**PROJECT TITLE**

Lead Organization (City, State), Principal Investigator Name

Total Project Cost

**EXECUTIVE SUMMARY**

Summarize the objective(s) and technical approach of the proposed effort at a technical level appropriate for scientific and engineering peers**.** Include a figure of the proposed approach and the areas of innovation.

**INSTRUCTIONS for Cover Page and Executive Summary Section:**

1. The Project Title should be brief and descriptive of the proposed technology.
2. Enter the requested Total Project Cost in U.S. dollars.
3. The Executive Summary shall not exceed 1 page in length.
4. The Executive Summary may contain graphics, figures, or tables as needed to summarize the technical concept. One representative figure is required, illustrating the proposed technology and highlighting areas of innovation.

NOTICE OF RESTRICTION ON DISCLOSURE AND USE OF DATA

*Pages [1 through\_\_] of this document may contain trade secrets or commercial or financial information that is privileged or confidential and 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.*

**INSTRUCTIONS FOR SECTIONS 1-3:**

**The cumulative length of Sections 1-3 shall not exceed 5 pages (this limit does not include the executive summary).**

**1. INNOVATION, IMPACT, AND PROPOSED WORK**

Summarize the problem to be solved. Describe how the proposed work offers an innovative approach to achieve the program objectives of the FOA.

Describe the proposed project R&D tasks, key technical risks, and any initial or related results that support the proposed approach. This Section must justify the proposed approach as being appropriate to achieve the project’s objective(s).

**1.1 Problem Statement.**

* The GO Competition Challenge 1 defines a precise mathematical formulation, a mixed-integer non-convex program (see the GO Competition website and Appendix A2 of the FOA). Clearly identify the critical challenges and identify any potential exploits that exist for this problem, which the Project Team will leverage within their algorithmic approach.

**1.2 State of the Art**

* Provide any relevant context on the state of the art (SoA), competing technologies, and existing industry practices and commercial-grade tools that relate to this problem.
* Explain the project’s potential to disrupt existing technology and/or how the project establishes a basis for new innovations.

**1.3 Proposed Technology**

* Describe the proposed technical solution in detail, referencing the figure provided in the Executive Summary and providing information on how the proposed technology will innovate in the realm of the problem identified for the GO Competition Challenge 1.
* Specify technical performance targets that are anticipated based on the proposed algorithmic approach. For example, the Project Team could state that it anticipates a solution that is within an optimality gap of X% for a network of size Y with a time limit of Z; justify any suggested performance targets.
* Describe how the proposed effort represents a unique and innovative solution to the overall challenge compared to the SoA and competing technologies.

**1.4 Impact**

* Describe the anticipated impacts and goals of the proposed approach. For instance, leveraging a particular technique enables a faster solution time while still providing a quality solution; cite key previous results and provide appropriate justifications.

**1.5 Approach.**

* Describe the technical approach and how this approach will achieve the proposed project objective(s).
* Discuss alternative approaches considered, if any, and why the selected approach is most appropriate for the identified objective(s).

**1.6 Preliminary Data.**

* Describe the background, theory, simulation, modeling, experimental data, or other initial results or principles that support the proposed approach to achieve the project objectives(s).
* Provide specific examples of supporting data and/or appropriate citations to the scientific and technical literature.
* Compare preliminary data to the SoA.

**1.7 Work Plan.**

* Provide a description of the proposed work by identifying key tasks and their objectives.

**1.8 Technical Risk.**

* Identify potential technical issues and risks, e.g., the approach relies on a decomposition strategy that may have problems converging, etc.
* Describe appropriate mitigation techniques and plans, along with alternative algorithmic approaches to be considered, for each identified technical risk issue.

**INSTRUCTIONS for the Innovation, Impact, and Proposed Work Section:**

1. The Innovation, Impact, and Proposed Work Section may include figures, tables, and graphics.
2. The suggested length of the Innovation, Impact, and Proposed Work Section is 3 to 4 pages.

**2. TEAM ORGANIZATION AND CAPABILITIES**

Describe and discuss the organization, capabilities, and management of the Project Team and how these will enable the successful execution of the proposed effort.

**2.1 Organization.**

* Indicate the roles and responsibilities of each organization on the proposed Project Team, e.g., the lead organization, subrecipient(s), consultant(s), or subcontractor(s).
* Identify Key Personnel, describe how their qualifications relate to the proposed effort, and indicate their roles and responsibilities.
* Identify previous collaborative efforts among Project Team members if relevant to the proposed effort.

**2.2 Capabilities, Software, and Information.**

* Identify capabilities and relevant experience (e.g., previous or current R&D efforts, or related government or commercial projects that support the proposed effort) of the Applicant and proposed Project Team. Explain the differences between previously funded efforts and the proposed effort.
* If the project team will leverage previously developed software tools that they will use within their submitted approach for the competition, identify those tools.
* Identify the GO Competition Platform software and language (see “Available Solvers” and “Languages” from the GO Competition website) that your Project Team will use for the competition.

**INSTRUCTIONS for the Team Organization and Capabilities Section:**

1. This Section may include figures, tables, and graphics.
2. The length of the Team Section should be one-half to one page.

**3. BUDGET**

Indicate the budget, in US dollars, and provide a high-level budget summary, demonstrating that the budget is reasonable and appropriate for the proposed effort. Describe the key personnel and technical staff to be utilized (e.g., scientists, engineers, technicians, postdocs, graduate students, etc.).

**INSTRUCTIONS for the Budget Section:**

1. The Budget Section may include figures, tables, and graphics.
2. The length of the Budget Section should not exceed one-half of a page.

**4. REFERENCES**

Provide a list of references appropriate for Sections 1-3.

**INSTRUCTIONS for the References Section:**

1. Only bibliographic information may be contained in the references. No additional text or commentary is allowed.
2. There is no page limit for the Bibliographic References Section, which is outside of the overall 5-page limit for Sections 1-3.

**5. PERSONAL QUALIFICATION SUMMARIES**

A Personal Qualification Summary (PQS) is required for the Principal Investigator (PI) and all other Key Personnel. Each PQS must include a description of the following only:

* Education and training,
* Employment history,
* Awards and honors,
* A list of no more than 10 peer-reviewed publications related to the proposed project,
* A list of no more than 10 other peer-reviewed publications demonstrating capabilities in the broad field, and
* A list of no more than 10 non-peer-reviewed publications and patents demonstrating capabilities in the broad field.

**INSTRUCTIONS for the Personal Qualification Summaries Section:**

1. Each Personal Qualification Summary is limited to 2 pages in length and there is no page limit for this Section, which is outside of the 5-page limit for Sections 1-3.
2. **Curriculum Vitae should not be submitted**.

**TECHNICAL VOLUME TEMPLATE**

**INSTRUCTIONS**

**CONTENT REQUIREMENTS (See Section IV.C of the FOA for Content Requirements):**

1. The Technical Volume template may be used to prepare Technical Volumes for Full Applications.
2. Applicants should ensure the accuracy of their Technical Volume by reviewing and/or printing prior to the Full Application submission.
3. ARPA-E may not review or consider noncompliant and/or nonresponsive Full Applications (see Section III.B of the FOA).
4. Each Full Application should be limited to a single concept or technology. Unrelated concepts and technologies should not be consolidated into a single Full Application.
5. Confidential, proprietary, or privileged information should be indicated by including in the header and footer of every page the following language: “Contains Confidential, Proprietary, or Privileged Information Exempt from Public Disclosure.” In addition, the cover sheet of the Technical Volume must also include the disclaimer provided in Section VIII.I of the FOA, and every line and paragraph containing proprietary, privileged, or trade secret information must be clearly marked with double brackets or highlighting. See Section VIII.I of the FOA for additional information on marking confidential information.
6. Applicants must provide sufficient citations and references to the primary research literature to justify the claims and approaches made in the Technical Volume. ARPA-E and reviewers may review primary research literature in order to evaluate applications. However, ARPA-E and reviewers are under no obligation to review cited sources (e.g., Internet websites)
7. Delete these template instructions and delete the prompts in each of the section above prior to submitting Full Applications.

**FORMAT REQUIREMENTS (See Section IV.C of the FOA for Format Requirements):**

1. Technical Volumes must be submitted in Adobe PDF format, be written in English, use black 12 point or larger Times New Roman font (except in figures and tables), use 8.5 inch by 11 inch paper, be single-spaced, and have margins no less than 1 inch on every side.
2. Technical Volumes must not exceed the maximum page lengths specified for each section of the Technical Volume in Section IV.C of the FOA. If Applicants exceed the maximum page length, ARPA-E will review only the authorized number of pages and disregard any additional pages.
3. The ARPA-E assigned Control Number, Lead Organization Name, and Principal Investigator’s (PI’s) Last Name must be in the upper right hand corner of the header of every page. Page numbers must be included in the footer of every page.