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Abstract
This thesis discusses the impact of large motor starting and large variation of load on the system dynamic responses for a steel cogeneration facility with and without tie connection of the utility. The system configuration and operation modes of the steel facility will be introduced. To execute the transient stability analysis, the proper mathematical models and suitable parameters of the cogeneration units, excitation systems, governor systems are investigated in detail. Both the static and dynamic load models are applied in this thesis and the autotransformer starters, static var compensators(SVC) and VVVF inverters are installed to reduce the current and voltage drop during the motor starting. Also, the variation of system voltage and frequency due to the operation of rolling mill is investigated to verify the safe operation of cogeneration units. Finally , the power quality index computational method has even proposed to evaluate the improvement of voltage sags by various motor starting methods.
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