

K&A Distributed Energy Resources (DER) Services



Overview:

K&A Engineering Consulting, P.C. understands the significance of DER services and works hard to provide clients with the best results. Distributed energy is the on-site generation, storage, and delivery of power for businesses of every size, mostly in the distribution network. A Distributed Energy Resource (DER) is any resource on the distribution system that produces electricity and is not otherwise included in the formal NERC definition of the Bulk Electric System (BES). This definition often includes solar, wind, and battery power. With K&A located in the Northeast, we have seen a lot of large-scale solar distributed generation across this region. K&A is currently engaged on over 400 interconnection studies and has completed over 200 studies for Utility clients in the North East USA. Wind distributed generation may make more sense in other areas of the world, location varies the effectiveness of each method.



Products/services:

- Grounding
- Voltage Regulation
- Cluster Studies
- Fault Analysis
- Protection and Control

Impacts Studies

1. Load Flow

- Equipment Loading includes Transformer, Breaker, Recloser, Fuse
- Equipment Reversibility includes LTC, Recloser, Regulator
- Voltage Violation under the worst scenarios
- Backup Feeder contingency simulations

2. Voltage Flicker

- Assume 100% generation trip for the project.
- Mitigation methods include:
 - Reconductoring
 - Modify existing capacitor/regulator
 - Move or add voltage regulator
 - Modify LTC
 - Use non-unity PF under Volt-Var Mode

3. Voltage Regulation Mode

- Check Inverter rating
- Using Volt-Var Mode, providing regulation curves for customers

4. Short Circuit Current

- Calculate the short circuit current at POI and Substation
- Check interrupting rating for the protection devices (i.e. 87.5% kA)

5. Protection Review

- Review all the protection settings from POI to Substation
- Get Estimated max inrush current and compare with TCC at 0.1s or 6 cycles
- Check customer intertie relay settings coordination with utility's

6. Effective Grounding

- Get max X0/X1 and R0/X1 without the Project connected to the circuit
- Get max X0/X1 and R0/X1 with the Project connected to the circuit

7. Harmonic Evaluation

- Get the inverter UL harmonics test results
- Check the total harmonic distortion at the feeder with all the existing DER generations?

8. Upgrade Cost Estimation

- Transmission Line Extension, Reconducting
- Recloser/Regulator Relocation
- New metering pole, and related monthly cost

PMO Provided

- Tailor services
- Develop interconnection Application Procedure & Management
- Technical Screens for DER Interconnect
- Standardized DER System Impact Studies
- Distribution Design
- Transmission Substation Design
- Construction Management



Staff: Staff includes (types of Professionals)

K&A staff includes professional, technical and administrative personnel that are culturally diverse, sensitive to customer needs and highly skilled in their fields. We employ a wide range of experienced and specially trained personnel that allows us to fulfill your needs for electrical utility systems projects.



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