STATEMENT OF PROJECT OBJECTIVES (SOPO)

Building a Modern Intelligent Distributed BESS for Resiliency in Northern New Mexico

A. OBJECTIVES

Through the development of 3 BESS at Picuris Pueblo, Taos Ski Valley, and El Rito, we will be able to create a resilient, connected microgrid network allowing these communities to be full participants in the KCEC grid but also to be islanded during times of extreme weather. Our resilience objectives for 1) **Taos Ski Valley**: Support critical loads needed in the event of proximate wildfire and power outage to enable emergency services and evacuation of the population. 2) **El Rito:** Support community critical loads (e.g., fire station, health clinic, child care center, telecommunications link, commercial kitchen, college dormitories, home health equipment) indefinitely in the event of an outage or PSPS; and priority loads during daylight hours. 3) **Picuris Pueblo**: Critical and priority load support as in El Rito, providing indefinite support to critical loads and supporting priority loads during daytime hours, tailored for the Tribe's particular facilities, operations, and needs.

This system will allow us to:

- Prevent utility-ignited wildfires, especially during periods of extreme wind events by proactively de-energizing key distribution power lines.
- During proactive shutdowns or naturally-caused wildfire, avoid impacts to vulnerable communities served by these key powerlines by supporting their critical loads with strategically placed BESS and supporting solar PV.
- Synergistically merge resilient solutions with KCEC ongoing shift to community-sited solar PV and energy independence.
- Protect vital natural resources and tribal/cultural resources from utility-ignited wildfires

B. SCOPE OF WORK

This project will plan for, construct, and integrate 3 BESS that will be able to support critical community loads for 2-4 hours during proactive shutdowns during periods of extreme fire weather. Through the addition of solar PV to the BESS, we will extend this operational time to up to 6-8 hours in an islanding event. During the planning phase, we will work with community partners including the Pueblo of Picuris, Taos Pueblo, and Taos Ski Valley and workforce partners including Northern New Mexico College, Santa Fe Community College, and the University of New Mexico – Taos to ensure community understanding and voice when determining critical facilities. During construction we will ensure all best practices for labor are followed and will work with apprentices throughout construction to ensure long term workforce sustainability for the project. In the integration phase we will integrate with the KCEC SCADA system to demonstrate grid-connected and islanded operational modes, optimal control of the combined BESS + solar PV system in both modes (maximum lifetime for islanded operation and renewable integrations/revenue maximization for grid-connected operation), and safe transitions between the two operational modes.

C. TASKS TO BE PERFORMED

<u>Task 1.0: Project Management and Planning</u>

- **Subtask 1.1** – *Kickoff Meeting*—Kickoff meeting with all project participants. At the kickoff meeting we will ensure submission of the Project Management Plan (PMP) and National Environmental Policy Act (NEPA) compliance.
    - Project Management Plan (PMP): The PMP will be completed for the Kickoff meeting and will 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 will manage and direct the project in accordance with the accepted PMP to meet all technical, schedule and budget objectives and requirements.
    - National Environmental Policy Act (NEPA) Compliance: As required, the Recipient will provide the documentation necessary for NEPA compliance.
- **Subtask 1.2:** *Continuation Briefing(s), Quarterly* - Collect quarterly performance, schedule, and financial reporting data from all of the cooperative subprojects and prepare and present quarterly updates to DOE.
- **Subtask 1.3:** *Annual Reports and Final Report* - Collect annual performance, schedule, and financial reporting data from all of the cooperative subprojects and prepare written annual and final project reports. Kit Carson electric Cooperative will brief DOE on 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).
    - Include additional tasks and subtasks as appropriate using the following format. For projects that involve multiple phases of work, label the start of each phase (such as "Phase 1", etc.), state the title, and provide a brief narrative describing the objective(s) and scope for the phase.

<u>Task 2.0: Community Engagement</u>

- **Subtask 2.1**: *Community Scoping Meeting*—Identify community needs and key loads
- **Subtask 2.2**: *Community Design Review*—Present KCEC plan to the community and seek feedback on community benefit.
- **Subtask 2.3**: *Community Updates*—Meet during key parts of the project to update community on progress and/or accrued benefits.

<u>Task 3.0: Infrastructure Planning, Design, Deployment</u>

- **Subtask 3.1**: *Conceptual Design*—Create rough sizing and siting so it can be presented to the community in WBS 2.1 to gain feedback. The content of the plan will include: geospatial representation of the upgrade and areas potentially affected by construction, affected customers, justification for the upgrade based on past or expected grid and community

impacts, engineering approach and expected performance improvements, and estimated cost.

- **Subtask 3.2**: *Preliminary Design*—Develop BESS sizing and PV sizing, specify grid upgrades (topology/load switching), site drawings for BESS. Possible second round of community engagement here
- **Subtask 3.3** *Site/System Modeling*—Model the three independent sites, e.g. using Sandia National Laboratories or similar microgrid modeling tools, to confirm preliminary design
- **Subtask 3.4**: *Final Design and Project Approvals*—Complete project final engineering and gain approval for grid upgrade plan through cooperatives' existing internal processes. Gain all necessary approvals from local, state, or federal agencies to proceed with construction.
- **Subtask 3.5**: *Construction*— Based on the approved project plan (3.4), complete site preparation, equipment procurement, grid upgrade construction, and quality assurance using KCEC procedures. Track project costs (equipment, labor hours, etc). Track the apprentice and internship jobs and hours for quantification of workforce development and community benefits.
- **Subtask 3.6**: *Testing and Acceptance*— Perform preliminary testing of the BESS site hardware and microgrid controls and remediate any deficiencies. Any remediation will be followed by acceptance testing to confirm project performance. (This will be coordinated with WBS 4.5)
- **Subtask 3.7**: *Operations and Data Collection—P*roject is put into routine operation, collect operational data sets to confirm site modeling in WBS 3.3. Collect data on events/failures that could lead to utility-ignition events and/or actual ignition events. Additional data may be collected on equipment, advanced technology, and project performance as it affects both wildfire resilience and day-to-day reliability

<u>Task 4.0: Monitoring and Control System</u>

- **Subtask 4.1**: *Develop System Specifications*—Leverage the Conceptual Design (WBS 3.1) to develop specifications for microgrid monitoring and control for resilience operations. Specifications will include conditions/methods for integration with KCEC SCADA system to enable islanded operation, e.g., permissive signals for triggering different control schemes.
- **Subtask 4.2**: *Adapt Current Monitoring and Control*—Modify and extend Camus Energy's current monitoring and control systems to manage BESS+PV islanded operations at a single BESS site.
- **Subtask 4.3**: *Offline/Emulated Testing*—Control system is tested in an emulated environment to verify control signals and logical functionality
- **Subtask 4.4**: *System Integration*—The control system is integrated with the BESS site hardware, KCEC SCADA, and other communications networks to enable control over BESS operations.
- **Subtask 4.5**: *Testing and Acceptance*—Perform preliminary testing of the integrated BESS site hardware and control systems and remediate any deficiencies. Any remediation will be followed by acceptance testing to confirm project performance.

<u>Task 5.0: Workforce Development</u>

- **Subtask 5.1**: *Develop Near-Term/Long-Term Workforce Requirements*—Leverage KCEC ongoing and long-term resource planning to forecast near-term and long-term workforce

needs. Engage with New Mexico cooperatives with similar vision of renewables deployment to verify workforce needs.

- **Subtask 5.2**: *Training Centers*—Work with training centers (Santa Fe Community College, Northern New Mexico College, the University of New Mexico - Taos, International Brotherhood of Electrical Workers, lineman training, IT training, etc) to adapt/develop trial curriculum that meets the needs defined in WBS 5.1
- **Subtask 5.3**: *Outreach and Recruiting*—Recruit workforce training candidates from KCEC service territory and surrounding areas
- **Subtask 5.4**: *Workforce Training*—Enroll candidates in workforce training and provide support during training and post-training job placement.

Task 6.0: Dissemination

- **Subtask 6.1**: *Develop Dissemination Plan*—Develop plan for dissemination of technology and workforce training results to other cooperatives and communities, including site tours, online seminars, and sharing of modeling and operational performance data/
- **Subtask 6.2**: T*echnology/Methods Dissemination*—Execute dissemination plan, including presentations at two national conferences at which we will present results from this project as well as presentations to local institutions to further develop workforce pathways.

D. DELIVERABLES

The Recipient shall include a list of deliverables that will be submitted during the project.

Subtask 1.1: Project Management Plan, delivered to DOE.

Subtask 1.2: Quarterly Reports, delivered to DOE.

Subtask 1.3: Annual Reports, delivered to DOE.

Subtask 1.3: Final Report, delivered to DOE.

Subtask 2.3: Semi-annual updates to community members on project details and progress.

Subtask 6.2: dissemination of technology and workforce training results to DOE and other cooperatives and communities, including site tours, online seminars, and sharing of modeling and operational performance data.

E. BRIEFINGS/TECHNICAL PRESENTATIONS

The Recipient will 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 will 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 will 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 will prepare and present a Final Project Briefing on the results and accomplishments of the entire project.

Other Briefings – The Recipient will 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.