**Technical Volume Template**

**[Remove the first 2 informational pages and instructional red and blue text throughout the template in the final version of the Technical Volume]**

***Instructions***

All Applicants are required to submit a Technical Volume. The Technical Volume **must not be more than 15 pages, excluding the cover pages and table of contents.** If the Technical Volume exceeds the maximum page length indicated above, DOE will review only the authorized number of pages and disregard any additional pages. The Technical Volume must be submitted in Adobe PDF format.

The Technical Volume must conform to the content and form requirements in Section IV and the Technical Volume template, including maximum page lengths. The use of the template is not required; however, the information included within the template is required.

The Technical Volume must address the Technical Review Criteria included in Section V.A. of the FOA. **Applicants should consider the weight of each of the evaluation criteria (see Section V.A. of the FOA) when preparing the Technical Volume.**

Save the Technical Volume in a single PDF file using the following convention for the title: “ControlNumber\_LeadOrganization\_TechnicalVolume” and submit as part of your application.

**Treatment of Application Information**

**Please read the following description regarding DOE’s treatment of application information.** If you believe information provided in the Technical Volume is subject to restrictions on its disclosure and use, please follow the instructions below by inserting the “*Notice of Restriction of Disclosure and Use of Data*” language and appropriate protective markings (e.g., “*Do Not Publicly Release – Trade Secret*,” “*Do Not Publicly Release – Confidential Business Information*,” etc.) in the Technical Volume and following the described “header and footer” and “bracketing” requirements**.**

In general, DOE will use data and other information contained in applications for evaluation

purposes only unless such information is generally available to the public or is already the

property of the Government.

Applicants should not include trade secrets or commercial or financial information that is privileged or confidential in their application unless such information is necessary to convey an understanding of the proposed project or to comply with a requirement in the FOA.

Applications containing trade secrets or commercial or financial information that is privileged or

confidential, which the Applicant does not want disclosed to the public or used by the Government for any purpose other than application evaluation, must be marked. The use of protective markings such as “*Do Not Publicly Release – Trade Secret*” or “*Do Not Publicly Release – Confidential Business Information*” is encouraged. However, Applicants should be aware that the use of protective markings is not dispositive as to whether information will be publicly released pursuant to the [Freedom of Information Act](https://www.foia.gov/foia-statute.html) (FOIA) as codified at [5 U.S.C. §552](https://www.law.cornell.edu/uscode/text/5/552), et. seq., and as amended by the [Openness Promotes Effectiveness in our Nation (OPEN) Government Act of 2007, Pub. L. No. 110-175](https://www.congress.gov/110/plaws/publ175/PLAW-110publ175.pdf). (See Section I of this document, “Notice of Potential Disclosure Under the Freedom of Information Act (FOIA)” for additional information regarding the public release of information under the Freedom of Information Act.

The Workplan must be marked as follows and identify the specific pages containing trade secrets or commercial or financial information that is privileged or confidential:

**Notice of Restriction on Disclosure and Use of Data:**

*Pages [list applicable pages] of this document may contain trade secrets or*

*commercial or financial information that is privileged or confidential, and is*

*exempt from public disclosure. Such information shall be used or disclosed*

*only for evaluation purposes or in accordance with a financial assistance or*

*loan agreement between the submitter and the Government. The Government may use or disclose any information that is not appropriately marked or otherwise restricted, regardless of source.*

The header and footer of every page that contains trade secrets or commercial or financial

information that is privileged must be marked as follows: “*May contain trade secrets or*

*commercial or financial information that is privileged or confidential and exempt from public*

*disclosure.*”

In addition, each line or paragraph containing trade secrets or commercial or financial

information that is privileged or confidential must be enclosed in brackets.

**Technical Volume Cover Page(s)**

*Note: Cover page(s) and Table of Contents are not counted against the maximum number of Technical Volume pages.*

*If you choose, insert logo or picture in image space below.*

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*Please complete the following FOA and project information by clicking into the text box and entering the information.*

**FOA Title:** Enter the FOA Title

**FOA Number:** Enter FOA Number (DE-FOA-000XXXX)

**FOA Topic Area Name:** Enter the Topic Area Name from the FOA

**FOA Topic Area:** Enter the Topic Area Number (e.g., Topic Area 1.a., Topic Area 2)

**Name of Applicant:** Enter Applicant Name

**Project Title:** Enter Proposed Project Name

*Please provide the names and contact information for the Applicant’s Project Manager and Business Contact.*

|  |  |
| --- | --- |
| **Project Manager** | **Business Contact** |
| [Name][Title][Address] [City, State, Zip][Office Phone Number][Mobile Phone Number][Email address] | [Name][Title][Address] [City, State, Zip][Office Phone Number][Mobile Phone Number][Email Address] |

***Project Information (Not counted against the maximum number of Technical Volume pages)***

*Please provide key project information in the table below.*

|  |
| --- |
| **Project Information** |
| System Type | [Enter one: (1) clean energy generating system(s); (2) energy efficiency measure(s); (3) energy storage; (4) integrated energy system(s) for autonomous operation; (5) energy Infrastructure |
| System Scale | [Enter either (1) Facility-scale or (2) Community-Scale] |
| Specific Technology | [Enter all that apply: (1) Battery; (2) Biomass; (3) Combine Heat and Power; (3) Geothermal; (4) hydroelectric; (5) Solar thermal; (6) Solar Electric (Photovoltaic); (7) Tidal; (8) Wind; (9) Weatherization Retrofits; (10) energy infrastructure; (11) Other] |
| System Capacity (kW) | [Enter nameplate capacity (kW), if applicable] |
| Storage Capacity (kWh) | [Enter storage nameplate capacity (kWh), if applicable] |
| Annual Savings (kWh) | [Enter estimated annual savings in kWh, if applicable] |
| Annual Savings ($) | [Enter estimated annual savings in $, if applicable] |
| System Lifetime (Years) | [Enter estimated system lifetime in years] |
| Lifetime Savings (kWh) | [Enter estimated lifetime savings in kWh, if applicable] |
| Lifetime Savings ($) | [Enter estimated lifetime savings in $, if applicable] |
| Total Project Cost | [Enter the total proposed project costs (DOE and cost share) |
| Simple Payback Period | [Enter calculated amount [total project costs ($) ÷ estimated annual savings ($), if applicable] |
| Install Cost/Watt ($/W) | [Enter calculated amount [total project costs ($) ÷ (system capacity (kW) X 1,000), if applicable] |
| Installed Cost/kWh ($/kWh) | [Enter calculated amount [total project costs ($) ÷ storage capacity (kWh), if applicable] |
| Buildings Affected | [Enter the number of buildings affected by the proposed project] |

***Additional Key Project Participants and Organizations (Not counted against the maximum number of Technical Volume pages)*** *(Delete text and table if not applicable)*

*Please provide the name(s) and type of organization(s) of each additional key participating organization including the name, title, address, telephone number, and electronic mail addresses of participant contacts here, if applicable.*

|  |
| --- |
| **Additional Key Project Participants** |
| **Organization** | **Role & Function** | **Point of Contact Information** |
| [Name of Organization] | [Examples: Equipment Supplier,Owner’s rep, Engineering Procurement Construction (EPC) contractor, etc.] | [Name][Title][Address] [City, State, Zip][Office Phone Number][Mobile Phone Number][Email address] |
| [Name of Organization] | [Examples: Equipment Supplier,Owner’s rep, EPC contractor, etc.] | [Name][Title][Address] [City, State, Zip][Office Phone Number][Mobile Phone Number][Email address] |

*If applicable insert the “Notice of Restriction of Disclosure and Use of Data” language and appropriate protective markings (e.g., “Do Not Publicly Release – Trade Secret,” “Do Not Publicly Release – Confidential Business Information,” etc.) and following the described “header and footer” and “bracketing” requirements.*

***Table of Contents***

*(Approximately 1 page: Not counted against the page limit)*

*The* ***Table of Contents*** *should include a list of the elements of the Technical Volume organized in the order in which the parts appear, and page numbers.*

***NOTE:*** *When you have completed the Technical Volume, please assure you also update the Table of Contents. Right click anywhere on the Table of Contents and select “Update Field.” When the box comes up, choose the “Update entire table” option to ensure that any sections you added/removed are reflected in the table. Please review the updated Table of Contents to ensure it is correct.*

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# Executive Summary

*(Approximately 2 pages)*

## Project Overview

*Provide a concise overview of the proposed project including, as a minimum, an overview of the energy technology or energy infrastructure being proposed; the rated capacity of the energy technology; project location(s) (maps or graphics should be included as an attachment, see Site and Resources Maps and Graphics file); number of buildings affected by the proposed project and their current energy use or for planned construction the projected energy use; how the proposed project serves a need; and briefly the expected outcomes and benefits, such as the amount of energy saved, displaced, or generated; economic and environmental benefits; and other outcomes (e.g., replicability, resiliency, reliability, environmental stewardship, specific energy goal(s) met, step toward energy independence, number of Tribal Buildings electrified).*

## Applicant Description

*Provide a description of the Applicant, including the Applicant’s long-term energy vision and goals, organizational structure, location, and demographics.*

*If an authorized Tribal Organization, Intertribal Organization, or tribal consortia, is applying on behalf of Indian Tribe(s), also provide a description of the Tribal Organization or Intertribal Organization and the authority under which you are applying on behalf of Indian Tribe(s).*

***NOTE:*** *The authority, declaration, or resolution granting rights to the Tribal Organization or Intertribal Organization to apply on behalf of Indian Tribe(s) must be included under the Applicant Tribal Resolution or Declaration of Commitment and Cost Sharing File and Participant Letters of Commitment and Cost Sharing File.*

## Project Goals

*Provide a brief discussion of the project goals and the measurable objectives intended to reach those goals (e.g., on-site generation of [x] kW, provide electric power to [x] critical facilities for [x] hours, reduce cost of electricity by $[x] per kWh, provide electric power to [x] unelectrified homes). Include a brief discussion on how the proposed project integrates into the long-term energy vision and goals of the Applicant.*

## Benefits

*Provide a brief description of the anticipated benefits to the Applicant, community, and tribal members as a result of the project, quantifying those benefits to the maximum extent practical. Benefits should include,* *as a minimum, the economic (e.g., money saved, money generated, jobs created, people trained) and environmental benefits (e.g., reduction in fossil fuel used, less emissions). Also include any other benefits (e.g., replicability, resiliency, reliability, environmental stewardship, specific energy goal(s) met, step toward energy independence, number of Tribal Buildings electrified).*

## Impact of DOE Funding

*Discuss the need for and impact of DOE funding to the proposed project, and the implications if not funded.*

# Project Descriptions and Outcomes

*(Approximately 10 pages)*

## Detailed Project Description

*Provide a detailed description of the proposed project, including details specific to the applicable Topic Area and a brief explanation and rationale as to how the proposed project meets the respective Topic Area requirements.*

*Include a description of the relevance of the proposed project to the goals and objectives of the FOA and those of the Applicant, and the specific need or goal the proposed effort is intended to address.*

*Technical project details should include, but not be limited to, a description of the energy technology or energy infrastructure being proposed; the rated capacity of the energy technology and/or energy storage; project location(s) (maps or graphics should be included as an attachment, see Site and Resources Maps and Graphics file); interconnection and/or net energy metering requirements; description and number of buildings affected by the proposed project and their current or projected energy use; and the projected reduction or displacement of energy as a result of the proposed project, if applicable.*

## Studies and Analyses

*Provide a description of the relevant studies and analyses that are the foundation upon which the proposed project is based, such as required energy audit(s) or industrial energy assessment(s) that identifies and quantifies energy reduction and savings; and/or the required feasibility study that demonstrates the availability and sustainability of the renewable energy resource, identifies a need, and demonstrates the technical and economic viability of the proposed project, and clearly demonstrates the rationale for selecting the proposed energy technology or energy infrastructure* *as opposed to other options.*

*Include the rationale for choosing the proposed technologies and/or energy infrastructure based on the outcome(s) and conclusion(s) of the relevant foundational studies and analyses.*

***NOTE****: Energy audit(s), energy assessment(s), feasibility studies, or other supporting studies and analyses should be included in the Studies and Analyses File. Any other relevant background data may be included under the Site and Resource Map and Graphics File.*

## Technical Viability

*To demonstrate the technical viability of the proposed project, the Applicant should, as a minimum, describe the technical viability of the proposed energy technologies as determined by the applicable foundational studies and analyses (e.g., energy audit outcomes and recommended energy efficiency measures, determined availability of renewable energy resource(s), etc.); describe the design and availability of the proposed commercially proven energy technologies or energy infrastructure; include a description of the availability of the energy resource over the life of the project, and if applicable, demonstrate the sustainability of the resource (e.g. geothermal or biomass systems). Also include a discussion of interconnection or net energy metering requirements, and highlight any arrangements made or agreements obtained (include copies of any agreements, if obtained, under the Statement of Commitment and Cost Sharing File).*

*As only commercially proven, warrantied technology will be considered, please address the Technology Readiness Level of the proposed equipment and associated warranties.*

***NOTE:*** *Performance specifications and warranties, engineering drawings, materials and equipment lists, and any other supplemental data should be included in the Design and Engineering File.*

### Implementation Methodology

*Describe the methodology to be used to install the proposed energy technology or energy infrastructure.*

### Potential Barriers or Obstacles

*Identify any barriers or obstacles that could impede the project and describe plans to overcome those barriers or obstacles. Examples of barriers or obstacles might include weather, permitting or approval delays, supplier/vendor contracts, pending net metering or interconnection agreements, equipment delivery delays, or system integration.*

### Energy Verification Methods

*Verification of the annual actual energy generated, displaced, or saved (amount, cost, and percentage) will be required for a minimum of 12-months after the installation and commissioning of the proposed energy technology or energy infrastructure. Describe the methods to be used to monitor and verify these targeted outcomes.*

***NOTE****: For existing Tribal Buildings, the estimated amount of energy displaced or saved in the building(s) must be based on the actual annual energy consumed during a prior consecutive 12-month period.*

*For Tribal Building(s) that are currently being constructed or planned to be constructed during the grant period, the estimated amount of displaced or energy saved in the building(s)* *must be based on the projected annual energy use over a 12-month period and those projections supplied as part of the application. Only the incremental costs associated with the installation of the proposed clean energy generating system(s), energy efficiency measure(s), or integrated energy system(s), will be considered, not the cost of constructing the building.*

*For affected unelectrified Tribal Building(s), the estimated electricity needs of the affected building(s) must be based on the projected annual energy use over a 12-month period and those projections supplied as part of the application.*

### Operations and Maintenance

*Describe the long-term (life of the system) energy technology or energy infrastructure operation and maintenance (O&M) plan including whether a service contract is to be purchased, the duration of that service contract (if any), types of maintenance to be performed and the frequency, and plan for O&M after a service contract (if any).*

## Economic Viability

*Demonstrate the economic viability of the proposed project by providing an economic analysis and addressing the financial sustainability of the proposed project. Include current energy use and costs; total installed cost of the proposed project; life of the energy technology or energy infrastructure being proposed and/or average life of the energy efficiency measure(s); the payback period, in years, against* ***both*** *(1) the total project investment (DOE share and recipient cost share) and (2) solely against the recipient cost share; describe planned sources of funding (e.g., grant, loans, investor financing) and the terms associated with use of those funds; and summarize the* *cash flow analysis and its findings (e.g., Internal Rate of Return, Net Present Value). Provide the cash flow analysis either within the Technical Volume or as an attachment in the Economics File.*

***NOTE***: *Supplemental information to support the economic analysis should be included in the Economics File.*

## Outcomes

*Describe and quantify, to the maximum extent practical, the projected outcomes of the proposed project. Projected outcomes should include amount of energy saved, displaced, or generated; economic benefits (e.g., money saved, money generated, jobs created, people trained); environmental benefits (e.g., reduction in fossil fuel used, less emissions); and other applicable outcomes (e.g., replicability, resiliency, reliability, environmental stewardship, specific energy goal(s) met, step toward energy independence, number of Tribal Buildings electrified).*

# Roles, Responsibilities, Capabilities, and Commitment

*(Approximately 3 pages)*

## Project Manager

*Identify who will represent the Applicant as the “Project Manager” under the DOE agreement, if one is awarded. Provide a description of the Project Manager’s skills and background as they relate to their role for the proposed project, and their current position. It is strongly recommended that the Project Manager be a representative of the Applicant; however, if the Project Manager is not a representative of the Applicant, authorization must be provided as part of the Commitment file that delegates that authority to the proposed Project Manager.*

## Business Contact

*Identify who will represent the Applicant as the “Business Contact” under the DOE agreement, if one is awarded. Provide a description of the Business Contact’s skills and background as they relate to the role for the proposed project, and their current position. The Applicant’s “Business Contact” must be a representative of the Applicant.*

## Project Management Approach

*Describe the project management approach, including: a description of the organizational and individual roles and responsibilities; a description of the organizational relationships (e.g., Subrecipients, Vendors, investors, etc.), including any existing agreements between the Applicant and project participants (contract, Memorandum of Understanding, or other); a description of the plan to obtain qualified Vendors or Subrecipients, if applicable; description of the capabilities of the Applicant, each participating organization, and key individuals to comprehensively address all aspects of the proposed project, including a brief summary of experience and qualifications.*

***NOTE:*** *All Applicants are required to provide resumes for their Business Contact, Project Manager, and each key person proposed (including tribal staff) as part of the project. A key person is any individual who contributes in a substantive, measurable way to the execution of the project.**Attach resumes (2-page limit each) for key individuals and participating team members in the Resume File.*

*If Subrecipients or Vendors have not been selected, indicate that in the Technical Volume and include a Subcontract Plan as part of the Budget Support File. The Subcontract Plan should include a description of the selection process to be employed, statement of work, and criteria for selection (see Budget Support File). Note that if your application is selected for negotiation toward an award, any non-competitive sole source contracts will need to be approved by DOE (see the Budget Support File for more on how to request approval for non-competitive awards).*

## Project Commitment

*Demonstrate the level of commitment to the proposed project by describing any past energy projects or efforts undertaken which would indicate on-going commitments (e.g., development of a long-term vision; strategic energy plan; establishment of an energy committee, office, or department; or other formal commitments to reduce energy consumption or emissions).*

*Identify and describe evidence of commitment to the proposed project, such as a* *Tribal Council Resolution(s), declaration(s), and letters of commitment.*

*Describe the level of involvement and amount of cost sharing by the Applicant and each participant involved in the project.*

***NOTE:*** *Supply evidence of commitments of time, resources, or financial contributions in the form of Tribal Council Resolutions, declarations, resolutions, or letters of commitment as part of the Applicant Tribal Council Resolution or Declaration of Commitment and Cost Sharing File and the Participant Letters of Commitment and Cost Sharing File.*