

The first public lighting system that runs on solar and wind energy

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Ramon Bargalló is a researcher belonging to the Department of Electrical Engineering at the Barcelona College of Industrial Engineering (EUETIB) of the Universitat Politècnica de Catalunya (UPC). In collaboration with the company Eolgreen, he has developed the first autonomous industrialised public lighting system that works with solar and wind energy.

This system, developed after four years of research, is designed for inter-urban roads, [motorways](#), [urban parks](#) and other public areas. It is unique in the world and reduces the cost by 20% compared with conventional public lighting systems.

The prototype is 10 metres high and is fitted with a solar panel, a wind turbine and a battery. The turbine runs at a speed of 10 to 200 revolutions per minute (rpm) and has a maximum output of 400 watts (W). The developers' aim is to make the lighting system even more environmentally efficient, so work is being done on a second prototype generator that runs at a lower speed (10 to 60 rpm) and has a lower output (100 W). An electronic control system manages the flow of energy between the solar panel, the wind turbine, the battery and the light.

"It takes very little wind to produce energy. The generator that has been developed can start working at a wind speed of only 1.7 metres per second (m/s), whereas current wind turbines need more than 2.5 m/s," says Ramon Bargalló. "This low intensity can provide six nights of electricity without wind or sun," he adds.

To date, Eolgreen has signed agreements with the port of Huelva and the municipal authorities of Sant Boi de Llobregat, Girona and several towns in Andalusia. In the course of 2015, the company plans to produce 700 of these street lights.

Provided by Universitat Politècnica de Catalunya

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