agriculture in Mindanao. He advised that the government should take a look at the inter-relationship of the three important items in the nexus should there be any plans, efforts, programs, or initiatives to be made for the island. He asserted that the role of RE would modernize production providing farmers and fisherfolk better livelihood opportunities and that the way forward would be to provide RE technologies catering to the needs of each community and to ensure RE sustainability by promoting energy literacy among farmer organizations, to link productive uses of RE with sustainable resource management, and to address bottlenecks to attract new technologies and farming practices.

Bridging the ideas of providing better livelihood to workers through the use of RE with his topic, **Wilson Fortaleza, fellow, Center for Power Issues and Initiatives/ Member, NAGKAISA**, shed light on the topic of *"Realizing Green/Climate Jobs: Labor Agenda on Recovery Through Green Employment in Rebuilding (LARGER) Programs"*.

As the second speaker of this session, he explained how embarking into a massive public employment program, which includes the creation of green and climate jobs amid the lingering health and job crises, is regarded by organized labor as a crucial strategy in arresting the unemployment bloodbath while addressing the climate crisis at the same time. He noted that 'green jobs' is no longer a lifeless concept, with millions of people around the globe performing work by now in this mounting social task. Showing data regarding the job opportunities currently offered by the global RE sector alone estimated to be at 11M, an increase from the 1.3M jobs since 2004, the steady rise of opportunities held by RE technologies will secure jobs for many if not all. With the country's rich policies on labor and employment security, the Green Jobs Act of 2016 has directed 21 government agencies to prepare the industry and the skills of workforce needed for the transition to a green economy.

Recent green jobs projections are very promising as the level of investments continue to grow and enabling policies are set in place both in the global and national level. Conducting simulations from job creation data from several ECs, results showed that more jobs will be created by the RE sector as compared to the job creation capacity of coal and natural gas. Other sectors of society will also benefit with the implementation of using greener technologies such as the housing and building sector as well as the transportation sector. However, care to provide a just transition for these sectors were also reminded.

Unfortunately, he confessed, despite having significant policies on climate and public employment, the PHL pandemic response and recovery programs remain wanting in green agenda. He disclosed

that the Bayanihan programs to heal and recover, as well as the 2021 National Expenditure Program, bear no substantial package which can be considered as part of a green recovery agenda which other countries have elevated into a strategy in weathering the impact of the COVID-19 pandemic and ensuring sustainable development.

He wrapped up his insightful presentation with a promise that the campaign for climate jobs will be the workers' contribution to the green recovery advocacy as Filipino workers find the country's recovery programs less responsive to both the health and climate emergencies and to the jobs crisis as well.

Last to share her thoughts on the matter of economic recovery particularly for indigenous peoples (IPs) was **Dr. Lourdes Simpol, director, Tropical Institute for Climate Studies of Ateneo de Davao University**. In her recorded video presentation, she reported the much-needed involvement of and support for a particular IP community for watershed environmental protection.

She opened her discussion by stating that Mindanao in the Philippines has two main watersheds (the Mindanao Riverbasin and the Agusan Riverbasin). Mindanao is also blessed with the most ancestral domains in the country – whether full titles or just certificates. One of these, she pointed out, is the Bukidnon Higa-onon Tribal Association (BUHITA) with CADT No. R10-MLY-0609-110 approved on October 21, 2015. The Ancestral Domain has 36,547 hectares of land, and 34% (which is around 12,425 hectares) are primary forest. She continued:

“It has been established through research (by the researchers of Ateneo de Davao University) and maps that BUHITA is a source of Pulangi River. One of the downstream areas of Pulangi hosts the Pulangi 4 hydropower plant. It is very clear in Section 66 of EPIRA or ER 1-94 that the host communities benefit from the hydropower fee of .0025/kwh. From the research, it was established that the environmental grants were concentrated on the downstream municipalities and barangays. It was in this context (of host communities) that the Foundation of Philippine Environment (FPE) pursued the Watershed Perspective of host communities. It is also noted that the indigenous peoples have their own rights based on the IPRA Law of the country. The (FPE) pursued many talks and consultations with different government agencies on the hydropower and finally in 2018 the Implementing Rules and Guidelines of ER-1-94 was amended. It took 5 years of negotiations to finally amend the implementing rules and guidelines. The proposal of BUHITA that was submitted in 2013 for plan 12 in the National Power Corporation for Watershed Management and Protection, was just recently approved. However, we don't know when it will be implemented as it is almost the end of 2020.”

She ended her short yet moving presentation by citing how the recent virus in-charge of this pandemic was found to be the zoonotic type—virus that jump from wild animals to humans. She explains how proper care for areas such as the ancestral land of Buhita may mitigate the changes that is happening in our country.

The Q&A portion for the second session had one question for Asec. Montenegro.

What are our strategies around ensuring cost-competitiveness of RE electricity in agriculture without depending heavily on external funding, even for some agricultural areas where RE seems to be the only viable option?

Models can be used for RE in off-grid areas as it is necessary to look at the source of RE and the specific needs of the areas to ensure optimal planning for the area. Simulation tools have always been accessible to get a better forecasting. The resulting data gathered from simulations will determine the cost assumption for a project. However, external funding has always been the main source for many of those who want to venture into RE. In some instances where the farming entities themselves have interests in the tech, they can have their own initiative. It is important to note that where there is interest, there is a drive to venture the technology.

SESSION 3: GETTING THERE: ADAPTIVE AND INCLUSIVE RE TECHNOLOGIES AND PROGRAMS

This session aimed to tackle how RE can be a tool to empower members of the community especially the vulnerable sectors like the women, the old, and the marginalized families.

Inclusiveness of policies and programs being implemented is important, especially amid health, economic and climate crises. Among the concerns that the session sought to raise were whether energy policies and programs respond to the needs of women and other vulnerable communities; and what energy technologies and systems are appropriate to the times and location, especially with climate change.

Mr. Riedo Panaligan, president of Center for Renewable Energy and Sustainable Technology (CREST), warmly welcomed the audience as the third session was opened.

Ms. Ma. Teresa Diokno, executive director of Center for Power Issues and Initiatives (CPII), was the first to share her findings regarding the gender dimension in energy poverty & energy democracy which was an initial study conducted in the Philippines and was done for CPII and FES.

The presentation investigated the gender dimensions of energy poverty in the Philippines. She started by recalling the definition of energy poverty, energy democracy, and the importance of considering the energy-poverty nexus in dealing with problems concerning each matter. She was able to clearly present the experience of energy poverty for Filipino women and girls, and the burden on a family that is energy poor whether such burden is shared equitably among the men and women in the family.

She related how the study's limited discussion with three communities, namely the women from Cobrador Island, Romblon, Southern Luzon region, the women from Polopiña Island, Iloilo, Western Visayas region, and the families from the urban poor community just outside Metro Manila under the Aniban sa Lehitimong Paninirahan Laban sa Sakuna (ALPAS) project, confirmed the study conducted in the UK regarding the implications of energy problems on the quality of life of women in terms of time-use and work acknowledgement. Her findings also highlighted how the absence of affordable, reliable and renewable energy impacts on the productivity of male and female household members, and the impact as well on the rural and urban communities that now have renewable energy in their homes – particularly on women and girls in the family.

To end her presentation, she hoped to have given a gendered understanding of energy poverty to help sharpen the programme to build energy democracy and to advocate for policies that would be more gender-responsive to the problems of energy poverty. Through her findings, she expressed the need for services and other means to lessen the work of women and/or make it more manageable for them by providing energy means and services to allow for these communities a chance for renewal and restoration and to become less time-poor.

She offered several steps for moving forward such as the needed reforms of existing policies to ensure that poor families spend minimally for electricity and the overhaul of the electricity reform bill passed in 2001 as it needs to be revised with the needs and concerns of poor women in mind. Lastly, she advised more research of time-use and women’s relationship with time as understanding of this and a steady development plan could alleviate their responsibilities and empower both the men and women in the household.

Second to present was **Engr. Rene Fajilagutan, general manager of Romblon Electric Cooperative and president of the Association of Isolated Electric Cooperatives**. Tackling the theme, *“REinventing the cooperatives beyond missionary electrification: adaptive and inclusive RE technologies,”* he shared how electric cooperatives (ECs) have steadily been committed in electrifying and energizing majority of the Philippines according to the National Electrification Administration Act, under RA 6038.

True to the mandate of total electrification of the Philippines, NEA and its partner ECs have lit up the countryside and connected the farthest corners of the archipelago. He stressed how the ECs have powered most of the country’s households as opposed to privately owned electric distribution companies catering to city centers. The current challenge faced by ECs is the electrification of the remaining 1.76M households in isolated islands and remote communities.

To overcome this challenge, several of the suggested solutions are as follows: EC-owned power generation facilities partnership with NPC, deployment of RE and new technologies, installation of distribution generation, and the development of a micro-grid system.

Several completed RE projects by ECs were showcased as well as ongoing projects. They are as follows:

➤ Completed Projects:

- | | |
|---|---|
| <ul style="list-style-type: none"> ❖ 1,350 kW Cantingas Mini-Hydro Power Plant <ul style="list-style-type: none"> ▪ Type of Design: Run-of-the-River Mini-hydro ▪ Capacity Factor: 70% ▪ Energy Sales: 7,029,750 kWh (2019) ▪ Energy Share: 67% (energy needs of the island being met)
 ❖ 900 kW Wind-Diesel Hybrid Power Plant <ul style="list-style-type: none"> ▪ Capacity: 900 kW (3 x 300 kW)
 ❖ Romblon Grid Tied Rooftop Solar Power Plant <ul style="list-style-type: none"> ▪ PV Capacity: 200 kW ▪ PV Panels: 130 pcs x 400 wp ▪ Beneficiaries: 11,575 HH
 ❖ Antique Solar Diesel-Battery Hybrid System <ul style="list-style-type: none"> ▪ Solar capacity: 50 kWp ▪ DG capacity: 54 kW ▪ Battery: 278 kWh | <ul style="list-style-type: none"> ❖ Cobrador Solar-Diesel Battery Hybrid System <ul style="list-style-type: none"> ▪ GENSET: 15 kW ▪ PV System: 30 kW ▪ Battery: 200 kWh ▪ Beneficiaries: 252 Households (HH)
 ❖ 22 kW Biomass Gasifier Power Plant <ul style="list-style-type: none"> ▪ This is another prototype of what the EC are thinking ▪ Capacity: 22 kW ▪ Fuel: Bana Grass, Coconut fronds & shell ▪ Fuel consumption: 0.80 kg/kWh at 80% load ▪ Beneficiaries: 50 HH
 ❖ Mindoro Solar Diesel-Battery Hybrid System <ul style="list-style-type: none"> ▪ Solar capacity: 124 kWp ▪ DG Capacity: 132 kW |
|---|---|

- Beneficiaries: 145 HH
- Battery: 960 kWh
- Beneficiaries: 770 HH
- ❖ First Smart Solar Hybrid System in the PHL (Located in San Isidro, Buswanga Island)
 - The concept: The household can share excess power to their neighbors
 - Each HH has their own battery, size depending on their use → modular
 - The HHs were grouped in several clusters → using 100% RE power
 - Solar Capacity: 12 kWp, 310 kWp
 - Battery: 65, 100, 200 Ah
 - DC Smart Grid: 50V
 - Appliances it can support: Freezers, TVs, Electric fans
- ❖ Solar Home System Project
 - Solar Capacity: 30 Wp, 50 Wp
 - Battery: Li-ion batteries controller
 - Households: 40,000
 - Appliances it can support: 4 LED bulbs, Colored TV/Radio
- Ongoing Projects
 - ❖ Tawi-Tawi Solar-Diesel-Battery Hyb Sys
 - Beneficiaries: 2,100 HH
 - Solar Capacity: 1,650 kWp
 - Diesel Generator Capacity: 1,120 kW
 - Battery: 1,440 kWh
 - Status: Under construction
 - ❖ Dinagat and Siargao Island Solar-Diesel-Battery Hyb Sys
 - Solar Capacity (kW): 97/ 24/ 49/ 55/ 55
 - Diesel Generator Capacity (kW): 48/ -/ 36/ 36/ 56
 - Battery (kWh): 500/ 206/ 309/ 309/ 618

He concluded his presentation by introducing Projects in the Pipeline where 23 micro-grid RE projects are lined up. He reaffirmed his organization's resolution to use RE technologies to energize households. Through the use of mature RE technologies, he believes that energy costs can be lowered down, decrease carbon emissions, and save the environment.

To also present his institution's efforts in promoting RE technologies via distributed renewable energy systems by re-connecting marginalized communities, **Engr. Nelson Enano, director of Ateneo de Davao University – Center for Renewable Energy and Appropriate Technologies(ADDU-CREATE), and consortium chair of Mindanao Renewable Energy R&D Center (MREC)** took the virtual stage.

Prior to sharing the consolidated learnings of AdDU-CREATE has gathered in the previous years, he initially gave context to the status marginalized communities and their relationship with RE technologies. The National Power Corporation—Small Power Utilities Group (NPC-SPUG), owning and operating around 465 generating units within the country with a target total capacity of 194.72 MW, cannot comply with the EPIRA mandate to use of RE whenever possible because of the expressed of technical and legal difficulties. Because of this, small grids are overlooked opportunities.

With most of the unenergized communities being in Mindanao, AdDU-CREATE has been putting all efforts in providing marginalized communities with access to clean and sustainable energy. He agrees that RE systems can provide solutions to the energy trilemma presented earlier in the congress.

Going to the heart of the matter, he presented the lessons he and his institution has learned through years of coordinating projects with unenergized communities particularly IP communities. One of which was that the technology should always be appropriate for the community. By ensuring that the technology is compatible with local, cultural, economic conditions, and it utilizes locally available materials and energy resources, it makes it much more manageable for the local population to maintain and operate it. Several criteria should also be considered prior to introduction of new technological solutions such as the technical, social, cultural, economic, and environmental aspect of the project.

He continued to share ways on how to make RE become an appropriate technology for marginalized communities. Such ways are listed below:

Informed access thru education and capacity building

AdDU-CREATE installed solar PV systems which was an unknown venture in the PHL in 2011. Now grown to a 1MWp system, this shows Rev. Fr. Tabora's strong commitment to show that sustainable production and consumption of energy is possible. Marginalized communities were also given capacity-building opportunities by AdDU-CREATE. Women were taught how to create pico-hydro technologies as well as enrolled them in seminars to teach them about the technology.

Institutionalized access thru Policy: Energy Regulation 1-94

Recalling the study shared by Dr. Simpol, access to policies will benefit IPs and other marginalized communities. Such with the case of the Buhita, this community should be incentivized as their practice of taking care of their forests and watershed greatly affect the capacity factor of the hydro-electric powerplant located downstream. The funds given to them may even be allocated for them to set-up their own energy source and livelihood projects.

Universal access thru community microgrid

A project involving 50kW Hybrid Solar PV system in Manurigao, Compostela Valley will benefit 84 households. Equipped with an energy management system, this microgrid will also energize their livelihood and power their lighting fixtures providing a host of advantages to the community.

Reliable access during extreme events

As was observed by their organization, RE systems and technologies are not only a climate mitigation tool but can also act as an adaptation system, allowing evacuated families and communities means to cope with their current situations during extreme events such as typhoons and power shortages.

Improved Access thru continuing R&D

The Mindanao Renewable Energy Research and Development Center (MREC) focuses on concentrated solar power (CSP) and ocean renewable energy (ORE) technologies. Innovations on these technologies can provide electrification solutions for off-grid, remote, and island communities.

He ended his presentation by reminding everyone that although RE systems are great ways to energize communities, he reminded everyone that, sometimes, RE alternatives are not appropriate for a certain

community. At the end of the day, an energy problem is not just an engineering problem as it also has social elements tied to it that needs to be understood and adapted to.

The third session's Q&A portion opened the floor to all speakers of this session. With one question asked from the audience, Engr. Enano Jr. gave his opinion on the matter.

How can distribution utilities or ECs avail for the green climate fund or any international green financing/funding?

According to his experience with Dr. Simpol and his involvement with a proposal for the Green Climate Fund, he advised that the rationale be clear of the climate's role with the project. As an example, he mentioned that livelihoods and other beneficiaries can be mentioned to be affected by the climate and to further explain solutions to this.

Adding to his previous presentation, Engr. Fajilagutan emphasized the still-unenergized 1.76M households and that RE deployment projects should have been done sooner. He concluded that RE is all around us—for the benefit of our countrymen and of our environment—and that ECs should be encouraged to adopt this kind of technology as the concerns for RE's variability and fluctuation tendencies are already solved by other existing technologies.

A short break prior to the final session for this congress showcased the winning idea of Alamat UP Team CERO presented by University of the Philippines-Diliman students Matthew Arjonillo and Esther Pauline Bacay. A short video demonstration of their developed mobile application, CERO (CO2 Emission Reduction Operation), was presented. Alamat UP Team's CERO emerged Global Winner of the Shell Eco Marathon competition this year in category "Tracking and Reducing CO2 Emissions from Vehicles."

SESSION 4: INVESTING IN RE FOR PEOPLE'S LIVES AND THE ENVIRONMENT

Transitioning to renewable energy sources of power requires investment opportunities. This session shared the available investment practices and opportunities offered by financial institutions, start-up opportunities that will boost RE, and the initiative of CentRE to launch the RE Academy to encourage people to invest in knowledge regarding RE, its related policies and technologies.

Moderated by **Mr. Jay Bertram Lacsamana, fellow and consultant of the Institute for Social Entrepreneurship in Asia (ISEA) and member of the board of trustees and treasurer of CentRE**, he welcomed the audience to the last session and thanked them for their attention until the end. He gave a brief introduction of the session's theme and introduced the speakers.

Engr. Generoso David, Assistant Vice President for Program Management of the Land Bank of the Philippines (LBP), introduced the programs LBP has arranged to cater the needs of the energy sector for the various stages of RE project planning, all to accelerate the investments made for RE technologies and energy efficiency related services.

He promoted LBP's two financing programs: *Renewable Energy Lending Program* and *Landbank Go Green: Inclusive Financing Program for SMEs and LGUs*. He cited the benefits and guidelines for each program—from the eligible borrowers, projects, and loan purpose to the nitty-gritty details of the financing mix LBP provides.

He stated that the objectives of these programs are to provide enhanced access to credit financing in support to the national government's policy on promoting RE development, utilization, and commercialization. Aside from this, these programs aim to make the LBP credit programs accessible to projects on efficient energy utilization. This translates to a broader range of projects that can be approved for a loan; ranging from energy efficient lightings, thermal insulations and heat exchange systems, to rain collection or water recycling systems, these programs have been designed to cover most, if not all, sorts of RE and energy efficiency projects.

Lastly, these programs aim to accelerate the promotion of investments in the energy sector as well as to provide a financing facility that is responsive to the following demands of the target market. Different sectors, particularly the local government units (LGUs) and small and medium enterprises (SMEs) are also targeted by these programs such as businesses and/or facilities with cold storage, manufacturing, warehousing, livestock farms (piggery and poultry), among others.

Miss Brenda Valerio, Philippines program manager of New Energy Nexus, highlighted the importance of supporting energy entrepreneurs as innovators hold key roles in the future development of the energy revolution.

She started her presentation by introducing New Energy Nexus, a global non-profit organization whose goal is to support energy entrepreneurs to build equity into the global clean economy. She stressed the importance of supporting SMEs, innovators, and entrepreneurs in energy revolution, restating what previous speakers have mentioned prior, such that RE technology is in its maturity but it should not be just about the technology itself rather it is about the stakeholders' and community involvement, innovative business and finance models, and how existing technologies can be utilized to serve communities better.

She challenged innovators for solutions to the following common concerns: low-income communities' access to financing for electricity, transportation and installation of energy equipment in far-flung areas, improvement of operation and maintenance of energy systems in off-grid areas, and supporting livelihood of those in off-grid communities with clean energy access.

She cited examples of several projects New Energy Nexus from various countries, including the Philippines chapter, has invested and sponsored in already. With most, if not all, projects providing means for smaller, marginalized communities to be entrepreneurs themselves, she encouraged everyone to participate in their Capacity Building Programs to learn how to get started as an energy entrepreneur. Offering free courses, she invited the members of the audience to register through their affiliated link.

An institution that also offers courses, CentRE's project *RE Academy* was introduced by **Dr. Ginno Andres, head of Mechanical Engineering Lab of the Polytechnic University of the Philippines, and Engr. Jeriel Militar, chair of the Mechanical Engineering Department of the Central Philippine University** on behalf of CentRE.

Dr. Andres opened the discussion by stating that, "Investment in RE means investing in people". He further elaborated this by explaining that education is an investment in society's development and improvement of people's living condition; education and capacity building are important investments to increase involvement of stakeholders and realize broader deployment of RE.

Through the Renewable Energy (RE) Academy acting as a tool for broadening the pool of RE practitioners and advocates as they upgrade their technical skills and knowledge on the values and practical application of RE technologies. Developed by the Center for Empowerment, Innovation and

Training on Renewable Energy (CentRE), it is a learning and skills development platform, a work-in-progress.

The RE Academy can be a key in increasing RE development and utilization especially with high acceptance by the stakeholders. Its target students are those who want to enhance their knowledge and skills on RE, especially the non-academic practitioners and enthusiasts who intend to realize RE sources/technologies in their homes, facilities, and respective communities, or to gain deeper understanding for appreciation and to strengthen their capacity for advocacy and technical skills. With partnerships with leading academic institutions for each of the country's major islands—Polytechnic University of the Philippines in Luzon, Central Philippine University in Visayas, Ateneo de Davao University-CREATE in Mindanao—and other entities such as LGUs, government institutions, non-government organizations (NGOs), among others.

Presented by Engr. Militar, the prime movers of the RE Academy are its members, partners and participating institutions. He reported that CentRE members from the academe, energy industry, and people's organizations have invested their time and experience to contribute in giving form to this pioneering idea. He closed by re-stating that their goal is to contribute in building knowledge, including practical courses, to help accelerate RE deployment in the country by broadening RE practitioners and advocates in more accessible, affordable, and useful ways. With its launch in March 2021, enrollees are welcomed to register to RE Academy's first course offering "Introduction to Renewable Energy" through their affiliated link.

The fourth session of the RE Congress 2020 held two questions during the Q&A portion. The first one was directed to Engr. Militar while the second question asked for Miss Valerio's expertise.

Is there a scholarship in the RE Academy? If so, how can we apply?

We are offering courses that are socialized, though fees are already comparatively low, there will still be consideration for the financial capacity of a student. For enrollees who are not able to support their own registration fees, CentRE and the RE Academy will be offering scholarships. We are also currently looking for partners to add to the existing partners that are willing to support the schooling of several students.

Are there specific dates for Entrepreneurship 101, 102, and the Solar Innovation Program?

For Entrepreneurship 101 & 102, we will resume by the 2nd week of January 2021. The classes offered are asynchronous classes; simply register and you will be added to the waitlist. You will be notified when class starts. As for the Solar Innovation Program, it will be conducted from Jan-May 2021. It is a combination of synchronous and self-paced modules. The deadline for application is Jan 2, 2021.

CLOSING REMARKS

Mr. Erel Narida, President of OREEi and Secretary of CentRE, officially closed the 3rd RE Congress. He expressed his deepest gratitude to all participating members of the event who have been with the organization since the Deep Dive sessions held on 11th and 14th of December 2020, to the panelist resource persons who have shared their ideas on societal, financial, and technical perspective on RE

development, and to the bodies who sponsored, co-organized, and has made the event possible even in these trying times.

He stated that the closing of this year's congress meant the opening of new ideas and perspectives as shared by the research persons from the 2-day Deep Dive sessions, culminating with the day's plenary session. He encouraged everyone to remember several buzzwords that rang throughout the discussions—*Imperative*, *Just Energy Transition*, and *Inclusive Recovery*—and to take these words to heart. Mr. Narida closed the program by stressing that for the sake of our environment, our people, and our economic future, it is time to call for action.