



PRELIMINARY PROPOSAL EVALUATION CRITERIA

Description of Operations Evaluation

The CASIS Operations team, who may consult as needed with NASA and outside technical experts, conducts a technical feasibility review of proposals to ensure payload viability and overall readiness/feasibility for flight. This review is an unscored, pass–fail initial screening; however, CASIS may consider an interview with the investigator(s) to clarify technical elements of the proposal as well as the proposed budget and schedule in order to make its determination. Specifically, the technical feasibility review considers the following elements (not a comprehensive list):

- Logistics: Proposed resources including implementation partner support, facility needs for ground testing and flight operations support, use of ISS crew for research support, power and data requirements, weight, and any known hazards
- Hardware: Availability, limitations, appropriate planned use and (alternatively) the costs and feasibility of proposed new hardware development
- Projected Budget and Time Frame: Preflight development and testing considerations, time to flight and time to completion
- Hazards: Procedures, situations and materials that could potentially be hazardous and a plan to mitigate any identified issues
- Questions: Follow-up questions for the investigator(s), including as appropriate—
 - Revised methods/analyses, and how results will be collected, analyzed, and interpreted
 - Awareness of potential barriers and ideas about alternative approaches

NASA has specified details regarding flight certification requirements, available on the website at <http://www.iss-casis.org/Opportunities/Solicitations/Combustion/Resources.aspx>. The Operations team may disqualify proposals that cannot meet these requirements.

Description of Economic Evaluation

CASIS will assemble qualified personnel to evaluate the feasible proposals that passed the Operational review. Like the operational review, the economic review process will be scored on a pass-fail basis. The review will be evaluated on the commercial and intangible benefits listed below:

Commercial Evaluation

Note: Reviewers will evaluate commercial letters of support during this stage. These letters may influence the evaluation.

Evaluation Categories and Criteria

1. Management and Key Employees

Descriptors/Criteria: The current management team is qualified to and can execute the project. The team has prior successful experience working together. The team or PI has prior experience in similar capacities (however, the team or PI cannot be faulted for lack of space experience) and has demonstrated high likelihood of future success in the field of interest. The research conducted will either elevate or maintain PI as a recognized player or leader of a specific scientific/technologic area/field. The project lists necessary, relevant, and qualified key collaborators.

2. Markets and Competition

Descriptors/Criteria: The current market size and forecast growth rate of the relevant market(s) is noted and addressed, with sources pertaining to these data points appropriately referenced. The proposal addresses both barriers to entry and market competition. Resulting products/services/key technologies that can be leveraged in secondary market applications are acknowledged. The team can either commercialize products/services/key technologies or has/will partner with companies with established commercial success. A customer base exists for potential products (i.e., new innovation vs. advancing something existing or solving a problem). A discussion of how the project may lead to minor, significant, or game-changing/market-disrupting products, as well as its effect on market dynamics, should be addressed.

3. Products/Services and Technologies

Descriptors/Criteria: The project will benefit significantly from, or require, access to the unique facilities or vantage point found on the ISS US National Lab. The products/services/key technologies that will benefit from successful results are clearly defined, feasible, and unique. The results of the project will provide specific and significant benefits to the scientific community, U.S. economy, or population. Customers will easily understand the benefits/products resulting from successful results. Product/service development plan, timing, and costs are feasible and realistic. Technology risk assessment, if applicable, has been performed and/or is not likely to pose a problem. Patents, trade secrets, or copyright protection, if available for the products/technologies/services, will increase likelihood of market impact and commercial success.

4. Business and Operating Plan

Descriptors/Criteria: The proposal coherently states project mission, strategy, and implementation. The competitive environment and CASIS objectives are clearly understood. Required resources (e.g., human, capital) are described and understood. PI is providing a financial commitment to complete the project (i.e., funds received outside of CASIS or NASA). The description of commercial application is adequate,

the path and expected timeline to commercialization is feasible, and the forecast results (i.e., estimated revenue/sales) are reasonable.

5. Customers and Suppliers

Descriptors/Criteria: Customer opinion about the field/market/competition is favorable to market entry and success. Key suppliers are stable and reliable/high quality (if applicable). Single-source components or technologies are unlikely or are acceptable (if applicable). Investigators are aware of companies interested in commercializing the product(s) resulting from the research. Letters of support (LOS) and/or letters of intent (LOI) from commercial partners to (co)-develop or purchase product/service is provided.

Intangibles Evaluation

Evaluation Categories and Criteria

1. Greater Good to Society

Descriptors/Criteria: The overall potential for impact on the U.S. society is of significant value. The project advances discovery and understanding while promoting teaching, training, and learning. The proposed project broadens the participation of underrepresented groups. The project supports the development of a new or significantly improved competency, infrastructure, or capability that is important to the community. The project increases throughput of the supply chain—innovations affecting humans, animals, plants, climate, and resources now or in the future (e.g., fewer deaths, fewer sicknesses, healthier livestock, a more abundant food supply, the protection of endangered plant or animal species, reduced pollution, improved ground energy efficiency).

2. U.S. Leadership in Space

Descriptors/Criteria: The success of the project will change the concepts, methods, technologies, treatments, services, or interventions that drive the relevant field. The project will directly drive (motivate/stimulate) other likeminded endeavors. Potential exists for significant international impact. The project advances CASIS goals to balance a diverse portfolio of research disciplines and stages. The project enhances awareness among potential ISS constituency groups regarding the advantages of performing science in space (i.e., it will promote interest in using the ISS National Lab). The project shows how ISS technology contributes to products and services revenue and related tax revenue from profits (i.e., it demonstrates value to the public).

3. Economic and Human Capital Development

Descriptors/Criteria: The benefits of the proposed project to society include job and wealth creation, as well as improved quality of life, knowledge, skill sets and sustainability. The project bridges basic science with industrial R&D applications. Project success will enhance the infrastructure for space-based research and education (e.g., facilities, instrumentation, networks, and partnerships). The results will be disseminated broadly to enhance scientific and technological understanding, enabling developments in science by allowing researchers to build on each other's work and providing content for educational curricula. Project success will produce future projects of significant intangible or tangible value. The project addresses an important problem or a critical barrier to progress in the field.