

STATEMENT OF PROJECT OBJECTIVES (SOPO)

Smart Grid Deployment to Support Rural-Focused Resiliency at a Small-Scale Electric Co-Op Project (Smart Grid)

A. OBJECTIVES

Objectives and their broader goals are listed below:

- **Goal #1:** Position SYEMC to deliver to a more flexible, reliable, and resilient electric power system to its service territory
 - Objective #1: Implement project management and planning activities at onset of award and over the 5-year project period as needed.
- **Goal #2:** Enhance the resilience of SYEMC's electric system.
 - Objective #2: Upgrade existing antiquated SYEMC distribution equipment to support comprehensive smart grid system deployment.
 - Objective #3: Enable (b) (4) of (b) (4) substation transformers to prevent and reduce substation outages.
- **Goal #3:** Prevent and lessen the impact of systemwide outages on rural communities
 - Objective #4: Enable deployment of a fault location, isolation, and service restoration (FLISR) system throughout the grid to create a "self-healing" grid preventing faults leading to wildfires and other system disturbances as well as systemwide outages.

B. SCOPE OF WORK

The Project will design and implement a series of smart grid infrastructure upgrades including 1) updating antiquated distribution equipment, 2) enabling (b) (4) of substation transformers, and 3) deploying a "self-healing" fault location, isolation, and service restoration (FLISR) system. The Project will also make cybersecurity improvements to ensure technology is safeguarded and members can enjoy Project benefits. Specific tasks and deliverables are described in Sections C and D.

The scope of work also includes community benefits: implement project-driven job creation fostering equity, inclusion and economic development; increase the number of minority, women, and veteran-owned vendors participating in the Project; decrease energy expenses and line losses across the system's eight delivery points; improve monitoring, advanced fault detection, and smart grid capabilities to decrease the duration, frequency, and impact of power disruption; and increase access to clean power, resulting in reduced air pollution burdens and improved health outcomes in SYEMC's service territory. Community benefits milestones are included below and the full community benefits scope of work can be found in the Community Benefits Plan (CBP).

C. TASKS TO BE PERFORMED

Objective 1: Implement project management and planning activities at onset of award and over the 5-year project period as needed.

Task 1.0: Project Management and Planning

Sub-task 1.1 – Project Management Plan (PMP) - Within 30 days of award, the Recipient shall submit a Project Management Plan (PMP) to the designated Federal Project Officer (FPO). The Recipient shall not proceed beyond Task 1.0 until the PMP has been accepted by the FPO. The PMP shall be revised and resubmitted as often as necessary, during the course of the project, to capture any major/significant changes to the planned approach, budget, key personnel, major resources, etc. The Recipient shall manage and direct the project in accordance with the accepted PMP to meet all technical, schedule and budget objectives and requirements. The Recipient will coordinate activities to effectively accomplish the work. The Recipient will ensure that project plans, results, and decisions are appropriately documented, and that project reporting and briefing requirements are satisfied.

Sub-task 1.2: National Environmental Policy Act (NEPA) Compliance - As required, the Recipient shall provide the documentation necessary for NEPA compliance.

Sub-task 1.3: Cybersecurity Plan (CSP) - The CSP shall be revised and resubmitted as often as necessary, during the course of the Project, to capture any major/significant changes.

Sub-task 1.4: Continuation Briefings - The Recipient will brief DOE on roughly an annual basis to explain the plans, progress and results of the technical effort. The briefing shall also describe performance relative to project success criteria, milestones, and the Go/No-Go Decision point that are documented in the Project Management Plan (PMP).

Objective 2: Upgrade existing antiquated SYEMC distribution equipment to support comprehensive smart grid system deployment

Task 2.0 - Upgrade two-phase copper lines to three-phase aluminum lines.

Sub-task 2.1 - Upgrade two-phase copper lines to three-phase aluminum lines, install solid-state sectionalizing devices.

Sub-task 2.2 - Reconduct 15.1 miles of existing copper line to three-phase aluminum at (b) (4) substation (12) feeders 7 and 8, install 17 single-phase solid-state sectionalizing devices and corresponding communications modules where applicable at (b) (4) substation (7) feeders 1 and 2.

Sub-task 2.3 - Reconduct 2.5 miles of existing single-phase copper conductor with three-phase aluminum conductor at (b) (4) substation (14) feeders 6 and 7. Install 4 sets of 3-phase solid-state sectionalizing devices, 6 1-phase solid-state sectionalizing devices and corresponding communications modules where applicable.

Task 3.0 - Install 11 sets of three-phase solid-state sectionalizing devices and 13 single-phase solid-state sectionalizing devices for critical business loads at 6 substations

Sub-task 3.1 - Install 3 sets of 3-phase solid-state sectionalizing devices at (b) (4) substation (1) feeder 1 and (b) (4) substation (4) feeder 5 and corresponding communications modules creating a self-healing system supporting manufacturing/processing of stone/aggregate and asphalt supporting local and regional infrastructure.

Sub-task 3.2 - Install 2 sets of 3-phase solid-state sectionalizing devices, 5 1-phase solid-state sectionalizing devices with corresponding communications modules at (b) (4) substation (4) feeders 2 and 5 creating a self-healing system supporting businesses engaged in the processing, cold storage / transportation of fresh produce and residential members.

Sub-task 3.3 - Install 2 sets of 3-phase solid-state sectionalizing devices, 3 1-phase solid-state sectionalizing device with corresponding communications modules at (b) (4) substation] (13) feeders 1 and 3 creating a self-healing system supporting a minority-owned business engaged in the manufacturing and processing of steel structures and residential members, comprised primarily of minority residents.

Subtask 3.4 - Install 2 sets of 3-phase solid-state sectionalizing devices and 3 1-phase solid-state sectionalizing devices with corresponding communications modules at (b) (4) and (b) (4) substations (3 and 13), feeders 1 and 7 creating a self-healing system for the Surry County government center, Surry County health department, a dental clinic, a permitting center, Surry County social services, retail banking, income adjusted housing, residential housing, electric vehicle charging, and minority-owned business.

Sub-task 3.5 - Install 2 sets of 3-phase solid-state sectionalizing devices, 2 1-phase solid-state sectionalizing devices and corresponding communications modules where applicable at (b) (4) substation (18) and (b) (4) substation (16) feeders 5 and 7 creating a self-healing system for the Town of Elkin municipal water, Yadkin Valley Sewer Authority, rural healthcare, income adjusted housing, residential, lodging and 5 EV charging stations.

Task 4.0 - Replace 9 sets of three-phase hydraulic reclosers with 9 sets of three-phase solid-state sectionalizing devices.

Sub-task 4.1 - Install 2 sets of 3-phase solid-state sectionalizing devices, (3) 1-phase solid-state sectionalizing devices and corresponding communications modules hydraulic reclosers at (b) (4) substation (8) feeder 2.

Sub-task 4.2 - Install 2 sets of 3-phase solid-state sectionalizing devices, (8) 1-phase solid-state sectionalizing devices and corresponding communications modules hydraulic reclosers at (b) (4) substation (11) feeder 7.

Sub-task 4.3 - Install 2 sets of 3-phase solid-state sectionalizing devices, (8) 1-phase solid-state sectionalizing devices and corresponding communications modules at (b) (4) substation (10) feeder 7.

Sub-task 4.4 - Install 3 sets of 3-phase solid-state sectionalizing devices, (23) 1-phase solid-state sectionalizing devices and corresponding communications modules at (b) (4) substation (1) feeder 3.

<p>Objective 3: Enable (b) (4) of (b) (4) substation transformers to prevent and reduce substation outages.</p>
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Task 5.0 - Install (b) (4) of (b) (4) Substation Transformers

Sub-task 5.1 - Finalize engineering design, communications plan, and installation scheme for 11 SYEMC substations. Install devices and establish communications.

Objective 4: Enable deployment of a fault location, isolation, and service restoration (FLISR) system throughout the grid to create a “self-healing” grid preventing faults leading to wildfires and other system disturbances as well as systemwide outages.

Task 6.0 - Upgrades of 193 multi-phase reclosers to solid-state sectionalizing devices and communications modules at downline locations beginning at the first set of devices outside the substation across all 73 distribution feeders.

Sub-task 6.1 - Replace 193 three-piece oil circuit reclosers (OCRs) sets (an oil-filled recloser requires regular oil maintenance) with solid-state sectionalizing devices.

Subtask 6.2 - Replacement of 187 OCrs with single-phase solid-state sectionalizing devices.

Sub-task 6.3 - Deployment of 5 remote terminal units (RTUs) and 380 cellular modems, which will enable direct, remote control of linked systems and facilities from SYEMC’s central control facility.

Sub-task 6.4 – Deployment of a coordinated upgrade to SYEMC’s existing control systems, sufficient to integrate the proposed equipment into a centrally controlled FLISR system.

Task 7.0 - Administer comprehensive cybersecurity measures.

Sub-task 7.1 - Install (b) (4)]

Sub-task 7.2 - Install (b) (4) at all substations and implement (b) (4) at all substations.

Sub-task 7.3 - Install (b) (4) at all substations.

D. DELIVERABLES

The deliverables listed in the chart below (aligned with relevant tasks and subtasks) will be submitted during the grant performance period. A summary chart of CBP SMART Milestones follows. Full scope of work for community benefits can be found in the CBP.

Task / Subtask	Deliverable	Timeline
Sub-task 1.1	Project Management Plan	Y1Q1
Sub-task 1.2	NEPA Compliance Documents	Y1Q1
Sub-task 1.3	Cybersecurity Plan	Y1Q1 (ongoing)
Sub-task 1.4	Pre-Continuation Briefing Document(s)	Y1Q1
Task 2	Installation Report	Y4Q3
Task 3	Installation Report	Y4Q3
Task 4	Installation Report	Y3Q3
Sub-task 5.1	Completed Engineering Design, Communications Plan, Installation Scheme, and Installation Report	Y2Q2
Task 6	Installation Report	Y2Q4
Sub-task 7	Installation Report	Y3Q4

Community Benefits Plan SMART Milestones	Timeline
Engagement of Formal Workforce/Community Agreement(s)	Y1Q1
Execution of Intellectual Property Management Plans (IPMP)	Y1Q1
5 Community Engagements (soliciting feedback)	1 community engagement annually

	(5 total), with 1 survey per year
10 Educational Activities/Workshops (2 per year)	Annual
Workforce Activities Hiring of data analyst	Y1Q1
Workforce Activities Hiring of 2 full-time linemen	Y5Q1
Workforce Activities 40+ temporary engineering/design and construction jobs	Y2 - Y5
DEIA Milestone: Outreach to recruit women, veteran, and minority-owned businesses as contractors and vendors	Annual
DEIA Milestone: Promotion of 3 positions to fill project vacancies in underserved areas (target: (b) (4))	Y1Q2
DEIA Milestone: Provide DEIA training to all employees	Annual
DEIA Milestone: Outreach to underserved businesses, community members and other stakeholders for feedback via survey and community events	Annual (1 survey, 1 event)
DEIA Milestone: Engage with local schools and community colleges, and the community to provide 10 Educational Activities/Workshops per year.	2 engagements per year (annual)

In addition to the deliverables listed above, the Recipient shall submit all periodic, topical, final, and other reports in accordance with the Federal Assistance Reporting Checklist and accompanying instructions. In alignment with the Community Benefits Plan, SYEMC will provide annual DEIA training to all employees.

E. BRIEFINGS/TECHNICAL PRESENTATIONS

The Recipient shall prepare and present periodic briefings, technical presentations and demonstrations as requested by the Federal Project Officer, which may be held at a DOE or the Recipient's facility, other mutually agreeable location, or via webinar. Such meetings may include all or a combination of the following:

Kickoff Briefing - Not more than 30 days after submission of the Project Management Plan, the Recipient shall prepare and present a project summary briefing as part of a Project Kickoff Meeting.

Pre-Continuation Briefing - Not less than 90 days prior to the planned start of a budget period, the Recipient shall brief the DOE on the results to date, and their plans for the subsequent periods of work. The DOE will consider the information from this briefing, as well as the content of deliverables submitted to date, prior to authorizing continuing the project.

Final Project Briefing - Not less than 30 days prior to the end of the project, the Recipient shall prepare and present a Final Project Briefing on the results and accomplishments of the entire project.

Other Briefings – The Recipient shall prepare and present technical, financial, and/or administrative briefings as requested by the DOE. Additionally, the DOE may require Recipients to make technical presentations at national and/or industry conferences.