accordance between the two set of data is reached during summer months.

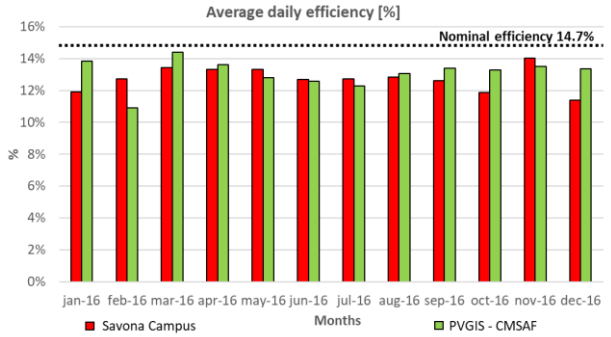

Fig. 5 PV efficiency values: PVGIS vs real measurements

In Fig. 6 the average daily PV production values are plotted together with the error between PVGIS and experimental measurements. From March to September the error is acceptable and below 10%. On the other hand, higher discrepancies arise in the remaining months.

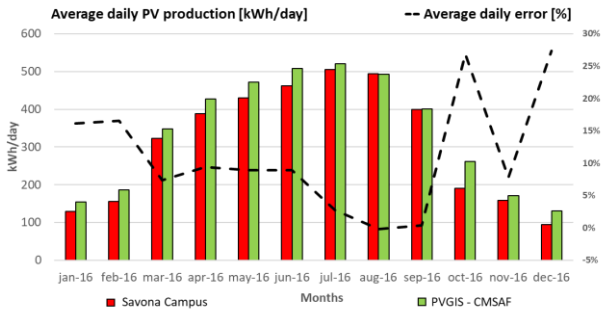

Fig. 6 PV average daily production for each month: PVGIS vs real measurements

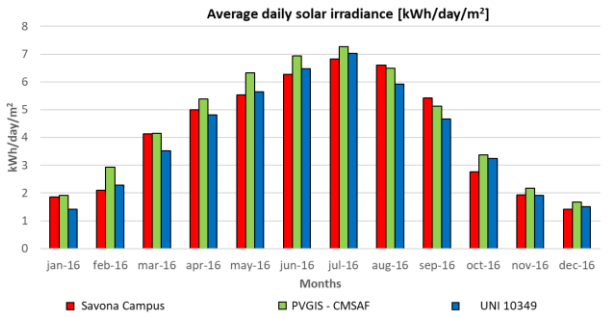

Fig. 7 Average daily solar energy values for each month: PVGIS vs real measurements vs UNI10349-3:2016

Finally, in Fig. 7 the values of average solar energy per squared meter of PV panel, calculated using UNI10349-3:2016 Italian Standard are compared with PVGIS and experimental measured values. PVGIS values tend to be almost always higher than the other two, while results coming from the Italian Standard are in most of the cases more conservative.

4 Conclusion

The importance of microgrid monitoring and data analysis has been highlighted, focusing the attention on PV technology. A comparison between different sets of data, coming from different approaches (experimental campaign, software tools, Standards), have been carried out for PV plant installations located in the north of Italy. Future developments could involve the application of the proposed methodology to other sites, considering different PV panel orientation and reanalysis-based solar irradiation data sets.

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