

# Future Prospects of the Wind Energy in Libya

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**Abstract-** Libya is one of the oil producing countries, Oil is the main supplier of the country's economy. Libya has wind energy resources. Is available in many areas in Libya in reasonable quantities sufficient to solve the crisis that Libya is going through the power cuts for long hours. This paper examines wind energy, the most important renewable energy resource in Libya.

The objective of the paper evaluates the wind energy in the capital city of Tripoli, Libya. The data of the Climate Data Station was collected at the Solar Research Center in the capital Tripoli during at a height of 65.14 meters and 32.48 latitudes.

**Index Terms-** Tripoli, Libya, Wind, Energy

## I. INTRODUCTION

That the use of wind in Libya as a source of renewable energy is among the alternative sources of oil that maintain the Libyan prosperity prospects because it is clean energy, and many countries interested in developing this source, and aims to achieve this.

It is estimated that Libya has important and important sources of renewable energies such as wind and solar energy, enough to solve the crisis that Libya suffers from power outages, but exploitation is very small. Electricity is one of the most useful things provided by wind power, because it helped to save a large amount of the expenses and costs paid by the Libyan state in exchange for generators,

Wind power characteristics can be used more than once, do not contain any environmental contaminants, land can be used as agricultural fields, it is possible to use small mills (generators) placed in the top buildings. The paper presents the assessment of wind power in the Libyan capital, Tripoli, which is considered the largest city in Libya and located in western Libya.

## II. METHODOLOGY AND RESULTS

We used different methods of research, including fieldwork, telephone calls and interviews with people with wind energy experience in Tripoli City to collect evidence and information on wind potential in Libya's largest cities. I have interviewed several experts, managers, engineers and academics

working in the energy sectors Solar energy, meteorology and wind power, including the Solar Energy Research Center in Tripoli, Libya, which has been able to create a schedule assessing the wind energy of the Libyan capital Tripoli with their assistance.

## III. WIND ENERGY IN LIBYA

Traditional energy sources in Libya are limited to two sources: oil and natural gas. Studies have confirmed that oil resources will not last for more than 50 years of production While natural gas is expected to continue for a longer period in Libya. The city council said the first wind farm in Libya would soon be established in the city of Msallata.

Libya's first wind power farm is to be set up in Msallata city very soon, the municipal council has announced. Components of 16 wind turbines arrived in the city last week, and the installation process has already started. The power farm will be set up in Shaafeen Park with a capacity of 27 MW that represents 70% of the city's needs for electricity. The project, supervised by the Renewable Energy Body of the Electricity Company, comes amid the severe electricity crisis in the country. Msallata is a city 130 km to the east of Tripoli.[1].

## IV. ASSESSMENT OF WIND ENERGY OF IN THE CITY OF TRIPOLI LIBYA.

The preliminary studies and measurements conducted by the research team in this paper showed that Libya enjoys a clear richness from the wind power source in several regions in general. We have collected wind energy data in the city of Tripoli Libya. The results showed that the city has high wind speeds that can be exploited in the results were encouraging, indicating that this region is considered one of the best regions in Libya for the production of electricity using wind energy.

The research team collected the data produced by the readings of the Climate Data Station at the Solar Energy Research and Research Center in the capital Tripoli during 2011-2016 at a height of 65.14 meters and 32.48 latitudes [2] as shown in Table (1)

years	Monthly average of wind speed (m/s) during 2010–2016												SUM	AVG
	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec		
2011	2.9	3.9	3.1	3.4	3.5	3.2	3.4	2.8	3	2.9	2.9	3.2	38.2	3.2
2012	3.4	3.6	3.2	3.7	3.2	3.9	3.6	3.6	2.9	2.8	2.9	3.6	36.8	3.1
2013	3.4	2.9	3.5	3.6	3.5	3.4	3.8	3.6	2.9	2.7	2.9	3.6	39.8	3.3
2014	3.3	3.2	3.4	2.8	3.2	3.7	3.2	2.9	2.9	2.7	3	3.3	37.6	3.1
2015	3.9	3.8	3.8	3.3	3.2	3.2	2.8	2.9	3	2.9	2.9	2.5	38.2	3.2
2016	4	3.1	3.4	3.7	3.5	3.2	2.9	2.7	2.9	2.9	2.9	2.8	38	3.2

**Table(1): Monthly average of wind speed (m/s) during 2011–2016**

V. CONCLUSION

The next Libyan government should have a clear vision of harmonizing economic and social development and protecting the environment. It is in this context that the Libyan state will be required to achieve this goal, to encourage scientific studies and research in the field of alternative energy and to attract scientists to Libya to work in this wonderful field.

It is useful here for the next Libyan government to encourage bold investment owners to use wind energy as an alternative to oil which soon will run out. It is important to bring the latest technology to Libya to wind energy, and to attract companies specializing in wind energy. Also, the Libyan government is required to educate the Libyan citizens on how to use wind energy and circulate it. The first step that the Libyan government should take is to change the limited view of the Libyan people for this energy. New Libya to keep up with the times It has to go towards the use of wind energy and solar energy because the orientation is strategic as the researchers at the World Energy Organization that the electricity produced by oil and gas will become old the next five watts are the highest cost of electricity generated by solar and wind power..

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REFERENCES

- [1] <https://www.libyaobserver.ly/tech/msallata-city-use-power-wind-electricity>
- [2] The climatic data station at the Solar Research and Research Center in the capital of Tripoli during the period 2011-2016 at a height of 65.14 meters and 32.48 latitudes.

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