



February 14, 2024

CCSMO ADVISORY

TO : **ALL ELECTRIC COOPERATIVES**

SUBJECT : **Output of the 2023 NEA-EC Convergence: Power Forum**

On August 9-11, 2023, the National Electrification Administration (NEA), in partnership with the Philippine Rural Electric Cooperatives Association (PHILRECA), held the 2023 NEA-EC Convergence with the theme, "Total Electrification by 2028" at the Philippine International Convention Center (PICC), Pasay City, Metro Manila.

The event was a valuable opportunity for all stakeholders to come together and affirm its commitment for the continued success of the rural electrification program.

Attached, is the activity's official documentation for your reference.

ATTY. EMIL S. CUYUGAN
Department Manager
Corporate Communications and
Social Marketing Office (CCSMO)

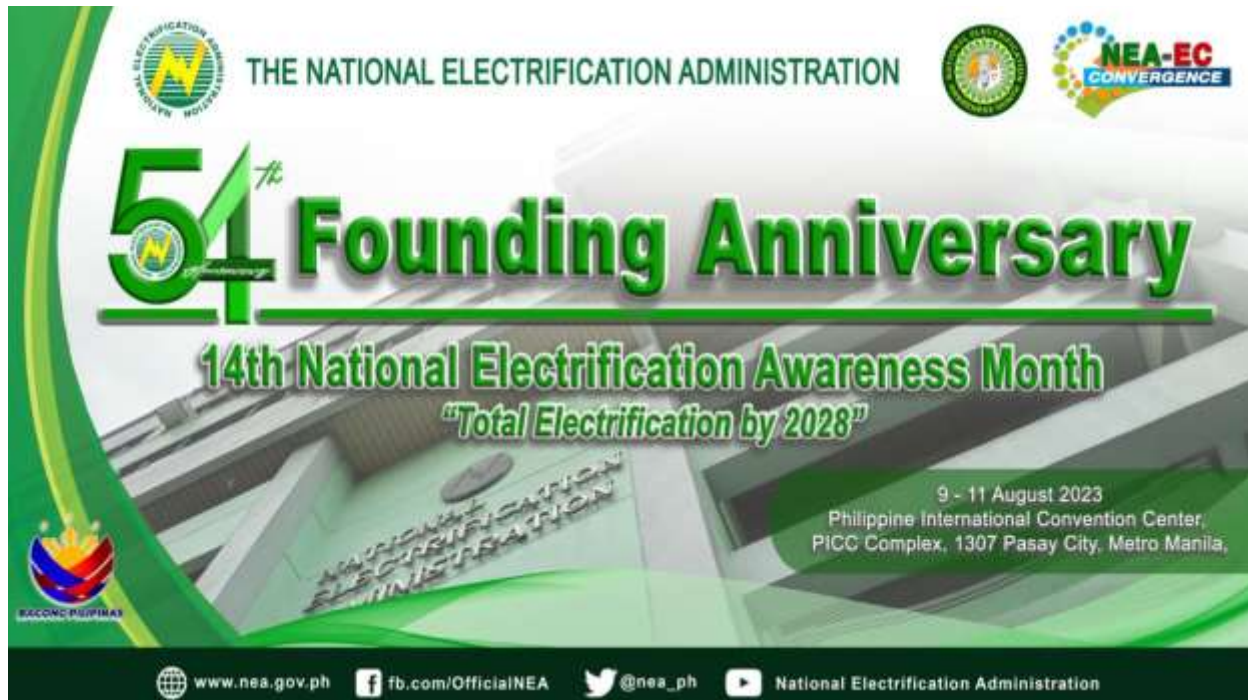


Table of Contents

Program Flow	5
Masters of Ceremony	12
Parade of Colors	14
Welcome Remarks from NEA Administrator Antonio Mariano C. Almeda	16
Ceremonial Switch-on	22
Keynote Address from the Guest of Honor DOE Secretary Raphael Perpetuo M. Lotilla	24
Highlights of Messages/Presentations	
Message from House Speaker Ferdinand Martin G. Romualdez	30
Presentation by Hon. Michael Odyon L. Romero	31
Presentation by NEA Deputy Administrator Ernesto O. Silvano, Jr.	32
Presentation by NRECA International President Daniel B. Waddle	35
Presentation by Zambia Rural Electrification Authority CEO Linus K. Chanda	38
Fireside Chat 1	41
Presentation by ERC Chairperson Monalisa C. Dimalanta	48
Presentation by DOE Undersecretary Rowena Cristina L. Guevara	51
Presentation by NGCP AVP Redi Allan B. Remoroza	54
Presentation by NPC VP Rene B. Barruela	56

Table of Contents



Panel Discussion 1: National Programs and Policies	59
Message from Baguio Mayor Benjamin B. Magalong	70
Fireside Chat 2	77
Panel Discussion 2: Building Partnerships for Sustainable Rural Electrification	85
Message from Senator Imee R. Marcos	94
Message from NRECA International President Daniel B. Waddle	99
Message from Zambia Ministry of Energy Permanent Secretary for Technical Services Himba Cheelo	102
Annexes of Speeches	
House Speaker Ferdinand Martin G. Romualdez	105
Hon. Michael Odylon L. Romero	108
NEA Deputy Administrator Ernesto O. Silvano, Jr.	114
NRECA International President Daniel B. Waddle	119
DOE Undersecretary Rowena Cristina L. Guevara	129
NGCP President and CEO Anthony L. Almeda	136
NGCP AVP Redi Allan B. Remoroza	137

Table of Contents



Annexes of Presentations	
Hon. Michael Odylon L. Romero	141
NEA Deputy Administrator Ernesto O. Silvano, Jr.	160
NRECA International President Daniel B. Waddle	176
Zambia Rural Electrification Authority CEO Linus K. Chanda	184
ERC Chairperson Monalisa C. Dimalanta	211
DOE Undersecretary Rowena Cristina L. Guevara	224
NGCP AVP Redi Allan B. Remoroza	229
NPC VP Rene B. Barruela	236
Aboitiz Corporation	248
First Gen and First Phil Holdings Corporation	264
FDC Utilities, Inc.	269



Program Flow



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028



Time	Activity	
7:00 AM - 8:00 AM	Registration	
7:30 AM	Ribbon Cutting	PHILRECA
8:00 AM	Presentation of Guests and Delegates	Atty. Omar M. Mayo NEA Deputy Administrator for EC Management Services
8:15 AM	Parade of Colors	NEA & ECs
9:00 AM	National Anthem, Doxology, NEA Hymn	
9:30 AM	Welcome Remarks	Antonio Mariano C. Almeda NEA Administrator
	Video Presentation	NEA Accomplishments
10:00 AM	Ceremonial Switch-on	Barangay Line Enhancement Program - 12 barangays in Nunungan, Lanao del Norte
10:15 AM	Introduction of the Guest Speaker	Atty. Rossan SJ. Rosero-Lee NEA Deputy Administrator for Legal Services

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

6 of 277



Time	Activity	
10:20 AM	Guest of Honor - Keynote Address	Raphael Perpetuo M. Lotilla Secretary, Department of Energy Chairman, NEA Board of Administrators
10:30 AM	Production Number	Batangas II Electric Cooperative, Inc.
11:00 AM	Event Messages	Ferdinand Martin G. Romualdez Speaker, House of Representatives (Message delivered by Cong. Ferjanel G. Biron) Michael Odylon L. Romero, Ph.D. Representative, 1-PACMAN Partylist
11:45 AM	NEA @ 54: Breaking Barriers for Total Electrification in 2028	Ernesto O. Silvano, Jr. NEA Deputy Administrator for Technical Services
	Video Presentation	TAWELCO Barangay Line Enhancement and Household Connections
12:00 PM	Lunch	

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

7 of 277



Time	Activity	
1:30 PM - 1:35 PM	Video Presentation	Energization of Sitio Cabigti-an, Basay, Negros Oriental
1:35 PM - 1:40 PM	Introduction and Mechanics	Atty. Rossan SJ. Rosero-Lee NEA Deputy Administrator for Legal Services
1:40 PM - 1:50 PM	Emerging International Trends and Practices in Electric Distribution	Daniel B. Waddle Senior Vice President, NRECA International
1:50 PM - 2:00 PM	Success and Challenges in Rural Electrification in Zambia	Linus K. Chanda CEO, Zambia Rural Electrification Authority
2:00 PM - 2:15 PM	Fireside Chat #1	Atty. Josefina Patricia M. Asirit Moderator Former ERC Commissioner Roderick N. Padua Moderator Department Manager - ITCSD, NEA
2:15 PM - 3:15 PM	Propelling Innovations for a Secure and Sustainable EC Operations	Atty. Monalisa C. Dimalanta Chairman, Energy Regulatory Commission

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

8 of 277



Time	Activity	
Continuation	Policy Framework and Outlook for Total Electrification	Rowena Cristina L. Guevara Undersecretary, Department of Energy
	Status of the Transmission Development Plan	Anthony L. Almeda President and CEO, National Grid Corporation of the Philippines (NGCP) Redi Allan B. Remorosa Assistant Vice President – Transmission Planning Department, NGCP
	Reliability and Sustainability of Power Supply within Off-Grid ECs	Rene B. Barruela Vice President – Corporate Affairs Group, National Power Corporation
	Panel Discussion #1 National Programs and Policies	Antonio Mariano C. Almeda NEA Administrator Atty. Josefina Patricia M. Asirit Moderator Former ERC Commissioner
3:15 PM - 3:20 PM	Video Presentation	Revisit of Agoncillo, Batangas

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

9 of 277



Time	Activity	
3:20 PM - 3:30 PM	Coffee Break Video Presentation	Energization Rites of Barangay Maglambay, Busuanga, Palawan
3:30 PM - 4:10 PM	Best Practices of Top-Performing ECs	Sergio C. Dagooc Representative, APEC Partylist
	Good Governance	Benjamin B. Magalong Mayor, Baguio City
	Fireside Chat #2	Atty. Josefina Patricia M. Asirit Moderator Former ERC Commissioner Atty. Vic. P. Alvaro Moderator Department Manager - Legal Services Office, NEA
4:10 PM - 4:55 PM	Providing Reliable and Affordable Supply Electricity to Meet Growing Demands of Customers	Danel C. Aboitiz Executive Director, Aboitiz Power Corporation Francis Giles B. Puno President and Chief Operating Officer, First Gen and First Phil Holdings Corporation Juan Eugenio L. Roxas President and CEO, FDC Utilities, Inc.



Time	Activity	
Continuation	Panel Discussion #2 Building Partnerships for Sustainable Rural Electrification	Atty. Josefina Patricia M. Asirit <i>Moderator</i> <i>Former ERC Commissioner</i>
4:55 PM - 5:00 PM	Closing Remarks	Leila B. Bonifacio <i>NEA Deputy Administrator for Corporate Resources and Financial Services</i>
Fellowship		
	Message	Daniel B. Waddle <i>Senior Vice President, NRECA International</i>
	Message	Himba Cheelo <i>Permanent Secretary – Technical Services, Ministry of Energy, Zambia</i>
	Message	Imee R. Marcos <i>Chairperson, Senate Committee on Cooperatives</i>

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

11 of 277



Masters of Ceremony



Atty. Gwen P. Enciso-Kyamko

Acting Corporate Board Secretary V, NEA

Lino SJ. Vermudo, Jr.

*Manager, NEA Strategic
Planning Division*

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028



Opening Program

Highlights



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

Parade of Colors





Opening Program Highlights



Welcome Remarks



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

Administrator Antonio Mariano C. Almeda



To all our esteemed guests and delegates, good morning. First and foremost, I would like to give due recognition to some of those who attended today's event. Of course, we are glad to have us today our guest of honor, Secretary of Energy Honorable Raphael Perpetuo "Popo" Lotilla, Good Morning Sir! The President and Chief Executive Officer of Power Sector Assets and Liabilities Management (PSALM) Corporation Mr. Dennis Dela Serna, Good Morning Partner! The President and Chief Executive Officer of the Philippine National Oil Company – Exploration Corporation (PNOC-EC) Mr. Franz Josef George "Chicoy" Alvarez, the President and Chief Executive Officer of Independent Electricity Market Operator of the Philippines Atty. Richard Nethercott.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

16 of 277

Administrator Antonio Mariano C. Almeda



And we are fortunate and I'm so happy that we have guests from our friends and supporters from the House of Representatives starting with Congresswoman Rene Ann Lourdes Matibag from the 1st District of Laguna, of course our Power Bloc Representatives Congressman Presley de Jesus of PHILRECA Party List, Congressman Sergio Dagooc of the APEC Party List, and I'm happy to received and see here Congressman Dante Marcoleta of SAGIP Partylist. My good friend Congressman Edwin Gardiola of CWS Partylist, a fellow good friend Congressman Nikki Briones of AGAP Partylist, Congressman Inno Dy of the 6th District of Isabela, Congressman Edgardo Salvame of the 1st District of Palawan, and to deliver the messages of Speaker Ferdinand Martin Romuladez later, may we welcome Congressman Ferjenel Biron of the 4th District of Iloilo. We also have with us today our foreign partners starting with the Chief Executive Officer of the Zambia Rural Electrification Authority Mr. Linus Chanda, and this guy, you are very familiar with because every time you go to NRECA, you will see that this guy is busy attending to all cooperatives of the Philippines, the Sr. Vice President of NRECA International Mr. Dan Waddle.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

17 of 277

Administrator Antonio Mariano C. Almeda



Again, to all of our esteemed guests and delegates from the various agencies of the Executive Branch, the Legislative Branch, the Local Government Units, the Private Sector, our foreign partners, and the Electric Cooperatives, on behalf of the National Electrification Administration, it is with great pleasure that I welcome you to the 2023 NEA-EC Convergence. This event marks the celebration of NEA's 54th founding anniversary and the 14th National Electrification Awareness Month. Today, we shall hear from various speakers from the energy industry as they share their knowledge, expertise and experience which will undoubtedly prove valuable in our most noble endeavor of bringing light to every corner and household in the Philippines.

Of course, to give proper meaning to today's event, we must briefly look back and remember the roots of NEA and the mission of total electrification. In 1969, Republic Act No. 6038 or the "National Electrification Administration Act", came into law and declared as a national policy the total electrification of the Philippines on an area coverage basis. NEA was created in order to carry out this state objective through our various Electric Cooperatives.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

18 of 277

Administrator Antonio Mariano C. Almeda



In 1973, then President Ferdinand Marcos, Sr. further saw the crucial role of electrification to our country's economic growth, which led him to issue Presidential Decree No. 269, enhancing NEA's role and authority, not only for the goal of total electrification, but also for the development and support of the Electric Cooperatives.

Throughout the years, additional legislation would be passed in order to tackle the issue of rural electrification. However, all of these have followed the foundational insights first laid down by President Marcos, Sr. in his decree. This stands as a testament to his brilliance, as well as the status of PD 269 as one of the most important laws in the context of our country's electrification program.

Fast forward to today, the Rural Electrification Program again falls in the capable hands of another Marcos, our President Ferdinand "Bong Bong" Marcos, Jr., who, in his recent State of the Nation Address, affirmed the goal of 100% Electrification. As we rally behind our President's goal to energize the whole country, we celebrate NEA's 54th anniversary under the theme "Total Electrification by 2028."



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

19 of 277

Administrator Antonio Mariano C. Almeda



As with any great endeavor, there are skeptics and doubters. To be sure, the path towards our goal will be filled with challenges. I myself bear testament to this. From my very first day as Administrator, I was humbled when I faced the daunting task of resolving the compromised supply of electricity in the rural areas of our country. I have likewise witnessed the grave effects which the lack of electricity has on the very lives of our countrymen.

Therefore, I have come to realize that our positions in NEA, in the Electric Cooperatives, in the various agencies of the Philippines and in the private sector, are not simply professions, occupations or businesses. We, in the energy sector, hold an advocacy of great significance and consequence to the lives of Filipinos. I am a firm believer that power precedes progress. With every problem solved, we did not simply bring electricity to our countrymen, rather, our efforts ultimately resulted in delivering to them their most basic human rights such as life, shelter, food and education. For all your support, thank you. The problems we have hurdled, are proof of the importance of a united energy industry. It is this same unity that shall bring light to the darkest corners of the Philippines. As we look towards completing the vision of both President Marcoses, I proudly declare that we at NEA, together with the 121 Electric Cooperatives, are prepared for the coming challenges and are ready to meet them.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

20 of 277

Administrator Antonio Mariano C. Almeda

In doing so, NEA and the Electric Cooperatives have begun to usher in new technology which will allow proactive and real-time data monitoring in order to facilitate closer coordination and the development of more reliable distribution services. In order to improve disaster resiliency and recovery, a Regional Program is being developed, to reduce the cost, ensure the availability, and provide ease of access to various equipment and materials used by the Electric Cooperatives in the delivery of electricity. Last but not the least, NEA is also formulating a housing program to give due recognition to our electrical linemen, our "Warriors of Light" and modern-day heroes, who serve as the very backbone of the Rural Electrification Program. Again, the implementation of these projects and the road to 100% Electrification will be no easy task. However, with much political will and determination I am confident that what was started by former President Marcos Sr. will be fully realized in the person of his son, President Ferdinand "Bongbong" Marcos Jr.

We hope that this event serves as a catalyst for our future cooperation. To the 121 Electric Cooperatives, and our partners in government and the private sector, samahan niyo akong pailawin ang tahanan ng bawat Pilipino. Mabuhay ang National Electrification Administration. Mabuhay ang Rural Electrification Program. Mabuhay ang bagong Pilipinas.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

21 of 277

Ceremonial Switch-on of the 12 barangays in the Municipality of Nunungan, Lanao del Norte

From left to right: 2nd District of Lanao del Norte Representative Sittie Aminah Q. Dimaporo, Lanao del Norte Governor Imelda Q. Dimaporo, DOE Sec. Raphael Perpetuo M. Lotilla, NEA Administrator Antonio Mariano C. Almeda, Municipality of Nunungan Mayor Marcos M. Marmay

LANECO
Tapping Point
1. Nunungan, 2. Pajala
Municipality of Nunungan
Barangays
1. Pajala
2. Mambay
3. Pajala
4. Abaga
5. Katinan
6. Pajala
7. Katinan
8. Katinan
9. Katinan
10. Katinan
11. Katinan
12. Katinan



Opening Program Highlights



Keynote Address from the Guest of Honor



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

DOE Secretary Raphael Perpetuo M. Lotilla



First of all, I want to extend to all of you the greetings from our President Ferdinand Romualdez Marcos, Jr., and I wish to extend his thanks in particular to those electric cooperatives that responded to the most recent natural disaster that we had in Northern Luzon. TARELCO I, TARELCO II, PELCO I, PELCO II, SAJELCO, AURELCO, PRESCO, ZAMELCO, and the private distribution utilities Balfour, NLREC, and MERALCO. Thank you very much for responding to the needs of our Northern Luzon electric cooperatives. I also wish to extend our congratulations to the National Electrification Administration through its Administrator Nani Almeda and our Board of Administrators as well as the officers and staff of the National Electrification Administration on its 54th Founding Anniversary.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

24 of 277

DOE Secretary Raphael Perpetuo M. Lotilla



I wish to thank in particular, the support that has been given to you, as acknowledged by the presence of several of our strong supporters from Congress. I see here our lady Congressmen, Congresswoman Dimaporo, Congresswoman Matibag, and our Congressmen, Congressman Presley, Congressman Marcoleta, Congressman Briones, Congressman Graviola, Congressman Salvame, Congressman Dagooc, Congressman Dy, Congressman Chiquiting Sagarbarria, Congressman Biron. I'd like to thank you for your full support to the National Electrification Administration and the electric cooperatives. I know that we won't be able to agree with everything, but what is important, as I have stressed to our NEA Administrator, is that we will be able to make decisions. The problem that we will face is we fail to make decisions. Reviewing what we have had in the electrification program of the country, the President indeed has committed that we will achieve total electrification of the country by the year 2028, which is at the end of his term.

Right now, we are also facing challenges in the different electric cooperatives, all 121 of them. We have to find solutions that are tailor-made for each and every electric cooperative because no one size fits all. There are electric cooperatives that are needed in the pure developmental form that they were envisioned way back in 1969 and 1970.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

25 of 277

DOE Secretary Raphael Perpetuo M. Lotilla



In fact, if I have to go back earlier, the Electrification Administration was created in 1960, and it became the National Electrification Administration only in 1969. That's how far back our visions for rural electrification go back. However, as you all know, last year was a difficult year for all of us in the power sector. With the Ukraine crisis and the increase in the price of coal and the price of diesel fuel, we faced a major challenge to keep the lights on.

One year later, I can say that thanks to the cooperation of all, including you, electric cooperatives, we have survived the most difficult year. Thank you for your cooperation. Thank you for your support, although many things still need to be done. The last year has revealed a number of weaknesses, and not just strengths. One of the strengths that I have indicated to you is our ability to respond to the needs for repair and rehabilitation, especially during national disasters. Since extreme events will continue to come more often, and in fact, in greater intensity, as climate change also heightens. Then should our preparations even be greater.

I'd like to emphasize our thanks to the President, because the President in the last year, especially in the last 6 months, between the time that he took over up to December, released more than Php 6 billion just to take care of the fuel requirements in the missionary areas.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

26 of 277

DOE Secretary Raphael Perpetuo M. Lotilla



If the electric cooperatives in those SPUG and missionary areas do not realize that, on top of the Php 6 billion that was released by the Department of Budget and Management, the president authorized another credit line of Php 5 billion for the National Power Corporation (NAPOCOR). Right now, we are working on getting an additional Php 10 billion credit line for NAPOCOR just to bridge the gap in the universal charge for missionary electrification that has lagged behind the needs of the SPUG areas, but we need, as you know, to balance things. If we increase overnight the universal charge for missionary electrification, the immediate effect is to increase the rates in the grid areas. We have to avoid that because right now, the inflationary effect of electricity prices is also going to hurt the customers in the grid areas. What we are trying to do with the credit line and raise additional funding that has been provided by national government is to bridge that gap. Eventually we will have to recover all of these amounts from ourselves as customers, but to soften it in such a way that this is going to be done gradually is the challenge before us.

On the implementation of the 100% electrification: we have pointed out that our electrification level stands at 96% as of December 2022, but that figure is based on the 2015 census. In the meantime, we have had the 2020 census. Those numbers can change.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

27 of 277

DOE Secretary Raphael Perpetuo M. Lotilla



Therefore, the challenge for us, especially the electric cooperatives, will be much greater. It is worthwhile to note that NEA will guide our electric cooperatives to better perform within the deregulated market that we have put in place since 2001. But we have not fully implemented all the features of the Electric Power Industry Reform Act (EPIRA), passed in 2001, more than two decades later. We will have some hand holding to do, especially with respect to those electric cooperatives that are underperforming.

For those who have performed well, please be role models to the electric cooperatives that are still lagging behind. As I have said, we will give you full support to the extent that you are able to deliver. There are also other electric cooperatives that need to consider other forms of delivering service to our people. The bottomline is that we are here as stewards for our people. The electric cooperatives have a duty and responsibility to make sure that the quality and affordability of our services meet the needs and expectations of our people.

In all of this, I do not have enough hours in one day to attend to 121 electric cooperatives. That is why I ask for your full support to our National Electrification Administration Administrator and the Board of Administrators, and the officers and staff of NEA. NEA can only do so much.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

28 of 277

DOE Secretary Raphael Perpetuo M. Lotilla

Our first line of defense is at the level of the electric cooperatives, and you have to lead in terms of becoming responsive and responsible to our people, because at some point, our people get tired of the quality of services that they receive, then they themselves will be the ones to clamor for change.

Instead of being the followers in case of change and reforms, my challenge to the electric cooperatives, under the leadership of NEA, is to be at the forefront of change and reform. Maraming salamat po, and I wish you all the best in your work.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

29 of 277

House Speaker Ferdinand Martin G. Romualdez

Message delivered by Hon. Ferjenel G. Biron, Representative of Ilo-ilo, 4th District



Highlights of the Message

- Energizing the country was a top priority of Ferdinand E. Marcos, Sr.
- Electrification spurs business investments, improves education, and helps facilitate information dissemination, especially during times of disasters and other emergencies
- In congress, seven bills are pending that seeks to grant legislative franchise to new or expand franchise coverage of existing electric cooperatives
- To find resources to help and realize such projects, Congress will also be willing to assist NEA and electric cooperatives community, provide affordable and reliable electricity to our fellow Filipinos

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

30 of 277

Hon. Michael Odylon L. Romero



Highlights of the Presentation

- In the recent SONA, President Bongbong Marcos stressed the relentless drive for total electrification
- 100% total electrification by 2028 is achievable through the joint efforts of the public and private sector
- Based on 2021 study by UN-ESCAP, total electrification has the following effects:
 - increase in income to the general public;
 - positive educational outcomes for children; and
 - positive impact on gender empowerment.
- House of Representatives will extend its utmost support to NEA in securing funding for programs
- In the quest for total electrification, full utilization of renewable energy must be endeavored
- In the Philippines, there is 246,000MW of untapped renewable energy
- The Philippines has 19,000MW geothermal capacity, making it the third country with most geothermal capacity around the world

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

31 of 277



Power Forum
Highlights

NEA @ 54: Breaking Barriers for Total Electrification in 2028

Engr. Ernesto O. Silvano, Jr.

NEA Deputy Administrator for Technical Services

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

Engr. Ernesto O. Silvano, Jr.



Highlights of the Presentation

- In the recent SONA, President Bongbong Marcos called for the pursuance of 100% electrification of the country by the end of his term
- Access to affordable and reliable energy services is fundamental to reducing poverty, and economic growth especially in those far-flung areas of the country
- As of May 31, 2023, we have connected 15,662,870 customers
- Based on the population and household data of the PSA, the projected number of potential households by the end 2028 is 17,863,705
- Total electrification by 2028 is attainable under these different strategies: on-grid and off-grid solutions; SEP and BLEP for on-grid, PV mainstreaming and microgrids for off-grid
- A total of Php 16.79 billion funding requirement in order to achieve 100% electrification

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

33 of 277



Power Forum

Highlights

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028



Power Forum
Highlights



Emerging Trends in Electric Distribution

Daniel B. Waddle

Senior Vice President, NRECA International



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

Daniel B. Waddle



Highlights of the Presentation



- The United States invested in its electrification program in the 1930's and 1940's
- Currently there are 830 electric cooperatives in the US serving 20 million consumers
- NRECA provides services to domestic utilities/cooperatives, while NREC International provides services to counterparts in developing economies
- NREC International worked in collaboration with the Philippine government to establish NEA
- The most significant change in the past five years in the United States, Western Europe, Sub-Saharan Africa, and South Asia, is the electrification of the transportation industry
- There is a need for greater power generation capacity in order to address the higher load growth caused by the electrification of the transportation industry

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

36 of 277

Daniel B. Waddle



Highlights of the Presentation

- The cost of Advanced Metering Infrastructure rollout will be high, but the returns should also be high
- Planning for a stage implementation of digital platforms, including geographic information systems, advanced metering infrastructure, outage management, distributed generation, and distribution automation at the earliest possible date is encouraged
- Engineering standards that were used 20 years ago do not serve us well anymore; there is a need for stronger standards for more resilient systems
- There is a need for strengthening of capacity building for administrative staff, commercial staff, and operating staff to become much more familiar with digital technology
- There is a need for significant investment in digital infrastructure

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

37 of 277



Power Forum Highlights

Success and Challenges in Rural Electrification in Zambia

Linus K. Chanda

CEO, Rural Electrification Authority, Zambia

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

Linus K. Chanda



Highlights of the Presentation

- The aspect of rural electrification is a worldwide challenge especially for developing economies
- Recent studies show that steps taken by Zambia to attain Sustainable Development Goal 7 by 2030 have been held back due to the COVID19 pandemic
- Zambia's land mass is slightly above twice than that of the Philippines, but the Philippines' population is 6 times than that of Zambia.
- Zambia's energy sources:
 - 3,000 sunshine hours/year
 - 6m/s wind speed at 80m height in selected areas
 - 80 hot springs spread across the country for geothermal power
 - Biomass
 - 80% of power generation comes from hydropower
- Zambia Rural Electrification Authority was formed in 2003

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

39 of 277

Linus K. Chanda



Highlights of the Presentation

- Financing for rural electrification comes from three sources:
 - Electricity levy
 - Appropriation from Parliament
 - Donations and grants
- Three different technologies in carrying out REA mandate:
 - Extending the national grid
 - Off-grid systems
 - Solar home systems
- A masterplan was implemented in 2008 to attain 51% electrification of rural areas by 2030. However, between 2008 and 2018, electrification rate increased by just under 5%
- As of date, electrification rate in rural areas stands at 14%
- Target is to attain 51% rural electrification by 2026, in order to attain universal access by 2030

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

40 of 277



Power Forum Highlights

Fireside Chat 1

Participants

Daniel B. Waddle

Senior Vice President, NRECA International

Linus K. Chanda

CEO, Rural Electrification Authority,
Zambia

Moderators

Josefina Patricia M. Asirit

Former ERC Commissioner

Roderick N. Padua

Department Manager,
NEA Information Technology and
Communication Services
Department

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

Fireside Chat 1

Question:

The Philippines is being visited by 20-22 typhoons on average annually. Some of them are highly destructive. How do the electric cooperatives in the United States cope with disruptive events such as these? How often do electric cooperatives revisit their engineering design methodologies to address climate change? Do they apply case-to-case interventions instead?

Response from Mr. Daniel B. Waddle:

One of the things that has impressed me over the years is how intelligent engineers are, but also how reticent they are to change. That's true not just in Africa or in Latin America, it's certainly true in the United States. What we know – observing what's happened in the past 20 years – is that there is an urgent and essential need for updating engineering designs across the board. That hasn't been done yet systematically in the United States, not to the extent that has been done here. I think that the Philippines has begun to lead certainly the economies in Southeast Asia to make necessary changes in the engineering design. It's not clear to me if those have been implemented. I know that we worked with NEA and the ECs about five years ago on updating designs, but there is an urgent need. In the United States, what's more apparent is the need for resilient designs for wildfires which have taken out thousands of hectares of forest and also affected communities in the southwest. We're not really seeing the need for resilient designs to strengthen and to have more resilient designs for storm events, but it also affects our distribution systems for other issues such as wildfires.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

42 of 277

Fireside Chat 1



Follow-up question:

Just as a follow-up question. In the Philippines, while fortunately we haven't been problematic with wildfires, we do get our share of typhoons. Even in the United States hurricanes and storms do affect you. What is the participation of government in being able to rebuild what has been destroyed, if at all?

Response from Mr. Daniel B. Waddle:

What we saw after Typhoon Haiyan, I think, is a very good example of the government response, and that's to provide the necessary capital to rebuild quickly, but also to rebuild in such a way that the systems are more resilient – that means toughening design, it means strengthening wind factors that are no longer in the 150km/h range up to 200km/h, ensuring that the systems have redundancies that they didn't have before. The government's role is to facilitate financing, and also to recognize that the rebuilding costs are going to be higher than the original construction cost. That reflects back on the regulatory agency. The regulatory agency needs to be able to recognize those costs could be integrated into current designs.

Follow-up question:

When you build back those overhead lines, do you do structure underground or do you just change the spanning or the materials that you use? How do you build better?



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

43 of 277

Fireside Chat 1



Response from Mr. Daniel B. Waddle:

The challenge with underground is that it is very expensive. In terms of the resiliency against major storm events, it's much more resilient, but the question is, is it economically viable in rural areas? In urban areas, no question, but in rural areas it's seldom because of the cost.

Question from Mr. Darwin Daymiel (General Manager of Agusan Del Norte Electric Cooperative):

It's almost a decade, and I hope Sir Dan [Mr. Daniel B. Waddle] and Comm. Aina [Atty. Josefina Patricia M. Asirit], former ERC Commissioner, could still recall this. There was – I think – a tripartite agreement between NRECA, NEA, and REFC [Rural Electrification Financing Corporation] for the project that you presented a while ago as emerging technology and best practices in the US, the advanced metering infrastructure. At first glance, we thought it was a grant of NRECA, but it's a loan. We are one of the pilot electric cooperatives of the project. We are five electric cooperatives. For ANECO, it was a successful pilot project. However, until now, we could not proceed. We could not recover our investment for that pilot project which cost us around Php 10 million, because there are no approved rules from the Energy Regulatory Commission until this moment.

Response from Atty. Josefina Patricia M. Asirit:

Let me answer that. We actually have AMI rules already, but you need to file an application for your particular AMI program. We have that already but there will be individual applications.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

44 of 277

Fireside Chat 1



Question:

Linus, I was intently looking at your slides. How do you envision to encourage private sector participation to fill in the gaps for funding and implementation?

Response from Engr. Linus K. Chanda:

It is our view that the aspect of electrifying Zambia would not be carried out by government alone. Private sector is key. We are having very aggressive engagements with the private sector. Part of the activities that we are looking at is the establishment of light-hearted regulations, creating zones so that we can protect investments for off-grid network from the private investors that come in. One of the challenges that the private players have cried about is that when they establish an off-grid system in an area, before you know it, the utilities are extending the grid in that particular area. They are threatening the investment that is coming in that particular area. Thirdly, the aspect of low tariffs, much as it is counterproductive towards rural electrification, the government is addressing the aspect of cost-effectivity for those who absorb power from the network. Currently they have implemented the five-year migration plan towards cost-effective tariffs. When we establish off-grid networks, what happens is that the player, private or ourselves, we have to request and apply to the regulator to determine the tariff that we are going to apply to those communities. In our case, we do not make a return on investment that the government puts in. We just recover the O&M costs. Thank you.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

45 of 277

Fireside Chat 1



Follow-up question:

Still on the funding aspect, how are you addressing the cost of internal wiring for households?

Response from Engr. Linus K. Chanda:

That's a very interesting question. Government has introduced very interesting avenues for development across the country. The aspect of infrastructure development previously was planned and implemented centrally. What government does now is to allocate development funds to every constituency. The constituencies therefore determine what infrastructure development they want to implement. As an Authority, we are engaging with these constituencies for them to look at some of the electrification plans that will be implemented. If there is, for example, a school, or a hospital, or houses that may not have internal wiring. We are working with these constituencies to ensure that they can look into either financing, if it's a public infrastructure, or giving some loans, if they are privately owned houses. Over and above that, we are also depending on how we structure projects, we are also looking at working with international cooperating partners such as the World Bank. Recently we implemented a project where the World Bank provided 75% subsidy towards connection to the grid for each house.

Comment from Atty. Josefina Patricia M. Asirit:

What this shows us is that challenges in the electricity sector really know no boundaries. It knows no specific geographical or territorial location. We share the same concerns.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

46 of 277

Fireside Chat 1

Question:

While the Philippine government has long encouraged the adoption of renewable energy, such as solar, in the electric cooperatives' energy mix, you mentioned specifically that net metering means loss of revenue for distribution utilities. How do you marry this paradigm?

Response from Mr. Daniel B. Waddle:

That requires an understanding on the part of the regulatory agencies, what the real cost of distribution service delivery is. We have to ask ourselves how to balance a national policy which is very well intentioned to try to promote the use of renewable energy technology here in the Philippines, which is essential because for as long as there has been a power sector, it's relied on conventional power technology at very high generation costs. Promoting renewable energy is quite essential but we also have to safeguard the distribution utilities which have a sunk investment in their distribution infrastructure. If we allow consumers at the residential level to receive a credit at the full cost of delivered power to them, it's not fair to the distribution utilities. I think that this is really a regulatory question that needs to take into consideration the need for balanced benefits to the distribution utilities as well as the consumers. That kind of thoughtful process has not blended in several developed economies, as we've seen failures in the distribution utilities as a result, in Germany in particular. In the United States, it has created significant revenue losses for several distribution utilities, but it has not resulted in any significant failures yet, but it will, if we see higher penetration of rooftop solar, which is a good thing in a global economic point of view, but can have significant and unintended consequences on the distribution cooperatives.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

47 of 277



Power Forum
Highlights

Propelling Innovations for a Secure and Sustainable EC Operations

Monalisa C. Dimalanta
Chairperson, Energy Regulatory Commission

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

ERC Chairperson Monalisa C. Dimalanta



Highlights of the Presentation

- ERC LINKod is a suite of online digital programs that the ERC has adopted to help out not just electric cooperatives but all stakeholders in order to avail of the services of the ERC without the physical constraints
- ERC LINKod is composed of these digital programs:
 - Online Filing and Application System - a web application system for the filing of rate and non-rate cases
 - Online Uniform Reportorial Requirement System
 - Competitive Retail Electricity Market Monitoring and Reporting System
 - Billing and Revenue System or Cashiering System - allows the ERC to issue online billings in lieu of physical statements of account (SOAs)
 - Consumer Complaints Ticketing System
- ERC, together with the Land Bank of the Philippines, developed the Bill Shock Protection Program

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

49 of 277

ERC Chairperson Monalisa C. Dimalanta



Highlights of the Presentation

- ERC, together with the Land Bank of the Philippines, developed the Bill Shock Protection Program - a working capital facility that can be availed by distribution utilities in order to allow/extend a deferred payment mechanism to consumers by drawing on this facility in paying generation suppliers
- The Meter Shop Renewal Leniency Program extends the deadline for meter shop applications until September 30, 2023
- The ERC Online Generation Rate Database is where all generation rates per region can be found
- Within the week, ERC shall publish the Competitive Selection Process guidelines
- For distribution utilities affected by the Alyansa case, there will be a 30-day transition period in which EPSAs can be procured

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

50 of 277



Power Forum Highlights



Policy Framework and Outlook for Total Electrification

Rowena Cristina L. Guevara

Undersecretary, Department of Energy



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

Usec. Rowena Cristina L. Guevara



Highlights of the Presentation

- The Department of Energy recognizes the significance of electricity in improving the lives of Filipino people and driving socio-economic progress across the nation
- 631,284 households per year must be electrified in order to achieve 100% electrification by 2028
- Electric cooperatives, together with NEA, shall find a way to solve problems caused by insufficient fiscal space of the national government
- The National Total Electrification Framework was designed with four strategies:
 - Household electrification;
 - Distribution line extension;
 - Stand-alone home systems; and
 - Micro-grid systems

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

52 of 277

Usec. Rowena Cristina L. Guevara



Highlights of the Presentation

- Funding sources for the National Total Electrification Framework:
 - Distribution utility internally generated fund;
 - Private sector initiated;
 - Foreign assisted electrification project;
 - ER 194;
 - DOE locally funded project (e.g. Total Electrification Program);
 - NEA electrification subsidy; and
 - NPC missionary electrification plan funds
- Our hope is that the electric cooperatives will transform in three possible ways:
 - Privatization;
 - Corporatization; and
 - Aggregation
- Wishes for rate-based methodology instead of cash-flow based

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

53 of 277



Power Forum Highlights

Status of the Transmission Development Plan

Anthony L. Almeda

President and CEO, National Grid Corporation of the Philippines

Redi Allan B. Remoroza

*Assistant Vice President – Transmission
Planning Department, NGCP*

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

Status of the Transmission Development Plan



Highlights of the Presentation

- One of the NGCP's primary roles is to develop and expand the power grid
- In 2022, a system peak load of 16,596 MW while dependable generation capacity at 23,598 MW was recorded
- NGCP will continue to play an important role in the 69 kV lines that serve our ECs not only in the operation and maintenance, but also in projects and in restoration works for facilities affected by calamities
- Asset growth between 2009 and 2022:
 - 324 generating units accommodated by the grid;
 - 8% increase in transmission line length;
 - 104% increase in substation capacity; and
 - 211% increase in installed capacitors & reactors

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

55 of 277



Power Forum
Highlights

Reliability and Sustainability of Power Supply within Off-Grid ECs

Rene B. Barruela

Vice President – Corporate Affairs Group, National Power Corporation

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

Rene B. Barruela



Highlights of the Presentation

- New Power Providers serve around 70%, while NPC is serving around 30% of the energy requirement in missionary areas
- There are 479,029 households unserved in the missionary areas, 85% of these should be served by the electric cooperatives (38 electric cooperatives)
- 179 SPUG plants operate at 12 hours or less (instead of the ideal 24/7 service). Majority of these are in Masbate, and are awaiting the grid extension by MASELCO and TISELCO
- NPC aims to install 35 MW of renewable energy in 145 areas by 2028
- NPC will continue construction of 69kV lines in the major islands and substations

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

57 of 277

Rene B. Barruela



Highlights of the Presentation

- NPC's plans and programs:
 - Fuel Rate Improvement Program
 - Spare Parts Management Program
 - Quality Assurance Program
 - Maintenance Management Program
 - Troubleshooting Guide
 - Gears Toward Renewable Energy

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

58 of 277



Power Forum Highlights

Panel Discussion 1:

National Programs and Policies

Participants

Rowena Cristina L. Guevara
Department of Energy

Antonio Mariano C. Almeda
National Electrification Administration

Redi Allan B. Remoroza
National Grid Corporation of the
Philippines

Rene B. Barruela
National Power Corporation

Moderators

Josefina Patricia M. Asirit

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

Panel Discussion 1: National Programs and Policies

Question:

Allow me first to shoot the first question, and I think this is just going to need a reiteration of what DOE Undersecretary Rowena Guevara earlier presented. The question actually is from CASURECO III. Ang tanong: Total electrification remains a very practical dream, but given the existing geographical set-up and situation in the rural areas and far-flung sitios/barangays particularly in the Bicol region, which is known to be subjected to/beset by natural calamities such as typhoons, how much time will it take for this present generation to realistically benefit from this dream project of total electrification? I think ang question is the timeline. Siguro DOE and NEA will be able to answer that.

Response from Usec. Guevara:

Mas madali ang isasagot ko diyan, kasi nandito si Admin Nani. Kami naman, magbibigay lang kami ng numbers, e. Ang mag-i-implement, NEA and the electric cooperatives. Bottomline po, and deadline is December 31, 2028, dapat tapos na po.

Response from Admin. Almeda:

It's worthy to mention that we at NEA created a three-pronged approach. The first approach is our traditional Sitio Electrification Program, which is our main stream. This is on the "gridable" areas. On the non- "gridable" areas, we will implement the solar home system, which is a minimum of 60 watts for residential, and a there is a proposal for 200 watts for the cornmill operations. Last of the three approaches would be the micro-grid act. Lahat ng tatamaan ng "gridable" under the Sitio Electrification, we will maintain that.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

60 of 277

Panel Discussion 1: National Programs and Policies

(cont.) Response from Admin. Almada:

Lahat ng non- "gridable", because unviable, then the way to electrify that is through the solar home system. We've seen it happen way back 2016 through an EO grant. At present, I believe, there are about 40,000 households that are using the solar home system, from Davao Del Sur, DASURECO, SUKELCO, SOCOTECO II. We will not re-engineer the wheel, we will just replicate what is being done right now and expand it. The next question is, "Ilan ba talaga ang figures?". That's why we are [cooperating] with DOE. NEA will have its own numbers. We will now reconcile that. That is basing it on our raw data coming from the LTER and the Distribution Development Plan. We will not stop there. The next phase, we will be availing of satellite imaging for us to really know how many households are there to be energized. That is to validate the raw data. We are in motion; we are in progress. Kayong mga electric cooperatives: gagambalain ko kayo to validate all these data. We have to work double time.

Comment from Atty. Asirit:

At the end of the day, ang sagot po niyan ay nasa inyo. Tayong lahat po ay kapitbisig para ang Total Electrification ay maging isang realidad.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

61 of 277

Panel Discussion 1: National Programs and Policies

Question:

The next question is for DOE and NGCP. As mentioned earlier by Mr. Waddle: the United States has multiple transmission service providers. In the Philippines, we only have one, and that is NGCP as the transmission service concessionaire of the entire Philippines. What are the advantages of maintaining a single transmission provider? Or pwede rin ba tayong katulad sa ibang jurisdiction na maraming service provider? Sige, sagutin muna ni NGCP. Gusto mo ba na may kapatid ka o ok lang sayo na only child ka? Kasi 'pag only child baka spoiled.

Response from Engr. Remorosa:

Given the relative size ng Pilipinas, we are small compared to the United States na mas malaki. Geographically it would be more efficient for them na maraming transmission service provider. For our case here in the Philippines, I would say we need only one.

Comment from Atty. Asirit:

I think ang sagot ni Redi is it's about economies of scale.

Response from Usec. Guevara:

Tinignan din natin kung ano ang itsura sa ibang bansa na multiple ang kanilang transmission operator pati system operator. Nakita namin na nagkaka problema sila, lalo na doon sa system operation kasi kailangan mo talagang pwede mong tawagin yung buong sistema para paandarin. Based sa batas natin, based din sa ating franchise agreement at based sa ating concession agreement, iisa lang ngayon ang ating transmission operator at system operator.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

62 of 277

Panel Discussion 1: National Programs and Policies

Question:

This question goes to NPC, Sir Rene. Off-grid electric cooperatives often operate in areas with low levels of electricity demand which makes it difficult to generate sufficient revenue to cover their costs. This is one of the factors that makes it difficult to maintain sustainability of off-grid ECs over the long term. How can off-grid ECs address the issue of financial sustainability and how can the regulatory framework for off-grid ECs be improved to promote innovation and financial sustainability? Ultimately, ano po ba ang maitutulong ng NPC sa off-grid areas natin?

Response from Engr. Barruela:

For the off-grid areas, right now NPC is more on the supply side of the system of the off-grid areas. We'd like to make sure that we have enough supply for the off-grid. However, for the DUs, I think the question is whether paano ba magiging competitive magiging viable 'yong operation ng electric cooperatives in off-grid areas? Kasi kaunti ang consumer, and I believe the cost is higher to them. I can relate that in Samar. Sa Samar, minsan walang tao doon ang DU. It's really a challenge for them how to make the system. Siguro they can actually subsidize its operation in the off-grid areas with their operation in the main grid. Second, they can actually apply sa ERC for the different rates for the operation in the off-grid areas. I believe nasa EPIRA din po 'yan, there's a certain section there wherein they can actually apply sa ERC different rates for their operation in the off-grid areas, pero parang hindi yata ito ginagamit sa ngayon ng mga DUs. Baka tignan nila.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

63 of 277

Panel Discussion 1: National Programs and Policies

Question:

This one goes to NGCP. The integration of renewable energy into the grid presents technical challenges, particularly in terms of ensuring the stability and reliability of the grid. What are NGCP's programs or plans in terms of development of new technologies and the implementation of new operational practices to ensure the smooth integration of RE into the grid? Kanina kasi, Redi, ang binigay mo na update is the TDP, but I think that was more general. They want to be more specific with respect to RE.

Response from Engr. Remoroza:

When we talk about increasing the penetration ng mga VRE to our system, mayroon po tatlong magiging main requirements. Number 1 agad we need additional transmission capacity, and part of our transmission development plan to develop power highways papunta sa mga RE zones. Number 2: sa operation naman, enhancement ng forecasting for VRE. Malaking bagay po ngayon that we are already on a 5-minute trading interval. And also grid code, mayroon din pong magiging specific requirements, for example, for the off-shore grid. Lastly, doon naman sa system flexibility requirement. Dito, NGCP will not have all the solutions, particularly sa pag-provide ng mga flexible generation. Of course, we expect mga emission-free din 'yung mga flexible generation na ma-po-provide. On the part of NGCP for power quality management, we already have pilot projects using StatCom, SVC, that could provide better voltage regulation for VRE connections.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

64 of 277

Panel Discussion 1: National Programs and Policies

Follow-up question:

Is this already in the pipeline or does this require additional policy issuances and regulatory issuances? May I ask Usec. Guevara.

Response from Usec. Guevara:

Naglabas po ang Department of Energy ng policy for energy storage systems. I saw a lot of generator companies here. I hope that they would heed the call for the establishment of what we call integrated renewable energy, plus energy storage system. This will provide some smoothening for our system that will have a lot of variable renewable energy in the future. Secondly, we are also looking at technologies like, we saw technology in RE plus ESS plus an inverter that has a software program that makes it look like a synchronous generator. 'Pag nakita siya ng distribution utility or transmission operator, para lang siyang synchronous generator. These technologies are coming on in the next 3-5 years. It will provide some stability, even though we are targeting 50% renewable energy by 2040.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

65 of 277

Panel Discussion 1: National Programs and Policies

Question:

Another question that I think will go to DOE, NEA, and ERC, but it's actually a suggestion. We are very supportive of the government's thrust for total rural electrification. Presently, several policies are in place for the achievement of this goal. We, from the electric cooperatives, who are technically the implementers of these policies would like to request that a single platform or template be used for data consolidation, submission, and interpretation so that we do not have to input the same dataset for similar but different templates prepared or required by ERC, DOE, and NEA. Paano po ba natin matutugunan ito?

Response from Usec. Guevara:

Thank you very much for that suggestion. In fact, we are getting there, we are trying to integrate all of the digitalization and digitization efforts of various government agencies. We noticed that in the past, you used to submit the same data, the same information, to three agencies. Very soon we will integrate our system, we're almost there, getting to agree how to do it. Doing it, it will take us about a year or so.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

66 of 277

Panel Discussion 1: National Programs and Policies

Question:

Another one for the DOE: Challenges in relation to the mandate of total electrification by 2028 is very imminent in terms of finance management in respect to COA rules and regulations. It is, then, timely to include the crafting of a policy that will hasten and not hamper the said program implementation. Otherwise, it is and will be an impediment and such mandate will remain a dream and not a reality. Nonetheless, congratulations and more power to our policy-makers and NEA as the supervising body over the ECs. May issues po ba tayo with COA?

Response from Admin. Almeda:

We are cognizant of these challenges with regards to: number 1, liquidation. If I may go back a little bit: 2011, 2012, 2013, 2014. When the Malampaya funds were utilized for the Sitio Electrification. NEA, through the electric cooperatives, were able to achieve 6,000 sitios mark. Come 2019, there was a special provision that was attached to the funds to be used in the GAA for the SEP. That brought the number drastically because of some liquidation issues. Number 1: binago 'yong downloading. Dati 50% lang, naging 90%. That's why, electric cooperatives, I have been campaigning, I have been advocating that we have to be diligent in our liquidation. That is the very reason that will delay the project implementation. Nakikiusap ako sa inyo: be diligent and always treat liquidation with some sense of urgency, because that will spell the succeeding downloading of funds. We are cognizant of these challenges, and I am really working towards: if I have to lobby to congress and the senators that attached the special provision, I will do it. Secretary Lotilla and I are already talking how to attack and maybe manage these things, for it not to impede the project implementation.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

67 of 277

Panel Discussion 1: National Programs and Policies

Question:

One last question, because we still have one more Fireside Chat, another panel. This is for NGCP and DOE with respect to direct connections. The question to NGCP and DOE is that: Some companies are having renewal applications of power supply contracts with the Department of Energy and their direct connection to NGCP. These companies are asking for some kind of certification in compliance to the DOE's requirements like the issuance of a waiver indicating that the local distribution utility or electric cooperative cannot provide the services needed with regard to the power supply connection. However, the electric cooperatives are claiming that the electric cooperatives have improved and can actually provide connection already to these companies, but the companies do not want. What the company wants is to remain directly connected to NGCP. How can this be addressed? I know there is a review, 'di ba Usec. Guevara? Paano kung ayaw? Gusto pa rin direct pero kaya naman ng electric cooperative sana, and of course, that goes to their revenue.

Response from Usec. Guevara:

Actually hindi lang electric cooperative ang affected diyan. Last week I had to meet with a big distribution utility, NGCP, and this company that wants to do direct connection. But then, at the end of the day, when we had a very nice conversation among ourselves. The company changed its mind. They are considering connecting to the DU. One of the things that is necessary is to have good conversations where all of the stakeholders are present. And then, get, for example, Admin Nani to sit with you as the arbiter. I think if we work that way, it is possible for us to solve these kinds of problems. I'd like to remind our electric cooperatives, in the Philippines, we have a lot of what we call reputation. If your reputation is bad, it's really very difficult to recover. But if your reputation is good, then you will do good business. Maybe it's time for our electric cooperatives to make publicly known how well they are doing. You are doing very well, but most people are still thinking of the old types of electric cooperatives. 54 years 'old naman na ang NEA. I'm sure you can figure this out by yourselves.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

68 of 277

Panel Discussion 1: National Programs and Policies

Comment from Atty. Asirit:

In other words, galingan niyo manligaw. Ang galing ninyo manligaw sa ibang bagay. Ito naman, customer ang dapat na ligawan.

Question:

One last question to NPC because we have a lot of off-grid concerns: Sabi kanina ni Sec. Lotilla, mayroon na daw kayong Php 10 billion na credit line. How are we in terms of being able to address the missionary electrification in areas na in the previous months nagkaroon po ng challenge?

Response from Engr. Barruela:

I believe it was in 2022 when we had this financial problem because of the rising fuel prices. Halos na-doble po kasi 'yong fuel cost namin, so yung subsidy given by NPC, na-doble din. It affected our finances. What we did, through the DOE Secretary, we requested the Congress for support na magbigay ng subsidy with regards to fuel. And also, we were able to secure a Php 5 billion credit line from Landbank. Basically this will be added later on, if the need arises, subject to the Board approval for the National Power Corporation. There will be an additional Php 10 billion if that will be approved later, probably this month. That would assure the supply of electricity, our supply of fuel. That would also assure payments to our NPPs. Medyo mas malaki po kasi 'yong aming binabayad sa new power providers because they provide around 70% of energy in the missionary areas, kaya mas malaki po 'yong requirement nila. That would also be used for the payment of our fuel that will be procured this year and next year. Assured po 'yong mga electric cooperatives, 38 DUs that we will have enough supply by next year.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

69 of 277



Power Forum
Highlights

Good Governance

Benjamin B. Magalong

Mayor, Baguio City

Hon. Benjamin B. Magalong



It is an honor and privilege to stand before you today as we reflect upon the remarkable journey that NEA has undertaken in pursuit of its noble mission. Events such as this remind me of the pivotal role that the governance play in shaping our institutions, our nation, at large. It is the concept that transcends administrative procedures and regulatory framework. It is a philosophy that guides our actions, fosters trust, and paves the way for meaningful change.

In my many years of public service and leadership, I am proud to appreciate that good governance is the foundation upon which successful organizations are built. It demands unwavering dedication to transparency, accountability, innovation, dynamism, honesty, and purity of intention. These principles when embraced earnestly create an environment where trust flourishes between stakeholders and the public.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

71 of 277

Hon. Benjamin B. Magalong

The challenges that we encounter such as the issues faced by the BENECO provide us with invaluable opportunities to put these principles into action. As many of you are aware, it revolves around what many perceived as an unjust takeover attempt, a threat to the cooperative's autonomy. In a time when our cooperatives are meant to flourish as self-governing entities, such actions challenge the very essence of what BENECO stands for, a democratic participation inclusive and shared benefit. This issue in BENECO underscores the broader challenge of keeping politics separate from the decision-making processes of our cooperative institution, while politics undoubtedly play a role in our society.

It is crucial to ensure that political motives do not interfere with the cooperative's mandate to serve its members fairly and efficiently. In this light, I want to emphasize to our national bodies to take what happened to NEA as a lesson. Protect yourself from the influence of bad politics. The very essence of good governance is compromised when political interest interfere with the decision-making processes of institutions meant to serve the public. It creates confusion, divides people, and impacts productivity. It is of utmost importance that the decisions to undertake must be grounded in objectivity, driven by the pursuit of public welfare rather than agenda of a particular political group or a political individual.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

72 of 277

Hon. Benjamin B. Magalong



NEA, under the leadership of Nani Almeda, must stand as an exemplar of how institutions can remain focused on their mandate, uninfluenced by political forces that can undermine their integrity and effectiveness. It is time to hold those in positions of power accountable. It is time to demand that they rise above partisan interest and prioritize the needs of people they are meant to serve. We must demand that decisions are made based on merit and welfare of the community not the agenda of selected few.

I remember this day July 3, 2023, I told an inconvenient truth. Inconvenient truth, totoo pero ayaw aminin that corruption is pervasive, that corruption, sadly is now a norm rather than an exception. I made a choice of raising this issue against a backdrop of the NUP pension and to staggering national debt. According to financial experts, this year our debt will rise to about 14.6 trillion. Next year, the projection will be at 15.8 trillion. When I came out with that statement in Camp Crame in July 3, I mentioned that each and every Filipino owes about 113,000 pesos. Hindi pa pinapanganak, 113,000 na ang utang. By the end of 2024, ang utang ng bawat isa sa atin nasa 138,000 na. Two days after that statement, my phone went busy. Calls and text messages came streaming in. I was surprised only to find out that the video message of my speech was posted on social media.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

73 of 277

Hon. Benjamin B. Magalong



Two days after, those affected unleashed the attack dogs. Character assassination abound. Some went to the extremes, my two grandchildren, an 8 year old and a 14 year old, were portrayed as drug addicts. My two daughters were portrayed as prostitutes. More assassination of my character went on and on and more and more. They want me to give up, and this is my answer to them, we will keep the fire burning. It's not about me, it's about our children, it's the future of our nation. Many, I was really surprised, when suddenly lot of support came streaming in and I remember the words of no less than Senator Lacson when he said, "Benjie remember this, when you look around don't get frustrated, because you'll find out later that nobody's behind you to support you, to fight with you".

And true enough, I did not get frustrated, because suddenly all the support, all this motivation, all this encouragement came in from different people. From former secretaries to incumbent congressmen, incumbent senators, to individuals, to big company owners, to the members of the uniformed service PNP, AFP, BFP. It kept coming in and I said to myself, I cannot simply give up I cannot abandon this cause. Otherwise, if we give up, it is as if we say we are giving up the future of our children. It's the noblest among all the noble legacies that we can pass on to their generation. Marami nagsasabi, "Mayor, imposible yan, marami nang gumawa niyan, hindi naging successful".



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

74 of 277

Hon. Benjamin B. Magalong



I tell them, we can make the impossible possible. I remember the words of President Roosevelt after World War 2 when after the bombing of pearl harbor he said to the generals, "I want us to launch a counter-offensive", and the general said, "Sorry, Mr. President. We cannot do it. We are decimated. We don't have the asset." Ano'ng sabi ni President Roosevelt? "Don't tell me it cannot be done". True enough after 3 months here comes the general saying, "Mr. President, we have the solution." Are we just simply going to be quiet knowing that in front of us crime is happening? Nasa harapan natin hindi tayo iimik.

For so many years, as I've said, it is an inconvenient truth. Walang nagsasalita. Bakit? I can only be summarized by 3 letters an acronym M.A.P., masarap ang pera. I created a spark. I was surprised that we are now converting it into a conflagration. Now we're creating a movement, leading a group of local chief executives, young local chief executives who believes in good governance hoping that we can convert ourselves into a COVID-19 virus, become highly transmissible, highly contagious, highly infectious so that we will be able to infect other local government units, other local chief executives and prove to them that true enough, if it can happen in the City of Baguio, it can happen anywhere in the entire country.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

75 of 277

Hon. Benjamin B. Magalong



So I urge all of you to join me in this journey let us come together and fight for good governance. There's no other alternative. Think of other alternatives. There's no other alternative. There's no other option. Once again, I would say it's not about me, it's about your children, it is about the survival of our nation.

Let me leave you with a thought, words of Confucius when he said "If you plant for 1 year, plant rice. If you plant for 10 years, plant a tree. But if you plant for a lifetime, educate your children." It's no rocket science, believe me. If we educate our children in good governance, I can definitely assure you, we will reap the benefits of this for a lifetime. Maraming salamat po sa inyong lahat.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

76 of 277



Power Forum Highlights



Fireside Chat 2

Participants

Benjamin B. Magalong
Mayor, Baguio City

Sergio C. Dagooc
Representative, APEC
Partylist

Moderators

Josefina Patricia M. Asirit
Former ERC Commissioner

Vic P. Alvaro
Department Manager, NEA Legal
Services



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

Fireside Chat 2



Comment from Atty. Asirit:

Sir [Mayor Magalong] thank you very much for those inspiring words. I just have to make a confession. 'Yon pong salita niyo, and you were referring to an earlier speech you made. I actually have that pinned on my notes. It starts with "Let me leave my manuscript, and speak from the heart". Then you started talking about exactly what you were telling us. Pero, gano'n pa man. When we speak of good governance, hindi ako naniniwala na may pagkakaiba ang good governance na kakailanganin sa isang local government unit at sa isang electric cooperative. Shoot the first question, Atty. Vic.

Question:

Mayor, as regards to your advocacy on good governance, how do you think our ECs can best practice the same, so that in order to maintain a good level, or even, a high level of trust from their member-consumer-owners?

Response from Mayor Magalong:

One of the biggest issues now affecting our electric cooperatives is financial stability. It actually relates to financial transparency. I'm really glad, and I learned, that Administrator Nani Almeda came up with a new system to define the parameters of how we classify our cooperatives. He gave so much importance [to] financial management, financial transparency. Thank you very much Admin Nani. We are on the right track.

Alam niyo kasi, when we talk about good governance, sometimes we are only focused on transparency, accountability, but if you look at the real principles of good governance, you talk about empowerment, efficiency and effectiveness, participatory governance, dynamism, innovation.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

78 of 277

Fireside Chat 2



(cont.) Response from Mayor Magalong:

There are a lot of principles that goes along with good governance. I would like to emphasize, when we say good governance, it is a politics of hope, not the politics of frustration. It's not the politics of criticism, but the politics of encouragement. It's not the politics of lies, but the politics of truth. If you apply all these principles of good governance, then one thing that I can assure you each and every cooperative who are present here today, will I say, you can be all gold standards. There's no substitute, believe me, there's no substitute to good governance.

Question:

On that note, can I ask Congressman Dagooc, would you say na 'yong hinihingi ni Mayor Magalong na independence from politics, can that actually exist in the electric cooperative system na hindi magiging subjected to political forces or influence 'yong integridad ng mga kooperatiba? Ang hirap ng tanong ko, pang-Mr. Universe.

Response from Cong. Dagooc:

Hindi po mahirap 'yan. But before I answer that, in lieu of my message, I would like to give an opening statement, because very specific 'yong topic na binigay sa akin. It's best practices. I'd like to emphasize that in the electric cooperatives you really need not to use only the word "best practices". For me, it should be "appropriate best practices", because there are different settings, different scenarios in every electric cooperative. Maybe the practices that I'm doing in Siargao and Dinagat, which leads to the success of these two electric cooperatives, is not suitable in other electric cooperatives. That's why it should be "appropriate best practices". Now, on the question.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

79 of 277

Fireside Chat 2



Question:

Would you say that the electric cooperatives can actually be insulated from 'yong tinatawag natin na "political forces" that could undermine the integrity of an electric cooperative with respect to good governance, kasi 'yon 'yong dinidiscuss kanina ni Mayor Magalong?

Response from Cong. Dagooc:

It can be insulated by always keeping a balance between politics and good governance. You can only do that by always practicing a principle of not only relying on the legal aspect. It should be legal and moral, because not all legal are moral. Maybe sa batas po, tama 'yong ginagawa mo, pero kung halimbawa 'yong isang tao ay walang maibayad, Php 100 lang 'yong kanyang electric bill. Legally, you can disconnect that, kasi we have all the legal reasons. ERC issued Magna Carta, and others. But, if you disconnect that person, tapos nasunog 'yong bahay niya dahil gusto niya mag bayad, wala talagang pambayad, dahil in our case, we are living on the island. If there is bad weather, and that person is a fisherman. He cannot go into fishing. There must always be a balance. 'Wag mo munang putulan 'yan. It should be moral 'yong magiging impact or resulta.

Comment from Atty. Asirit:

'Yong sinasabi ni Cong. Dagi, is that the legalities, or the rules, must be tempered by puso or the heart.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

80 of 277

Fireside Chat 2



Response from Mayor Magalong:

I've been around. I've been assigned in Mindanao for almost 16 years, and 12 years in the Cordilleras, the rest in other parts of this country, except Visayas, and I've engaged a lot of cooperatives. One thing that I observed, 'yong mga cooperatives that never made it to the top in terms of performance, is when they have members of the Board has a different motive in joining the cooperative. Alam niyo naman siguro, maraming nag-jo-join as director simply as stepping stone to enter politics, so ang decision lagi nila is about popularity. It's not about what is right, but it is about what will make me popular, what would make me widen my political base. That impacts productivity and that impacts performance.

Comment from Atty. Asirit:

Ayan ha. We actually have here right now almost all of the Board of Directors of the different electric cooperatives, together with their management. Atty. Vic, mayroon ka pang idadagdag na tanong?

Question:

Mayor, mayroon po kasi akong personal experience. Sinabi sa akin mismo ni Mayor ito. This time I would like to disclose this to the public. To all of you here, 'yong sinabi ni Mayor dito, sinabi niya dati sa Camp Crame, hindi ito politika. Hindi siya nag-a-aspire for higher office. Sinabi niya, he is even willing to give way to a younger person sa Baguio City, even a youth leader at that. Magbibigay siya ng puwang basta good governance ang kanyang adbokasiya. Please, Mayor, paki-reiterate.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

81 of 277

Fireside Chat 2



Response from Mayor Magalong:

I believe so much in young people. I saw Luigi, I saw Lance here. They're like my nephews. The reason why I believe so much in young people is: they have so much energy, they have a different perspective of the environment, they have courage, they believe in change, they know what innovation is all about, they understand resilience, they understand sustainability, they want to make a big difference, they are not afraid to speak out or speak up. 'Pag kausap mo yung mga elders, anong maririnig mo sa kanila? "Mayor, 'yong ayuda namin" "Mayor, 'yong medical allowance namin" "Mayor, 'yong free movies namin". Kanino tayo mag-i-invest? I see young members of the cooperatives who are present here today. I'm really glad that slowly they are taking over. This is a challenge to the young people. Alam niyo minsan, mga politicians natin, lalong lalo na mga trapo, just to get your votes, they would say "You're the future leaders of this country". I say, you should feel insulted, and you should totally agree. Some people call you future leaders of this country, ang ibig sabihin niyan maghintay ka muna. If there is any time that you should be leaders, it should be now. Remember this, you young leaders who are present here today: Age should never be a factor in leadership. I would like to emphasize that in the city of Baguio – and I've been saying this – if there is anyone among the youth now who is going to emerge as a leader in the next two years, before the 2025 elections, ako hindi na ako tatakbo as mayor. Hindi rin ako tatakbo as senator. I'm not running for any national position, believe me. As I've said, it's not about me. It's about creating that legacy that we can pass on to the next generation.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

82 of 277

Fireside Chat 2

Question:

Puwede ko bang tanungin din, Mayor, nasabi na ninyo kung ano 'yong mga dapat na gawin, looking at younger ones, looking at independence from political influence. Sa palagay niyo ba, what are some of the things that are overlooked when we strive for good governance? 'Yong mga nakakaligtaan. Simpleng bagay pero nakakaligtaan. Saan natin puwede kunin ang lakas para manindigan? We have here 1,500, more or less, from 121 or so electric cooperatives, in the Boards, and in operations.

Response from Mayor Magalong:

I just value the principle of what is right. You don't have to complicate it. Ang problema, when we rationalize so much, we start to rationalize it and say, ano ba ang mas okay sa akin? Eventually, because of other motives, to run for a political position, that basically clouds your decision-making process. Simple lang, I have to do what is right. A lot of people say: "You know, Mayor, right means something relative. Kumporme yan sa pananaw ng tao". I say to them: "Right is something absolute". Unang una, what you have to do is, you have the laws, we have to refer to the law, rules and regulations. What are the ordinances? Kung doubtful ka pa diyan, then go over your code of conduct and ethical standards. Kung doubtful ka pa rin, all you have to do is ask yourself: Is this for the common good? Will it benefit the community? Will it benefit a lot of people? Kung doubtful ka pa rin, tayo naman karamihan dito Kristiyano, then you ask yourself, is it aligned with the teaching of God? You can never go wrong with doing what is right.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

83 of 277

Fireside Chat 2

Question:

At this point, si Cong. Dagis, who has had over 30 years of experience. Bago po kayo naging Congressman, you actually managed two electric cooperatives. Doon po sa sinabi ni Mayor Magalong, how do you concretize that in your personal experience?

Response from Cong. Dagis:

Actually, I totally agree with him. You cannot go wrong if you just follow the law, rules and regulations, and the teachings of God. 'Yan 'yong sinasabi ko na legal and moral compass. To concretize, if you are the leader, you should walk the talk. For example, sasabihin ko sa SIARELCO, nandito po, all the board of directors, and the department managers of SIARELCO and DIELCO are here. If you go into service dropping, pag binigyan kayo ng tip, 'wag niyong tanggapin. If they give you snacks, ok 'yon, kasi pagkain 'yon. Now, to concretize that. When I was asked to manage DIELCO in 2004 – because that electric cooperative was an ailing coop for 15 years in operation, iiling-iling na lang kasi 12 hours lang ang operation – I waived my salary from 2004 until now. When I became a Congressman, representing the electric cooperatives, in 2019, I again wrote the Board, waiving my salary in SIARELCO. Hindi ako nakikialam sa mga bidding. Lahat ng Board, hindi nakikialam sa mga kung ano-ano na hindi nila trabaho, because we have boundaries. We have NEA Bulletin 35. We have the procurement policies of NEA. Just do not cross the boundaries. If you are a Board [Member] or management, may boundary po 'yan. Again, go back to the moral compass, the teachings of God, follow the law, rules and regulations. 'Yun lang.

Comment from Atty. Asirit:

In closing, I actually borrowed the words of Mayor Magalong when he said: "We set aside first the manuscript and speak from the heart and the mind". Maraming maraming salamat po.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

84 of 277



Power Forum Highlights

Panel Discussion 2: Building Partnerships for Sustainable Rural Electrification

Participants

Daniel C. Aboitiz

Executive Director, AboitizPower Corporation

Francis Giles B. Puno

President and Chief Operating Officer,
First Gen and First Phil Holdings Corporation

Juan Eugenio L. Roxas

President and CEO, FDC Utilities, Inc.

Moderator

Josefina Patricia M. Asirit

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

Panel Discussion 2: Building Partnerships for Sustainable Rural Electrification

Question:

Speaking of renewable energy, I know that First Gen, this is your niche. May I ask FDC and AboitizPower, where are you at in terms of partnering with the DOE in achieving the 20% by 2035, and 50% by 2040?

Response from Mr. Roxas:

Ma'am, pinaka mahirap na tanong 'yan sa akin because I am the smallest generator here, of course, compared to Aboitiz and First Gen. Modesty aside, we also have our transition plan and we are also building renewable facilities. In fact, our renewable facilities are concentrated in Mindanao, while we are there already. We're building about 62 megawatts of solar capacity in three locations: General Santos city; Matalam, Cotabato; and in Misamis Oriental. And of course, we have renewable projects here in Luzon. We're still far. Our thermal capacity is 400 [megawatts]. What we have in place now; the service contracts that we have is only about 102 [megawatts]. Kulang pa. Admittedly, kulang pa.

Comment from Atty. Asirit:

Every megawatt counts, especially because of the fact that all of our electric cooperatives will need to be able to comply with the renewable portfolio standards that have just been increased. Ang implementation ng 2.52 is this September.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

86 of 277

Panel Discussion 2: Building Partnerships for Sustainable Rural Electrification



Response from Mr. Aboitiz:

AboitizPower is just shy of about 1000 megawatts of renewable capacity. I guess the crux of your point is how we're going to support RPS. We are actually very eager to participate in this space. We participated in both rounds of GEAP. Admittedly, we were caught a little flat-footed, but if we have another opportunity for a 3rd or 4th round of GEAP, we intend to participate. Right now, we are in the process of building multiple solar, run-of-river hydro, and one wind project. We are expanding our geothermal facilities. Working hand-in-hand with our partner PGPC, we have been able to complete a successful drilling program.

Comment from Atty. Asirit:

There you have it. Hindi tayo, so far, magkukulang ng intention, because it's there.

Question:

Let me now ask: How do you choose when to participate in the Competitive Selection Process of our electric cooperatives? I have been going around. Some of the feedback is "Ma'am, walang nag-pa-participate" or "Ayaw nila sa amin kasi maliit lang kami. That's why we're waiting for our Joint Competitive Selection Process which actually aggregates the demand".



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

87 of 277

Panel Discussion 2: Building Partnerships for Sustainable Rural Electrification



Response from Mr. Roxas:

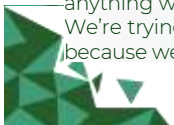
Ma'am, hind isa gano'n, ano. Correct me if I'm wrong. Hindi kami namimili kung maliit o malaking electric cooperative. Our barometer, really, is the terms of reference. Mawalang-galang na po. 'Pag nasa terms of reference na ang "no outage allowance", how do the customers expect us to do our yearly preventive maintenance? In the case of coal, it's at least 21 days. 'Pag nasa TOR na ang "no outage allowance" mag-aalangan na kaming sumali, because we get it in the market. We do not know how much the market will be during the time when we will conduct our PMS. 'Yon ang isa sa mga reasons why some of us do not participate in competitive selection.

Question:

Aside from terms of reference, would you have any other barometer?

Response from Mr. Puno:

For me, it's primarily the terms of reference. I'd like to take a point again and I'd like to extend it. In our case, we built San Gabriel, and that's 414 [megawatts], I mentioned that earlier in my introduction, during the time when we expected a crisis. We went through two CSPs with Meralco. No one could bid because there was no capacity to be sold. Having said that, after two bids, it was approved. It went to the ERC for approval. But when we got the approval from the ERC, not only was the tariff reduced, but our outage allowance was also reduced. On the outage allowance issue: For us, it's not our intention to maximize outage allowance. In fact, we don't earn anything when the power plant is not producing kilowatt hours per capacity. It's kind of difficult for us to do that. We're trying to fix that this year. As a result, in the last few CSPs, it's on record that we did not participate simply because we felt it was not viable. There were other competitors who bid.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

88 of 277

Panel Discussion 2: Building Partnerships for Sustainable Rural Electrification

Question:

If I'm not mistaken, the ERC right now is having public consultations for a template for power supply agreements. Would you care to comment on that? Because maybe it's not just about generators, but more importantly, for the electric utilities that might be affected by certain requirements.

Response from Mr. Aboitiz:

If you'll allow me, I'll address your earlier question as well. I was thinking along the lines of Giles. In our case, we have a diversified portfolio. We're able to serve fixed contracts. We're able to give "no outage allowance". We really try to respond to our customer needs. I think the one thing that makes me hesitate to participate is when there's regulatory risk. More and more we are looking to participate in CSPs that allow us to secure final approval from the ERC before we supply, or, where the customer is prepared to take on that regulatory risk, and deal with the ERC accordingly. Because you get these sudden changes that are applied after you've served the electricity.

Comment from Atty. Asirit:

Isn't the TOR also subject to review by DOE and NEA? It's still subject to review by DOE and NEA. I guess that's another point that maybe we can take note of so that it can be addressed in order to grow supply at a faster rate than it already is.

Response from Mr. Aboitiz:

Ma'am, on your point about the CSP template: I would venture to guess that most of us power generators are looking for the same features. We're looking for a level playing field, an inclusive TOR, a transparent TOR, and one that shields us from regulatory risk, which will allow us to submit the lowest possible prices, and get very close to our hurdles. Thank you.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

89 of 277

Panel Discussion 2: Building Partnerships for Sustainable Rural Electrification

Question:

We speak of risk. One is regulatory risk, but there is also another risk, which was actually asked by a sender, and it speaks of political risk. The question was: Political factors affect and influence much the reliability and affordability of electricity in some areas to the detriment of consumers. I think the question falls squarely on: Even if there is more affordable supply, politics can enter the scenario and politicians endorse suppliers of a particular choice. Would you care to comment on that?

Response from Mr. Puno:

In our case, when we participate, that doesn't seem to be the case.

Response from Mr. Roxas:

I have not experienced that as well. But I would just like to give you an example of an actual experience. This happened a long time ago, in the past. We closed a power supply agreement with an electric cooperative. The rate was already fixed. Everything was already fixed. The plant was being built. The plan was to barge the fuel right at the doorstep of the power plant. Election came, a new mayor was elected. The mayor said: "I am not going to allow a port to be built beside your power plant". So, anong nangyari? Nag-file kami sa ERC ng adjustment. Anong nangyari? The consumers had to pay Php 1.50 more per kilowatt-hour because kailangan i-double-handling yong fuel.

Comment from Atty. Asirit:

That's how politics can actually get in the way.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

90 of 277

Panel Discussion 2: Building Partnerships for Sustainable Rural Electrification



Question:

I wish we could have more. Maybe this is the time for you to be able to address our electric cooperatives. It's the NEA Anniversary. How would you commit yourselves to the cause of electrification?

Response from Mr. Aboitiz:

I'm very thankful to have this opportunity to address our partners and potential partners in this room. I think AboitizPower, as I said earlier, is ready and willing to understand the particular needs of any given cooperative, and to find a fit-for-purpose product that will really be responsive to those needs. I guess my only ask is I hope the GMs and Board presidents in this room could give us an opportunity, open the door to us and allow us the chance to show what we can do. Thank you.

Response from Mr. Puno:

The same for me. In the case of First Gen, as I mentioned, we have contracts that will be running out. We sell that capacity to Meralco today. This is, for me, a very good opportunity for us to be able to expand our relationships with the contestable market including electric cooperatives, to be able to provide a capacity coming from the most modern gas-fired plant that we have in our portfolio. And that's just around the corner, on top of the renewable energy projects that we have, from hydro, and geothermal, as well as solar.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

91 of 277

Panel Discussion 2: Building Partnerships for Sustainable Rural Electrification



Response from Mr. Roxas:

On behalf of FDC, thank you very much for inviting us here, and for addressing the electric cooperative movement, of course, headed by NEA. We at FDC, as we have before, are committed, especially in Mindanao. We are all aware that Mindanao is in a power crisis. 8-hour brownouts every summer. Modesty aside, when we came, the power crisis was solved. Not only us, of course Aboitiz came, and everyone came. We still have the capacity to expand. We still have room to expand to another 400 megawatts in our existing facility. We are prepared when that time comes, we are committed to the cooperatives in Mindanao. But now, not only in Mindanao, because of the interconnection, we can already commit to the cooperatives in the Visayas to provide reliable and cost-efficient power to them in the future.

Remarks from Atty. Asirit:

There you have it, ladies and gentlemen. Two panel discussions, two fireside chats. I hope that we were able to shed light on some of the concerns of the electric cooperatives in this convergence activity. Maraming salamat po.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

92 of 277



Fellowship Night Highlights



Solidarity and Inspirational Messages



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

Hon. Imee R. Marcos



Magandang gabi po sa inyong lahat. It's a real joy and privilege to join you this evening as we say happy birthday to the NEA. It is, after all, your 54th birthday, the anniversary of the National Electrification Administration, and it is with immense pride and joy that we reflect on the extraordinary journey of electrification in this, our country, the Filipino nation, and the significant contributions of NEA towards progress and development. You, in fact, like the countryside and the spark of joy, is prevalent only when NEA is functioning and functioning well. It has indeed been a long time coming. Nag-umpisa ito noong 1960 nung itinatag ang electrification administration. Napakatagal na noon, wala nang mag-aamin na naaalala pa. But it was really later on, when finally, the United States Agency for International Development actually determined that it was time to move forward with this effort. It is a long story, so let me, allow me first to greet our administrator, Antonio Almeda, who brings us all together very often.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

94 of 277

Hon. Imee R. Marcos

Ang ating ASEC Mario Marasigan, from the DOE, the NRECA International Vice President, Dan Waddle, the guests from Zambia, led by the Minister for Energy as well as the CEO Linus Chanda. Of course, APEC party list Congressman Sergio Dagooc, at ang PHILRECA President Joselito Yap, Aboitiz Power Corporation Daniel Aboitiz. Ang NEA Board of Administrators, the 121 strong and proud cooperatives, employees, and visitors. This is indeed a happy day, congratulations to all, and happy, happy 54th birthday.

Truly, this is a momentous occasion. I think it is useful to recall sometimes what history has presaged for us. In 1964, I was beginning to say, syempre hindi natin naalala 'to, puro kwento na lang ng magulang natin. Noong 1964, ang USAID, the United States Agency for International Development, conducted a large survey of the country's power situation, finding that rural electrification had barely moved. And at that glacial pace, the entire country would never be electrified, especially the rural areas. Far-flung countryside swathes of land and of communities were still in the dark. And as a result, the recommendation was that an adoption of the rural electric cooperative system of the United States be initiated. Hence, as we know, in 1966, during the state visit to the United States of my father, then President Ferdinand Edralin Marcos, arrangements were made for the USAID to assist the Philippine rural electrification program, forging a contract between NRECA US, as well as the Philippines. NRECA made feasibility studies for pilot projects.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

95 of 277

Hon. Imee R. Marcos

Two cooperatives were the pilots, first in Mindanao and the other in Visayas. These were the Misamis Oriental Rural Electric Service Coop, the original MORESCO, long-standing and pioneering and still turning on excellent work. I think I saw you a couple of weeks ago. Palakpakan po natin ang mga pioneer, MORESCO. At syempre, sa Visayas naman, ang isa pang pioneer na sikat-sikat no'ng panahon na 'yon at parang baby nitong effort ng rural electrification. Ang ating Victorias Manapla Cadiz Rural Electrification Coop, or VRESCO respectively. Indeed, you were the models for the rest of the country, and you started everything that we know today.

For more than five decades, the NEA, in partnership with 121 coops, have lit the homes of millions and brought significant development to the rural areas. In 2022, we now claim upwards of 86% as prospective sitios that are fully electrified. 86%, however, still posits a rather large 14%, remaining, which is 21,216 sitios to meet the goal of total electrification by 2028. Parang naririnig ko yan sa bawat administrasyon, subalit sa haba ng panahon, hindi naman matapos tapos yung 100%. Kulang pa rin ang suportang ibinibigay, kulang pa rin ang budget at 'yong financing. Noong 30 June 2023, I am aware that the National Electrification Administration extended 560.66 million loan assistance to 18 electric cooperatives, and we hope that NEA will also be able to provide some level of loan assistance to electric coops buffeted and affected by the double typhoons of Egay and Falcon of the last fortnight.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

96 of 277

Hon. Imee R. Marcos

We must be able to renew as well and embrace renewable sources of energy and the sustainable practices that will secure a brighter and greener future for the generations to come.

We therefore commend NEA for its renewable energy projects, through the Expanded Household Electrification Program, or Solar PV Mainstreaming. As well as a program from which we have benefited richly, the provision of solar power facilities on the rooftops of public schools. With the hope that this be expanded to hospitals, where the power and energy consumption is overwhelming and constant.

The Philippines, with its abundant natural resources, has the potential of truly becoming a beacon of sustainability in the region. You are, of course, aware that in Ilocos Norte, we were the very first to put large-scale wind energy in all of Southeast Asia. And hence, we remain a poster child for renewables until today. But there is room to grow. While NEA still needs to work with seven remaining electric cooperatives, it is our hope that by mere identification, we are already starting on the road to recovery for the following: ABRECO, ALECO, MASELCO, BASELCO, SULECO, TAWELCO and LASURECO. We hope we can make progress in the quickest possible time for these, as we said, ailing and struggling electric coops that spore all our energies for their earliest recovery and success.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

97 of 277

Hon. Imee R. Marcos

While it is true that the most expensive electricity is no electricity at all, NEA needs to address the price gap between distributions utilities and electric coops. For example, the generation cost of Ilocos Norte electric coops for the month of June is 9.61 per kilowatt, while MORESCO is at 10.08, BOHECO at 9.03, all significantly higher than the 7.25 of MERALCO.

Why are we imposing such high rates on the least able to afford the rural communities, the farmers, the fisher folk? It is important that we finally allow equal burden on those who can afford power, but also understand that the least able to pay should also be considered. To achieve this vision, we need to foster cooperation and collaboration among stakeholders. It is essential that the government, the private sector, and civil society unite with a shared purpose to light up the countryside, all our islands, and make certain that far-flung and vanishing communities are finally enlightened.

Together, we can face the challenges of the present and seize the opportunities that a bright new future provide. Thank you to all of you. Happy birthday to everyone. Congratulations to NEA. Maraming maraming salamat sa inyong lahat.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

98 of 277

Daniel B. Waddle



What we have learned in our cooperative program in the United States is that electric cooperative programs are not only about infrastructure development. Infrastructure development provides a primary pathway through which electricity service is provided, and that's without question extremely important. However, electric cooperative programs are about building human capacity, serving the needs of our members, and facilitating rural economic development. We heard this confirmed this morning in the address of the Honorable Secretary of the Department of Energy. We also heard that the challenges remain for many ECs whose performance indices have slid and whose long-term sustainability may be in question. The challenge is to find a means to achieve performance to better serve each EC membership to generate improved financial results that can in turn be reinvested to modernize service.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

99 of 277

Daniel B. Waddle

The challenges that face our EC, our community of ECs are significant. We are all living in a time of remarkable change. Climate change has resulted in more severe and frequent storms, some of which have devastatingly destructive impacts. International events in distant lands can result in increased cost of power supply, disruption of power supply chains, and delays in important investments. The continuing improvement of technology improvements mean that EC membership want and need higher quality of service to take advantage of digital technology, much of which contribute to improvements in the quality of life and some of which add to future income. So what does this mean?

Providing higher quality of service is not only needed for member consumers, it results in higher revenues for ECs and allows us to reinvest to meet future load growth. It means that ECs are able to achieve higher quality of service, are better aligned to meet membership needs, and to support economic growth for their communities. So the pathway to improvement in quality of service is to use advances in technology to identify sources of inefficiency, to evaluate how to improve revenue recovery and improve service quality. Embracing digital technologies such as geographic information systems, outage management systems, SCADA and AMI deployment, and use of data analytics are no longer future aspirations. They should become immediate and pressing priorities for the EC community. And, this is all achievable.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

100 of 277

Daniel B. Waddle



The pathway to meeting the future needs of the EC community require commitment to excellence by EC boards, EC general managers, commercial engineering and operations teams. But look at what NEA and the ECs have done over the past 54 years. These improvements are well within reach and will require additional effort, coordination, and learning to use new tools and methods. This morning at the presentation of honors, it struck me how big and significant the EC community in the Philippines is. We stood and celebrated the parade of EC representatives that took 10 minutes to present their flag, each representing many communities, each representing tens of thousands of members, a community of over 15 million members. I want to extend my sincere congratulations to all of you and to encourage you to engage these challenges, not with fear or discouragement, but with courage and enthusiasm, as did our predecessors who pioneered the power systems that you operate today.

The challenges are right here with us. And I have no doubt that you're all up to meet the needs going forward. For our part, we stand here with you to meet the future, to provide whatever assistance that is needed. Congratulations and enjoy the rest of this event.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

101 of 277

Engr. Himba Cheelo



My name is Engr. Himba Cheelo. I want to correct the impression that was given earlier on. I'm not the Minister of Energy, but the Permanent Secretary of the Ministry of Energy in charge of Technical Services. I just want to make that clear before I get fired by the Minister. The administrator of National Electrification Administration, Mr. Antonio Almeda, good evening, Sir. The president of the Philippine Rural Electric Cooperative Association, Mr. Joselito Yap, good evening, Sir. The senior vice president of the National Rural Electric Cooperative Association International Mr. Dan Waddle, I recognize you, Sir. Deputy Administrators from the National Electrification Administration here present, Board Members of PHILRECA, I recognize you. My Zambian team who are here with me from the Rural Electrification Authority of Zambia, led by the CEO Engr. Linus Chanda, members of the 121 rural electric cooperatives present here, distinguished invited guests.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

102 of 277

Himba Cheelo

This interaction indeed is an indication of the strong bonds that you are already forging with your counterparts in Zambia, we thank you. And we also recognize that this interaction with your good selves is particularly important because we share some common challenges: this being electrifying rural areas in a sustainable manner. I think I wish to share with the meeting and the key point here that it was only last month in July 2023 when the ambassador from the Philippines to South Africa Her Excellency Noralyn Baja presented the credentials to the President of the Republic of Zambia Mr. Hakainde Hichilema accrediting that as an honor presidential envoy. The two agreed from the need to work towards their establishment of long-term and sustainable partnerships between the two countries.

Distinguished guests, ladies and gentlemen, rural electrification holds a special place in many countries including the Philippines and Zambia. It presents a well-established commitment to bridge the development gap between urban and rural areas ensuring that every citizen regardless of their location has access to life-changing benefits of electricity.

We all know sitting in this room that electrification or rather electricity is a major catalyst for social economic transformation of communities. I am reliably informed, Mr. Administrator, through you that you have electrification rate of 89% in the Philippines. This is truly a huge milestone and may I congratulate NEA and the PHILRECA for your collective hard work which has resulted in this milestone. It is through your efforts that you now report this amazing rate of 89%.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

103 of 277



Annexes of Speeches

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

House Speaker Ferdinand Martin G. Romualdez

Message delivered by Hon. Ferjanel G. Biron, Representative of Ilo-ilo, 4th District



Thank you. Magandang umaga po sainyong lahat. I am privileged to deliver the message of our Honorable Speaker, Martin Romualdez for today's 54th Anniversary Celebration of NEA. Good morning and Happy 54th Anniversary to the National Electrification Administration, the government's arm that stretches to the countryside to bring light to more than 15 million Filipinos across this archipelago of over 7,000 islands. Secretary Lotilla, Administrator Almeda, fellow public servants, and the tireless workers of the over 10 dozen electric cooperatives have gathered here today, thank you for welcoming me to this momentous occasion that can also be a forum on how we can achieve the goal of this Administration of Total Electrification by 2028. Energizing the whole country was a top priority of my uncle, Ferdinand Marcos Sr., and so it is with our current President, Ferdinand Marcos Jr., who seeks to honor his father's timeless legacy. No Filipino should be left in the dark, no matter his location.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

105 of 277

House Speaker Ferdinand Martin G. Romualdez

Message delivered by Hon. Ferjanel G. Biron, Representative of Ilo-ilo, 4th District

Over the past five decades, NEA and like-minded groups have joined hands to provide electricity to the countryside, provinces, cities, towns, barangays and sitios, rural areas that are often deemed small, sometimes even too poor, to be served by larger utilities where investment returns are too low to make business sense. But with the financial assistance and other support from NEA, the 121 electric cooperatives last year connected more than 554,000 consumers, exceeding a target of 400,000 and bringing total connections to 15.4 million or 92% of potential customers. Surprisingly, 47% of total connections, or 7.2 million, are in Luzon, where the large utilities operate, while 27% are in the Visayas and the rest in Mindanao.

NEA helped drive this expansion by extending Php 1.27 billion in loans to 35 electric cooperatives, which used Php 762.5 million for capital expenditures, while Php 505.8 million was used to repair damages caused by typhoons Odette and Kiko. In the first six months of this year, NEA has extended Php 506.7 million in loan assistance to 18 electric cooperatives. As we all know, affordable and reliable electricity service is an indispensable component of economic development and expansion. Electrification spurs business investments, improves education, and helps facilitate information dissemination, especially during times of disasters and other emergencies, such as the pandemic. It opens opportunities to better quality of life and secures the future for the current generation and the next.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

106 of 277

House Speaker Ferdinand Martin G. Romualdez

Message delivered by Hon. Ferjanel G. Biron, Representative of Ilo-ilo, 4th District

In congress, seven bills are pending that seeks to grant legislative franchise to new or expand franchise coverage of existing electric cooperatives. Among these bills, for the sake of full transparency, is one that will grant a franchise to Leyte Electric Cooperative, Inc., to provide electricity service to Tacloban City and the towns of Palo and Babatngon. All within the first district of Leyte, the Legislative District 1, that I represent in the House.

As we move towards our goal of national electrification by 2028, I urge everyone here present, to think about a sustainable future, not just for your business, but the entire nation as well. Future-proof your businesses by adopting new technologies that would allow more efficiency operation, reduce the cost of power to consumer, and ensure efficient use of limited capital. Also bear in mind the environment as you find electricity supply to serve your customer. We have seen more destructive storms over the past decade, and you could help address this problem by finding more sources of renewable energy. If you could build your own wind and solar farms, I'm sure Administrator Almeda here will be more than happy.

To find resources to help and realize such projects, Congress will also be willing to assist NEA and electric cooperatives community, provide affordable and reliable electricity to our fellow Filipinos. Salamat po sa inyong lahat, at muli, Happy Anniversary NEA. Thank you!

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

107 of 277

Hon. Michael Odylon L. Romero



I would like to take this opportunity also to extend my sincerest congratulations on the 54th founding anniversary of the National Electrification Administration. Your tireless effort in working for the total electrification of the Philippines is truly a noble pursuit.

In the recent State of the Nation Address of His Excellency President Bongbong Marcos, he has stressed the relentless drive for the total electrification. Based on the DOE's June 2022 data, only 95.8% of the total household in the country has already been electrified. Luzon has the highest record of electrification at 98% followed by Visayas at 97, and Mindanao at 87%. The remaining 4.2% of the household that needs to be electrified are 165,000 in Luzon, 124 [thousand] in Visayas and 681,000 po sa Mindanao. To NEA Administrator Nani Almeda, you have vowed to provide 100% electrification by 2028. As it is my earnest belief that we can achieve this lofty goal ahead of schedule through the joint efforts of the public and private sector.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

108 of 277

Hon. Michael Odylon L. Romero

Based on the 2021 study conducted by the United Nations Economic and Social Commission for Asia Pacific, total electrification has the following positive effects, tatlo po 'to. First, total electrification po gives an increase in income to the general public. It gives additional expenditure, additional consumption. And second, it gives positive educational outcomes for children 'no. Mas nakakapag-aral ho ang mga bata 'pag ka ho may electricity ang bawat bahay. And then there's a positive impact on gender empowerment, such as, significant increase in women's employment, financial autonomy, reproductive freedom and social participation 'no. Yung electrification po malaki ang effect sa gender equality lalo na sa trabaho ng mga babae. Thus, the qualitative and quantitative effects of total electrification are incontrovertible.

Based on the estimates of NEA, the government now needs to allocate the amount of Php 20.79 billion to energize the remaining 10,212 sitios that are located on grid areas and the amount of 29.5 billion pesos to energize the remaining 23,000 households. I, as a House of Representative member, make my personal commitment, that we, in the House of Representatives, will extend our utmost assistance and support to NEA in securing this funding for your own programs.

Kaya po nandito ang mga congressman ay para po suportahan lahat po ng programa ng NEA lalo na po itong inyong quest to do 100% electrification.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

109 of 277

Hon. Michael Odylon L. Romero

Napakahirap po gawin dahil po yung iba po nasa labas na ng grid, at malalayong lugar na po, kabundukan, but with the support of your House of Representatives, we will surely make sure ho that we will pass kung ano po ang nire-request niyo. Especially ito pong remaining 60 billion pesos budget allocation for the next three years para po maging 100% ang inyong electrification. In our quest for total electrification we should also endeavor to achieve the full utilization of the renewable energy. Ito pong renewable energy sources natin, kung hindi kayo maniniwala, na sa buong Pilipinas po, meron tayong 246,000, again, 246,000MW of untapped renewable energy, ganyan po karami. Ito po, it just means that we are, isa pong palaisipan din sa'tin is that we have a 1,900MW geothermal capacity in the whole Philippines 'no, making us the third largest geothermal capacity. Kailangan lang po natin mai-tap itong mga 'to.

Based on the DOE's Philippine Energy Plan of 2020-2040, it has been stated that in the Philippines' aim for renewable energy, our country now accounts for 35% mix by 2030 and 50% renewable energy mix by 2040. This 2022, however, the renewable energy is just at 22% supply mix of the country. Truthfully, malayo pa po ang ating kailangan gawin. But, with the proper coordination from both the public and private sector, I have full confidence that we can achieve the goal set by DOE in the PEP 2020-2040. Ito pong DOE Circular No. 202209-30, was implemented to increase the minimum annual incremental renewable energy percentage of each of the cooperatives from 1 to 2.5% starting 2023.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

110 of 277

Hon. Michael Odylon L. Romero

Thus, distribution utilities are now mandated to increase their sourcing of energy, renewable energy supply, from eligible renewable energy suppliers to a minimum of 36% in 2030 which is a little short of 35% as per DOE. Its regulatory framework is also in place for our electric cooperative partners to build partnership within the renewable energy providers to achieve our total electrification of the country, most especially through the creation of a 10 and 5 MW embedded renewable energy generating plants.

Lastly po, as chairman of the Committee on Poverty Alleviation today. I was formerly po the senior deputy speaker last term and now the chairman of the Committee on Poverty Alleviation, I fully support po, and we, as the House of Representatives, fully support yung Pantawid Kuryente Program po ni President Bongbong Marcos. And po, we're, sinusulong po namin po and the 500 pesos allocation for each of the 4Ps members. Sana po, from each of the member electric coops, ito pong 121 electric coops around the Philippines, suportahan niyo ho sana yung Pantawid Kuryente Program ni Presidente. Ito po yung pagbibigay ng 300-500 pesos sa bawat 4Ps member. Ilan po ba ang 4Ps member? Ang 4Ps members po eh nasa 25 million or about 5 million, 4 million families po. So ito po would be rolled out through the DOE and other members of the government, by, starting po, sabi ni presidente, in the next 60 days.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

111 of 277

Hon. Michael Odylon L. Romero

Also, I, mag-a-advertise lang po ako, salamat po sa pagtitiwala, I'm also a family of the electric coops as a one of my companies was the one that was trying to help po 'tong ZAMCELCO 'no. And, ZAMCELCO, is very proud to say that after 4 years, na-classify siyang B. Nasaan ho ba yung mga taga-ZAMCELCO rito? From four hour rotating brownouts, ZAMCELCO is now proud to say na wala na pong brownout, pakonti-konti na lang po. Halos two, three incidents na lang po every other day. And, tsaka hindi na cause ng ZAMCELCO, ang nagko-cause na lang ay yung alam niyo na kung sino. From a D class, from a Category D 'no, ngayon po ay ang ZAMCELCO is now short of A in four years' time, so malaking achievement itong nagawa po ng ZAMCELCO. Kaya sabi ko nga kay NEA Administrator, ang electric coop, this is my second time or third time to talk po sainyo, hindi na po iba, I hope that you will feel that I am not just a congressman but I'm also a part of the electric cooperatives family.

Sa lahat po ng isusulong ko as a, of course, andito si APEC Representative Sergio Dagooc and PHILRECA Representative Presley De Jesus, pero meron pa ho kayong pangatlong kasangga sa Kongreso, ako po yun. So, you know, the family of electric coops, electric cooperative, has to be stronger 'no. Ang parati kong sinasabi, if you act together, like how I did sa party list ko. Ang party-list po namin, of course, 'pag eleksyon laban-laban kami. But I told them, the last Congress I was the leader, sabi ko, mag-sama-sama tayo kasi kung mag-sama-sama ang partylist, we comprise 20% of the whole Congress.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

112 of 277

Hon. Michael Odylon L. Romero



If mag-sama-sama tayo, makukuha natin lahat, lahat po ng biyaya galing sa taas. And, lo and behold, during the 18th Congress, nakuha ho namin. We got the, dalawang representatives sa CA, we got fair representation. And ganon din po ang gusto ko sabihin sa electric coops. If you are one, ibig sabihin ng one, sama-sama, dahil yung triple A, gusto nating class, kailangan natin kopyahin. Eh kapag nag-sama-sama yung electric coop, at nag-sama-sama yung objective, I'm talking of objectives, eh malayo po ang mararating natin. And, yun pong dream ni NEA Administrator Nani Almeda, to have a 100% electrification, will be achieved sooner than 2028 than later 'no.

So, yun lang po and masasabi ko po, again, the House of Representative and the members who are here, fully support the National Electrification Administration of Administrator Nani Almeda and also the whole Philippine, the whole PHILRECA, talaga pong all-out support po kami. Wag ho kayong mahiyang lapitan kami on anything that you need and want. Again, maraming maraming salamat, and again, congratulations to NEA.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

113 of 277

Engr. Ernesto O. Silvano, Jr.



What I am about to present provides a solution to total electrification of the whole country. The vision for total electrification is achievable after all. Throughout the years, NEA with its partner ECs has relentlessly continued with its mandate of pursuing total electrification of the country on an area coverage basis to promote inclusive rural development. Notably, this year's theme of the NEA-EC Convergence is total electrification by 2028. And so the big question remains, will the dream for total electrification be achievable or will it remain to be a dream?

Just recently, then the tall order of the president in this year's state of the nation address, he has called the pursuance of 100% electrification of the country by the end of his term and leave no one behind. This means that the current administration realizes and is serious of the importance of electrification in rural development.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

114 of 277

Engr. Ernesto O. Silvano, Jr.

Electrification is security, without it, it will be impossible for the government to traverse its path towards its envisioned directions. Access to affordable and reliable energy services is fundamental to reducing poverty, and economic growth especially in those far-flung areas of the country. In the realization of President Ferdinand Marcos Jr.'s 8-Point Socio-Economic Agenda for a robust economy, inclusive and resilient society, which includes reducing energy cost and ensuring energy security, the government through NEA is committed to promote inclusive development through rural electrification under its 5-Point Agenda cascaded from the policy directions of this administration.

Through these enabling laws supporting the mandate of NEA from PD 269 in 1973 and RA 10531 in 2013, which further strengthen the NEA's mandate to pursue the total electrification of the country, and with NEA's core services categorized into financial, institutional, technical, and legal in order to strengthen and help the ECs become economically viable and globally competitive, let me first congratulate us all with the milestones we have accomplished for the last 54 years in rural electrification. As of May 31, 2023, we have connected 15,662,870 customers and can we give ourselves a round of applause for that milestone. But we know despite such accomplishments, we still have a lot to do. This slide shows that as of May 31, 2023, there are 93 ECs which were able to attain 90-100% electrification level, 20 ECs with 70-89%, 4 ECs with 51-69% leaving 4 ECs with less than 50% level of energization mostly located in the BARMM areas as seen in the map.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

115 of 277

Engr. Ernesto O. Silvano, Jr.

For more than five decades, the NEA with the ECs as our partners stayed true in its mandate of lighting up provinces, towns, and remotest villages in our country. To accomplish total electrification by 2028, the continued implementation of the rural electrification program is needed to ensure the attainment of the vision of genuine inclusive growth, poverty alleviation, and access of electricity for all.

And so, with the updated projection based on the population and household data of the PSA, the growth rate released for its 2015 population census issued last March 28, 2021 came out with the projected 2020-2025 population. These computed growth rates were then used to project the number of household potential from 2021-2028 as you can see which finally declares a 17,863,705 potential households by the end of 2028. It is notable though or worthwhile to note that all over the country, the responsibility of the ECs accounts to only around 60% of the total households of the Philippines while the rest belongs to the private distribution utilities. Then projected from 2018-2022 trend of actual reported connection of the ECs, with just regular connections (add-ons initiatives of the ECs) on the ECs' existing distribution system or network of infrastructure with no projects coming from the government, or without national government subsidies, it would only result to a 92.40% electrification level by the end of 2028.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

116 of 277

Engr. Ernesto O. Silvano, Jr.



In order for us to attain total electrification by 2028, accounting for the projects which includes SEP and BLEP in the electrification masterplan or LTER as submitted by the ECs would further result in 92.65% by the end of 2028. Clearly not enough for a 100% electrification. Just a mere 0.25% increase from the previous one. Thus for 100% electrification by 2028, we need to further strategize and find a fast particle of economic approach as we are addressing the last mile households rounding up with off-grid electrification such as PV mainstreaming and microgrids. They play a vital role in achieving our goal for total electrification. Projected here are the additional dispersed households, that will be addressed by PV mainstreaming which will not qualify for on-grid solutions in the next 5 years. In summary then, and with the support of the national government, we should be able to attain total electrification by 2028 under these different strategies, on-grid and off-grid solutions, SEP and BLEP for on-grid, PV mainstreaming and microgrids for off-grid. The dynamic moving target for potential household is already addressed here with the dynamic strategies of on-grid and off-grid solutions.

And so finally, we need the following funding requirements each year with a grand total of 69.79 billion. All in all, we can see each year's funding requirement. For 2024 it's supposed to be 12.77, 2025 15.62, 2026 is 14.96, 2027 is 14.37, and finally 2028 is 12.08 a total of 69.79 billion if we are really serious in this 100% electrification.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

117 of 277

Engr. Ernesto O. Silvano, Jr.



We see the following challenges and mitigation to address those challenges. So given those support from the national government since the other commonly perceived challenges like right of way clearing, LGU permitting, are already within the manageable control of the ECs. Ramping up with the off-grid solutions like PV mainstreaming for the remaining dispersed households would only leave us with 3 significant challenges: 1) site identification and validation which will be addressed by the GIS of the ECs and more so with the remote sensing or satellite base imaging by NEA. These will altogether be finally in the NEA command center; 2) budgetary constraints will be addressed by lobbying/networking with the legislators; 3) scarcity of materials which can happen, this can be minimized by presenting the foreseen equipment and material requirements of the ECs to the manufacturers/suppliers/contractors through a summit or conference. And can also be secured through a regional procurement hub.

Thank you for listening and I hope we've been able to effectively share with you overall where we are and what we still need to do to accomplish the big task ahead. Thank you and good morning.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

118 of 277

Daniel B. Waddle



Good afternoon, everyone. It's a pleasure to be here. I haven't been to the Philippines for about four years, so it's a real pleasure to come back to join this event. It's been very impressive so far, and I'm looking forward to the next few days with our hosts as well as our guests from Zambia. I was asked to make a presentation on emerging trends in electric distribution, and I'd like to start by introducing some of you who may not know NRECA and NREC International to who we are. So, the United States invested in its electrification program in the 1930s and 1940s. Like the Philippines, we established electric cooperatives throughout the rural areas of the United States. It was a gradual process that took about 20 years to full implementation, not to reach 100% electrification, but to reach about 85% or 90% electrification. And we established, over that time, about 1,000 cooperatives at a very difficult time in U.S. history, where the conditions in rural areas were very similar to those here in the Philippines at the start of the NEA program.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

119 of 277

Daniel B. Waddle

Today, we have 830 electric cooperatives. Many of the cooperatives that were originally formed merged over the years. So, we started with 1,000, we now have 830. And these electric co-ops serve about 20 million consumers. So, one thing I'd like to leave with you is to think about, in the United States, we have a population of about 360 million. Here in the Philippines, about 120 million population. And yet, we serve 20 million consumers. You serve over 15.5 million. The electric cooperative industry here, I'd say, is quite mature. We also have a system of 62 generation, transmission cooperatives that provide our marketing services to our distribution utilities. And these have a combination of our generation facilities as well as transmission facilities.

So, NREC International did not replace NRECA. The National Rural Electric Cooperative Association still exists, and it provides services to our domestic utilities, our domestic co-ops. NRECA International was formed in 1962 to provide services to our counterparts in developing economies, like the Philippines. We, originally in the late 60s, worked in collaboration with the Philippine government to help establish NEA and then to provide advisory services in the establishment of the cooperative program here. We've also worked over the years in about 65 countries, including countries in Latin America, in Southeast Asia, South Asia, and most recently in Sub-Saharan Africa. Over this time, our program has resulted in assisting an establishment of about 300 rural utilities that today serve about 180 million people.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

120 of 277

Daniel B. Waddle



So, our sector, the utilities that serve communities, both in urban areas and rural areas, have to evolve over time. And the evolution has a characteristic of identifying and addressing challenges. These challenges change decade to decade. But the most important objective of distribution utilities is to provide affordable power that is highly reliable to all of the communities that they serve.

So, when we look at the challenges that face utility operations in developed economies, one thing that's become clear to me is that over the past 20 years, the load growth in many of the distribution utilities has been very flat. And the reason for that is that there have been remarkable efficiencies in end-use technology at a time when the economic growth was fairly low. Now, combined with upward pressure on salaries and other operating expenses, this created a situation that was very problematic for many distribution utilities, meaning that costs were increasing but revenues were flat. Concurrently, there is a growth in rooftop solar, net metering, and retail wheeling, all of which created further pressures on revenues. With self-generation at the residential level, the consumption at the residential level overall has dropped. Combined with growth and losses for wildfires from disruptive and highly destructive storms, and when plants designed to withstand wind loads were designed according to standards established 60 years ago, many of our distribution cooperatives in the United States had significant challenges.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

121 of 277

Daniel B. Waddle



It's also important to note that there have been some very significant innovations that have occurred specifically in digitization of our infrastructure. So what I mean by digitalization is moving from analog technologies for metering, for commercial operations, for managing utility operations in all phases of the value chain, to using digital resources. Some of the significant innovations include advanced metering infrastructure, which allows us to understand the power flows at the consumer level across all consumers in the distribution system, and integration of the information we gain from these consumer-level sales with all of the business systems. What this means in terms of the challenge to distribution utilities is that as we digitize business systems, not just for accounting and commercial purposes, but also for operational purposes at the substation and the distribution level. The challenge is to make sure that the digital information can communicate from one platform to another. That means that these systems have to be interoperable.

So, if we turn to the challenges in developing economies, they're a bit different. Looking across the universe of developing economies, load growth has been fairly steady over the past 20 years, meaning that we didn't see the same penetration of high-efficiency head-use devices in developing economies as we did in developed economies. But at the same time that the load growth continued, principally to focus on differences on universal access, there had been a pretty significant shift in power supply due to changes in hydrologic cycles.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

122 of 277

Daniel B. Waddle

So while load growth has continued, power supply has become more problematic. And I'm not talking about individual countries. This is pretty much the pattern in Central Asia, South Asia, Sub-Saharan Africa and in North America.

Now, there has been more modest growth in solar technology in developing economies than in developed. But there has been an increase in interest in rooftop solar. And we've noted that the donor community has facilitated increased investment in roof-tide renewable resources, including solar wind and other green generation technologies, much like what we saw in some of the advertisements during the break. It's also true that loss management continues to be a significant drain on revenue recovery. This is not only true in Sub-Saharan Africa, it's also been true in Latin America and in South Asia. So there is a present and a continuing need for a rapid transition to fully digitized platforms, specifically to address the challenges we see in revenue recovery through integrating business systems with advanced metering technology and with other operational platforms to improve revenue recovery.

I think the most significant change that we've seen in the past five years in the United States and Western Europe, and we're beginning to see this change now in many countries in Sub-Saharan Africa and in South Asia, is the electrification and the transportation industry.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

123 of 277

Daniel B. Waddle

So what does this mean? The electric vehicles are no longer something for the rich and for the well-to-do. They're the future for all transportation. So what does this mean for the ECs? We're not going to see Teslas here in big numbers, but we're likely to see a mobility for motorcycles, for bicycles, and for lower-cost single-family vehicles. And what we've noticed in the U.S. is that this has reversed the trend of load growth to a much higher load growth across all our distribution co-ops. So, this in turn impacts the need for greater power generation capacity for investment in substations and feeders and distribution transfers across the entire value chain.

Now this hasn't happened yet here, but it's going to happen. I don't believe that just because these changes have started in the United States and Western Europe that they're not going to come home to the Philippines soon. You have to start preparing now.

I also believe that there will be a very significant push by the government here, by the Ministry of Energy and NEA, for a more significant rollout of AMI technology. And the reasons for this are efficiencies. If you have digital information systems, you can have much better control of losses, of revenue recovery, of efficiencies across your entire distribution system. The costs of AMI rollout are going to be high, but the returns should also be high.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

124 of 277

Daniel B. Waddle



We also expect to see rooftop solar come on much more strongly, not just in urban areas, but in rural areas as well. So, if this happens, what it means is that there will be more pressure on the ECs because combined with net metering, that means that the residential consumers will be consuming less electricity and they'll be paying less. So, your revenue, as rooftop solar moves forward, is likely to diminish. Moreover, in areas with as high penetration of rooftop solar, this can disrupt the power flows at your substation level. So there will be a bigger challenge in managing power flows, in quality of power.

In addition, with respect to distributed generation, generally distributed generation can relieve the need for upgrading distribution systems at the local level. But if that distributed generation is principally variable generation technologies like solar and wind, it's not going to be dispatchable power. So again, further complications to power quality and to managing power flows in your system, although it can relieve some of the strains on the distribution system.

And lastly, another technological advance that I've already spoken about is the adoption of advanced digital platforms. And here I'm speaking principally about outage management systems, distribution automation, and other digital controls that provide a greater opportunity for improving power quality. But they also would present challenges in terms of integration of these systems across multiple business systems.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

125 of 277

Daniel B. Waddle



So I just want to leave you with some ideas about how the ECs need to plan for the future. I think that the biggest single disruptive technology that the power industry has faced probably in the last 50 years is the electrification of transport. This is creating significant challenges for many distribution companies in the United States. And from what I've seen in Sub-Saharan Africa in recent years and Latin America, these same challenges are going to come here very soon. I would encourage all of you to think very seriously, and to plan for a stage implementation of digital platforms, including geographic information systems, advanced metering infrastructure, outage management, distributed generation, and distribution automation at the earliest possible date.

Now you have to, it takes a lot of planning. These are going to be significant investments. You have to work this into your five and ten year investment plans. But the results from investments in these platforms will be significant. And again, as I mentioned earlier, the key, probably the single most important issue for you to consider is how to find digital platforms that can communicate with each other very effectively. We've done a number of projects in recent years where insufficient focus was placed upon interoperability, where the meter suppliers could not guarantee that the human platform would integrate into enterprise information systems. And that was very problematic.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

126 of 277

Daniel B. Waddle



Another key issue that I think you've already begun to address but additional focus will be necessary is on resiliency of distribution design. So what are we seeing? We're seeing more frequent storms, storms of much higher intensity with very destructive consequences. So what that means is that the engineering standards that we used 20 years ago don't serve us well anymore. We need stronger standards for more resilient systems. And we also need strategies like the strategy that was mentioned earlier this morning to have available materials close to the in-need.

When a storm hits, you don't want to have to wait six months for distribution transformers. You want them in your store ready and available. There's a concurrent need to allocate more resources to strengthen our power line workers to ensure that they understand how to manage high impact storm events. I think that we've all seen how responsive ECs are to one another. But we also have to recognize that these massive storm events put great strains on line workers.

And so the more training that they can receive early in the process will serve them and will serve you better. There's also a need for strengthening, for capacity building, for our entire administrative staff, commercial staff, and operating staff to become much more familiar with digital technology. So the IT resources exist here in the Philippines now.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

127 of 277

Daniel B. Waddle



It's simply a matter of tapping those resources to build a workforce that can respond quickly and effectively. And lastly, there's going to be a need for significant investment, not in just stronger infrastructure, but also to invest in a more significant digital footprint. Meaning that as you're building infrastructure out to meet that last ten or fifteen percent of the communities that are not electrified, at the same time there will be a need to invest in your digital infrastructure. That's all I have for today. Thank you very much, and I look forward to the panel discussion.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

128 of 277

Usec. Rowena Cristina L. Guevara



Happy 54th Anniversary to President Nani and the NEA Family and to the Leaders and Representatives of the Electric Cooperatives. Greetings to Cong. Dagi, Mayor Benji, Chair Mona, President Anthony Almeda, and VP Rene Barruela and to my colleagues in the energy sector.

In line with the President's State of the Nation Address to achieve 100% household electrification by the end of his term, the Department of Energy, the National Electrification Administration, the National Power Corporation and our partners are exerting every effort to ensure that all Filipinos gain access to electricity. This resolute dedication extends to reaching the most remote unserved and underserved communities leaving no household behind in our pursuit of electrification. The Department of Energy recognizes the significance of electricity in improving the lives of Filipino people and driving socio-economic progress across the nation.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

129 of 277

Usec. Rowena Cristina L. Guevara



So I have to ask the people here, nakikinig pa ba kayo? So sino sa inyo ang kasama ng Department of Energy dito sa 100% electrification? Kung kasama kayo, tumayo kayo. Yung mga hindi kasama, umupo lang kayo. Alright, palakpakan po natin lahat sila. Thank you very much. By standing up, you had just committed that you will be part of our thrust for 100% electrification. Utos na po ito ng Presidente, wala na po tayong kawala dito, hindi na pepwedeng tayo magrason at hindi na rin natin pwedeng sabihin na i-delay na lang natin siya. Ang ibig sabihin po nitong 100% electrification by 2028, magiging two years earlier tayo than the target for sustainable development goal of 2030. Tayo 2028, kaya po ba natin? Kaya natin? Okay, very good. May ipapakita muna akong numbers na nakakatakot. Kaya niyo ba mag-electrify ng 631,284 households per year? Ito po ang mga realities ng ating mga numbers. Di bale, pinagayabang natin, 95% electrification na tayo. When we looked at the numbers, we realized, yun pa lang 95% ay based on 2015 census.

Pagkatinignan mo yung tunay na number na yon, prinesent kanina ni Deputy Administrator Butch, eh nasa 88.2% lang po tayo, hindi po 95%. May hahabulin po tayo na 7% para tumama po tayo sa 2020. Tapos bibilangin din po natin, ano yung increase ng population natin kada taon. Baka nagtataka kayo, yung number natin at yung number kanina ni Deputy Butch, magkaiba. Actually po, pareho lang yan.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

130 of 277

Usec. Rowena Cristina L. Guevara



Except that inassume lang natin na constant sa DOE. Pero tama po na ginawa kanina ni NEA is that linear po siya na umaakyat. Thank you very much kay Prof Wally for doing the linear regression. So, malaking budget po ang kailangan para magawa po ito. Nasanay na po tayong mga electric cooperative na nagre-rely tayo sa national government. Eh medyo hindi po kaya ng fiscal space ng national government. I saw that the 2024 requirement was like 6.7 billion pero sa NEP, the budget, ay 1.6 billion lang po ang budget ng NEA. So obviously, hindi kaya. Pero, we need to find ways of doing this. And I hope that, the electric cooperatives, together with the National Electrification Administration will find a way of solving this problem.

Tapos reminder lang sa mga electric cooperatives, next month ang atin pong renewable portfolio standards ay aakyat na po sa 2.52% per year ang increase. So these are very good things happening to us pero marami pong requirements sa ating mga cooperatives. So, sabi niyo naman kanina, okay kayo sa 100%, diba? Naka-record po lahat ng tumayo kanina, so thank you. So, while the NEA and the DOE are working together in finalizing the annual household targets and promise po sa'kin ni Admin Nani, next week ibibigay na po niya yung assignment per electric cooperative. So malalaman na ninyo kung ilan ang target ninyo.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

131 of 277

Usec. Rowena Cristina L. Guevara



Now, to achieve the ambitious goal of 100% household electrification by 2028, there is what we call the national total electrification framework. It was designed with four strategies. Tinailor po natin yan sa geographical location, yung continuity ng households tsaka yung distance sa mga distribution facilities. Number 1, household electrification. Ito po yung strategy for connecting individual household to the existing grid that I think the electric cooperatives are doing this on a normal basis. Pangalawa po, distribution line extension. In remote, unserved, or underserved areas, this approach involves extending the distribution lines and providing household connections to cover these regions.

And third, the stand-alone home systems, similar to the presentation of Zambia a while ago, we are also including this in our strategy for the more isolated or challenging terrains. Kailangan po natin ng solar home systems and other renewable energy sources for deployment to provide independent power solutions to individual households. Number 4, microgrid systems. In areas with clusters of households, microgrid systems can be commended. These localized power-grids function independently offering a reliable and efficient electricity supply to the entire community. I'm very happy to inform you that we will soon have an auction of the microgrid system areas. I hope that some of you will participate in this.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

132 of 277

Usec. Rowena Cristina L. Guevara



Now, regarding funding sources, the framework outlines a hierarchy of available funds that can be tapped to support the electrification strategies. Number 1, distribution utility internally generated fund. Number 2, private sector initiated. Number 3, foreign assisted electrification project. Number 4, ER 194 and number 5, DOE locally funded project like the total electrification program. Number 6, NEA electrification subsidy and Number 7, NPC missionary electrification plan funds. We expect that we will be able to work together to achieve our objective, not solely relying on government subsidy but to find other ways and means. Rest assured that DOE and NEA will be your partners in this endeavor.

In addition to the distribution utilities, which include electric cooperatives, private investor owned utilities, and local government unit owned utilities, all the exclusive franchises in various areas of the country, the framework introduces the role of other qualified project implementors such as state universities and colleges that demonstrate technical and academic expertise in implementing new and emerging technologies. Napansin po kasi ng DOE, yung aming total electrification project or program na worth 500 million lang po siya per year ay matumal po ang liquidation ng mga electric cooperatives. So we're going to seek the help of state universities and colleges to help us in this project.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

133 of 277

Usec. Rowena Cristina L. Guevara



Of course we can count also on non-government organizations (NGOs), microgrid systems service providers and National Power Corporation's SPUG that are responsible for implementing and operating microgrid systems in remote and economically unviable areas of the country. Now, babalikan ko na naman po yung mga electric cooperative, marami pong beses na naririnig naming si President nagsasabi na tatlong bagay na wish niya for the electric cooperatives. And I would like to repeat what the President said.

Alam niyo po 54 years old na kayo sa NEA, so malapit na maging senior citizen, our hope is that the electric cooperatives of the country will transform in three possible ways. Number 1, privatization, Number 2, corporatization, and Number 3, aggregation, instruction po sa a'tin ito ni President. Sana po ang atin mga electric cooperatives ay mag-umpisa nang mag-isip kung papano nila maaabot yung ganung estado. Total malapit na maging senior citizen ang NEA, tamang tama naman po na yung ating electric cooperatives ay mag-level up na rin po.

Currently, our electric cooperatives, cash-flow based kayo. Ang wish po naming sana soon maging rate-based methodology po kayo, wish niyo din ba ito? Para naman po gagamit po tayong regulatory asset based para sa inyong mga evaluation kay ERC.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

134 of 277

Usec. Rowena Cristina L. Guevara

In this manner, we believe that electric cooperatives will have more power to determine how their infrastructure will be improved and can make accurate and correct investment in capital expenditure.

So yan po yung wish ko sa anniversary ng NEA na sana po yung electric cooperatives natin, sana bago mag-2028 ay nakalipat na kayo from being cash-flow based to being rate-based methodology. Yun lang po ang ating nais ipaalam sainyo. And working together, we will achieve 100% electrification by 2028. Magandang hapon po sa inyong lahat.



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

135 of 277

Anthony L. Almeda



Good afternoon to all. Thank you for the invitation, NEA Administrator Mr. Antonio Mariano C. Almeda. To our valued partners from NEA, and the Philippine Rural Electric Cooperative Association's president Joselito Yap, to partylist congressman Sergio Dagooc who has been mentoring me going forward on where we are, to Cong. Mikee Romero, and to Usec. Guevara, who has been very helpful from the DOE, and of course Asec. Marasigan, and Wali Del Mundo who has been helping us moving forward.

As the country's power transmission service provider, one of the NGCP's primary roles is to develop and expand the power grid. With the rapid development of the country, comes the growing need to power. With this, we would like to give you an update on NGCP's major backbone and interconnection projects, which are part of our long-term goals to strengthen the grid in line with the government's Philippine Energy Plan. I would like to introduce our NGCP's Assistant Vice President Redi Allan Remoroza to further present our transmission plan.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

136 of 277

Redi Allan B. Remoroza



Let me proceed with the presentation starting with a brief overview of the Philippine grid. In 2022, we recorded a system peak load of 16,596 MW while dependable generation capacity is at 23,598 MW. In the upper right side of the screen we have a chart of the circuit kms of existing transmission lines per voltage level. We can note here the significant length of the non-divested 69 kV lines that remain under NGCP. Yan pong light blue bar sa chart. Halos kasing-haba ng 138kV and 115kV transmission line length nationwide. Indeed, aside from managing the main 500 kV, 230 kV, 138 kV backbone, NGCP will continue to play an important role in the 69 kV lines that serve our ECs not only in the operation and maintenance, but also in projects and in restoration works for facilities affected by calamities.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

137 of 277

Redi Allan B. Remoroza

From 2009 to 2022, our power grid accommodated 324 generator units that provided additional generation capacity to the system and this was made possible with our asset growth. 8% increase in transmission line length, 104% increase in substation capacity, and 211% increase in installed capacitors & reactors from 2009 to 2022. The 8% increase in circuit kms of transmission lines equivalent to more than 39,000 MVA of transmission capacity. Even with these developments, our Philippine grid has increased in needs for more transmission, expansion, and developments. Earlier, President Anthony Almeda mentioned that as the country's power transmission service provided, developing and expanding the power grid have been the NGCP's primary role, a very crucial role.

We have various projects that support the distribution utilities. New transmission backbone to connect new power plants for grid supply security. Transmission backbone extensions to expand coverage. New substations and substation capacity expansions for supply adequacy and reliability. Voltage improvement projects and 69 kV lines and island interconnections.

For this presentation, we are highlighting the updates for the following major projects: in Luzon, the Hermosa San Jose 500 kV transmission line was energized in May 2023 and presently at 2000 MW capacity thereby already allowing the full dispatch of the existing and new power plants in Bataan.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

138 of 277

Redi Allan B. Remoroza

For Batangas-Mindoro Interconnection Project, the hydrographic survey was already completed and the bidding process will be undertaken this year as filed to the ERC the target completion is in 2027, and yes we have discussion with Usec. Guevara in possibly targeting a much earlier completion year for VMIP. Next is the Cebu-Negros-Panay 230 kV Backbone Stage 3 where the submarine cable component was already energized in April this year at 90 MW initial capacity. We are presently completing the overhead transmission lines in Northern Negros which will result in the full 800 MW additional power transfer capacity between Negros and Cebu. Next is Cebu-Bohol 230 kV Interconnection which will be completed next year. We are excited for this project which will significantly improve the grid resiliency and allow Bohol and parts of Leyte to have direct access to the available generation capacity in Cebu.

And finally, the Mindanao-Visayas Interconnection Project, energized in April 2023 and we are already testing now this new HVDC system at 270 MW power flow and we are very excited for the full 450 MW capacity of MVIP which will support the market operation. And yes there are project implementation challenges, yes there had been concerns, but NGCP remains committed in completing these projects and to continuously develop and expand the power grid. Thank you for your support. Congratulations to NEA on your 54th Anniversary at multi, magandang hapon po.

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

139 of 277



Annexes of Presentations

2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028



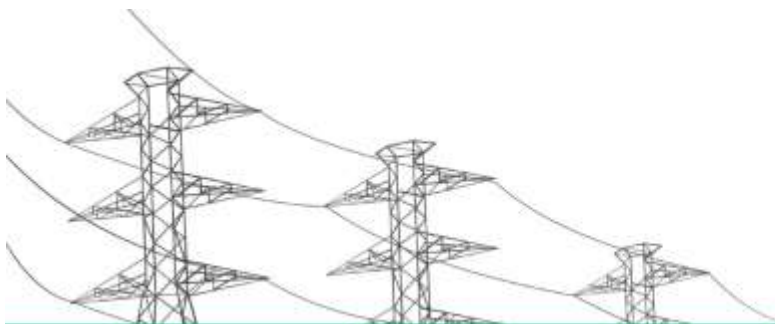
2023 NEA EC CONVERGENCE
54TH NEA FOUNDING ANNIVERSARY &
14TH NATIONAL ELECTRIFICATION AWARENESS MONTH

TOTAL ELECTRIFICATION BY 2028

Congressman Mikee Romero

PICC, PICC Complex, Pasay City, Metro Manila
Wednesday, 9 August 2023

141 of 277



In the recent State of the Nation Address of
His Excellency, President Ferdinand Romualdez
Marcos Jr., he stressed the administration's

**“relentless” drive
for total electrification.**







100% electrification by 2028



2021 study conducted by the United
Nations Economic and Social Commission
for Asia and the Pacific (UNESCAP)

- Increased in income, consumption, expenditure, and working time which is largely attributed to increase in productivity, and greater exposure to information that enables access to opportunities and resources,
- Positive educational outcomes for children such as increase in study time and total years of schooling;
- Positive impact on gender empowerment such as significant increase in women's employment, financial autonomy, reproductive freedom, and social participation.

Based on the estimates of the NEA, the government needs to **allocate the amount of Php20.794 billion pesos to energize the remaining 10,212 sitios** that are located in on-grid areas, and **Php29.5 billion pesos** to energize the remaining **23,000 households in off-grid areas.**

I make a **personal commitment** that we in the **House of Representatives** will extend our **utmost assistance and support to NEA in securing funding** for these programs. Truthfully, this is a worthwhile **investment on the Filipino people** that will lead to huge **benefits for the country as a whole in the long run.**

We should **endeavor to achieve this through the full utilization of the renewable energy sources** that our country is blessed with. The Philippines has an estimated 246,000 megawatts (MW) of untapped renewable energy, it also has the world's third-largest geothermal capacity at 1,900 MW.

Renewable Energy country's power generation mix

2030 - 35%

2040 - 50%

2022 - 22.8%



DOE's Department Circular
No. 2022-09-0030

**Increase the Minimum Annual Incremental
Renewable Energy Percentage
from 1% to 2.52% starting 2023**



10MW per Luzon DU
5MW per Visayas DU
5MW per Mindanao DU

5MW renewable energy generating plants can provide electricity for around **5,000 households** and **prevent emissions of around 4,500 tons of CO2**

Maintenance of these facilities can be provided by our very capable graduates from state universities and colleges, and tech-voc institutes who can provide technical support.





Republic Act No. 11310 Pantawid Pamilyang Pilipino (4Ps) Act

In this program, 4Ps beneficiaries and those identified to be living below the poverty threshold set by the Philippine Statistics Authority can apply for a subsidized rate on their monthly electricity bill.

I implore upon our Electric Cooperative partners to help in the information drive for this program, and aid qualified Lifeline Rate beneficiaries in your respective franchise areas to apply and avail of the benefits.

The **use of renewable energy in our pursuit for total electrification does not only provide electric cooperatives with cheap and reliable energy**, but more so it is an **investment to our country's future** where our **children shall live in a sustainable and healthy environment.**

MABUHAY ANG NEA!



NATIONAL ELECTRIFICATION ADMINISTRATION
NEA, ECs and MCOs : Partners in Rural Electrification and Development
 "The 1st Performance Governance System-Institutionalized National Government Agency"

NEA @ 54:
Breaking Barriers for Total Electrification in 2028
 Presented by: Engr. Ernesto O. Silvano, Jr.
NEA Deputy Administrator for Technical Services
 2023 NEA-EC Convergence
 54th NEA Founding Anniversary
 14th National Electrification Awareness Month

PICC Complex, Pasay City, Metro Manila
 Wednesday, 9 August 2023

NEA 5-Point ELECTRIFICATION Agenda

1. **Expand & Strengthen** the National Grid
2. **Accelerate** the Distribution Network
3. **Improve** the Quality of Service
4. **Reduce** the Cost of Electricity
5. **Expand** the Coverage of Electrification

160 of 277



NATIONAL ELECTRIFICATION ADMINISTRATION

"The 1st Performance Governance System-Institutionalized National Government Agency"
NEA, ECs and MCOs : Partners in Rural Electrification and Development

"We are relentless in pursuing total electrification."

- 2023 PBBM SONA



"100% Electrification by the end of my term."

- 2023 PBBM SONA



NATIONAL ELECTRIFICATION ADMINISTRATION

"The 1st Performance Governance System-Institutionalized National Government Agency"
NEA, ECs and MCOs : Partners in Rural Electrification and Development

Policy Directions:

President BBM's 8-Point Socioeconomic Agenda



ROBUST ECONOMY, INCLUSIVE, AND RESILIENT SOCIETY



NEAR-TERM AGENDA

NEA 5-POINT AGENDA



1 PROMOTE INCLUSIVE DEVELOPMENT THROUGH RURAL ELECTRIFICATION



MEDIUM-TERM AGENDA

2 INTENSIFY NEA & EC CAPACITY BUILDING





NATIONAL ELECTRIFICATION ADMINISTRATION

"The 1st Performance Governance System-Institutionalized National Government Agency"
NEA, ECs and MCOs : Partners in Rural Electrification and Development

ENABLING LAWS



NATIONAL ELECTRIFICATION ADMINISTRATION

"The 1st Performance Governance System-Institutionalized National Government Agency"
NEA, ECs and MCOs : Partners in Rural Electrification and Development

NEA CORE COMPETENCIES



FINANCIAL

- Loan and Subsidy Management
- Internally Generated Fund Management
- Fund Sourcing
- Guarantee EC Transactions



INSTITUTIONAL

- Organizational Development Interventions
- Training and Development
- Consumer Education and Protection



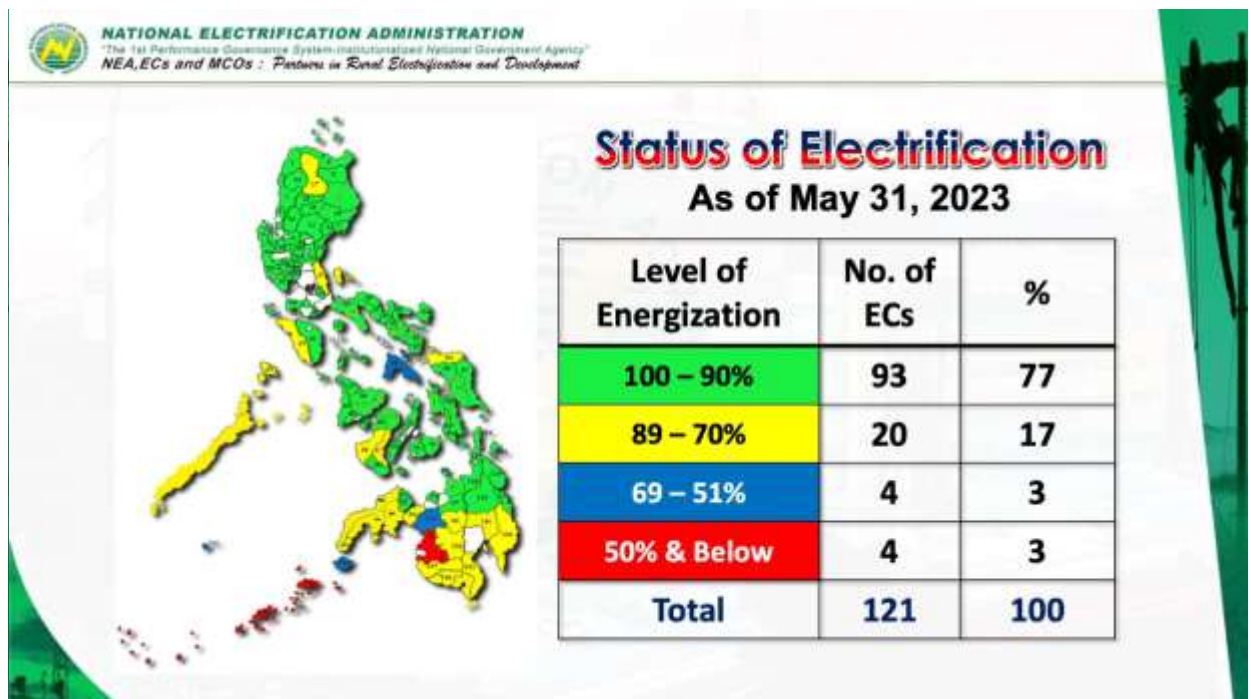
TECHNICAL

- System Planning and Analysis
- Power Development and Utilization
- Project Supervision and Distribution & Sub-station Management
- Compliance to Technical Standards and Disaster Resiliency
- Electrification Program Implementation and Renewable Energy Development



LEGAL/REGULATORY

- Fit and Proper Rule
- Ailing or Critically Challenged ECs Restructuring
- Performance Standards Setting, Monitoring & Evaluation
- Comprehensive Audit
- Quasi-legislative and Quasi-judicial Function
- Policy Advisories and Guidelines
- Penalties for Non-Compliance and Case Adjudication





NATIONAL ELECTRIFICATION ADMINISTRATION
 "The 1st Performance Governance System-institutionalized National Government Agency"
 NEA, ECs and MCOs : Partners in Rural Electrification and Development

Projected Household Connections

YEAR	2020	2021	2022	2023	2024	2025	2026	2027	2028
PHILIPPINES based on 2015 POPCEN Results: 2020-2025, released on March 28, 2021	108,771,978	110,198,654	111,572,254	112,892,781	114,163,719	115,377,992	Projected from the available PSA data 2020-2025		
Growth Rate, EC Franchise Household (PSA)		1.17%	1.12%	1.07%	1.03%	0.98%	0.96%	0.91%	0.89%
Philippines, Potential Households	26,393,906	26,703,272	26,999,142	27,281,936	27,552,794	27,810,548	28,060,901	28,301,556	28,532,511
Electric Cooperatives, Potential Households	16,273,653	16,464,398	16,657,379	16,852,622	17,050,154	17,250,000	17,452,189	17,656,748	17,863,705
Electric Cooperative, Share of Household (%)	61.66%	61.66%	61.70%	61.77%	61.88%	62.03%	62.19%	62.39%	62.61%



NATIONAL ELECTRIFICATION ADMINISTRATION
 "The 1st Performance Governance System-institutionalized National Government Agency"
 NEA, ECs and MCOs : Partners in Rural Electrification and Development

Projected Electrification of Electric Cooperatives through Regular Connections

YEAR	2023	2024	2025	2026	2027	2028
Electric Cooperatives, Potential Households	16,852,622	17,050,154	17,250,000	17,452,189	17,656,748	17,863,705
Electric Cooperatives, Served (By Regular Connection)	423,215	384,873	352,455	324,373	299,604	277,446
	14,868,041	15,252,914	15,605,369	15,929,743	16,229,346	16,506,793
	88.22%	89.46%	90.47%	91.28%	91.92%	92.40%

Regular connection refers to additional connections on existing distribution system/network.


NATIONAL ELECTRIFICATION ADMINISTRATION

"The 1st Performance Governance System-institutionalized National Government Agency"
 NEA, ECs and MCOs : Partners in Rural Electrification and Development

Breaking Barriers for Total Electrification in 2028


NATIONAL ELECTRIFICATION ADMINISTRATION

"The 1st Performance Governance System-institutionalized National Government Agency"
 NEA, ECs and MCOs : Partners in Rural Electrification and Development

Projected Electrification of Electric Cooperatives through On-grid Solutions

YEAR	2023	2024	2025	2026	2027	2028
Electric Cooperatives, Potential Households	16,852,622	17,050,154	17,250,000	17,452,189	17,656,748	17,863,705
Electric Cooperatives, Served (SEP - based on LTER)	78,472	78,324	71,568	64,416	53,816	42,891
Electric Cooperatives, Served (BLEP - based on LTER)	11,436	3,477	10,594	4,101	3,834	1,187
Electric Cooperatives, Served (SEP & BLEP - based on LTER)	14,957,949	15,334,715	15,687,531	15,998,260	16,286,996	16,550,871
	88.76%	89.94%	90.94%	91.67%	92.24%	92.65%

LTER or Local Total Electrification Roadmap is the electrification masterplan of the distribution utilities (DUs)

SEP or Sitio Electrification Program

BLEP or Barangay Line Enhancement Program



NATIONAL ELECTRIFICATION ADMINISTRATION
 "The 1st Performance Governance System-institutionalized National Government Agency"
 NEA, ECs and MCOs : Partners in Rural Electrification and Development

Projected Electrification of Electric Cooperatives through Off-grid Solutions

YEAR	2023	2024	2025	2026	2027	2028
Electric Cooperatives, Potential Households	16,852,622	17,050,154	17,250,000	17,452,189	17,656,748	17,863,705
Electric Cooperatives, Served (Off-grid solution)		180,925	303,419	315,129	305,428	207,934
	14,957,949	15,515,640	16,171,875	16,797,732	17,391,897	17,863,705
	88.76%	91.00%	93.75%	96.25%	98.50%	100.00%

Off-grid solutions may include Photo-voltaic Mainstreaming (PVM)/Solar Home System (SHS), Micro-grid/Hybrid.



NATIONAL ELECTRIFICATION ADMINISTRATION
 "The 1st Performance Governance System-institutionalized National Government Agency"
 NEA, ECs and MCOs : Partners in Rural Electrification and Development

Projected Consumer Connection per Year (2024 – 2028)

YEAR	2023	2024	2025	2026	2027	2028
Electric Cooperatives, Served (By Regular Connection)	798,084	384,873	352,455	324,373	299,604	277,446
Electric Cooperatives, Served (SEP - based on LTER)	78,472	78,324	71,568	64,416	53,816	42,891
Electric Cooperatives, Served (BLEP - based on LTER)	11,436	3,477	10,594	4,101	3,834	1,187
Electric Cooperatives, Served (Off-grid solution)	-	180,925	303,419	315,129	305,428	207,934
Total	887,992	647,599	738,037	708,019	662,682	529,458
Total Projected Household Connection	14,957,949	15,515,640	16,171,875	16,797,732	17,391,897	17,863,705
Electric Cooperatives, Potential Households	16,852,622	17,050,154	17,250,000	17,452,189	17,656,748	17,863,705
Percentage		91.00%	93.75%	96.25%	98.50%	100.00%



NATIONAL ELECTRIFICATION ADMINISTRATION
"The 1st Performance Governance System-institutionalized National Government Agency"
NEA, ECs and MCOs : Partners in Rural Electrification and Development

Funding Requirement per Year (Php 'B) (2024 – 2028)

YEAR	2024	2025	2026	2027	2028	Grand Total
Electric Cooperatives, Served (SEP - based on LTER)	6.90	5.99	4.87	4.45	5.60	27.79
Electric Cooperatives, Served (BLEP - based on LTER)	0.44	0.53	0.64	0.76	0.25	2.62
Electric Cooperatives, Served (Off-grid solution)	5.43	9.10	9.45	9.16	6.24	39.39
Total	12.77	15.62	14.96	14.37	12.08	69.79



NATIONAL ELECTRIFICATION ADMINISTRATION
"The 1st Performance Governance System-institutionalized National Government Agency"
NEA, ECs and MCOs : Partners in Rural Electrification and Development

Challenges and Mitigation

- **Site Identification and Validation** – will be addressed by the Geographic Information System (GIS) of the ECs and Remote Sensing (Satellite-based Imaging) by NEA
- **Budgetary Constraints** – will be addressed by NEA through networking/lobbying with the legislators
- **Scarcity of Materials** – this can be minimized by presenting the foreseen equipment and material requirements of the ECs to the manufacturers, suppliers and contractors through a summit or conference; and, can also be secured thru a regional procurement hub



NATIONAL ELECTRIFICATION ADMINISTRATION
 "The 1st Performance Governance System-Institutionalized National Government Agency"
NEA, ECs and MCOs : Partners in Rural Electrification and Development

Thank You!



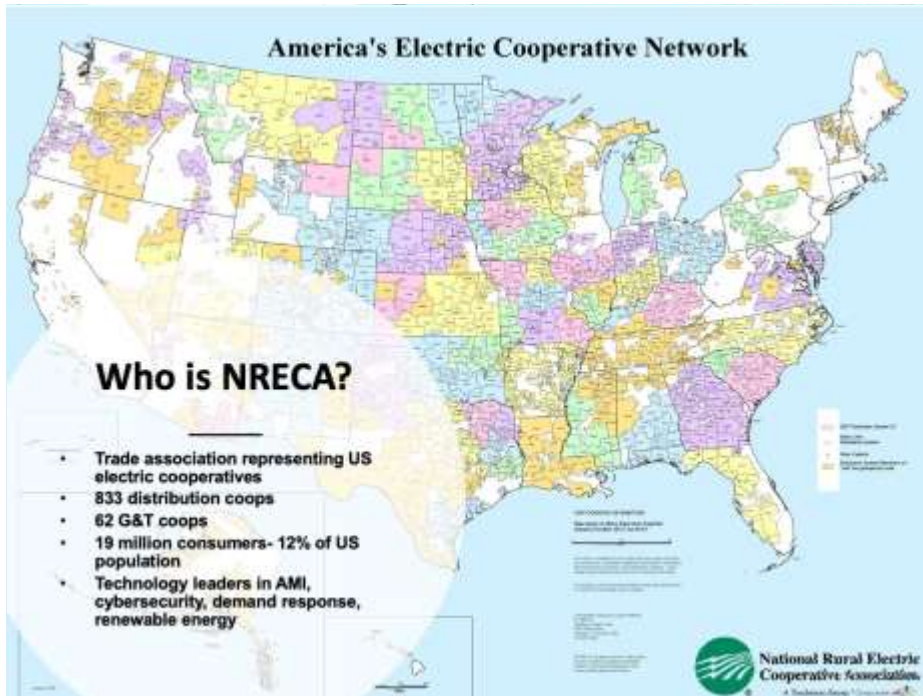
NRECA International

Emerging Trends in Electric Distribution

2023 NEA-EC Convergence

Presented by: Daniel B. Waddle
Senior Vice President, NRECA International

NRECA International
 August 9, 2023



NRECA International

- Affiliated with NRECA, NRECA International was formed in 1962 to promote rural electrification around the world
- Past projects in 65 countries, present focus in Sub-Saharan Africa
- NRECA responsible for initiating and supporting electrification programs now benefiting over 180 million people





Challenges of Electric Distribution Utilities

- Provide high quality electric power at competitive prices in a rapidly evolving power market with a high degree of risk
- Observations in utility operations in developed economies:
 - Over last 20 years, very low or flat load growth due to improving end use efficiency
 - Upward pressure on salaries and other operating expenses
 - Growth in rooftop solar, net metering and retail wheeling – all of which result in revenue loss.
 - Growth in losses from wildfires, disruptive and sometimes highly destructive storms, with plant designed to withstand wind loads that are far lower than the “new norm”.
 - More recently, load growth has picked up due to e-mobility and shift from liquid fuels to electricity use
- Game changing innovations: digitization of all utility operations
 - AMI rollout with increased data storage, communications and analytics
 - Integration of business systems
 - Need for interoperability of business systems



Challenges of Electric Distribution Utilities (2)

- Power sector characteristics in developing economies:
 - Higher low growth due to emphasis on universal access
 - For hydro-oriented power supply, unpredictability of hydrologic cycles has resulted in significant power deficits
 - More modest growth but increasing interest in rooftop solar; while donors are facilitating increased investment in grid-tied solar, wind and other green generation.
 - Loss management remains a significant issue for many electric distribution utilities in Latin America, Sub-Saharan Africa and South Asia due to issues with control of theft.
 - Need for more rapid transition to fully digitized business management platforms to manage revenue recovery, provide improved resolution in power flow modeling and improvements in customer service



Technological Advances

- Electrification of transportation is coming – and it will radically impact all electric utilities. Increased needs for power generation, increased loads on substations, feeders and transformers.
- AMI rollout: Many utilities in developed economies have replaced all metering with AMI. Impacts:
 - Elimination of meter reading reduced commercialization costs
 - Significantly improved understanding of power flows leading to improved planning
 - Significant need for data storage, data management and analytics
- Rooftop solar: adoption of rooftop solar has led to significant disruption in distribution utilities:
 - Net metering means loss of revenue for distribution utilities
 - In areas of high penetration, can create difficulties in balancing load through substations during periods of high solar insolation



Technological Advances

- Distributed generation:
 - Generally, can relieve the need to upgrade distribution infrastructure
 - However, variable generation resources (such as solar and wind) are not dispatchable and can result in operational complexities
- Adoption of advanced digital platforms (AMI, OMS, distribution automation, etc.):
 - Provides many opportunities to improve service quality and improved cost control
 - Require very careful planning and coordination to ensure interoperability. This can be simplified by adopting a communication standard



Moving Forward

- Plan & prepare for vehicle electrification.
- Immediate needs for digitization:
 - Staged implementation of AMI, GIS, OMS, DRE and DA as needs and resources allow
 - Interoperability of digital platforms is essential that speaks to the need for adoption of interoperability standards
 - More focus on resiliency of distribution design – which means updating design standards and strengthening existing infrastructure.
 - Concurrent need to allocate more resources to strengthen powerline worker capabilities to manage high-impact storm events.
 - Transitioning all distribution utility team members to become fully proficient in a digital work environment.
 - Significant investment requirements not just in stronger infrastructure but also in significantly more robust digital footprint.

Rural Electrification Authority
Electricity for Rural Empowerment

OVERVIEW OF RURAL ELECTRIFICATION SUCCESSES & CHALLENGES IN ZAMBIA

Background Picture:
Aerial view of a village in the rural area of Zambia

PRESENTED BY: ENG. LINUS K. CHANDA, CHIEF EXECUTIVE OFFICER – REA

184 of 277



OUTLINE OF PRESENTATION

Rural Electrification in Africa

Country Profile: Zambia at Glance

Rural Electrification Status in Zambia

Rural Electrification Successes

Rural Electrification Challenges

REA's Successes: 2006-2022

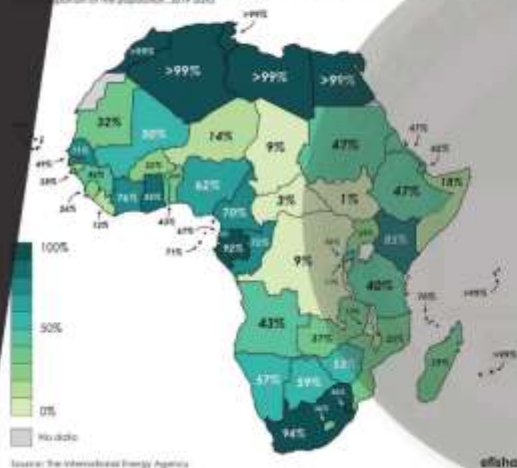
Conclusion



RURAL ELECTRIFICATION IN AFRICA

Access to electricity in Africa

Population of the population, 2019 data



■ 22% of the world population lacks access to electricity - majority in rural areas of developing countries in Sub-Saharan Africa (57%);

■ The African continent to increase electrification rate:

- SDG 7 attainment
- Increase access from the approximately 1 billion people in 2016 to approximately 2.4 billion in 2050.



COUNTRY PROFILE : ZAMBIA AT A GLANCE

- ❑ **Location:** Southern Africa land-linked to 8 countries.
- ❑ **Land Area:** 752,618 sq/km²
- ❑ **Population:** 19.6 million people
- ❑ **Main Economic Activities:** Mining, agriculture, Tourism,
- ❑ **Energy Sources:**
 - 3,000 sunshine hours/ year
 - 6m/s @ 80m height in selected places
 - 80 hot springs spread across the country for geothermal power
 - Vast hydropower potential with 40% water in Southern Africa
 - Biomass
 - Abundant coal reserves



ABOUT US - RURAL ELECTRIFICATION AUTHORITY

WHO WE ARE

The Rural Electrification Authority (REA) is a statutory body established under the Rural Electrification Act of Parliament with a mandate to provide electricity infrastructure in rural areas in Zambia.

OUR VISION

➔ To be a beacon of excellence in providing access to electricity to all rural communities for improved livelihoods

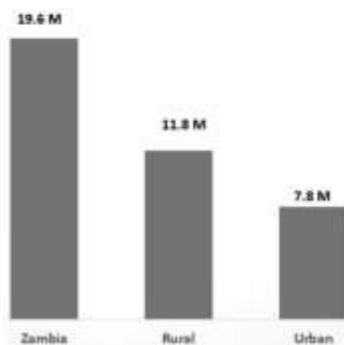
WHAT WE DO

- We deliver various technologies to develop On-grid and Off-grid electrification solutions. We embrace partnerships:
 - Work with Cooperating partners;
 - Partnerships with the private sector, and;
 - Public and NGOs



RURAL ELECTRIFICATION STATUS IN ZAMBIA

Zambia's population
19,610,769

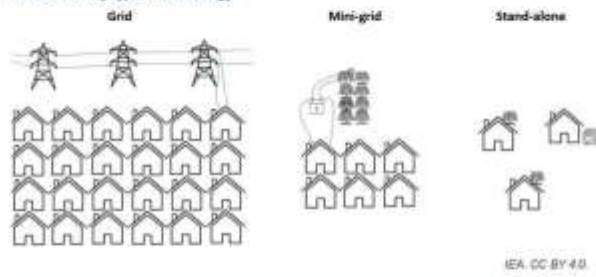


- REMP in 2008, Vision attain 51% electrification rate in rural areas by 2030;
- REMP identified an annual resource requirement of \$50 millions;
- UN SDG7, Zambia aspires to achieve universal access to electricity by 2030 (2019 National Energy Policy);
- National electricity access rate 2018, stood at 32.8% percent of which 70.8 percent was in urban and 3.1 percent in rural areas;
- To achieve universal access to electricity by 2030, more than 200,000 households must be connected annually between 2022 to 2030.



ELECTRICITY ACCESS: DEFINITION - ZAMBIAN CONTEXT

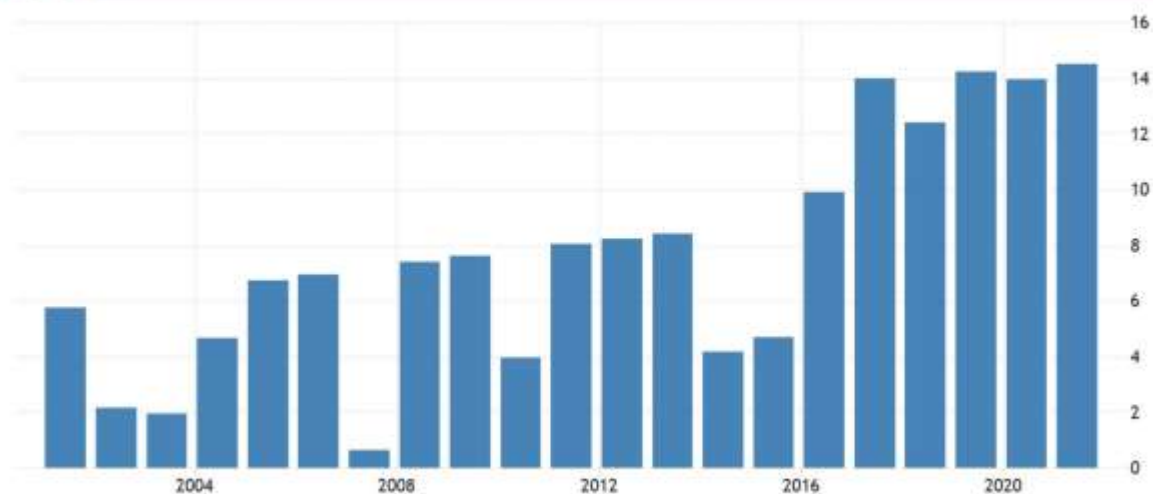
Connections by type of technology



- "Sufficient, reliable electricity from any energy source, capable of performing the task of lighting, phone charging and powering appliances and with a minimum operation of 4 hours per day" - Ministry of Energy, GRZ
- Previous indicators are aligned to "connection to the grid."



RURAL ELECTRIFICATION STATUS IN ZAMBIA



WORLD BANK | TRADINGECONOMICS.COM

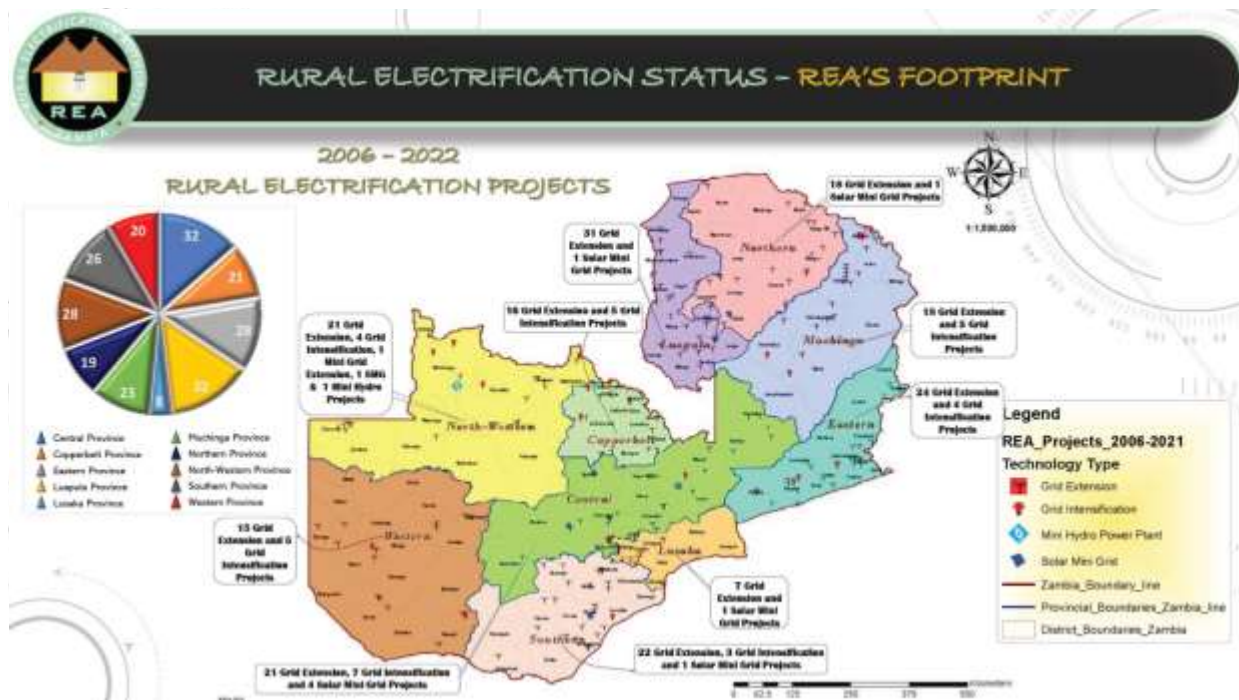


RURAL ELECTRIFICATION CHALLENGES

- High cost of electrification; Low population density, limiting grid extension;
- Below-cost electricity tariffs threaten grid-based electrification;
- Grid-tied electricity connection fees not commensurate to rural communities' income levels;
- Inadequate funding for rural electrification (in relation to required REMP resource envelope);
- Low up-take/ stigma towards some Renewable Energy technologies;
- REMP is outdated, but also biased towards on-grid electrification;
- Low private sector participation in rural electrification – income levels in some rural areas may not guarantee a return;
- Low Productive Uses of Electricity in rural areas;
- Inadequate skills in renewable energy technologies;







RESPONDING TO CHALLENGES - HIGH POWER SOLAR HOME SYSTEMS

First Phase targeting two (2) stakeholders:

1. Chief's Palaces:
 - 1.6kW High Power Solar Home Systems (HSHS) provides sufficient power for:
 - Indoor and outdoor lighting
 - Entertainment
 - Water pumping complete with a submersible pump, tank stand and outdoor reticulation.
 - Energy efficient cooking using an Electric Pressure Cooker.
2. Rural Health Centres - Solar for Health (SFH):
 - 2kW HSHS targets to improve maternal health care services by providing sufficient power for:
 - Indoor and outdoor lighting
 - Refrigeration
 - Water pumping



RESPONDING TO CHALLENGES - USE OF READY BOARDS

Cost of internal wiring for households in both grid and off-grid networks continues to be a barrier to connection.

Ready Boards replace permanent wiring = increased uptake of electricity.

Power supply to Grass-thatched houses



RESPONDING TO CHALLENGES - Electricity to grass-thatched houses

© Munembi Village
Masochobomvu, Zambia



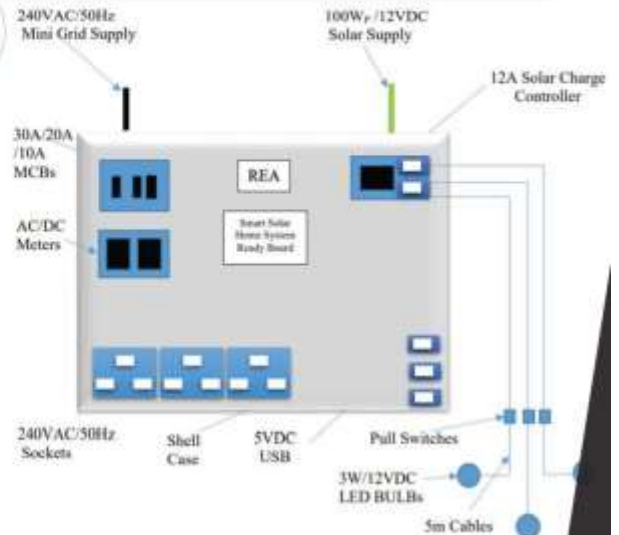
© Luangeni Grid Interothman
Chipata, Zambia



RESPONDING TO CHALLENGES - SMART READY BOARD SOLAR HOME SYSTEMS

REA is developing a Smart Ready Board (SRB) that will efficiently dispense energy for domestic and for high energy productive uses with the following features:

-  Modular design
-  Grid and solar hybrid supply
-  Lithium-Iron-Phosphate Battery
-  Smart metering
-  Electric Pressure cooking
-  Communication facility



RESPONDING TO CHALLENGES - HARNESSING POTENTIAL FROM SOLAR MILLING PLANTS



OVER 1500 SOLAR
MILLING PLANTS
CONSTRUCTED ACROSS
THE COUNTRY



RATED 12KW_p - 20KW_p
NO BATTERY



TO HARNESS THE
EXCESS POWER, REA
RETROFITTED THE
PLANT WITH STORAGE



EVACUATE EXCESS
POWER TO ELECTRIFY
SURROUNDING HOUSES



● Mutema 19.85kW_p Solar Mill
Ngabwe, Zambia



RESPONDING TO CHALLENGES - PPP OFF-GRID SYSTEMS - Solar/ biogas hybrids



- Pilot
- 20 boarding schools in 2023
- Solar for lighting and small power; biogas for cooking
- Boost self-reliance on agriculture production
- Reduced energy costs
- Possible off-grids



RESPONDING TO CHALLENGES - PPP OFF-GRID SYSTEMS

SOLAR MINI GRIDS

2025 WFP
18 Solar Mini Grids across
the country being
constructed:

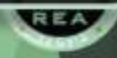
- 16 Schools
- 10 RHCL
- 6 Palaces
- 2,108 Households

- 02 Central
- 02 Eastern
- 02 Luapula
- 01 Muchinga
- 02 Northern
- 03 N/Western
- 03 Southern
- 03 Western

● Moyo 48.5kWp Solar Mini Grid
Pemba, Zambia



RESPONDING TO CHALLENGES - PPP OFF-GRID SYSTEMS



RESPONDING TO CHALLENGES - PPP OFF-GRID SYSTEMS

KASANKU MINI HYDRO

REA constructed and operates the 640kW Kasanku mini hydro power plant in North-Western part of Zambia.

Supplies over 1000 household in an off-grid network.





RESPONDING TO CHALLENGES - ELECTRIC COOPERATIVES



1ST ELECTRIC COOPERATIVE FORMED IN THE NTATUMBILA COMMUNITY IN THE NORTHERN PART OF ZAMBIA



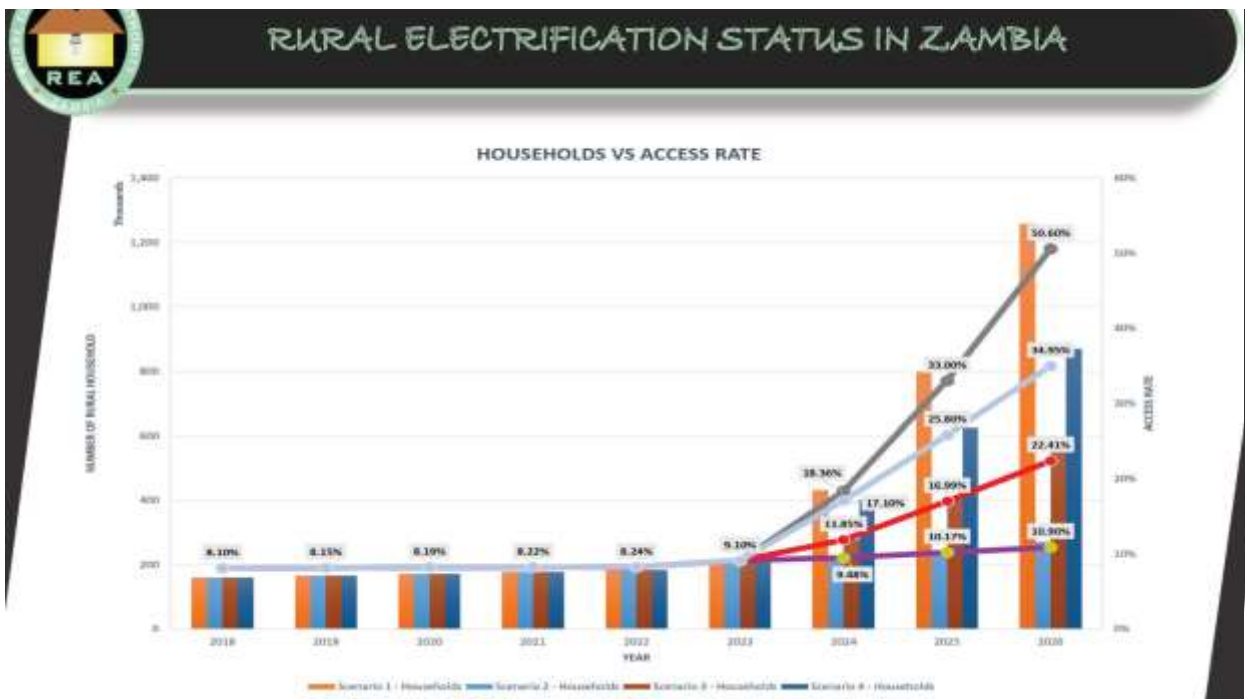
CATCHMENT AREA - 400 HOUSEHOLDS; POPULATION OF ABOUT 6,000 PEOPLE



TOTAL MEMBERSHIP - 180



IMMEDIATE BENEFICIARIES
7 HAMMER MILLS, 18 BUSINESS SHOPS





CONCLUSION

- Access to electricity is a fundamental and indispensable condition for ensuring the industrial and socio-economic development of communities around the world.
- In rural areas or areas away from main cities and towns, access to reliable and affordable electricity has the potential to improve the provision of social services such as health and education.
- Availability of electricity could help stimulate agricultural production and processing, enhance tourism and facilitate small-scale mining operations in rural areas, thus creating employment and reducing poverty levels.
- Equity is also an important factor when considering electrification of rural areas as often times rural dwellers consider themselves disadvantaged compared with their urban colleagues when sharing national resources.
- REA Zambia is committed to its strides to achieve universal access to electricity in an equitable and sustainable manner and continues working with various cooperating partners and players in the energy sector.

© Mununshi Village
Mwansabombwe, Zambia



Thank You

FOR YOUR ATTENTION



**Rural
Electrification
Authority**
Electricity to Rural Empowerment

Plot LUSAK/L14250692/2, Great North Road, Lusaka, Zambia
Post Net: Box 949, Private Bag 0091
info@rea.org.zm
www.rea.org.zm

09 August 2023



**PROPELLING INNOVATIONS
FOR A SECURE AND
SUSTAINABLE ELECTRIC
COOPERATIVE OPERATIONS**

Power Forum
National Electrification Administration

Monalisa C. Dimalanta
Chairperson & CEO

211 of 277



GOVPH HOME YOUR COMMISSION TRANSPARENCY SEAL ISSUANCES ERC LINKed CAREER Search...

**What's new for
Electric
Cooperatives?**

REPUBLIC OF THE PHILIPPINES

**ENERGY
REGULATORY
COMMISSION**

A world class and independent electric power industry regulator that equitably promotes and protects the interests of consumers and other stakeholders, to enable the delivery of long-term benefits that contribute to sustained economic growth and an improved quality of life.







Republic of the Philippines
ENERGY REGULATORY COMMISSION



ONLINE FILING AND APPLICATION SYSTEM

No need for long lines and long waiting times, with the OFAS, you can now file and monitor your non-EXOGS transactions with ERC online. Anytime, anywhere.

[Login](#)

[Request for Electronic Mail Registration \(REM\)](#)

To **Create An Account** or **Register an Email**, please click the Request for Electronic Mail Registration button above.






[DISTRIBUTION UTILITY](#)
[EMPLOYEE](#)

Enter your Username

Enter your password

LOGIN

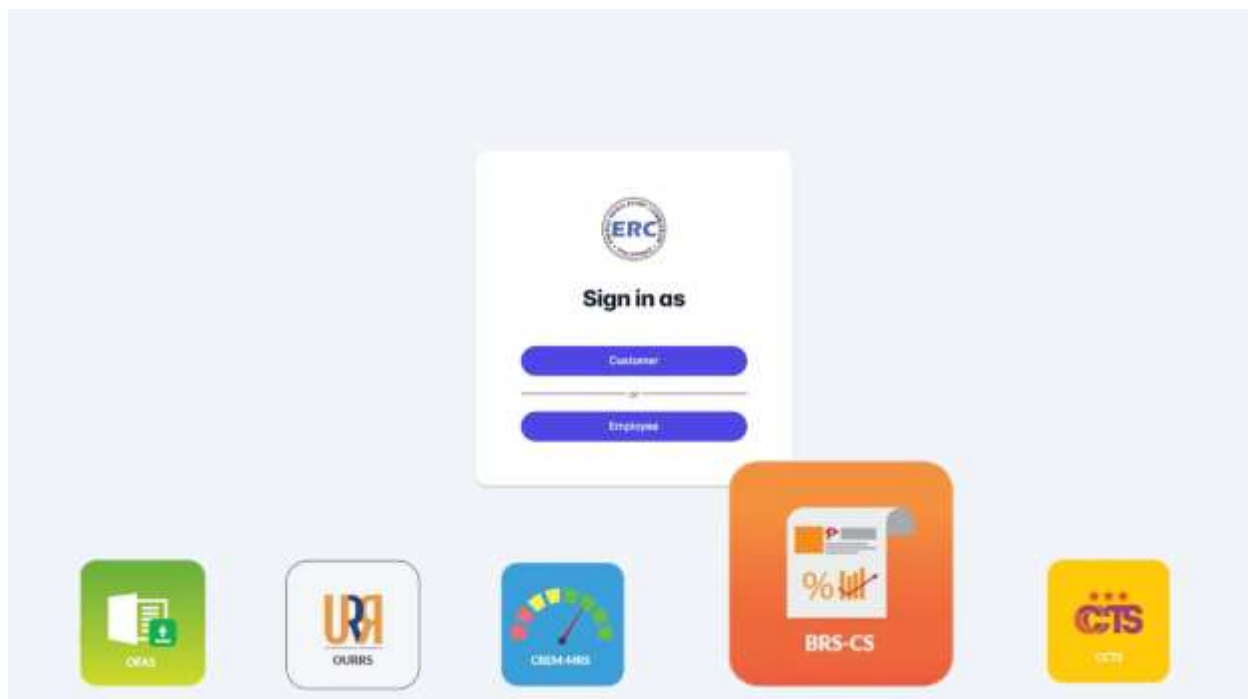
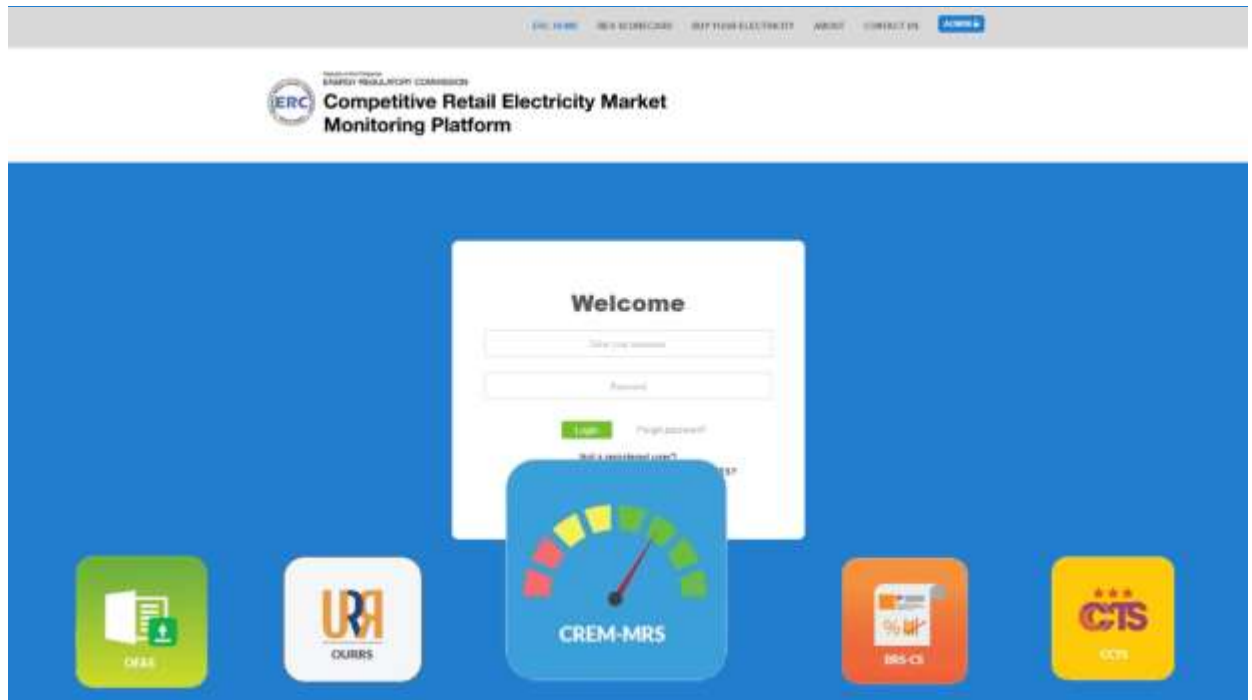
[+6608](#)
[Recover Password](#)

Don't have an account? [Register here](#)













ERC Online Generation Rate Database


[HOME](#)
[YOUR COMMISSION](#)
[TRANSPARENCY](#)
[SEA](#)
[EQUANCE](#)
[ERC LARADE](#)
[CAREER](#)

DISTRIBUTION UTILITY MAP

Distribution utility refers to any electric cooperative, private corporation, government-owned utility or existing local government unit which has an exclusive franchise area to operate a distribution system in accordance with this Act, (Dec. 4 of RA 9136) (MISOs), including GHT interconnections and ancillary services; (Dec. 8, RA 9136)




New CSP Guidelines (On-going)



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

DEPARTMENT CIRCULAR NO. DE 1242-16-004

PRESCRIBING THE POLICY FOR THE MANDATORY CONDUCT OF THE COMPETITIVE SELECTION PROCESS BY THE DISTRIBUTION UTILITIES FOR THE PROCUREMENT OF POWER SUPPLY FOR THEIR CAPTIVE MARKET

WHEREAS, Sections 2 (b) and (c) of Republic Act No. 9136 or the Electric Power Industry Reform Act of 2001 (EPIRA) declare that it is the policy of the State to ensure the quality, reliability, security and affordability of the supply of electric power, and to ensure the transparent and reasonable prices of electricity in a regime of free and fair competition and full accountability to achieve greater operational and economic efficiency and enhance the competitiveness of Philippine products in the global market;

WHEREAS, Section 2 (f) of the EPIRA declares that it is also the policy of the State to protect the public interest as it is affected by the rates and services of electric utility and other members of electric power;





Undersecretary Rowena Cristina Guevara, Ph.D.
Department of Energy



Administration's Commitment to Achieve 100% household electrification by 2028

"Alongside power generation, we are also as relentless in pursuing total electrification. Since my assumption into office, almost half a million homes have been given access to electricity. We will spare no effort to achieve **full household-electrification** by the end of my term. 100% is within our reach"

-PBBM SONA 2023



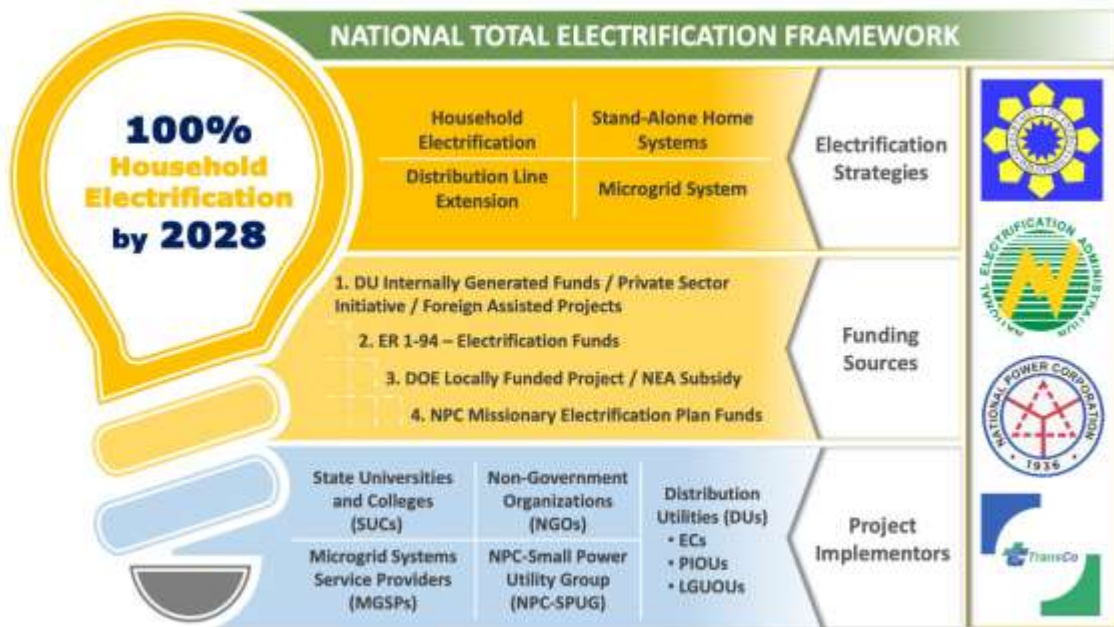
Yearly Household Targets

PHILIPPINES	2022	2023	2024	2025	2026	2027	2028
Potential Households (Forecasted 2023-2028 based on 2020 Census)	27,632,046	28,246,074	28,857,263	29,463,551	30,017,743	30,577,846	31,143,804
Target No. of Served HHs	25,914,073	26,785,695	27,657,317	28,528,939	29,400,561	30,272,183	31,143,804
No. of Unserved HHs	1,717,973	1,460,379	1,199,946	934,612	617,182	305,663	0
% HH Electrification Level	93.78%	94.83%	95.84%	96.83%	97.94%	99.00%	100.00%
Target No. of HHs to be Served per Year by All DUs		871,622	871,622	871,622	871,622	871,622	871,621
EC FRANCHISE AREAS	2022	2023	2024	2025	2026	2027	2028
Potential Households (Forecasted 2023-2028 based on 2020 Census)*	17,042,069	17,420,771	17,797,722	18,171,650	18,513,448	18,858,891	19,207,946
Target No. of Served HHs	15,420,243	16,051,527	16,682,811	17,314,095	17,945,378	18,576,662	19,207,946
No. of Unserved HHs**	1,621,826	1,369,244	1,114,911	857,556	568,070	282,229	0
% HH Electrification Level	90.48%	92.14%	93.74%	95.28%	96.93%	98.50%	100.00%
Target No. of HHs to be Served per Year by All ECs		631,284	631,284	631,284	631,284	631,284	631,284

* For further validation and reconciliation by DOE and NEA

** Computed [No of Unserved HHs = Potential HHs - Served HHs]

No of Unserved HHs = No of Unserved HHs of previous year - Target No of HHs to be Served per Year
Actual Unserved on 1st Q of 2023: 2015 Census = 774,446 HHs 2020 Census = 1,471,346 HHs



Thank you.





Transmission Development Updates

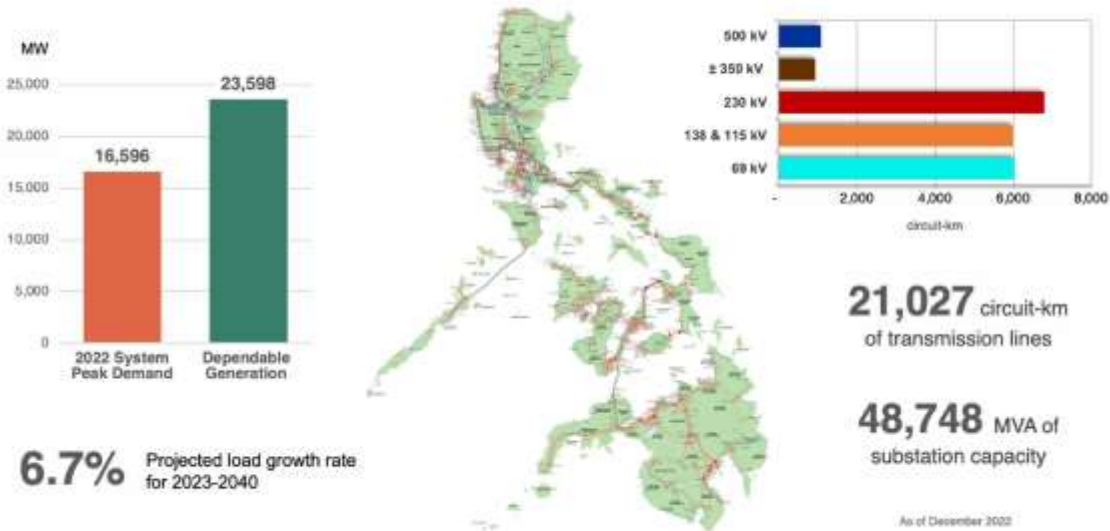
National Electrification Administration (NEA) 54th Anniversary
PICC Complex, Pasay City

09 August 2023

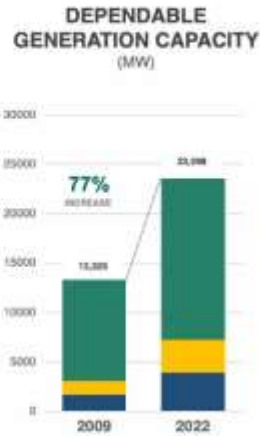
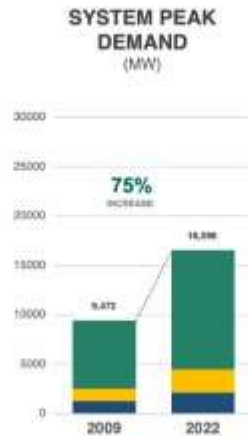
Presented by: Redi Allan B. Remoroza
Assistant Vice President – Transmission Planning
Department, NGCP

229 of 277

The Philippine Grid



Demand & Supply Development



324 new generating units accommodated by the grid

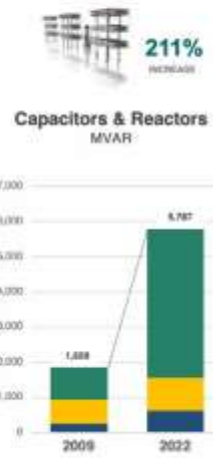
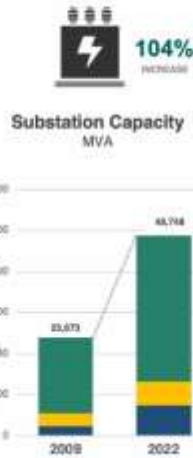
NGCP

Asset Growth



Note: Asset figures are net of decommissioned and replaced facilities

Additional 39,066 MVA transmission capacity



NGCP

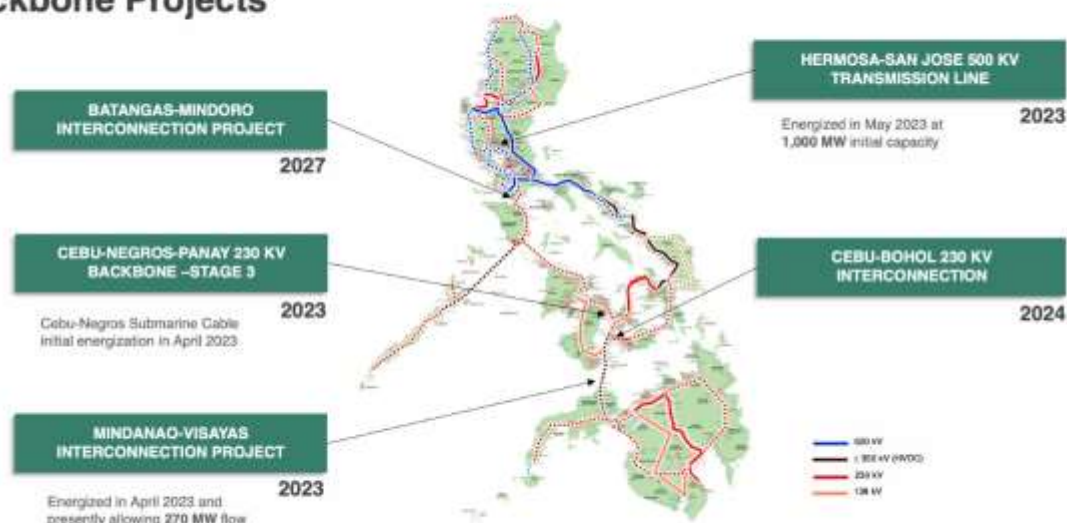
Grid Developments Supporting the Distribution Utilities

1. New transmission backbone to connect new power plants for **grid supply security**
2. Transmission backbone extensions to **expand coverage**
3. New substations and substation capacity expansions for **supply adequacy and reliability**
4. **Voltage improvement** projects and 69 kV line projects
5. Island interconnections



NGCP

Ongoing Major Transmission Backbone Projects



NGCP



National Power Corporation

RELIABILITY AND SUSTAINABILITY OF POWER SUPPLY WITHIN OFF-GRID ELECTRIC COOPERATIVES



09 August 2023
NEA Dilliman, Quezon City

Presented by: Rene B. Barruela
*Vice President – Corporate Affairs Group,
National Power Corporation*

236 of 277

MISSIONARY ELECTRIFICATION



1.3M Households or 5.3M Filipinos

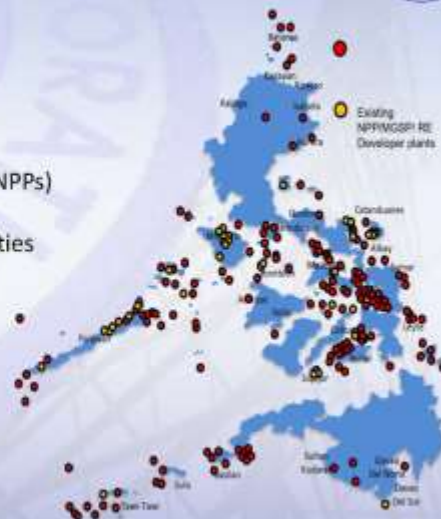


145 Islands

- ☐ 20 islands served by New Power Providers (NPPs) and Qualified Third Parties (QTP)
- ☐ 125 islands served by NPC-Small Power Utilities Group (SPUG)

	NPC-SPUG Power Plants – 281*
	No. of NPPs/QTPs – 24
	Total Installed Capacity – 249.979 MW
	Total Dependable Capacity – 185.947 MW
	Distribution Utilities with PSAs – 42 (38 ECs, 4 LGUs)
	Total Length of Transmission Line – 1,137.72 ckt kms
	No. of Substation / Total S/S Capacities – 14 / 215 MVA

* Includes Philippine Rural Electrification Service (PRES) in Mindanao with total dependable capacity of 1,145 MW (123 plants)



2

UPDATE ON TOTAL ELECTRIFICATION IN MISSIONARY AREAS as of March 2023 ^{1/}



TOTAL NO. OF HOUSEHOLDS IN MISSIONARY AREAS
= 1,733,216 HHs (BASED ON 2020 PSA)

**STATUS OF HOUSEHOLD ELECTRIFICATION
IN MISSIONARY AREAS BASED ON 2020 PSA**



PARTICULARS	NO. OF HHS	PERCENT
Served	1,254,187	72.36%
Unserved	479,029	27.64%
TOTAL	1,733,216	100.00%

**UNSERVED HOUSEHOLDS
IN MISSIONARY AREAS**



REGION	UNSERVED HHS	PERCENT
LUZON	211,743	44.20%
VISAYAS	11,180	2.33%
MINDANAO	256,106	53.47%
TOTAL	479,029	100.00%

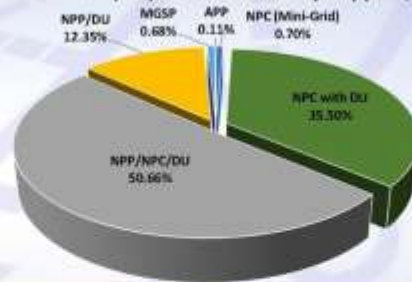
^{1/} Latest household data from DOE/NEA

3

UPDATE ON TOTAL ELECTRIFICATION IN MISSIONARY AREAS as of March 2023 (cont'd.)



Household (HH) Electrification by Supplier, %



SUPPLIER	NO. OF HH (BASED ON 2020 PSA)	ELECTRIFIED HH				UNSERVED HH	
		BASED ON 2020 PSA	IN EXCESS OF 2020 PSA	TOTAL	%	BASED ON 2020 PSA	%
NPC Mini-Grid	13,485	8,814	619	9,433	0.70%	4,671	0.98%
NPC with DU	748,053	449,165	29,824	478,989	35.50%	298,888	62.39%
NPP/NPC/NU	776,008	635,002	48,571	683,573	50.66%	141,006	29.44%
NPP/NU	169,686	150,542	16,091	166,633	12.35%	19,144	4.00%
MGSP	17,129	9,197		9,197	0.68%	7,932	1.68%
APP	8,855	1,467		1,467	0.11%	7,388	1.54%
TOTAL	1,733,216	1,254,187	95,105	1,349,292	100%	479,029	100%

4

SUPPLY AND DEMAND AS OF 25 JUNE 2023



Supply and Peak Demand



REGION	PLANTS	SUPPLY, MW	PEAK DEMAND, MW
LUZON	195*	103.907	64.193
VISAYAS	53	21.804	6.331
MINDANAO	33	60.236	40.273
TOTAL	281	185.947	110.797

* Includes 123 Masbate PRES Mini Grid with 1,1453MW dependable capacity.

5

SPUG PLANTS OPERATING HOURS



SERVICE HOURS	LUZON	VISAYAS	MINDANAO	TOTAL SPUG
24 HOURS	44	18	21	83
12-23 HOURS	10	4	5	19
LESS THAN 12 HOURS	141*	31	7	179
TOTAL	195	53	33	281

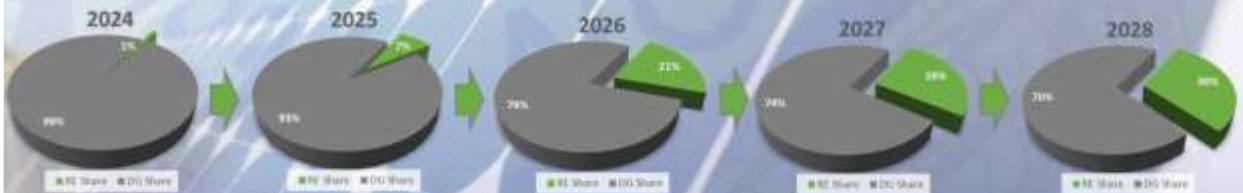
Note: Includes the 123 PRES Mini-Grids in Masbate

6

NPC Hybridization Program^{1/}



PROGRAM YEAR	ANNUAL DELIVERABLES			PROJECTED RE SHARE, SPUG GEN MIX	PROJECTED SAVINGS (ACCUMULATED)	
	NO. OF AREAS	SPV, kWp	BESS, kWh		FUEL, L	SAVINGS @ P68/L
2023	4	735	360			
2024 ^{2/}	24	4,995	3,526	1%	350,757.11	22,421,483.81
2025	22	12,369	8,176	7%	2,884,469.22	183,223,908.63
2026	26	6,752	5,044	21%	8,300,866.69	564,457,095.17
2027	35	5,072	8,036	28%	11,593,883.78	788,384,097.05
2028	32	5,245	13,082	30%	14,506,030.41	986,410,068.20
TOTAL	145	36,167	38,216		37,426,127.22	2,544,976,650.06



Notes:

1/ Based on the NP Board approved Revised 2023-2027 MEP dated 11 May 2023.

2/ The 2024 project lineup as well as succeeding projects are subject for update based on the approved budget by the DBM for NPC's CY 2024 COB.

7

MISSIONARY ELECTRIFICATION PLAN FOR 2023-2027



PARTICULARS	2023	2024	2025	2026	2027
A. GENERATION					
1. Capacity Addition, MW	25,140				
2. Renewable Energy, MWp	0.650	2.05	12,3690	8.9952	7.1415
B. TRANSMISSION AND SUBSTATION PROJECTS					
1. Transmission, Ckt. Kms.	51.10	32.00		191.70	109.50
2. Substation, MVA	25.00	10.00	35.00	20.00	35.00
C. DISTRIBUTION LINE PROJECTS, ckt. kms.	42.55	62.43		26.077	12.668
D. LEASE OF GENSETS, MW	45.575	48.430	49.630	41.130	35.100
1. Existing Lease of Gensets	44.600	41.60	41.600	33.100	35.100
2. New Lease of Gensets	0.975	6.830	8.030	8.030	

8

NPC's PLANS AND PROGRAMS



1

The Plant Efficiency Improvement Programs

- Fuel Rate Improvement Program (FRIP)
- Spare Parts Management Program (SPMP)

2

Quality Assurance Program

3

Maintenance Management Program and Troubleshooting Guide

4

Gears Toward Renewable Energy

9



NPC's PLANS AND PROGRAMS: OBJECTIVES

Fuel Rate Improvement Program (FRIP)

Enhance plant efficiency by optimizing available gensets through economic load dispatch and employing operational and maintenance strategies. The initiative also targets an annual reduction of at least 1% in Net Fuel Rate (Li/kWhr), leading to fuel savings and the identification of optimal fuel consumption patterns while minimizing generator start-up and shutdown cycles.

Spare Parts Management Program (SPMP)

Ensure timely access to vital generator spare parts and optimize inventory management. Standardize requirements for similar genset models, categorizing routine/preventive and critical "fast-moving" and "slow-moving" items at division level. Align stock levels with procurement lead times. Enhance the spare parts manual with user-friendly systems, integrating pricing, PMS, inventory, and other sources.

Quality Assurance Program

Enhance SPUG operations through the Quality Assurance Program by conducting plant technical assessments, condition monitoring, and heat rate tests. Facilitate fact-finding investigations, program development, and technical evaluations for decommissioning, guided by NPC's Plant Efficiency Program and Top Management directives.

10



NPC's PLANS AND PROGRAMS: OBJECTIVES

Maintenance Management Program

Establish uniform preventive maintenance procedures and troubleshooting methods across SPUG plants, while also tackling related factors like spare parts accessibility, procurement strategies, and post-service support.

Troubleshooting Guide

Create comprehensive documentation for common issues faced at SPUG power plants and barges, and establish consistent troubleshooting methods among SPUG's operators and maintenance staff.

Gears Toward Renewable Energy

Promote sustainability and cost-efficiency via NPC's Hybridization Program. Reduce diesel dependence, costs, CO2 emissions, and align with R.A. 9513.

Prioritization Criteria:	Secondary Criteria:
<ul style="list-style-type: none"> High Production Cost (Php/kWh) 24-hour Operation Areas Distribution Utilities without CSP plans for 10 years 	<ul style="list-style-type: none"> Available Site/Land Energy Resource Data Proximity to Primary Distribution Lines

11



12



Power Forum
Highlights



AboitizPower Corporation

Daniel C. Aboitiz
Executive Director



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

248 of 277



TRANSFORMING ENERGY FOR A **BETTER** WORLD

9 AUGUST 2023



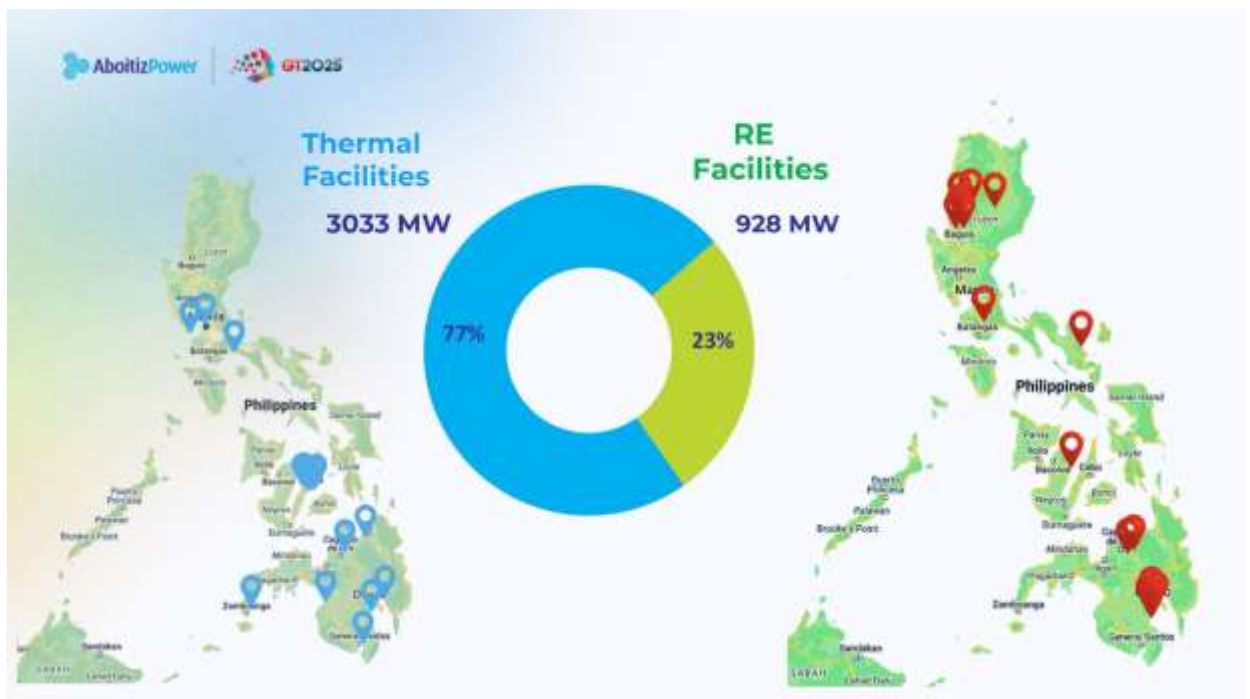
WHO IS ABOITIZPOWER?

reliable

sustainable

reasonable







PARTNERSHIP WITH ABOITIZPOWER



Customer-centric Energy Products

Renewable Energy

Peaking

Intermediate

Baseload







Economic Growth and Government Initiatives

PH to post fastest growth in ASEAN in 2023: research org

ABS-CBN News
Posted at Jul 11 2023 12:34 PM

Philippines, ASEAN must tap solar, wind to meet rising electricity demand — report

GMA 7.2 NEWS ONLINE
YOUR NEWS AUTHORITY

STATE OF THE NATION ADDRESS

President Marcos transmits renewable energy while also pushing for more gas exploration

MANILA, Philippines – President Ferdinand Marcos Jr. said on Monday, July 24, that the government is taking a more aggressive stance to increase renewable energy in the country, awarding more than a hundred renewable energy contracts in the past year.

"Renewable energy is the way forward," Marcos said during his second State of the Nation Address (SONA).

"Since last year, an additional 126 renewable energy contracts with potential capacity of 31,900 megawatts have been awarded," he added.

Currently, renewable energy contributes 29% to the country's energy mix with a capacity to produce 8,150 megawatts of electricity, according to a 2022 report released by the Department of Energy (DOE).

10-year growth strategy

9,200 

4,600 MW of Cleanergy by 2030

**POWER YOUR FUTURE WITH US AND HELP US IN
TRANSFORMING ENERGY FOR A BETTER WORLD**



Scan the QR Code or Contact us at:
energy.sales.regulated@aboitiz.com



Power Forum
Highlights



First Gen and First Phil Holdings Corporation

Francis Giles B. Puno

President and Chief Operating Officer



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

264 of 277



54th NEA Anniversary
August 9, 2023



Energy Trilemma in the Country

How do we address **energy security, energy equity,**
and **climate risks** with available resources?



Our country is an archipelago.

We don't have enough energy reserves.

We do not have the capacity to subsidize.



OUR CLEAN ENERGY PORTFOLIO

First Gen own the largest zero-coal energy portfolio in the country, powering businesses and communities with clean and renewable energy.

SOURCE	CAPACITY (MW)
Natural Gas	2,017
Geothermal	1,188
Wind	150
Hydro	134.4
Solar	12



OUR GROUP MISSION

Forging collaborative pathways for a decarbonized and regenerative future.



Power Forum
Highlights



FDC Utilities, Inc.

Juan Eugenio L. Roxas
President and CEO



2023 NEA-EC CONVERGENCE
TOTAL ELECTRIFICATION BY 2028

269 of 277



A SUBSIDIARY OF FILINVEST DEVELOPMENT CORPORATION

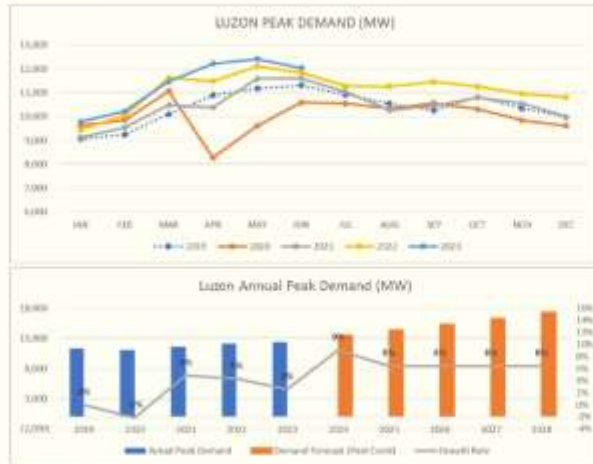
**Providing Reliable and
Affordable Supply of
Electricity to Meet
Growing Demands of
Customers**

National Electrification Administration Power Forum
09 August 2023

www.fdcutilities.com



Peak Demand - Luzon



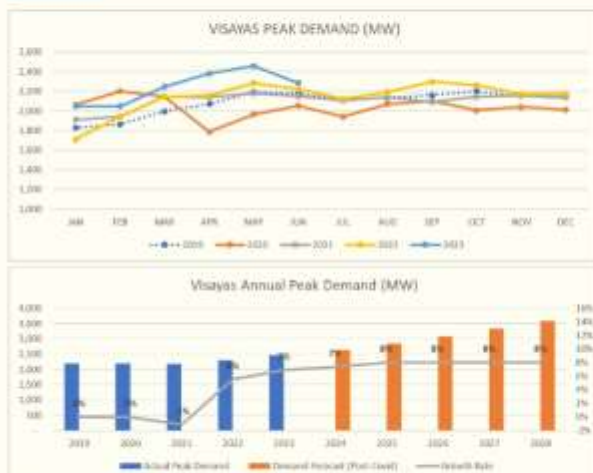
Source:
Peak Demand is based on ENMOP Market Operations Highlights May 2023 (data as of June 12, 2023)
Demand Forecast (Post-Covid) is recalculated to consider the effect of the Covid pandemic.

Luzon is experiencing a steady growth in demand in 2023

Monthly demand is continuously increasing

Peak Demand is 2.59% or **321 MW** higher than last year

Peak Demand - Visayas



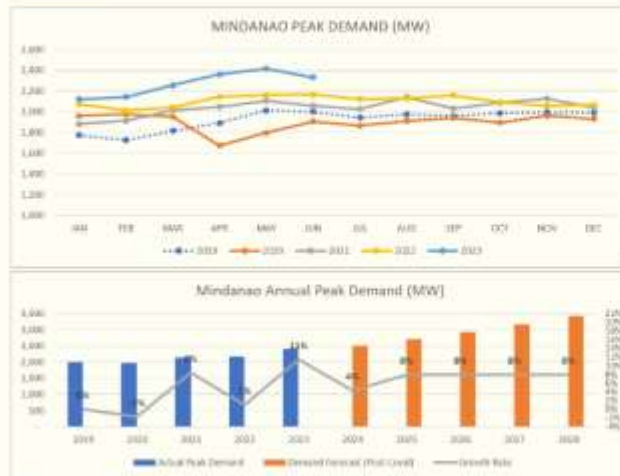
Source:
Peak Demand is based on ENMOP Market Operations Highlights May 2023 (data as of June 12, 2023)
Demand Forecast (Post-Covid) is recalculated to consider the effect of the Covid pandemic.

Visayas peak demand in 2023 was the highest in the last 5 years.

Demand in the region is increasing per month

The 2023 peak demand is 6.92 % or **169.9 MW** more than the previous year

Peak Demand - Mindanao



Source:

Peak Demand is based on NEMGT Market Operations Highlights May 2023 (data as of June 12, 2023).

Demand Forecast (Post-Covid) is recalculated to consider the effect of the Covid pandemic.

Mindanao achieved highest growth rate in demand in 2023.

The growth rate of this year's average peak demand is 8.03% as compared to the previous year

The 2023 Peak Demand is 11.49% or **277 MW** higher than last year

In total, the country is in need of additional 767.9 MW

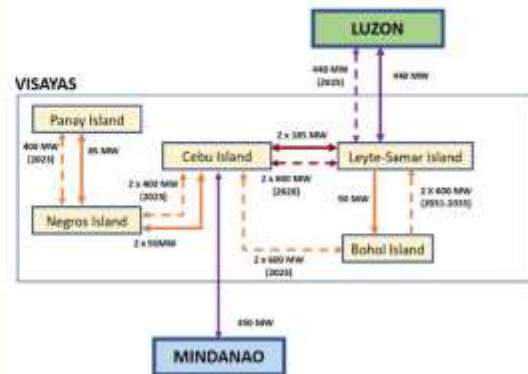
GRID INTERCONNECTION

The Mindanao – Visayas Interconnection Project (MVIP)

Testing started on 30 April 2023 with a testing capacity of 22.5 MW increased to 225 MW in latter part of June

Testing of the full capacity is targeted in Q3 of 2023

Paved way for the implementation of Single Settlement for WESM Trading Participants in Luzon, Visayas, and Mindanao Grids which was declared on 11 May 2023



A SUBSIDIARY OF FILINVEST DEVELOPMENT CORPORATION

THANK YOU





Documentation produced by the
NEA Strategic Planning Division

spdcorplan@nea.gov.ph

