SAIFI/SAIDI indicators and the growing RES penetration

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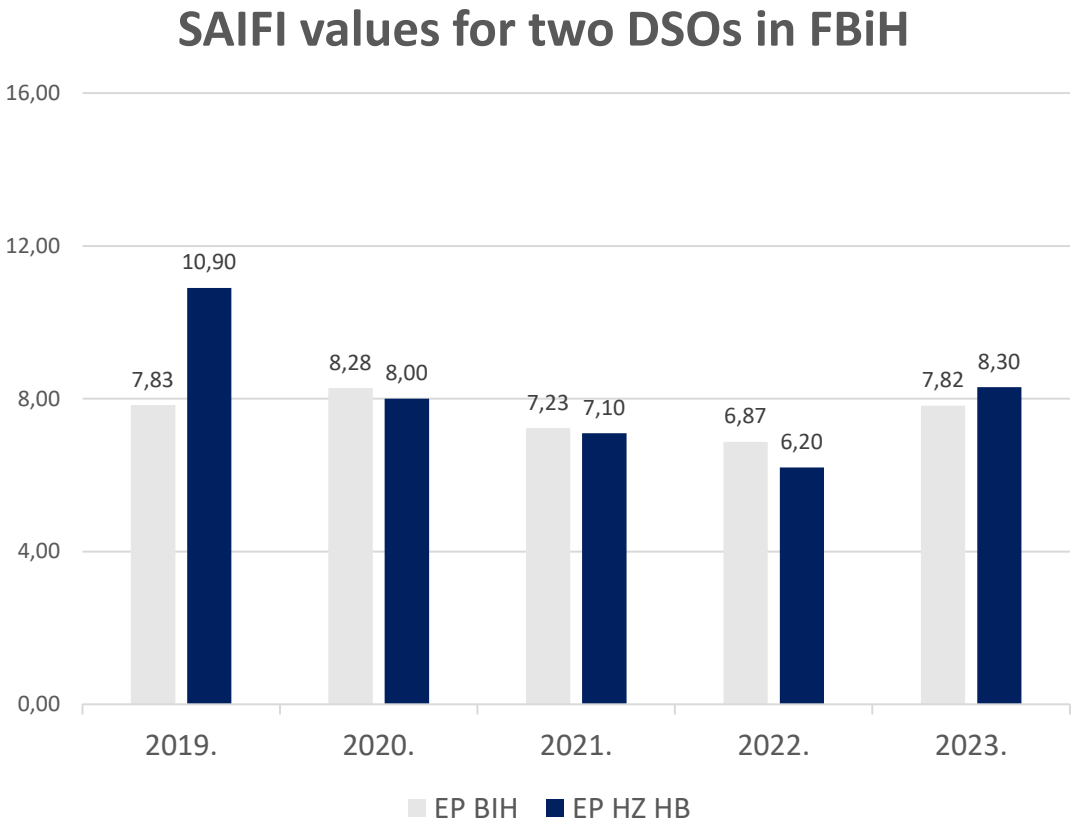
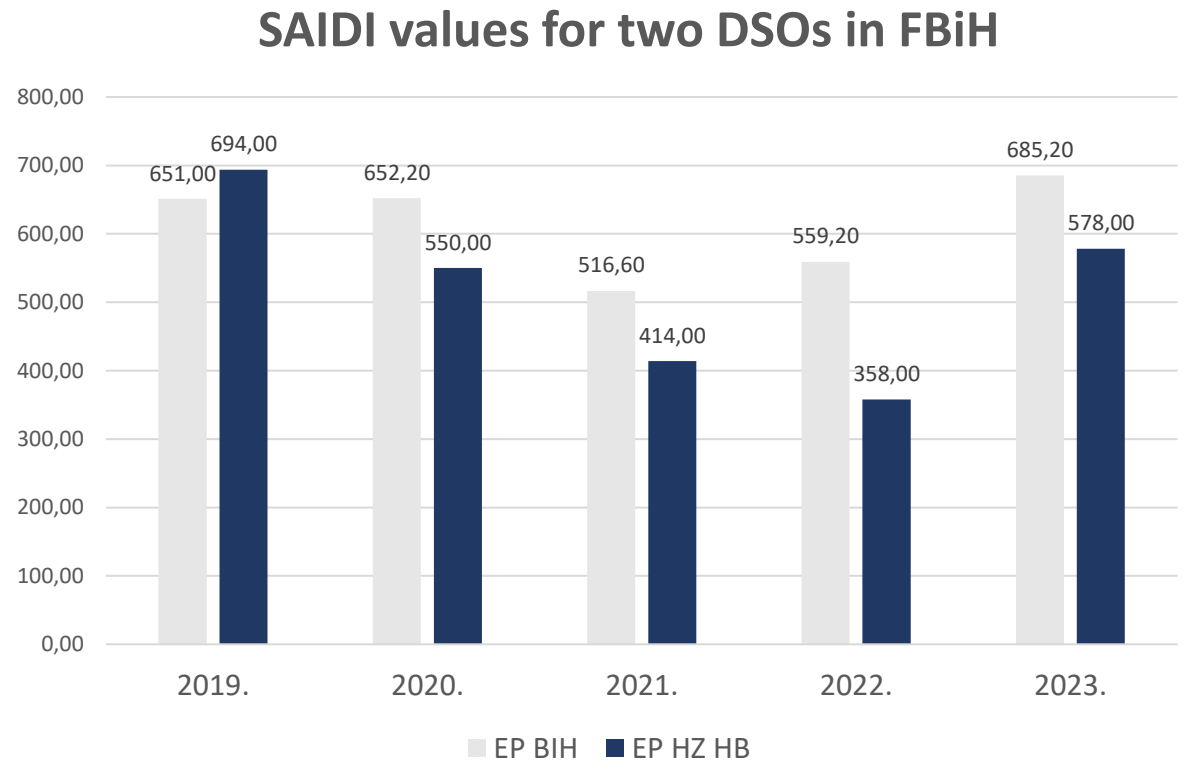
Did you <u>experience</u> any changes in the network reliability performance (SAIDI / SAIFI) in the last years?





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

- In the past period in FBiH, there was no detailed regulation of supply quality parameters, including the parameter of continuity of supply, SAIDI and SAIFI. The parameters of the quality of supply were only partially regulated through the General Conditions of Electricity Supply.
- In the past period, FERK obtained the values of these parameters from the competent DSOs through tables prescribed by the Rulebook on Reporting. These tables included the values of the SAIDI and SAIFI parameters where the origin of the interruption was at the medium voltage only.
- However, on 17.8.2023. the new FBiH Law on Electricity entered into force, and this Law stipulates the obligation of FERK to adopt the Rulebook on the quality of supply.
- According to this Rulebook, a much more detailed monitoring of the continuity of supply parameters is expected in the future, which implies monitored interruptions by type of interruption (planned, unplanned), by urban and rural area, by voltage level where the interruption occurs or by the cause of the interruption (the responsibility of the DSO or is not the responsibility of DSO). FERK will only have these more detailed data in the coming years.
- So now it is not possible to say with certainty what the main reasons are, but it is obvious that with the sudden increase in distributed production from 2022 onwards, there was also a deterioration of the SAIDI and SAIFI parameters, so it is very possible that this is precisely the result of the increase in production from RES.

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

- Some of the measures taken are as follows:
- The Rulebook on the quality of supply adopted by FERK prescribes general standards (target values) of the SAIDI and SAIFI parameters for long-term unplanned outages, the cause of which is the responsibility of the DSO. Thus, for example, the general standard for SAIFI is defined in the amount of 4 interruptions/user for an urban area, and 7 interruptions/user for a rural area. The general standard for SAIDI is defined in the amount of 400 min/user for the urban area, and 560 min/user for the rural area. A repair factor of at least 3% of the annual values of the continuity of delivery indicators is also defined
- A new Rulebook on the methodology for calculating fees for connection to the distribution and closed distribution system was adopted, in which it is defined that the fee for the connection of the producer is made according to the actual costs of the connection, which implies the construction of the connection but also the creation of conditions for connection by increasing the capacity of the distribution network if nesessary.
- DSOs in FBiH have their own internal procedures and rules for connecting production facilities. Due to the sudden increased investment in renewable energy sources after the disruption in the electricity market from 2022 and the sudden increase in prices, there was an excessive number of requests for the connection of primarily solar and wind power plants. Therefore, DSOs have prescribed certain restrictions for connection in their internal procedures, because it is not possible to connect all submitted requests without disrupting the security of the distribution network.

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

- Regarding the flexibility of the distribution network, it should be noted that all eventual disturbances and deviations in electricity production from planned values are regulated through ancillary services (FCR, aFRR, mFRR), which is the responsibility of the Independent System Operator (NOSBiH). Providers of ancillary services are mostly large production facilities that must meet certain technical conditions in order to be registered with NOSBiH. In the past period, there was no practice of directly providing flexibility services to the DSO by users connected to the distribution network. These possibilities are foreseen by the new Electricity Law, so it will only be seen in the future whether they will come to life in practice.

What are the major challenges encountered so far?

- The biggest challenge is how to connect all potential investors without jeopardizing the security and operation of both the distribution and transmission networks. It is difficult to explain to investors the reasons and the impossibility of connection and the consequences they can cause, because they are only interested in being connected and in starting to produce energy and thereby making money. For this reason, an increasing number of investors complain about the actions of DSOs in the case when their application for connection is rejected or when they are asked for an excessive amount of fees for connection due to the creation of conditions in the network. Lately, but also in the future, a big challenge will be appeals and court processes that will take place as a consequence of all of the above.

THANK YOU FOR YOUR ATTENTION!

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