Feasibility Study Report
PID 214
30MW
Atlantic Bulk

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Revision: 1

Rev	Issue Date	Description of Revision	Revised By	Project Manager
0	9/21/2007	Final for Review	BMH	JDH
1	10/04/2007	Updated Table II	BMH	JDH

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I. Introduction

The purpose of this feasibility study is a preliminary evaluation of the system impact of the proposed generation on the Entergy transmission system. The study addresses the short circuit aspect only. The study evaluates injection of 30 MW from the PID 214 plant to the Entergy Transmission System at the Atlantic Bulk substation. The short circuit study was performed on the Entergy system short circuit model using ASPEN software. The requested in-service date for this facility is July 1, 2012.

II. Short Circuit Analysis / Breaker Rating Analysis

A. Model Information

The short circuit analysis was performed on the Entergy system short circuit model using ASPEN software. This model includes all generators interconnected to the Entergy system or interconnected to an adjacent system and having an impact on this interconnection request, IPP's with signed IOAs, and approved future transmission projects on the Entergy transmission system.

B. Short Circuit Analysis

The method used to determine if any short circuit problems would be caused by the addition of the PID-214 generation is as follows:

Three phase and single phase to ground faults were simulated on the Entergy base case short circuit model and the worst case short circuit level was determined at each station. The PID-214 generator was then modeled in the base case to generate a revised short circuit model. The base case short circuit results were then compared with the results from the revised model to identify any breakers that were under-rated as a result of additional short circuit contribution from PID-214 generation. The breakers identified to be upgraded through this comparison are *mandatory* upgrades.

C. Analysis Results

The results of the short circuit analysis indicates that the additional generation due to PID-214 generators does cause an increase in short circuit current such that they exceed the fault interrupting capability of the high voltage circuit breakers within the vicinity of the PID-214 plant.

Table I: Underrated Breakers Without Priors

Substation	Breaker	Max Fault w/o PID-214 (amps)	Max Fault with PID-214 (amps)	Interrupting Rating (amps)
ATLANIC 69KV	15375	17012	20969	20919
	3305	17281	21118	20919
KOLBS 69KV	3505	39762	40398	40000

Table I illustrates the station name, worst case fault level, and the number of breakers that were found to be under-rated at the respective locations as a result of the additional short circuit current due to PID-214 generator and includes no priors.

Table II: Underrated Breakers With Priors Included

Substation	Breaker	Max Fault w/o PID-214 (amps)	Max Fault with PID-214 (amps)	Interrupting Rating (amps)
ATLANIC 69KV	15375	17065	21006	20919
	3305	17347	21164	20919

Table II illustrates the station name, worst case fault level, and the number of breakers that were found to be under-rated at the respective locations as a result of the additional short circuit current due to PID-214 generator and includes prior PID's 197, 198, 202, 205, 206, 207, 208, 211 and 213.

D. Problem Resolution

Table III illustrates the station name, and the cost associated with upgrading the breakers at each station both for mandatory and optional breaker upgrades.

Substation	Number of Breakers	New Breaker Rating	Estimated cost of Breaker Upgrades ($)
ATLANIC 69KV	2	40 kA	$428,800
KOLBS 69KV	1	50 kA	*$234,800

* Price based on 145 kV Breaker

The impact on breaker rating due to line upgrades will be evaluated during facilities study phase.

The results of the short circuit analysis are subject to change, because they are based upon the current configuration of the Entergy transmission system and Generation Interconnection Study queue.