**DRAFT**

**GAELECTRIC ECONOMIC STUDY REQUEST - 2013**

The Great Falls area within Montana has the capacity to provide significant resources to supply the Western Interconnection. The new Montana Alberta Tie Line will be completed in 2013 linking Great Falls to Alberta and will interconnect wind generation projects along the way. For the moment, Southern Montana has stopped further construction on the Combined Cycle Gas fire plant at Highwood, but if the project is sold the project may be built out to full capacity. In the past, interest has been expressed in locating a gas fired generation plant interconnecting to the Great Falls 230 kV Switchyard. PPL Montana owns hydro generation in the Great Falls area in excess of the load to be served in the area. Gaelectric and other potential wind generators hold significant land options to build wind generation projects in the Great Falls area. In all, it would not be an understatement to suggest that 1500 MW of generation capacity could be developed in and around the Great Falls area.

Studies conducted by NorthWestern Energy have revealed that congestion exists on the path south of Great Falls which will limit the transfer capability to move the potential generation out of the Great Falls area into the southern area of NorthWestern Energy and specifically to BPA at Garrison.

Previous studies have suggested the most cost effective option to move 1500 MW from the Great Falls area to the 500 kV system would be to build a 500 kV line from Great Falls to Townsend. While this may be true if the entire 1500 MW of generation were to be developed all at once to fully utilize the capacity of a 500 kV line, would a 500 kV line be the most economic option if the generation were to develop over a 12 to 15 year period?

This Economic Study Request being submitted by Gaelectric is to study the most economic development of the transmission system to relieve the congestion south of Great Falls and deliver the power to BPA at Garrison, assuming the generation was to be developed in the following increments:

300 MW of new wind generation coming on line in 2019

additional 150 MW of wind generation and 150 MW of combined cycle gas coming on in 2022

additional 300 MW of wind coming on in 2025

additional 150 MW of wind and 150 MW of combined cycle gas coming on in 2028

additional 300 MW of wind coming on in 2031

Total generation added - 1500 MW

The questions arise whether it would be more economical to build transmission in increments commensurate with the generation increases or does a single 500 kV line still provide the best economic expansion even though it would not be fully utilized for a period of time? Would this require the transmission users pay an incremental rate for using the 500 kV before other generation was added to the system? Is the reliability of the system improved by developing multiple lines between the Point of Receipt and the Point of Delivery? Will changes to the ATR be required to accommodate the additional generation on the NorthWestern Energy system?

Please make the following assumptions for the study:

1. The 230 kV line to be built from Jawbone Substation to Broadview to satisfy the Gaelectric Transmission Service Requests is in service.
2. The MATL 230 kV line from Lethbridge to Great Falls is in service.
3. NorthWestern Energy currently has requests for 230 MW of transmission service requested by PowerX from the MATL termination at the Great Falls 230 kV Switchyard to BPAT. Assume these requests have contracts to purchase part of the 300 MW of new wind generation coming on line in 2019.
4. The 150 MW of combined cycle gas plant generation coming on in 2022 is the remainder of the Southern Montana gas generation plant being built.
5. The Colstrip 500 kV system upgrades have been completed by NorthWestern Energy
6. The Colstrip 500 kV upgrades have been completed by BPA.
7. The Gaelectric Jawbone Project is in service at 460 MW
8. The Gaelectric Lone Tree Project is in service at 80 MW
9. The transmission service upgrades required for the Lone Tree Project are in service.