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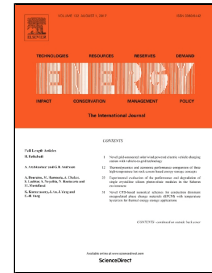
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# Efficiency Evaluation of Hydropower Station Operation: A Case Study of Longyangxia Station in the Yellow River, China

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**Abstract:** Hydropower plays a major role in the Chinese electricity generation industry. It is of significant importance to perform efficiency evaluation of the economic operation in a power station, which can help promote better water resources management and create more benefits for power network. Therefore, the main goal of this study is to establish a set of evaluation indexes and investigate the evaluation method to assess the economic operation in a power station. Based on the operation chart, three evaluation indexes including the Relative Water Consumption Rate ( $RC$ ), the Relative Hydropower Utilization Rate ( $RU$ ), and the Relative Hydropower Utilization Increasing Rate ( $RI$ ) were proposed. The Longyangxia power station, as the biggest peak regulation source in the Northwest Power Network in China and the largest reservoir in the Yellow River Basin, was selected to perform an efficiency evaluation of economic operation. The result showed that the economic operation of this power station was not reasonable with  $RC > 1$ ,  $RU < 1$  and  $RI < 0$ . And the rationality of the evaluation result was illustrated through analyzing the actual operation situation of the Longyangxia reservoir.

**Keywords:** Efficiency evaluation; Economic operation; Evaluation indexes;

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