

Investigation of the possibility of power transmission via submarine AC cable lines over long distances.

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A variant of power supply system for an underwater offshore field using an alternating current cable line with a frequency of 50 Hz has been investigated. An analytical model has been developed to perform steady state calculations and analyze voltage and current distribution along the cable in the system being studied. The no-load mode with receiving end open and loaded mode for a long cable line have been investigated, and features that lead to unacceptable operating conditions have been identified. A proposal has been made and justified for providing acceptable electrical parameters for transmitting electric energy over long distances using cable lines.

Key words: cable, submarine cable line, steady state, power transmission, shunt re-actor, long distances, offshore fields, underwater mining complex.