

عنوان مقاله:

Electromagnetic transients Analysis in Shore to Ship Power Supply System

محل انتشار:

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خلاصه مقاله:

Commercial and Military Ships require an electrical energy source for their lighting and machinery loads whilst berthing. If this energy be provided by on-ship diesel generators, it pollutes the seaport area considerably. To prevent that, modern seaports are equipped with electrical source plugs that connect to standards plugs on ships and provide their required energy. This type of connection brings about new consequences for electrical networks on ships and in the seaport as well. These consequences include TOVs (TOV) due to switching, lightning and ferroresonance in cables, all can have destructive effect on insulation of transformers and cables. This phenomena becomes more considerable regarding military ships, since they need a lot higher reliability in their electrical networks. In this study EMTP software is used to simulate all elements of electrical connection system between a ship and the seaport in transient state. Using medium voltage surge arresters with optimized parameters in particular points of this network can control the TOVs and keep them in standard range. In addition, impedance drive starters can restrain the over voltages due to starting current of motors. Optimum places to use surge arresters and impedance starter drives has been found in this study and according the results, TOVs could be limited in standard range.

کلمات کلیدی:

Shore-to-Ship Connection, Cold Ironing, Transient overvoltage, Transient Analysis, Overvoltage Protection

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