**Statement of Project Objectives**

**Development of an ESS Emergency Response Plan and Training and Safety Validation Report**

**A. OBJECTIVES**

The objective of this project is to develop comprehensive Emergency Response Plan and Training program (ERPT) and Safety Validation Report (SVR) templates for the Recipient’s Energy Storage System (ESS). The ERPT template will be focused on ESS deployment to address and mitigate threats and the SVR template will be developed to address, mitigate, and record safety-related items to ensure the safe and reliable operation of ESS assets. The development of both of these guidance documents will be used to ensure the safety of the hosting communities, personnel, and utilities.

**B. SCOPE OF WORK**

The Recipient’s effort will involve development of three guiding documents, a risk assessment, the comprehensive ERPT, and the comprehensive SVR. The risk assessment will take into consideration the ESS’s application and configuration as well as the threat that the system poses to the public. To ensure an accurate assessment of the system, the Recipient will work with individuals who have subject matter expertise of the specific system in both normal and abnormal operation. With these risks identified, the how, who, or what can be determined to prevent, eliminate, or mitigate the given identified risks. Community stakeholders will be involved while this assessment is being developed with a focus on involving individuals/entities that are not typically involved in decisions relating to deployment, operation, and safety planning of the ESS. The consolidated risk assessment will identify key stakeholders that would possess the necessary resources, training, and subject matter expertise for the specific prevention, mitigation, protective role that they would play in response to given ESS failures.

The risk assessment and stakeholder list can then be used to in the development of the ERPT, including communication, coordination, command-structure, and developing scenario-based exercise planning, and for the purposes of stakeholder education and preparedness. The SVR creation will utilize stakeholders such as Original Equipment Manufacturers (OEMs), maintenance personnel, and risk experts to identify potential risks and items of note for those completing the SVR to reference.

**C. TASKS TO BE PERFORMED**

**Task 1.0 - Project Management and Planning**

**Subtask 1.1 – Project Management**

Within 30 days of award, the Recipient shall revise the version of the Project Management Plan (PMP) that was submitted with their application by including details from the award negotiation process and through consultation with the Federal Project Officer (FPO). The PMP shall include all phases of the project. The Recipient shall not proceed beyond Task 1.0 until the updated PMP has been accepted by the FPO.

The PMP shall be revised and resubmitted as often as necessary to capture any major/significant changes to the planned approach, budget, key personnel, major resources.

The Recipient shall manage and direct the project in accordance with the approved 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 project reporting and briefing requirements are satisfied.

**Task 2.0** – **Identification of ESS subject matter experts.**

The Recipient shall identify ESS subject matter experts that must be engaged to ensure a robust and thorough understanding of ESS related interdependencies and the potential for cascading effects based on the location and design as well as identify areas of concern for an SVR of a given ESS.

Subject Matter Expertise, will engage one or more of the following:

* OEM: Understand interdependencies, design specifications, normal/abnormal operation, cascading effects/failure modes.
* Relevant Asset Owner Operator/Utility: Possesses fundamental understanding of the system, have been trained on proper installation, design specs and limitations, system vulnerabilities, understands interconnection to the grid.
* Risk Workshop Facilitator: Understands risk management strategies and facilitates risk/failure identification and mitigation strategies.
* Consultants or other technical experts: Posses relevant knowledge in areas relating to specific technology risks or have experience in developing or administering of training programs on related topics.

**Subtask 2.1 - Identify ESS subject matter experts to fully understand the “Storage Ready” system in preparation for construction of the Risk Assessment document.**

**Subtask 2.2 - Identify ESS subject matter experts and conduct a hazard workshop to identify safety topics for the SVR.**

**Task 3.0 – Conduct a Thorough Risk Assessment.**

The Recipient shall perform a thorough risk assessment to identify all ESS threats and failure modes for an energy storage system at the given “Storage Ready” location, which can only be accomplished by fully understanding the specifications, design constraints, components, and limitations of your local “storage ready” system.

The risk assessment will address one or more of the following threats to an ESS:

* Physical Damage: Caused by an external force, such as, extreme weather-related, various mechanisms of aging, or intentional/unintentional human-caused actions or events that may damage, destroy, or disrupt the normal operation of an ESS. Examples include severe weather (earthquakes, hurricanes, snowstorms, wildfires, etc.), wildlife interference, intentional attacks, or unintentional actions by people.
* Degraded Operation, or Damage due to Cyber-Attack: External actions that would compromise the protection networks, devices, and data from unauthorized access or criminal use or ensuring confidentiality, integrity, and availability of information as it relates to the operation of an ESS.
* Unanticipated Operational Failures: Any other incident caused by something internal to the ESS that could potentially damage, destroy, or disrupt the system or its normal operations.

**Task 4.0 – Draft the SVR Document Template.**

The Recipient shall draft a preliminary SVR utilizing the information gathered at the subject matter expert meeting. The SVR will have, at minimum, a list of items to inspect, acceptable inspection intervals, comment area for each item, site and condition information, and testing information.

The SVR will also include information on maintenance schedules, inspections, and tests which could consist of aspects such as OEM recommended maintenance schedules, known points of failure, inspection intervals for specific equipment items, and industry-standard equipment tests.

**Task 5.0 – Identify and Engage Relevant First Responder Leadership, and Community Stakeholders.**

**Subtask 5.1 – Establish Communication with Relevant Stakeholders.**

The Recipient shall identify individuals that will holistically be involved in ESS deployment, operation, and safety planning. These individuals will provide valuable insight for the purposes of planning, training, exercises, and preparation, response to a zero-notice event involving catastrophic ESS failure.

The following list includes subject matter experts that are not exhaustive, but that will be included, as willing, to insure a robust and thorough understanding of ESS related interdependencies and the potential for cascading effects, environmental impacts, public safety, education, and community outreach.

**State/Local Municipality:**

Asset Owner Operator: Possess subject matter expertise, have been trained on proper installation, design specs and limitations, system vulnerabilities, understands interconnection to the grid, capable for de-energizing system.

Power Utility: Possess subject matter expertise, have been trained on proper installation, design specs and limitations, system vulnerabilities, understands interconnection to the grid, capable for de-energizing system, can island or disconnect from the grid.

Certificate of Fitness/Operation holder for the ESS site: Could be the fire department or other local official.

Police: Contain/isolate, controlling the perimeter, protect the public, engaging defense against or capture of a bad actor.

Fire/Rescue: Trained for incendiary response, transport/treatment of injuries consistent with identified burns and explosive events.

EMS/Ambulance: transport/treatment of injuries consistent with identified burns and explosive events.

Hospital: Treatment of trauma associated with burns and explosive events.

**Federal Partners: if requested by state and local government:**

DHS/CISA: Infrastructure response, subject matter expertise, response to known issues regard critical infrastructure, informed situational awareness with respect to intel and scenarios regarding potential actions/vulnerabilities that could be undertaken or exploited by bad actors.

**Subtask 5.2** – **Establish Coordination approach.**

The Recipient shall lead a stakeholder meeting where all relevant stakeholders can address and discuss their specific role in prevention, mitigation, or response to a given set of risks or scenarios are provided for them to address.

The consolidated input will form the foundational basis for roles, responsibilities, contacts portion of the emergency response plan, which when consolidated will require the various agency’s leadership to have a discussion regarding interagency communication, coordination, and command structure so that in the case of an event there would be a coordinated task force to ensure the proper coordination and communication are occurring synergistically perhaps, though the locality emergency management agency.

**Subtask 5.3** – **Establish unified Response Protocols, regarding identified communication, coordination, and command structures.**

The Recipient will establish unified response protocols, regarding identified communication, coordination, and command structures to establish effective response protocols that would be implemented during an ESS emergency to ensure a swift and effective prevention, mitigation, or response.

**Task 6.0- Develop comprehensive and robust Emergency Response Plan and Training.**

Utilizing the aspects gathered from Tasks 2, 3, and 5, the Recipient shall gather all the Risk Assessment information, the identified stakeholders/responders, inter-agency communication, inter-agency coordination, and Response protocols into a comprehensive and robust ERPT program.

**Task 7.0 –** **Pilot of SVR Document**

The Recipient will identify at least two demonstration partners to pilot the SVR document over a period of performance. During this time, the Recipient will receive feedback and iterate the document if necessary to meet the needs of the demonstration partners and previously identified stakeholders.

**Task 8.0** – **Build and Develop Various Response Scenarios for the purposes of exercising and training including necessary Educational Materials.**

The Recipient shall keep the response team prepared for an event through conducting at least one exercise that simulates a mock ESS failure event with all relevant stakeholders engaged.

**Task 9.0** – **Finalization of SVR Document**

The Recipient shall utilize all information and feedback gathered during Task 9.0 and incorporate into a finalized version of the SVR Document.

**D. DELIVERABLES**

Subtask 1.1 – Project Management Plan – Update due 30 days after award. Revisions to the PMP shall be submitted as needed or as requested by the NETL FPO.

Task 3.0 – Risk Assessment on selected ESS site.

Task 4.0 – Safety Validation Report Draft Template.

Task 5.0 – Report on community stakeholder engagement, coordination, and unified response protocols.

Task 6.0 – Comprehensive Emergency Response Plan and Training Draft.

Task 7.0 – Report on SVR usage at pilot locations

Task 8.0 – Report on ERPT exercises held.

Final Deliverable – Comprehensive ESS Emergency Response Plan and Training program and Safety Validation Report Template

**E. BRIEFINGS/TECHNICAL PRESENTATIONS**

The Recipient shall prepare, and present periodic briefings, technical presentations and demonstrations as requested by the FPO, which may be held at a Department of Energy (DOE) or Recipient’s facility, other mutually agreeable location, or virtually. These may include all or a combination of the following:

**Kickoff Briefing** – Not more than 30 days after submission of the updated PMP, the Recipient shall present a summary briefing as part of a Project Kickoff Meeting.

**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.