SAIFI/SAIDI indicators and the growing RES penetration

Fatima SIFER
CREG

ERRA EMER Committee Meeting
September 12, 2024 | Online meeting

Background

Large shares of intermittent renewable generation (wind and photovoltaic) cause additional stress on the system and can affect the network reliability. In order to keep stability network management requires inter alia increased flexibility where flexibility sources may include flexible capacities within the electricity generation mix, interconnection capacity, energy storage or improved load control.

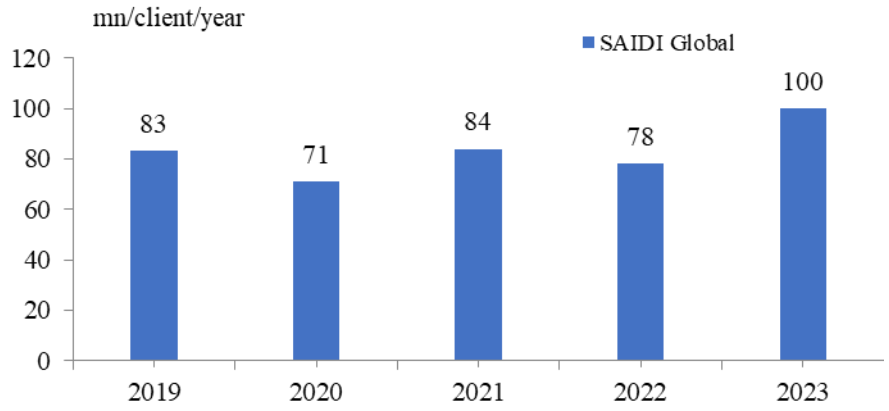
Did you <u>experience</u> any changes in the network reliability performance (SAIDI / SAIFI) in the last years?

This slide is currently under consideration and in the process of being finalized

Overall: the transmission network

Algeria has been working to improve its power grid electricity reliability. However, power outages and reliability issues still exist, particularly in remote areas.

An increasing pace is observed over the last five years.



Locally: distribution network or isolated networks

What are the major reasons and can you causally connect such changes with the increasing share of intermittent renewable generation?

- The very specific operating conditions of the transmission network during summer season, marked by exceptional temperatures causing a remarkable increase in the load.
- Due to operating constraints which mainly result from the delay in completing the works planned in the development plan of the electricity transmission network.
- The predominant causes for distribution network reliability are those linked to the state material and third party infringements.

Did you design / implement measures to prevent from potential deterioration of network reliability performance related that the increasing share of intermittent renewable generation?

To guarantee the good operation of the EPS (Electric Power System) and Permit the intermittent renewable generation integration

New constraints & functions under consideration shortly

- Ancillary services (Voltage control / Frequency control);
- Advantages to use variable speed technologies;
- Strengthening the network topology through the implementation of the development plan;
- Implementation of targeted and high value-added maintenance plans;
- Decentralized energy resources and micro grids ⟶ localized flexibility
- Proposal for Shifting current time slots in line with the consumption load curve

What is the role & potential of network flexibility in this context?

This slide is currently under consideration and in the process of being finalized

Flexibility allows the grid to adapt to these fluctuations by using flexible resources. The Algerian government is working on introducing these new concepts of flexibility through amending the Law 02-01 of electricity and gas distribution, like:

- Energy storage systems
- Demand response programs through interruptible load programs
- Frequency regulation
- Managing peak loads and reducing curtailment
- Dynamic pricing mechanisms

What are the major challenges encountered so far?

- Not having a financial support scheme for decentralized energy resources;
- The energy subsidy system;
- Technical constraints;
- Lack of telecommunication system and real-time information processing.

THANK YOU
FOR YOUR ATTENTION!

Fatima SIFER
Fatima.Sifer@creg.energy.gov.dz