

VALUING DISTRIBUTED ENERGY RESOURCE LOCATION BASED ON THE IMPACT ON TRANSMISSION NETWORK

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The accelerated growth of distributed energy resources (DER), including solar PV, results in unanticipated electric grid operating conditions, as they are traditionally not considered in planning studies by the transmission utilities. The impacts can vary depending on the location at which the DER connects to the existing grid. We have developed three metrics to realize the impacts caused to the grid by the addition of a DER, and find a quantitative value for the location of that DER. This method can be used as a planning tool by the transmission utilities of Kansas to identify the favorable locations for upcoming DERs with respect to their system requirements. A test system developed based on the western Kansas region was used to analyze the impact of DERs and demonstrate the usefulness of the proposed method.