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An Interview with Elijah Sichone, Executive Director of the Regional Electricity Regulators Association of Southern Africa, on the Importance of Integrating Distributed Energy Resources and Developing a Regional Energy Market

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Elijah Sichone

Executive Director, Regional Electricity Regulators Association of Southern Africa



March 2023 – With electricity demand in Southern Africa expected to grow by 3.4% per year through 2040,¹ renewable energy sources (RES) are uniquely positioned to meet the region’s energy needs. Many countries in the region have substantial renewable energy potential and are increasingly looking to integrate RES into the energy mix as a means of sourcing energy in a secure and affordable manner that avoids negative environmental and climate impacts.² As countries in Southern Africa work to harmonize their power sectors and move toward the development of a regional energy market, technologies such as distributed energy resources (DERs) are forecasted to play an important role in diversifying the energy mix and increasing energy security.

With funding from the U.S. Department of State’s Bureau of Energy Resources (ENR) Power Sector Program, the work of the National Association of Regulatory Utility Commissioners (NARUC) in Southern Africa is part of a larger U.S. government-funded initiative to develop the energy market and improve the energy investment climate by supporting regional integration. To this end, since 2017, NARUC has engaged in a regulatory partnership with the Regional Electricity Regulators Association (RERA) of Southern Africa and three of its member regulators: the Botswana Energy Regulatory Authority, Namibia’s Electricity Control Board, and Zambia’s Energy Regulation Board.

NARUC held a series of webinars for RERA and the three member regulators in 2022 on the key components, opportunities, and challenges of increasing DER integration. Members from across the Southern African Development Community (SADC) joined as observers, advancing RERA goals of inclusivity and broader outreach in regional activities. Throughout the series, participants learned best practices relevant to their country contexts and anticipated future DER penetration levels. Furthermore, they gained the knowledge needed to promote greater transparency and participation in regulatory proceedings on DERs, which will be key to encouraging the adoption of cutting-edge RES.

The Status of DERs in Southern Africa

DERs are small, modular energy generation or storage technologies that can either be connected to the local power grid or isolated from the grid in stand-alone applications.³ Examples of DERs include renewable generation, such as wind turbines and solar panels; electricity storage solutions, such as electric car batteries; and smart grid solutions, such as controllable loads.⁴ As Southern African countries work to further develop their power sectors both nationally and on a regional level, DERs

can increase the penetration of RES as well as shield against the impacts of extreme weather events, thereby improving both the sustainability and resilience of the grid.

Countries in Southern Africa are currently at various stages of developing regulatory frameworks to address the incorporation of DERs. While countries such as Namibia have structures in place to tackle the role of renewable energy in the electricity sector and promote the development of the country's RES, other countries, such as Zambia, do not have explicit policies or regulatory frameworks for DERs. Standardizing DER regulatory frameworks across Southern Africa will allow countries to improve their interconnection as they move toward the development of a regional energy market.

We recently sat down with Elijah Sichone, Executive Director of RERA, to discuss a number of topics related to energy sector goals for the SADC region, including the role of DERs in furthering regional interconnection and how the lessons learned from the 2022 webinar series can benefit regulators in Southern Africa and promote regulatory harmonization.

Q&A with Elijah Sichone, Executive Director of RERA

Tell us about yourself and your work at RERA. How long have you worked there, and what role(s) have you held within the association?

I have a technical and social services background – I have a Bachelor of Engineering, a Bachelor of Philosophy; I also have a Master of Philosophy, which has to do with energy studies. I have been in the energy sector now for close to 32 years. When the Energy Regulation Board (ERB) in Zambia was founded, I was part of the management team. I left there as Director of Technical Regulation. I was briefly assigned to the United Nations Industrial Development Organization and ran two renewable energy projects while I was still at the ERB, and after that assignment I joined the National Energy Regulator of South Africa.

Afterwards, I came to RERA and have been working here for the last 17 years. My reason for doing so is to contribute to energy sector development. Using this regional platform allows me to share my knowledge and experience and gives me a bird's eye view of what is happening not just within the region, but internationally.

In the context of the SADC region, what are the benefits of a regional energy market, and what steps are necessary to promote its development?

Regional integration is very key, particularly from the perspective of energy development. If you have a regional approach to energy sector development, it enhances the market because no single country in the region is bigger than the regional market. When we talk about the regional market of SADC, we are talking about over 300 million people, whereas there is no single country with that sort of population. For instance, the Grand Inga, which is in the Democratic Republic of the Congo (DRC), has potential for a large capacity of hydropower. Studies have shown that it can even be as high as 100,000 megawatts. That sort of power would not all be needed by the DRC alone. When you have a regional approach, it means a lot of countries can tap into that resource, and in so doing it can be developed cost-effectively.

The other benefit of a regional approach to energy is that it allows countries to diversify in terms of resources. If you look at the Southern African region, the northern part is primarily using hydropower. The southern part of the region is using fossil fuel and coal. If there is a drought in the northern part, we can get power from countries that are producing from coal. And equally, the countries that are producing from coal, if they want to reduce their greenhouse gas emissions, then they can also benefit from using the regional resources that are in the north. The regional approach makes sure that in times of challenges, if you are interconnected, then you know that when the sun is not shining or the wind is not blowing, you can still import or trade electricity on the regional market.

One of the challenges that we have is that the frameworks are not really harmonized because every country has its own approach. What RERA is trying to do is identify the constraints, or the bottlenecks. We are now trying to address those constraints so that we have a market that is not only integrated, but also harmonized to a larger extent.

What are the main advantages of DERs, and how do you see them furthering goals for regional interconnection?

DERs are key to help us diversify the energy mix in the region and increase energy security. We also recognize that not every part of the region is going to be electrified in the near future. So, DERs can play a very key role in enhancing energy access. It is evident that most countries in the region, if not all, do not have a framework they are using to be able to make use of DERs.

How did the webinar series help to advance goals to expand alternative and clean technologies in the SADC region?

The webinar series was quite important because it highlighted that you need to have a methodical or systematic approach to harnessing DERs. The subsequent topics that we covered, such as transmission, are also very key in terms of planning. Right now, we have serious constraints in terms of transmission capacity, and we also have a transmission system that is not really ready for DERs. Net metering is also a hot topic within the region, and it was very well covered. The series also covered tariffs. Tariffs are always a sensitive matter, and we are trying to move as a region toward cost-reflective tariffs. The approaches you can take to accomplishing this were very well covered in terms of how you can design tariff structures to take DERs into account.

What are some examples of how ENR/NARUC work has benefitted regulators in the region?

The support given to us by ENR/NARUC has been truly transformational. Regarding tariffs, we recognize that for us to be able to develop the energy sector, we need cost-reflective pricing for two main reasons. We want to send the right signal for investment, and we want to encourage efficiency. When it comes to money, chances are that people will pay attention and will do whatever it takes to be efficient. Before this assistance there was maybe only one country that was cost-reflective. Right now, we have moved to four. In countries like Namibia, which has had cost-reflective tariffs for quite some time, the utility and Namibia in general is able to attract investment. A lot of countries are now trying to move in that direction. In trying to do that, you need to conduct a cost-of-service study. We have 10 countries that have conducted one, and we hope we can have an increased number of countries moving toward cost-reflective tariffs.

Another initiative had to do with the Market and Investment Framework for SADC Power Projects (The Framework), which is a key resource that ENR/NARUC have used throughout the Southern Africa Regional partnership.⁵ The Framework was very important in the sense that it helped us develop the target wholesale model for the SADC region. The model specifies how countries can start restructuring their markets at a national level. I am glad to report that Namibia is very much following that model while taking its country context into account. The model shows how to develop at a national level and how that cascades to the regional level to be able to allow countries to open up at a national level but also allow trading. The Framework is now referred to and looked at by the rest of the African continent and is a good reference document. We are now able to leverage it to get further support from other partners.

What are some actions you hope to see from RERA member organizations following the webinar series on DERs?

We need to have an organized approach to the way we look at DERs. What we hope to see and could champion is to share a model framework and general objectives. We would like to see member regulators looking at electric vehicles, looking at energy storage, looking at all those things. What we would be championing and reminding them of is to say, "Can you first think of the framework that will guide how you approach DERs? Clearly state the objectives and if possible, also do a regulatory impact assessment on those objectives." Some members are working on energy storage, solar, they are doing

a lot of other things. But at the end of the day, do these initiatives talk to each other? And this is part of the challenge. A framework with defined objectives would be a very good starting point.

Are there certain topics that are easier to pursue in the context of regional harmonization among national energy regulatory authorities, and how do you achieve consensus?

Yes, all the issues that we covered to some extent. Like tariffs – there’s general agreement that we need to move toward cost-reflective tariffs, so now it is just a question of the approach. I also recently heard from ZESCO, the utility in Zambia. They asked if I could give them an idea of countries in the region they can visit where utilities are now dealing with issues around net metering. So, you can already see the regional scale and the impetus for us to move forward as a region. We also have an existing consumer protection model for the region that we developed. Now, we can look at how to enhance that model taking into account some of the topics and issues covered during the webinars.

Looking Ahead

A successful shift to greater use of RES in Southern Africa requires energy regulators in the region to coordinate their long-term energy planning efforts to achieve harmonization of their power sectors. SADC countries are already taking vital steps in the direction of regional integration by moving toward cost-reflective tariffs, improving their market and investment frameworks, and developing model interconnection agreements that can be replicated throughout the region. As regulators continue coordinating on these topics, they can use the lessons learned from the DER webinar series to develop a regional framework for DER integration. Such a coordinated approach to DERs would bring the region one step closer toward achieving regional goals of meeting future energy needs by developing a regional energy market and increasing the use of RES and clean energy sources.

¹ “Eastern and Southern Africa’s Vast Renewables Potential Offers Route to Sustainable Growth.” IRENA. <https://www.irena.org/newsroom/articles/2021/Apr/Eastern-and-Southern-Africas-Vast-Renewables-Potential-Offers-Route-to-Sustainable-Growth>

² “Southern African Power Pool: Planning and Prospects for Renewable Energy.” IRENA. <https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2013/SAPP.pdf>

³ “Using Distributed Energy Resources: A How-To Guide for Federal Facility Managers.” National Renewable Energy Laboratory. <https://www.nrel.gov/docs/fy02osti/31570.pdf>

⁴ “Distributed Energy Resources.” Independent Electricity System Operator. <https://www.ieso.ca/en/Learn/Ontario-Power-System/A-Smarter-Grid/Distributed-Energy-Resources>

⁵ The “Market and Investment Framework for SADC Power Projects” is a resource developed by Deloitte as part of technical assistance to RERA under funding from ENR.