

# UGM and Ministry of Research and Technology Develop Potentials of Electrical Energy of Wind and Sun

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Universitas Gadjah Mada (UGM) and the Ministry of Research and Technology are currently developing a hybrid electric energy utilization of the potential wind and solar thermal energy at Pandansimo Beach, Bantul. Currently, 35 wind turbine units have already been installed with an average height of 18 meters, which comprised 26 wind turbines with the capacity of 1 kW, 6 wind turbine with the capacity of 2.5 kW, two 10 kW wind turbine, and one 50 kW wind turbine. In addition, there are also 175 units of solar cells with a capacity of 17.5 kWp.

One member of the research team, Rahmawan Budiarto, S.T, M.T, said the use of this technology is in order to realize the utilization of new and renewable energy sources. One of them is by utilizing the potential of sea and onshore wind resources at Pandansimo Beach that has an average speed of 3-4 meters/sec as well as the immense and permanent intensity of sunlight. "The strength of the wind speed at Pandansimo is considered low therefore it was combined with the solar cells energy. From the two types of energies, an amount of 130 kW is produced daily," said Rahmawan when met in the hybrid electric region in Pandansimo, Thursday (22/9).

The turbines and solar cells installation that was installed since the end of last year had been utilized directly by the people who live around the coast, including the production of 130 kW of electricity that is used to turn on the ice machine for the production of ice blocks that are often utilized by the fishermen. "For the moment, the utilization of hybrid electric energy is completely to help the economic development of fishermen and farmers communities in the region," said Rahmawan.

Rahmawan added that they also research and develop a production workshop of windmill turbines in accordance with the conditions of wind power in various areas. "In the future, we hope everything can be made by local communities," he said.



Although the use of windmills technology and solar energy in Pandansimo is still limited to pilot projects, the technology utilization is the government's efforts for energy needs fulfillment that comes from new and renewable energy. "It is because this technology supports the activity of the spirit of environmental conservation and production technologies for energy management based on local resources," said the lecturer of Physical Engineering, Faculty of Engineering.

Drs. Susilo Bambang, M.M, a member of the team of economic development based on independent energy, said his team was utilizing hybrid electric energy to lift water from wells using the water pump engine. The water in addition to irrigate 40 ponds, each measuring 8x4 meters, is also utilized to water the plants in agricultural activities on marginal land. "The water from the pool is lifted every morning through the water pump. The dirt water overflow from the pond is used for watering peppers, eggplants, and spinach plants," says the lecturer of STIE YKPN Yogyakarta.

As for the production of ice block, according to Bambang, it is now fully managed by local community groups. Each day about 70-100 of blocks are sold to fishermen at a price of Rp 1,000 each. "Let the community themselves manage the funds, but we still monitor the management," he concluded.

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