

## **Kajian Pengujian Baterai Lithium Pada Kendaraan Bermotor Listrik Di Stasiun Pengisian Kendaraan Listrik Dari Tenaga Surya Lingkungan Institut Teknologi PLN**

*Erlina<sup>1</sup>; Heri Suyanto<sup>2</sup>; Retno Aita Diantari<sup>3</sup>*

<sup>1,2,3,4</sup>Fakultas Ketenagalistrikan Energi Baru Dan Terbarukan Institut Teknologi PLN  
Email : [erlina@itpln.ac.id](mailto:erlina@itpln.ac.id)

### **ABSTRACT**

*The current development of technology and mobility has encouraged people to innovate and create means of transportation that are energy efficient, environmentally friendly and can reduce dependence on fuel oil which will run out at any time. Currently, transportation tools are starting to emerge using electrical energy as an alternative energy source from fuel oil, including electric motorbikes. The purpose of this research is not to depend on fuel oil, to reduce air pollution. In this research, we take the theme "Study of Testing Lithium Batteries in Electric Motorized Vehicles at Solar Electric Vehicle Charging Stations at the PLN Institute of Technology" by making a design and construction of a hybrid type energy-saving electric motor (Battery and Solar Panel) with the aim of efforts in order to save use of fuel oil (BBM). In this research, a prototype of a hybrid type energy-efficient electric motor will be designed and produced. The energy-efficient electric motor will use a combination of two models of propulsion energy for vehicles, namely the source of the battery and solar panels. In making this electric motor, the first step is to design the physical form of the vehicle and all its equipment using the AutoDesk Inventor software. Furthermore, based on the technical drawings of the design results, all vehicle components will be produced which include the chassis, steering system, brake system, body, vehicle electrical system and others. After the physical vehicle has been produced, the propulsion system is then installed, namely the vehicle engine and battery which is a source of electrical energy. Furthermore, from the vehicle propulsion system, a transmission system will be installed that will connect the wheels and the drive system so that the electric motor can run. After completion of the production stage, the electric motor that is made will be subjected to roadworthiness testing, electrical testing, brake testing and dimensional testing, testing of vehicle lights and testing of vehicle safety systems. After all vehicle systems are working properly, the electric motor will be tested for energy consumption by crossing the road a certain distance. This energy can be determined by dividing the amount of energy used by the distance traveled. So that consumption is obtained vehicle energy per kilometer of distance traveled. To charge the battery using a solar panel by estimating when the battery must be recharged with a solar panel.*

**Keywords:** *Lithium, charging. two-wheeled electric vehicle, solar powered*

### **ABSTRAK**

*Perkembangan teknologi dan mobilitas saat ini telah mendorong manusia untuk berinovasi dan menciptakan alat transportasi yang hemat energi, ramah lingkungan dan dapat mengurangi ketergantungan terhadap bahan bakar minyak yang sewaktu-waktu akan habis. Saat ini mulai bermunculan alat transportasi dengan menggunakan energi listrik sebagai sumber energi alternatif dari bahan bakar minyak diantaranya adalah sepeda motor listrik. Tujuan dari penelitian ini adalah Agar tidak tergantung dengan bahan bakar minyak, Untuk mengurangi polusi udara. Dalam penelitian ini kita ambil tema "Kajian Pengujian Baterai Lithium Pada Kendaraan Bermotor Listrik Di Stasiun Pengisian Kendaraan Listrik Dari Tenaga Surya Lingkungan Institut Teknologi PLN" dengan membuat rancang bangun motor listrik hemat energi tipe hybrid (Baterai dan Panel Surya) dengan tujuan upaya dalam rangka penghematan penggunaan bahan bakar minyak (BBM). Pada penelitian ini akan dirancang dan diproduksi sebuah prototipe motor listrik hemat energi tipe hybrid. Pada motor listrik hemat energi tersebut akan digunakan gabungan dua model energi penggerak pada kendaraan yaitu*