

Utilization of Biofuel in Kumai Diesel Power Plant, Central Kalimantan, Indonesia : Power Plant Performance and Operating and Maintenance Costs

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Abstract

In Indonesia, the use of non-renewable energy such as oil, coal and natural gas is still high. The dominance of the use of fossil fuels raises several problems such as climate change, global warming, rising trends in world fuel prices, and issues of energy sovereignty. Therefore Indonesia Government launched the target of Energy Mix from the Renewable Energy sector at least 23% in 2025 and at least 31% in 2050, in accordance with Presidential Regulation Number 22 of 2017 concerning the General Plan for National Energy (RUEN). This is also supported by the fact that Indonesia is the number one palm oil producer in the world in 2017.

One effort to achieve the RUEN target is the Minister of Energy and Mineral Resources through the ESDM Ministerial Regulation Number 41 of 2018 concerning the Supply and Use of Biodiesel in the Financing Framework by the Palm Oil Plantation Fund Management Agency, the Fossil Fuel Business Entity is required to mix Biofuel (BBN) Types of Biodiesel with Solar Oil type fuel in accordance with the phasing out of the minimum liability for Biodiesel Type of Biofuel determined by the Minister. Following up on this, PLN as the largest electricity power service provider in Indonesia is also encouraged to use biofuel, where the first stage is the use of 2000 MegaWatt diesel power plant with palm oil within the next 2 years.

This paper describes the effects of using biofuel on biodiesel on the costs of operation and maintenance and the performance of power plants such as SFC, EAF, CF, before and after using biofuel. Data before the use of biofuel was obtained from the report of the sector office and the performance monitoring application that applies in PLN from 2013 to 2014. While the data after the use of biofuel is data for the period 2015 to 2018. The results indicate that the use of biofuel causes SFC to increase to 0.310 liters / kWh. Then in the following year, with the right treatment, the SFC trend tended to decrease to 0.253 liters / kWh in 2018.