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**ADVANTAGES OF THE INSTALLATION OF A WIND FARM OF 20 MW**

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Wind power is one of the sources of renewable energy for which mature technology is available, so that its exploitation is technically and technologically viable, in production conditions and cost-competitive with traditional energy sources. A process of combustion or thermal transformation supposes unfavorable effects on the environment, like produce pollutants such as greenhouse gases as a by-product, contributing to climate change that is why the generation of electrical energy without any of these processes is a very favorable procedure because it is clean[1] . You can see the capacity of electricity generated by wind energy instead of coal in Table 1 [2].

Table 1. Every Kw/h of electricity generated by Wind Energy instead of Coal

0,60 Kg	$CO_2$ Carbon dioxide
1,33 Gr	$SO_2$ Sulfur dioxide
1,67 Gr	$NO_x$ Nitrogen oxides

The world has added more solar and wind capacity than coal, gas and combined nuclear power plants. This shows where we are headed in the global energy transition, although renewable energy, as a whole, still needs to go a long way, being still far from providing most of the electricity needs. The increase in wind activity has been driven by initiating sustainability and increasing the cost competitiveness of renewable energy. In addition, one of the big questions that investors in renewable energy will have to face, and therefore, the different countries in the coming years, refers to the very structure of the markets. [3]

**Wind generators:** Among the advantages of using wind energy by generators are the following, according to the Danish Wind Turbine Manufacturers Association:

The electricity produced by a wind turbine prevents thousands of liters of oil and thousands of kilograms of black lignite from being burned daily in thermal power plants. That same generator produces the same amount of energy as that obtained by burning 1,000 kg of oil daily. By not burning those Kg. Of coal, the emission of 4,109 Kg. Of  $CO_2$  is avoided, achieving an effect similar to that produced by 200 trees. The emission of 66 Kg. Of sulfur dioxide - $SO_2$ - and 10 Kg. Of nitrogen oxide - $NO_x$ - main causes of acid rain is prevented [4]. In Table 2 you can see the footprints at end of life in a 20MW park [5].

Table 2. Footprints at end of life in a 20MW park

Avoid	56960 Tn of $CO_2$ per year
Replaces	4894 equivalent tons of oil.
Contribute	Work 260 people a year during the design and construction.
Provides	National industry and technology development
Generate	Electric power for 22,000 families

Socioeconomic benefits are the most important factor to promote sustainable development through wind projects. Community projects have the potential to empower communities and achieve local energy self-efficiency. Community-owned energy projects have a long-term potential for generating stable income. They contribute to achieving the regional and national objectives of mitigating greenhouse gas emissions.

**Conclusions:** It is worth mentioning the importance of wind energy, being an excellent choice for the implementation of gas mitigation policies that are responsible for climate change, the results obtained in a study for the installation of a wind farm of this size, are positive, since that its environmental impact is manageable, and is economically feasible and favorable.

The installation of a wind farm contributes to the social benefit and economic benefit, promoting the welfare of the population and sources of employment.

Socio-economic criteria with greater influence are the local use of electricity and investment in educational and health centers.

In order to take advantage of renewable energy, and promote both the sustainable development and the social acceptance of wind energy, socioeconomic benefits, environmental compensation and involving people in decision making must be maximized.

Global concern over issues such as global warming, natural disasters, the depletion of the planet's resources, the environmental crisis and the production of food and diseases related to air pollution have generated an urgent need to invest in the development of options that impact to a lesser extent.

### References

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