

2018 Fall Grant Application

1. Basic Project Information

Project Title* Please keep title as concise as possible. *Character Limit: 100*

Demonstration project to achieve cost-effective reliability improvements using single-phase reclosers.

Project Description* Write a detailed, technical description of your project. You will later be asked to provide a nontechnical description. *Character Limit: 5000*

Several FMPA Members are interested in investigating the reliability benefits of single-phase reclosers. Reclosers are attractive to utilities as they can reduce the number of sustained and momentary outages. The larger FMPA Members tend to use a “fuse save” philosophy, where the addition of a recloser will avoid momentary interruptions on the unaffected portions of the feeder and will also provide additional open - close sequences in attempt to clear the fault and prevent a sustained outage. The smaller Florida municipal system tend to use a “fuse blow” philosophy, where the addition of a recloser can prevent as much as 80% of all outages on laterals. Legacy recloser design is bulky, contained oil and lacked communication and data recording capability. Newer designs are compact, less costly, and do not require oil making them highly desirable for single-phase applications. While cost and design has improved, FMPA Member cities cite barriers such as lack of internal staff to launch a new initiative, lack of engineering support to analyze their network and select recloser candidate locations, and perceived high cost relative to the reliability benefit.

FMPA is seeking a DEED grant to fund a reliability improvement demonstration project in three of our Member cities, which have yet to be identified. FMPA will manage all aspects of the project on behalf of three participating Members. The TripSaver recloser manufactured by S&C Electric Company has been selected for the project due to the low installed cost, ease of installation and reported success by some FMPA Members who have installed TripSavers. A lateral circuit selection criteria will be developed to ensure that the project targets circuits that are ideal candidates for the project. The goal will be to install approximately twelve TripSavers in each of three Member systems for a total of thirty reclosers.

The lateral circuit selection criteria will give consideration to customer count, historical reliability performance data and availability of upstream circuit breaker operation data throughout the demonstration project. FMPA staff will determine fault current levels at candidate locations and consider continuous loading and coordination with other protective devices to ensure the application is consistent with the TripSaver’s capability. After the TripSaver locations have been identified, training sessions will be hosted by S&C for utility staff to educate them on proper installation, operation and maintenance. Upon installation by the three participating Members, the TripSaver circuits and will be monitored closely by the participating Member and FMPA for a period of twelve months to track the total number of operations.

Anticipated benefit, including deliverable(s) to DEED*

This is in addition to the required final report and summary abstract. A deliverable, if applicable, could be a DVD, software, a manual, a webinar, etc.

Character Limit: 4000

There are two primary anticipated benefits. First is the reduction of sustained outages on lateral circuits, as measured by number of interruptions and overall system reliability indicators SAIFI and SAIDI. Second is the reduction of momentaries as measured by the number of momentary events on the feeders with TripSavers applied and by overall system MAIFI. The avoided interruptions will be translated into avoided service restoration calls to understand the O&M impact. And the cost effectiveness of the TripSaver applications will be measured in terms of avoided interruptions per project dollar spent and avoided momentaries per project dollar spent.

In addition, a manual will be developed to help other public power communities better understand how single-phase reclosers can be deployed to improve service reliability and present technical considerations and recommendations when initiating a recloser project.

Project Category*

Geographic Region*

REGION 5 (DE, FL, GA, MD, NC, SC, VA, and WV)

Utility Name*

Character Limit: 250

Florida Municipal Power Agency

Utility City*

Character Limit: 200

Orlando

Utility State*

Character Limit: 200

Florida

2. Project Personnel Information

Project Manager Name*

This individual will be the point of contact for DEED administrators regarding execution of the project and contract, reporting procedures and project updates, and general communications.

Character Limit: 250

Title*

Character Limit: 250

Cairo Vanegas

Phone Number*

Character Limit: 15

407-321-239-1014

Utility Name

Character Limit: 250

Florida Municipal Power Agency

Project Manager E-mail Address*

Character Limit: 150

cairo.vanegas@fmpa.com

Utility Street Address*

Character Limit: 150

8553 Commodity Circle

City

Character Limit: 150

Orlando

State

Character Limit: 2

Florida

Zip Code*

Character Limit: 10

32819

Subcontractor Name

If applicable

Character Limit: 150

N/A, at this time no contractors are expected to be utilized for this project.

Subcontractor Title

If applicable

Character Limit: 100

N/A

Subcontractor Company Name

If applicable

Character Limit: 200

N/A

Subcontractor Phone Number

If applicable

Character Limit: 15

N/A

Subcontractor E-mail Address

If applicable

Character Limit: 200

N/A

Subcontractor Street Address

If applicable

Character Limit: 150

N/A

Subcontractor City

If applicable

Character Limit: 100

N/A

Subcontractor State

If applicable

Character Limit: 2

N/A

Subcontractor Zip Code

If applicable

Character Limit: 12

N/A

Other Project Personnel Name

If applicable

Character Limit: 150

N/A

Other Personnel Company Name

If applicable

Character Limit: 250

N/A

Other Project Personnel Title

If applicable

Character Limit: 150

N/A

Other Project Personnel Phone Number

If applicable

Character Limit: 15

N/A

Other Project Personnel E-mail Address

If applicable

Character Limit: 200

N/A

Other Project Personnel Street Address

If applicable

Character Limit: 200

N/A

Other Project Personnel City

If applicable

Character Limit: 150

N/A

Other Project Personnel State

If applicable

Character Limit: 2

N/A

Other Project Personnel Zip Code

If applicable

Character Limit: 12

N/A

3. Project Term

Proposed Start Date (mm/dd/yyyy)*

Character Limit: 10

10/15/2018

Proposed Completion Date (mm/dd/yyyy)*

Please select the day that all deliverables (e.g. reports, products, etc.) will be submitted to DEED.

Character Limit: 10

1/31/2020

4. Project Funding

Amount of DEED Funding Requested*

Typical funding amount is \$10,000-\$50,000. Maximum funding available per project is \$125,000. If you request more than this for a project, the grant funds pend a review of APPA's Board of Directors as well as the DEED Board of Directors.

Indirect costs may not exceed ten percent.

Character Limit: 20

\$56,000

Other Sources/Types of Funding*

Please list the other sources/types of funding including contributions from the sponsoring utility followed by the amount of funding from each source. Indicate if funds are unconfirmed. Also indicate whether the contribution is in-kind or monetary.

Example: \$8,025 - Department of Energy - Energy Efficiency Funding Program - Unconfirmed
Write "N/A" only if there are no other sources/types of funding for this project.

Character Limit: 1000

FMPA – \$21,470

S&C Electric Company – \$21,500

FMPA Member City A (TBD) – \$8,026

FMPA Member City B (TBD) – \$8,026

FMPA Member City C (TBD) – \$8,026

Total Project Budget*

Total project budget should match itemized total budget requested later in the application. It should also be equivalent to the sum of the previous two questions.

Character Limit: 20

\$123,047

Itemized total budget*

You may upload a PDF or Excel document OR respond in the text box below. Please be sure to itemize all equipment and estimated costs as well as labor costs broken down by hours necessary to complete the project. Budget information should be as detailed as possible. Please indicate which expenses will be covered by other participants in the project, such as in-kind labor expenses contributed by the sponsoring utility or equipment provided by a contractor. Budget may be broken down by year if necessary. **DEED grants cannot have indirect costs exceeding 10 percent.**

If you are unable to use a scanner or upload a file please use our "**Fax to File**" option located in the left hand navigation area above. This will allow you to fax a document which can then be saved to your application.

Character Limit: 4000 | File Size Limit: 10 MB

See attached Excel file

What contingencies have been planned for any shortfalls in funding?*

Also, what impact would those shortfalls have on the scope of the project?

Character Limit: 1500

The single contingency identified that has the potential to impact the project is an increase in the cost of the TripSavers. If a small increase were to occur, FMPA would work with the Members to cover the additional cost. If a significant price increase occurred, the number of TripSavers purchased could be reduced. All other budget line items for FMPA and the three cities represent internal costs borne by the respective participants, and any increase in manhours from the estimate are not expected to impact the project.

5. Application Questions

Please respond to the following questions as completely as possible. Should you choose to write your responses to these questions via PDF or Word document, please copy and paste the response to each question in the appropriate text boxes below.

Write a One Paragraph Project Description Summary*

Highlight for the DEED program's Board of Directors the main points of your proposed project including how it is innovative and how its transferability and deliverables may be useful for other public power utilities. Use 300 words or less. This description will be published upon grant approval, so please write it as non-technical as possible. Imagine that this description will be used for a news article.

Character Limit: 1500

FMPA will conduct a reliability improvement demonstration project in multiple Florida public power systems. The goal of the project is to deploy approximately twelve single-phase reclosers to each feeder selected and track the performance against historical benchmarks for sustained outages on laterals and momentary interruptions on the feeder. FMPA will take a joint-action approach to manage the project on behalf of the FMPA Member Cities, procure the materials, provide the necessary engineering support, and work with the participating Member cities to select the circuits and recloser locations. The recloser selected for the project uses a modern, compact design that allows a utility to easily replace existing fuses with a recloser minimizing the need to replace the pole. In addition to measuring the reliability benefits, FMPA will quantify the cost-effectiveness of deploying the reclosers and develop circuit selection guidelines to assist other utilities when selecting a deployment strategy.

State the Problem the Project is Attempting to Solve*

Character Limit: 4000

Because of the compact nature of their system, smaller public power systems typically have distribution re-closing schemes applied only at the feeder breaker level. As the price of reclosers have come down and with recloser designs that offer more features, it makes sense to investigate how reclosers can be applied cost-effectively to reduce the number of outages and momentaries.

Project Objectives/Goals*

Character Limit: 4000

It is widely accepted that as much as 80% of faults on a distribution system are temporary in nature. This project will study the improvement in performance of circuits that have TripSavers installed to compare against their historical benchmark. The desired goal is to prove that most sustained outages on laterals can be eliminated while reducing the number of momentary outages for customers on the unaffected portions of a feeder when a fault occurs.

Methodology to be used to conduct the project*

Character Limit: 4000

Candidate feeder circuits will be ranked according to number of sustained and momentary outages, total lateral circuit miles, and total customer count. Circuits with poor performance and more exposure in terms of customer count and lateral circuit miles will be ranked higher. Three feeders will be selected, one per participating FMPA Member city.

Reliability improvements will be measured in the following terms: reduction in feeder momentaries, reduction in lateral outages, impact to system indicators SAIFI, SAIDI, and MAIFI, O&M savings associated with avoided service restoration, avoided interruptions per project dollar spent, and avoided momentaries per project dollar spent.

Description of equipment/hardware/system to be used to complete the project*

Please be as specific as possible. Items listed here that are to be purchased should show up on the budget information requested later in the application.

Character Limit: 4000

The reclosers that will be utilized are the TripSavers manufactured by S&C Electric Company. The TripSaver has an innovative, compact design and is mounted in a fuse cutout, does not use mineral oil, and does not require an external voltage source making it a cost-effective alternative to traditional reclosers which often require a pole replacement due to size and wind loading profile. The TripSaver protection settings are easily programmed and installed and require minimal engineering support to deploy as they can replace fuse cutouts with the same protection characteristics as the expulsion fuse.

Anticipated relevance and transferability of project results to other public power systems*

Please consider the availability of staff resources of publicly owned utilities, many of which serve less than 2,000 meters, and whether these utilities would benefit from the results of the project.

Character Limit: 4000

The stated goal of this project is to demonstrate the cost-effective reliability benefit of single-phase reclosers that can be achieved in a system of any size. Small utilities will benefit from the experience gained in this project as the report will provide guidance on selecting feeder circuits to realize the most benefit when deploying reclosers. And lastly, we expect to demonstrate the minimal level of engineering support required.

Itemized tasks to be completed and time schedule*

Character Limit: 4000

The project commencement date is assumed to be 10/15/18. The following lists the tasks to be completed.

Place order for TripSavers: 10/15/18, expect delivery to be by 12/15/18

Develop feeder selection criteria and select circuits: begin 10/15/18, end by 11/2/18

Collect system data and perform short circuit calculations: begin 11/5/18, end by 11/23/18

On-site training for crews: schedule sessions between 12/3/2018 and 12/21/18

Program TripSavers: complete between 12/17/18 and 12/28/18

Field installations: complete between 12/31/18 and 1/11/2019

Final report: complete by 1/31/2020

Have you conducted a literature or product search?*

This is asked to determine if information resulting from a similar project already exists. If you have done this research, please describe any similar projects and explain how this proposed project would be different from the ones identified in the search.

Character Limit: 4000

A search in the DEED project database revealed that there have not been any similar projects.

Will there be software developed as a part of your deliverables?*

If a spreadsheet or software tool will be developed from your proposal please provide details on its availability and growth. Ideas to consider are future use, tool hosting, continued availability after project completion, technical support/debugging, or user manual creation.

If you are not developing a software/spreadsheet, please write "N/A"

Character Limit: 4000

N/A

6. Support Documents

If you have any further documentation you would like to provide to our reviewers and Board of Directors please upload these documents here.

If you do not have access to a scanner and are unable to upload a file please use our "**Fax to File**" option located in the left hand navigation. This will allow you to fax a document to be included with your application.

File Size Limit: 7 MB

File Size Limit: 7 MB

N/A – no files are being provided

7. Electronic Signature

Full Name*

Character Limit: 50

Title*

Character Limit: 50

Confirmation*

By entering your signature information above and clicking "I Agree" below, you certify that the statements contained in this application are true and correct to the best of your knowledge.

You also agree that if selected, you will use the funds granted for the purpose as proposed and approved by the American Public Power Association.

Choices

I Agree

I Do Not Agree

Accessing the DEED Project Database*

By entering your signature information above and clicking "I Agree" below, you certify that you have checked the DEED Project Database and confirm that no similar project has previously been awarded and completed.

Choices

I Agree

I Do Not Agree

Contacting DEED Board of Directors*

By entering your signature information above and clicking "I Agree" below, you acknowledge that you had the ability to contact a DEED board director about your project. The directors serve as a resource, can provide feedback on a project, and answer applicant questions.

Choices

I Agree

I Do Not Agree

8. Approval Contact Information

Contact Details*

If approved, who should the grant contract go to at your utility? These could be the same person.

Choices

Utility Signatory (The employee who signed the signature form)

Project Manager (The employee overseeing this proposed project)