

Smart Grid Investment Grant Program

Funding Opportunity Number: DE-FOA-0000058

TekTrakker Manages the Measurement, Metrics, and Reporting Requirements in FOA

Applicants for funding under the FOA are challenged by the DOE to include plans for how projects will be evaluated against their pre-SmartGrid environment (baseline), how they will continually monitor and report on SmartGrid improvements, and how they will quantify cost savings within the areas of operations and maintenance. The metrics for all of these requirements easily and inexpensively performed by TekTrakker's newly available Utility Data Cooperatives.

Elements in the FOA where TekTrakker has direct applicability are highlighted in YELLOW and the narrative of how TekTrakker manages these points are in BLUE text below.

Under Section B 3 Management Plan

Submitted Project Plans are required to include a section on the technical approach to address potential risks (technical, financial, regulatory, or institutional) that may impact the successful completion of work or impede the schedule. The technical approach to addressing project risks should include:

- A summary of the potential risks and a description of the potential impacts on project tasks and schedule.
- A summary of the strategies to be employed to address or mitigate the risks.

Equipment / Device failure is a serious risk to all SmartGrid deployments. Recent experience with pilot deployments already confirms a wide variety of unanticipated problems, from failures of binding meters to the correct wireless address, to outright recalls of installed equipment. Continuous monitoring of the failure rate of equipment is the only way to measure impacts and avoid potential risks – particularly technically unsound equipment and the resulting negative financial impact of replacement or excessive maintenance and support costs.

Under Section B 4 Technical Approach to Enabling Smart Grid Functions

How the project plans to assess operational performance of the smart grid technologies, tools, and techniques and use the results of that assessment to optimize the way electricity is generated, delivered, or used and enable or enhance smart grid functions and help to achieve the purpose and goals of the SGIG.

TekTrakker is constantly measuring the operational performance of all equipment reported. Any physical device deployed in large quantities can be monitored. This includes AMI, Communications, T&D, Back office, as well as in-home devices.

Pg 24 Section B 5 Technical Approach to Interoperability and Cyber Security

Submitted Project Plans are required to include a section on the technical approach to addressing interoperability with respect to the integration of smart grid devices covering the application of procedures and practices involving interface identification, specification, testing, and lifecycle management. The technical approach to addressing interoperability should include:

Testing prior to deployment catches a significant percentage of failure issues but can never replace field experience for true evaluation of equipment/device quality. Lifecycle management is best done using field experience MTBF data – the ideal application for TekTrakker. The MTBF derived from field experience is the “Gold Standard” for statistical analysis and should be used wherever possible in lieu of extrapolated sampling, surveys, or bench testing. Vendor claims of reliability are easily validated using TekTrakker.

- A summary of the information exchange interfaces for communicating automation devices and systems (i.e., their points of connection with other elements of the system).
- A summary of how the project will provide openly available and proprietary aspects of the interface specifications, and how existing (legacy) communicating devices or systems will be integrated into the project.
- A summary of how the project will address response to failure and device upgrade scenarios, such that overall system impact is mitigated.

TekTrakker monitors device failures. A SmartGrid is only as reliable and stable as its weakest link. TekTrakker reporting identifies all areas of weakness which feeds directly into improving operations in order to minimize disruption. Reporting from TekTrakker is used to identify products with unsuitable performance. Reporting compares the performance of that device to all others reported deployed which in turn helps to determine root cause of failure. Upgrades can then be planned logically.

Pg 26 Section B 6 Project Costs and Benefits

It is an important DOE goal to analyze costs and benefits of SGIG projects in the most complete and comprehensive manner possible. In developing their Project Plans, applicants should be aware that this analysis will require that projects provide a baseline set of conditions using a control group or other means so that appropriate estimates can be made of project costs and benefits in comparison with before- and after-, or without- and with- the installation of smart grid technologies, tools, and techniques. For example, data would be collected for a period of time before and after the smart grid technologies, tools, techniques are installed and activated.

DOE welcomes a narrative addressing methods and approaches for conducting cost-benefit analysis, including ideas on the types, formats, and availability of data needed for the analysis.

Baseline reporting is an automatic function of TekTrakker. The moment that equipment is reported, TekTrakker automatically stores historical information so that trend analysis can be performed. TekTrakker reporting is flexible and can be easily downloaded for further analysis, formatting, and graphical presentations of any type.

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The goal of the CBA methodology is to provide a means to consistently calculate the economic value that each project provides. Examples of benefits that DOE would like to examine include:

- Lower electricity costs to consumers from flatter load curves that result from smart meter applications and changes in consumer behavior in response to tariffs that provide incentive to use less electricity during peak hours;
- Lower transmission and distribution (T&D) losses from an optimized T&D network and from having generation closer to load (distributed generation);
- Lower operations and maintenance costs from reduced need for O&M activity and from lower equipment failure rates;

O&M costs can be directly calculated (and projected) from data reported to TekTrakker. Each physical service event is categorized, summarized, and standardized so that all participants can see the specific failure causes, resolutions, and quantity of repairs. All that remains for the utility is to mathematically calculate the cost of each type of repair and compare the total to the pre-project baseline of O&M costs.