DISCUSSION OF [redacted] ("Customer") GENERATION FEASIBILITY STUDY RESULTS FOR THE PROPOSED GENERATING FACILITY AT BUCK TIE STATION. TOTAL SUMMER PEAK OUTPUT IS EXPECTED TO BE 932 MW

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Following are the results of the Generation Feasibility Study for the installation of 932 MW Summer/1010 MW Winter of generating capacity in Rowan County, NC. The site is located next to Buck Tie substation and has an estimated Commercial Operation Date of June 1, 2010.

A. Study Assumptions and Methodology

The power flow cases used in the study were developed from the Duke internal year 2010 summer peak case. The results of Duke's annual screening were used as a baseline to identify the impact of the new generation. All cases were modified to include 932 MW of additional generation at Buck Tie Station. To determine the thermal impact on Duke's transmission system, the new generation was modeled with a single-circuit, direct connection to the 230 kV bus at Buck Tie. The economic generation dispatch was also changed by adding the new generation and forcing it on prior to the dispatch of the remaining Duke Control Area units. Buck Steam unit 4 was assumed to be retired coincident with the addition of the new combined cycle facility. The study cases were re-dispatched, solved and saved for use.

The thermal study uses the results of Duke Power Delivery's annual internal screening as a baseline to determine the impact of the new generation. The annual internal screening identifies violations of the Duke Power Transmission System Planning Guidelines and this information is used to develop the transmission asset expansion plan. The annual screening provides branch loading for postulated transmission line or transformer contingencies under various generation dispatches. The thermal study results following the inclusion of the new generation were obtained by the same methods, and are therefore comparable to the annual screening. The results are compared to identify significant impacts to the Duke transmission system.

Fault studies are performed by modeling the new generator and previously queued generation ahead of Buck in the interconnection queue. Any significant changes in fault duty resulting from the new generator's installation are identified. Various faults are placed on the system and their impact versus equipment rating is evaluated.

Reactive Capability is evaluated by modeling a facility's generators and step-up transformers (GSU's) at various taps and system voltage conditions. The reactive capability of the facility can be affected by many factors including generator capability limits, excitation limits, and bus voltage limits. The evaluation determines whether sufficient reactive support will be available at the Connection Point.

B. Thermal Study Results

The following network upgrades were identified as being attributable the studied generating facility:

Facility Name/ Upgrade	Existing Size/Type	Proposed Size/Type	Mileage	Estimated Cost
1. Beulah 100 kV lines (Stamey to EU del 18)	795 ACSR	B795 ACSR	1.09	$0.7M
2. Use spare 230/100 kV transformer at Buck	N/A	400 MVA	N/A	$3.7M
3. Add 230/100 kV transformer at Buck	N/A	400 MVA	N/A	$5.2M
4. Norman 230 kV (McGuire to Riverbend)	1272 ACSR	B1272 ACSR	5.61	$8.4M
5. Hopewell 100 kV (Winecoff-Eastfield Rd ret)	477 ACSR	B477 ACSR	12.92	$8.4M
CUSTOMER TOTAL COST ESTIMATE				$26.4M

Note1: The system upgrade identified in 1 may be the responsibility of other customers if higher queued generation projects are built.

Note 2: The upgrades identified in 4 and 5 may not be necessary if higher queued generation projects are not built.

C. Fault Duty Study Results

1) At Winecoff 230 kV the de-rated 30ika Providence Black &White line breakers are overdutied @ 30.4 kA.

Total estimated cost for 230 kV breaker replacements: $350K

D. Reactive Capability Study Results

With the proposed Buck 932 MW facility, the level of reactive support supplied by the units has been determined to be acceptable at this time. Evaluation of MVAR flow and voltages in the vicinity of Buck indicates adequate reactive support exists in the region. Should future studies show the need for additional support, Duke Power integrated resource planning will evaluate solutions and make appropriate changes to the system.

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