

## **DG Impact on Investment Deferral: Network Planning and Security of Supply**

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Despite the technical challenges in properly accommodating distributed generation (DG), one of the major and well-recognised benefits is the ability of DG to defer future demand-related network investment. It is, however, often poorly represented in existing planning approaches and analysis ignores the potential security of supply benefits. Here, a novel, more integrated, approach is presented wherein reinforcements required by system security standards (e.g., N-1) are also taken into account. The DG contributions to system security provided by UK Engineering Recommendation P2/6 are adopted, enabling the methodology to quantify the deferment produced by DG considering both demand growth- and system security-related investment. The methodology employs the successive elimination algorithm together with multistage planning and is applied to a generic, meshed, UK distribution network. Results show that, despite differences between technology types, significant economic benefits can be harnessed when strategically incorporating DG at the planning stage.