

An essay regarding a contribution from the photovoltaic solar power system as a sharp alternative energy source to the northeast of Brazil.

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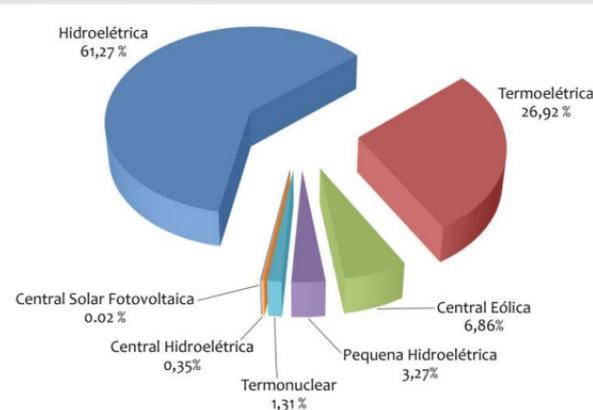
Abbreviated abstract: Through the photovoltaic production analytics dataset, it will demonstrate how much the solar energy model has been getting relevance, once its use grows exponentially, however, sectors of the civil society have not yet had the opportunity to enjoy the whole of its potential. To demonstrate the ratio its growth will be used data analyses of the average production of energy at Bahia, in 2020, as well as the level of solar radiation to show how much the northeast region has the climate conditions to enable both to use and rise of this technology.



3rd Conference on
**Statistics and
Data Science**
Salvador, Brazil (online)
October 28-30, 2021

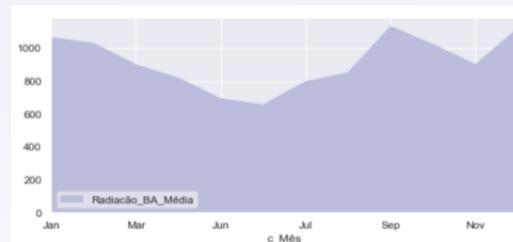
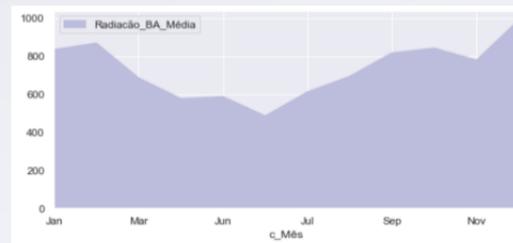
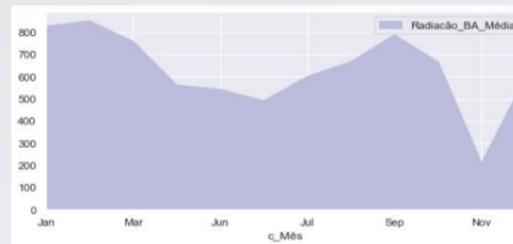
Electric matrix and irradiation

The main objective is to demonstrate how the region is promising for the growth of Solar Energy production. Although even today this potential is not being used.



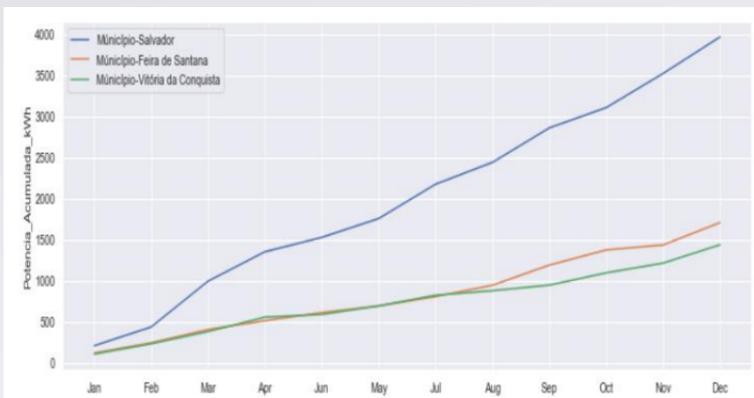
Picture 1. Brazilian Electrical Matrix, (Brazilian Solar Energy Atlas, 2017).

To demonstrate its potential, observation data collected by the National Institute of Meteorology (INMET) will be used from the daily collection of radiation (Wh/m^2) and temperature measurement in the northeastern regions, in this case more precisely in Bahia in the municipalities of Salvador and the metropolitan area; Feira de Santana; and, Vitória da Conquista, respectively.



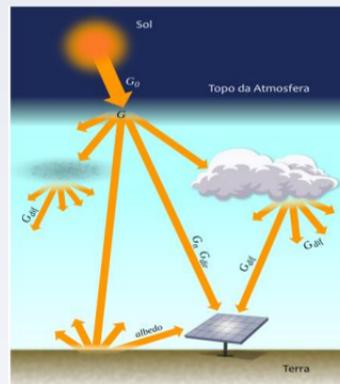
Production and data collection technique

The radiation data are obtained through the composition of environmental factors that condition the irradiation required for the production of solar energy from photovoltaic plates.



Spreading of gases present in the atmosphere

- Terrestrial Irradiance (G_0)
- Normal direct irradiance (G_n)
- Diffuse horizontal irradiance (G_{dif})
- Direct horizontal irradiance (G_{dir})
- Global horizontal irradiance (G)
- Inclined plane irradiance (G_i)



Picture 2 - Components of Solar Irradiance (Brazilian Solar Energy Atlas, 2017).



Picture 3. Automatic Data Collection Station (Brazilian Solar Energy Atlas, 2017).

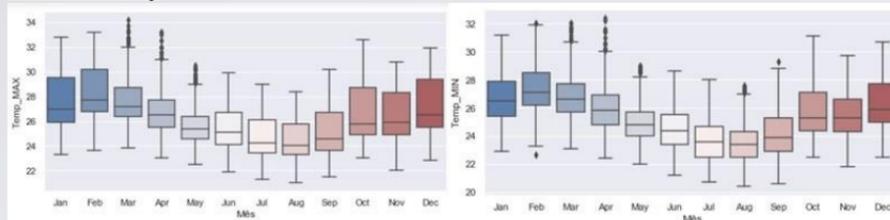
Findings

To sum up, It is possible to claim that photovoltaic electric energy, besides showing itself off as a technological model quite sustainable electric energy production it is also completely integrated with Brazilian matrix energy, once, renewable energy have been enhanced its position among the diversified production of electric energy in Brazil and, especially, in those regions that have social and economic issues such as northeast Bahia state, which is completely unprovided of assistance and that has its population majority in absence from social justice of the state.

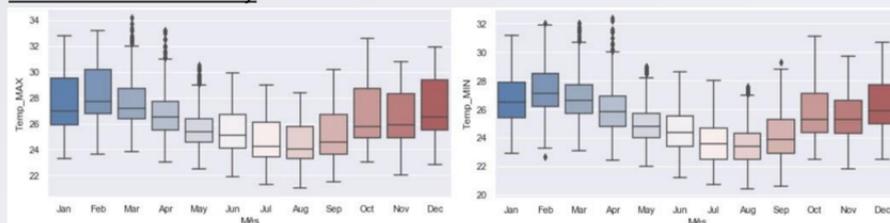
Thus, solar energy can become an important vector to both foster a social isonomy and supply the national demand, since its producer surplus can be distributed to the whole country.

To corroborate with the statement, it follows the boxplot graph with the minimum temperature on the main spots which were used as parameters of analysis. This information provides sharp data concerning the potentiality of the region to apply the technology of photovoltaic energy.

Salvador City



Feira de Santana City



Vitória da Conquista City

