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Applying Renewable Energies Against Climate Change: Solar Photovoltaic (PV) Energy

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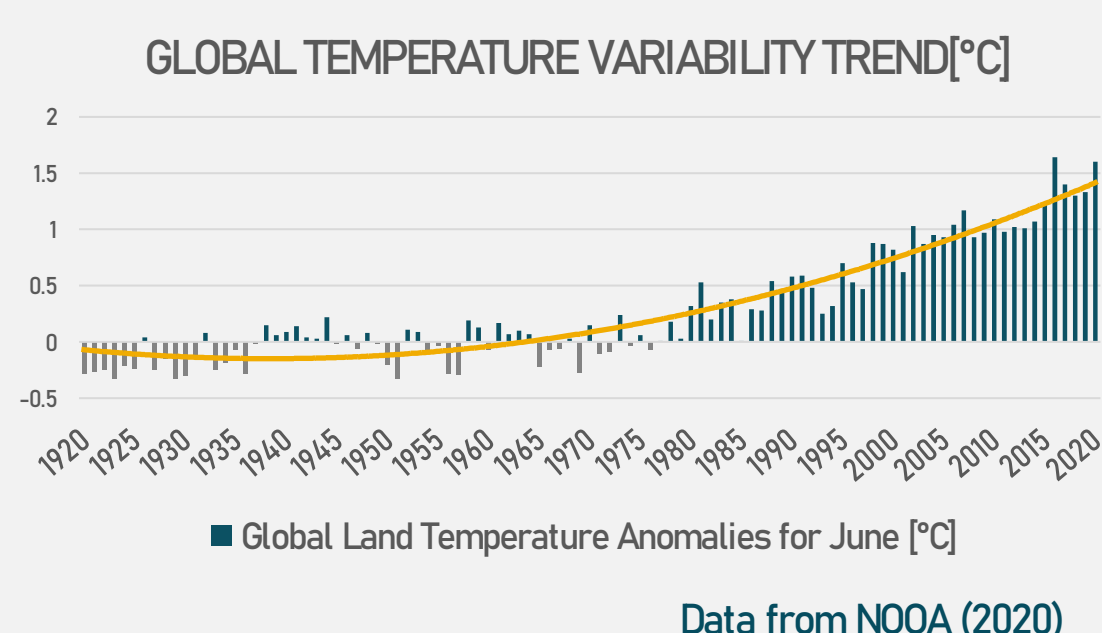
OBJECTIVE / ABSTRACT

In recent years, more efforts towards fighting climate change have been done. As a direct response, research and technology have offered several insights regarding the specific causes, effects, and even possible solutions for resolving this global issue. Among these solutions, renewable energies and their potential contributions as clean energy sources can be assessed as feasible options for the energy transformation through the decarbonization process of the energy industry. This poster is mainly focused on solar photovoltaic (PV) energy and its great potential as a renewable energy by making a brief assessment of some important aspects such as resource availability, its potential as a constantly growing technology, and its competitive costs. Moreover, the main objective is to convey that this technology is a clear path towards a more sustainable future.

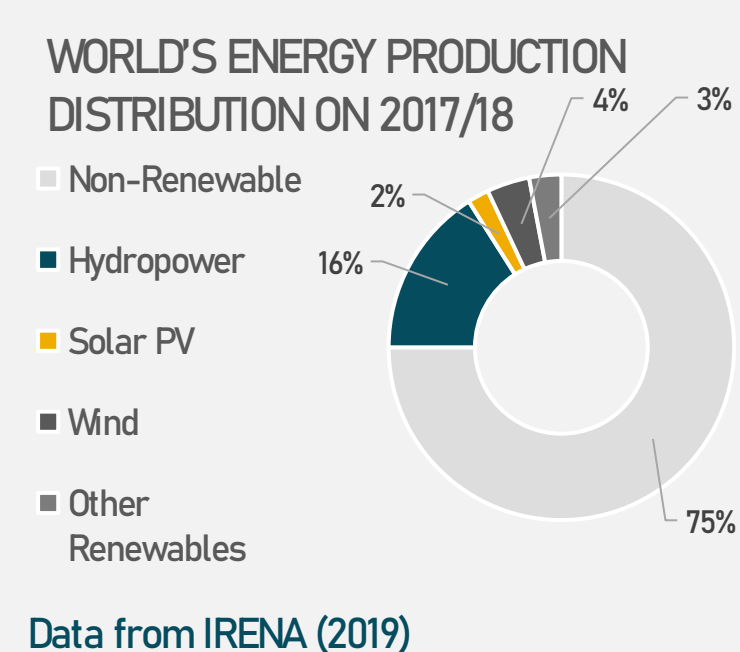
INTRODUCTION

Climate change is definitely a topic we are all familiar with. Since the pre-industrial era, greenhouse gas emissions have increased in a substantial way, mainly because of economic and population growth, driven by unsustainable development. The emission of gasses such as carbon dioxide (CO₂) reduces the earth's ability to reflect energy in form of heat that is received from the sun. In fact, for the last three decades the average temperature of Earth's surface has continuously increased more than any previous decade.

Greenhouse gasses (GHG) emissions from fossil fuel combustion and industrial processes such as energy production activities are one of the main sources of pollution as these account for almost 78% of the total GHG emissions.



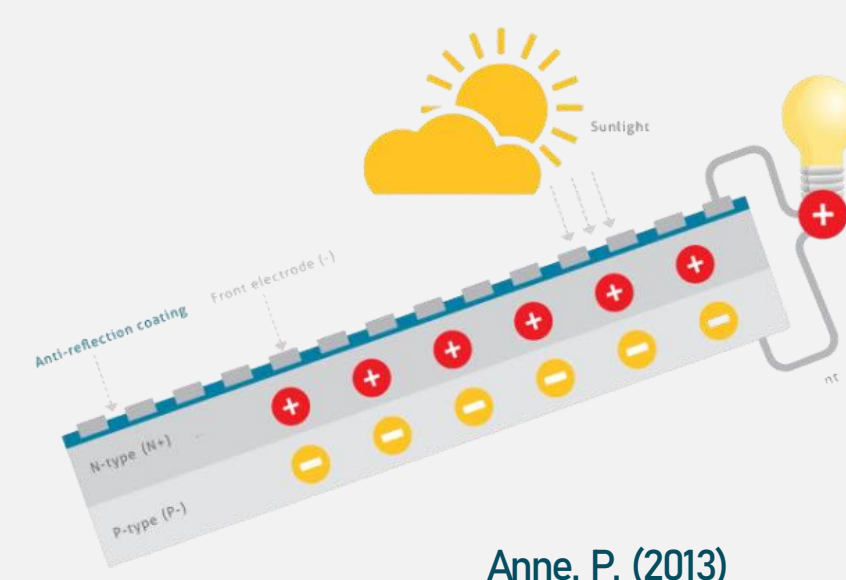
As of 2018, the global share for energy production indicates that only 25% of electricity was produced from renewable energy sources. With that said, decarbonization of the energy system should rely on renewable energy solutions and energy efficiency in order to reduce energy-related CO₂ emissions.



The future of energy production should rely on renewable energies such as solar; furthermore, it could be an alternative towards a more sustainable future and a solution to fight climate change.

WHY SOLAR ENERGY AS A SOLUTION?

By definition, a PV module is a device made from solar cells. These cells use sunlight as an energy source and then generate electricity in the form of direct current (DC). All this process is based on both the photoelectric and photovoltaic effects.



Resource Availability

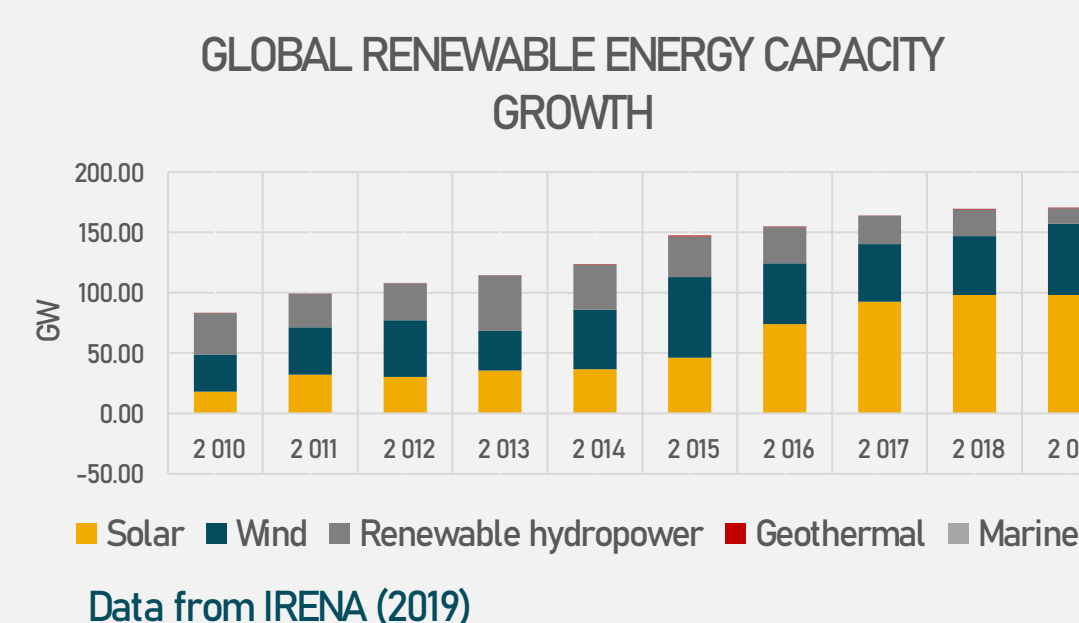
- Planet Earth is constantly receiving energy from the sun. In fact, each hour the sun provides Earth, sufficient energy to supply everyone on the planet for a year.
- Even though we can't just simply harvest and utilize 100% of the energy that is coming from the sun, it gives an idea about how abundant this energy is.
- With technologies that are constantly improving it is possible to leverage this energy that has great potential.



Constant Growth and Emerging Technologies

- According to IRENA's Energy Transformation Pathway, solar power will be able to supply 25% of all electricity needs by 2050. At the same time, this will represent 21% of the total emission reduction potential from renewables, which will account altogether for 90% of the emission reductions.
- This will only be possible by replacing conventional power generation sources with new RE-based technologies that properly fit the specific needs and location.

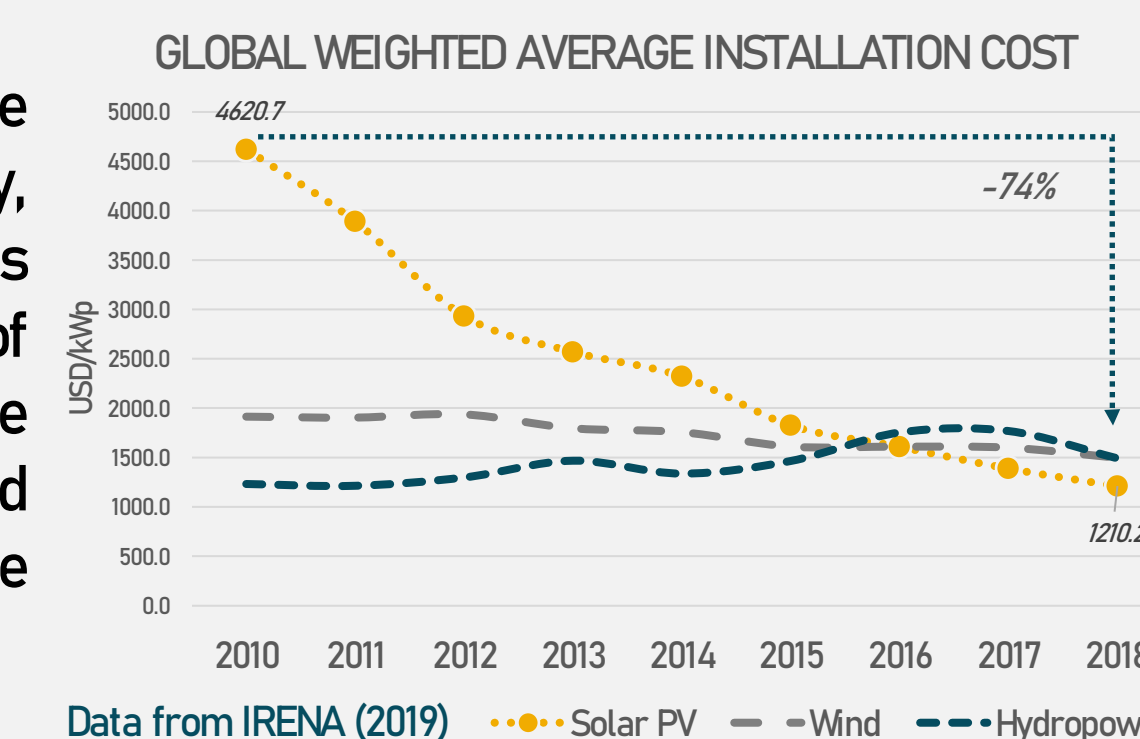
The continuous increment in applications related to solar PV technologies since this is considered one of the fastest-growing and cost-competitive renewable energy technologies.



Competitive Costs

- The progressive declines in unit installation costs have positioned solar PV energy as one of the most competitive technologies around the world (IRENA, 2019). Moreover, it is expected that by 2050 the solar PV technology will be among the cheapest sources of energy available in the market.

The trend indicates that the appealing of this technology, combined with its competitive costs will escalate up the number of investments, thus accelerating the pace of solar energy and contributing to a sustainable economy by creating new jobs.



CONCLUSION

- To summarize, decarbonizing the energy sector is the solution for reducing energy-related greenhouse gasses and carbon emissions.
- A brief assessment of the role of solar photovoltaic energy as a part of the energy transformation towards a more sustainable future. This source of energy has a huge potential that, inevitably, will be exploded. However, we must set the pace for this adoption to meet global sustainable goals.
- To conclude, transforming energy policies' framework and creating awareness in order to accelerate the implementation of new solar PV technologies and projects, is the clear path towards a sustainable future.

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