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SELECTION OF ALTERNATIVE ENERGY SOURCES INDONESIAN WARSHIP PATROL CRAFT 36 CLASS USING LIFE CYCLE COST (LCC) AND TOPSIS (TECHNIQUE FOR ORDER PREFERENCE BY SIMILARITY TO IDEAL SOLUTION) Ahmadi¹, Haryanto Wibowo², Okol Sri Suharyo^{3,1,2,3} Indonesian Naval Technology College, Bumimoro-Morokrembangan, Surabaya 60187, Indonesia ABSTRACT Indonesia has abundant natural resources of oil and gas energy.

Domestic fuel supply is not entirely fulfilled by domestic oil refineries, almost 20% -30% of domestic oil demand must be imported from abroad. This has an impact on the Navy. Steps to address this problem through switching to the use of alternative energy fuels for the Indonesian warship class Patrol Craft 36.

The selection of appropriate alternatives requires analysis of information and identification of alternative fuel requirements to be selected. The approach in this study uses Life Cycle Cost method to see the life cycle cost of alternative and combined TOPSIS (Technique For Order Preference By Similarity To Ideal Solution) approach to other than cost factor, and Benefit Cost Ratio.

The result of data processing of alternative energy sources selected is gas, CNG (Compressed Natural Gas) with the value of Benefit Cost Ratio 53,7051 Life Cycle Cost IDR 14,168,302,864. Keywords: Alternative Energy, Life Cycle Cost, TOPSIS.

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