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## Moroccan Regulator Drives Energy Sector Growth and Prioritizes Sustainable Development



**March 2024** – The Kingdom of Morocco has ambitious objectives for sustainable development within the energy sector. In 2016, it made an announcement during the United Nations Climate Change Conference in Marrakech that it would strive to achieve more than 52% of renewable energy installed capacity in the electricity mix by 2030 (of which 20% is slated to be solar, 20% wind, and 12% hydropower).<sup>1</sup> The country is well on its way to meeting this goal; as of 2023, renewable energy installed capacity in Morocco reached more than 40%, and ANRE expects this number to increase significantly in the next couple of years.<sup>2</sup> With that said, the Government of Morocco has announced that it will reach its end target early, by 2025.<sup>3</sup> To achieve this, the National Electricity Regulatory Authority of Morocco (Autorité Nationale de Régulation de l'Electricité [ANRE]) is working to establish strong regulatory frameworks to help facilitate this transition and ensure the right conditions are in place to attract private investment.

In 2022, the National Association of Regulatory Utility Commissioners (NARUC) began implementing an institutional strengthening program with ANRE under the auspices of the United States Agency for International Development (USAID) Energy Regulatory Partnership Program (ERPP). The overall objective of ERPP is to strengthen the capacity of regulatory authorities in USAID-assisted countries to help them effectively discharge mandates, create an enabling environment for investment, protect consumer interests, and develop clean energy capacity and policies. As an ERPP implementer, NARUC's work with ANRE focuses on supporting its staff to acquire the necessary knowledge to exercise its regulatory mandate and provide effective, transparent, and independent sector oversight.

ANRE is a relatively new regulator – it was established in 2016 through the approval of Law No. 48.15 on the regulation of the electricity sector and the creation of the National Electricity Regulatory Authority.<sup>4</sup> This Law sets the powers of ANRE to ensure the proper functioning of electricity market and sets the process for unbundling electricity services, or separating energy supply and generation

from the operation of transmission networks.<sup>5</sup> Unbundling promotes fair competition in electricity markets by preventing a single company from operating a transmission network and generating or selling electricity at the same time.<sup>6</sup> Upon becoming operational in 2021, ANRE has made it clear that it plans to carry out its mandate in the most effective and transparent manner possible. Among other tasks, this includes 1) ensuring equal access to the national electricity transmission grid, and 2) setting tariffs for the transmission and distribution segments.<sup>7</sup>

### **Spurring the Development of Renewable Energy Resources**

Morocco has an extremely high renewable energy potential. Over 37% of total installed capacity is renewable energy generation, including 831 megawatts (MW) of solar energy and 1.553 MW of wind.<sup>8</sup> This only represents a fraction of the country's potential as wind power alone is projected to generate up to 25,000 MW.<sup>9</sup> However, Morocco currently satisfies roughly 90% of its energy needs through imports, most of which consist of fossil fuels like refined oil, gas, and coal.<sup>10</sup>

By increasing the amount of renewable energy in the energy mix, Morocco can strengthen its security of supply and reduce its dependence on energy imports. Further, it can better mitigate the effects of climate change. With rainfall projected to decrease by 20-30% by the end of the century and average annual temperatures expected to rise from 1.1 Celsius to 3.5 Celsius by 2060,<sup>11</sup> Morocco must act quickly to foster a more sustainable energy sector that can meet the increasing water and power needs of its population.

This is where ANRE's mandate comes into play – until recently, the Moroccan National Office for Electricity and Potable Water (Office National de l'Electricité et de l'Eau Potable [ONEE]) had a monopoly on the generation, transport, and distribution of electricity in Morocco. With the introduction of Law 48.15 on regulating the electricity sector and the creation of ANRE, the unbundling process has been set in motion. The utility has initiated the process, and ANRE, in an anticipative approach, is preparing to oversee this process. ANRE will play a key role in incentivizing private investment and providing equal access to the transmission grid, both of which will be critical to fostering a competitive electricity market that enhances economic efficiency and enables a more diverse generation mix.

Moreover, the implementation of cost-based transmission and distribution tariffs will help to increase investors' confidence in the opportunity to earn a reasonable return on their investments. By providing effective oversight as new providers and resources connect to the grid, ANRE is playing a key role in creating an enabling environment for investment in the sector and spurring the development and integration of Morocco's abundant renewable energy resources.

### **Planning for the Needs of the Future Energy Sector**

Morocco's Law 48.15 calls for the creation of an independent transmission system operator (TSO), or entity responsible for the transport of energy at the national or regional level.<sup>12</sup> In accordance with the Law, following the establishment of the TSO, the TSO must draw up a five-year investment plan for the national electricity transmission grid and submit an updated plan to ANRE to approve.

To support ANRE in reviewing the TSO's transmission investment plans, NARUC trained ANRE staff on topics ranging from the roles and responsibilities of the parties involved to the submission of data verification to ensure accuracy and the inclusion of industry stakeholders and the public in the review process. Integrating renewable energy into the transmission system is key to reaching the target set by the National Energy Strategy, and building ANRE's capacity to review transmission investment plans effectively and autonomously will improve its ability to assess the future needs of the sector regarding planned levels of renewable energy and potential technological advances.

Amongst its missions, ANRE is setting a cost-reflective tariff for the TSO – that is, a tariff that reflects the costs incurred to transport energy.<sup>13</sup> To enable this, NARUC organized a training for ANRE staff

on the fundamental components of calculating the revenue requirement for electric utilities, or the utility's cost of providing service. The utility's revenue requirement represents the total amount of money a utility must collect from customers to recover its costs, including a reasonable return on investment.<sup>14</sup>

Next on the agenda, ANRE is setting a cost-reflective tariffs for the distribution system operators (DSOs), or entities responsible for operating and managing the delivery of electricity to the final consumers.<sup>15</sup> Enabling cost recovery for both the TSO and DSOs will be particularly important as both Morocco's transmission and distribution systems will require upgrades to accommodate increasing amounts of renewable energy resources.

As ANRE continues to progress toward achieving national energy sector goals, NARUC has supported the regulator by providing additional training on regulatory accounting and financial auditing and verification, which will aid the regulator in balancing cost recovery with customer affordability while increasing transparency in rate setting. Looking ahead, NARUC will also provide training on technical regulation for the transmission and distribution networks as a means of sharing best practices on maintaining system safety and reliability, with a focus on monitoring and enforcing technical compliance.

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*Photo caption: U.S. Ambassador to Morocco giving opening remarks at a peer-to-peer forum on evaluating transmission investment plans during February 7-9, 2023, in Rabat, Morocco.*

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<sup>1</sup> "Climate Resilience for Energy Transition in Morocco." International Energy Agency. <https://www.iea.org/reports/climate-resilience-for-energy-transition-in-morocco>

<sup>2</sup> Source: ANRE

<sup>3</sup> "Morocco – Country Commercial Guide." International Trade Administration. <https://www.trade.gov/country-commercial-guides/morocco-energy>

<sup>4</sup> The President of the Authority was appointed in 2018, so ANRE was only operational starting April 2021 under the provisions of law 48-15, which states that ANRE becomes operational six months after the effective function entry date of all its organs (board members and Dispute settlement committee).

<sup>5</sup> "Third Energy Package." European Commission. [https://energy.ec.europa.eu/topics/markets-and-consumers/market-legislation/third-energy-package\\_en#:~:text=is%20still%20applicable,-.Unbundling,obstruct%20competitors'%20access%20to%20infrastructure.](https://energy.ec.europa.eu/topics/markets-and-consumers/market-legislation/third-energy-package_en#:~:text=is%20still%20applicable,-.Unbundling,obstruct%20competitors'%20access%20to%20infrastructure.)

<sup>6</sup> Ibid.

<sup>7</sup> "Vision and Mission." ANRE. <https://anre.ma/en/about/vision-mission/>

<sup>8</sup> "Morocco – Country Commercial Guide." International Trade Administration.

<sup>9</sup> Ibid.

<sup>10</sup> Ibid.

<sup>11</sup> Alami, Aida. "How Morocco Went Big on Solar Energy." BBC. <https://www.bbc.com/future/article/20211115-how-morocco-led-the-world-on-clean-solar-energy>

<sup>12</sup> "Guideline on electricity transmission system operation." Eur-Lex. <https://eur-lex.europa.eu/EN/legal-content/summary/guideline-on-electricity-transmission-system-operation.html>

<sup>13</sup> "Primer on the Impact of Electricity Tariff Reforms on Infrastructure Investment and Economic Development." USAID and NARUC. [http://pubs.naruc.org/pub/7F797D22-1866-DAAC-99FB-8095D77AA8A6?\\_gl=1\\*146frx\\*\\_ga\\*MTgyMjU5MzgxOS4xNjg2MzQwOTQx\\*\\_ga\\_QLH1N3Q1NF\\*MTY4OTI3MTI3Mi40MS4xLjE2ODkyNzE5MDguMC4wLjA.](http://pubs.naruc.org/pub/7F797D22-1866-DAAC-99FB-8095D77AA8A6?_gl=1*146frx*_ga*MTgyMjU5MzgxOS4xNjg2MzQwOTQx*_ga_QLH1N3Q1NF*MTY4OTI3MTI3Mi40MS4xLjE2ODkyNzE5MDguMC4wLjA.)

<sup>14</sup> <https://pubs.naruc.org/pub.cfm?id=5376DE70-2354-D714-51BA-736C233E4185>

<sup>15</sup> "Distribution Systems Operator (DSO)." Iberdrola. [https://www.iberdrola.com/innovation/distribution-systemoperation#:~:text=Distribution%20System%20Operators%20\(DSO\)%2C.big%20data%20and%20data%20analytics](https://www.iberdrola.com/innovation/distribution-systemoperation#:~:text=Distribution%20System%20Operators%20(DSO)%2C.big%20data%20and%20data%20analytics)