Photovoltaic solar energy: the Brazilian reality

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INTRODUCTION

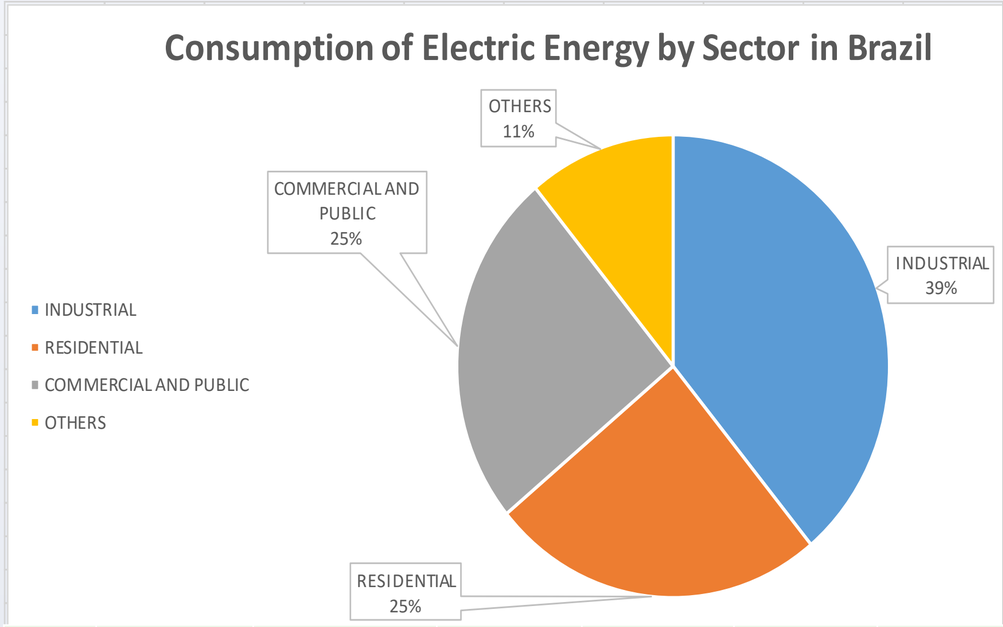
The search for diversification of energy resources in Brazil has become extremely necessary due to two main factors. The first is the current water situation that the country is going through; with the scarcity of rain the generation situation through hydroelectric power plants was compromised. Since the significant reduction in rainfall, power generation by hydroelectric plants has not been sufficient to supply the demand. Therefore, the need to use thermoelectric power plants has caused the price of energy to increase. Secondly, the exploitation of renewable energy resources that brings more comfort, security, flexibility and sustainability. In this scenario, photovoltaic solar energy presents itself as a technology in constant advance in Brazil and around the world. Through a bibliographical review, this article aims to present the principle of the use of this energy, considering the equipment and materials applied to the system, as well as the efficiency they can achieve. In addition, there is a broader view of the use of sunlight to produce electricity through photovoltaic panels and the applications of this technology in specific situations, such as installation on streetlights. The use of photovoltaic energy is a reality that states increasingly in several countries. In Brazil the manufacturing of photovoltaic systems need to reach an industrial scale to reduce costs, technical conditions and the uncertainty of the extent that this market will reach in the coming years also bring difficulties to final consolidation of solar photovoltaic generation in Brazil. There are several uses for a system that generates electricity through solar modules, as in the battery bank and off and on grid systems.

METHODOLOGY

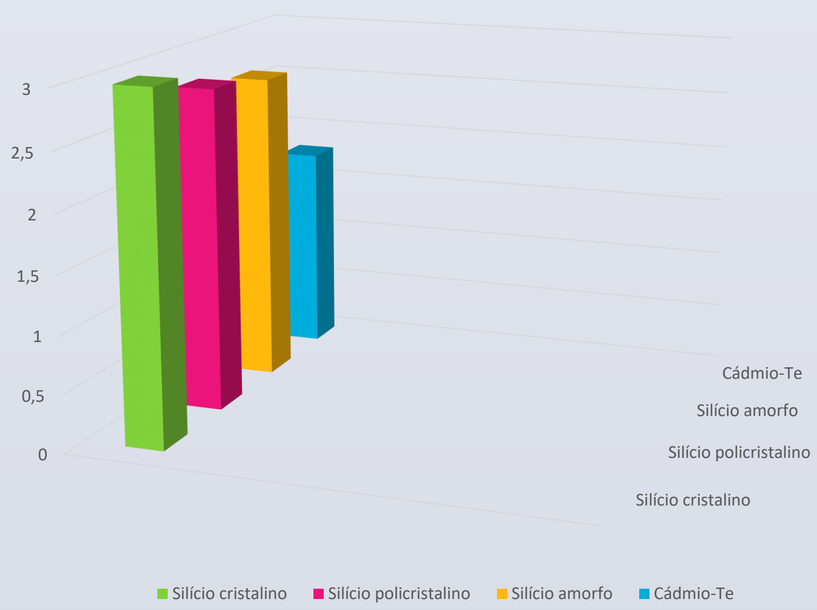
1. Drought survey of 2016-2018.
2. Survey of Electric Energy Consumption - light bill.
3. Survey of available space - visual inspection.
4. Review of Solar Resources - Software with databases.
5. Dimensioning of the Photovoltaic Generator – CRESESB method.

Table for estimation of average monthly energy consumption

Charge	Power Average (W)	Hours of use average per day (hours)	Days of use per month (days)	Consumption Monthly (Wh / month)
TV	150	6	30	27000
Fridge	190	24	30	136800
Light fixture	62	8	30	14880
Fan	100	2	10	2000
Air conditioning	750	8	20	120000



	Cost Project	Impact Environmental	Complexity Constructive	Complexity Process	Cost input	Time for Execution
Hydro	Medium	Medium	High	High	Nonexistent	High
Thermal	Low	High	Medium	Medium	variable	Low
Wind	Medium	Low	Low	Nonexistent	Nonexistent	Low
Solar	High	Low	Low	Nonexistent	Nonexistent	Low



CONCLUSION

We can conclude that it is necessary and feasible to expand Participation of Renewable Energies in the National Energy Matrix, mainly through the use of wind and solar sources.

In Brazil, this still lagging behind due to the lack of public incentives through government.

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