

USDA Energy Programs Technical Assessment

As part of the feasibility study, a detailed technical assessment is required for each project. The technical assessment must demonstrate that the project design, procurement, installation, startup, operation and maintenance of the project will operate or perform as specified over its useful life in a reliable and a cost effective manner, and must identify what the useful life of the project is.

The technical assessment must also identify all necessary project agreements, demonstrate that those agreements will be in place on or before the time of loan closing, and demonstrate that necessary project equipment and services will be available over the useful life. All technical information provided must follow the format specified in this section. Supporting information may be submitted in other formats. Design drawings and process flow charts are encouraged as exhibits.

A discussion of each topic identified in this section is not necessary if the topic is not applicable to the specific project. Questions identified in the Agency's technical review of the project must be answered to the Agency's satisfaction before the application will be approved. All projects require the services of a professional engineer (PE).

1. Qualifications of project team

The project team will vary according to the complexity and scale of the project. The project team must have demonstrated expertise in similar advanced biofuel technology development, engineering, installation, and maintenance. Authoritative evidence that project team service providers have the necessary professional credentials or relevant experience to perform the required services for the development, construction, and retrofitting, as applicable, of technology for producing advanced biofuels must be provided.

In addition, authoritative evidence that vendors of proprietary components can provide necessary equipment and spare parts for the biorefinery to operate over its useful life must be provided.

The application must:

- Discuss the proposed project delivery method. Such methods include a design, bid, build where a separate engineering firm may design the project and prepare a request for bids and the successful bidder constructs the project at the Borrower's risk, and a design build method, often referred to as turnkey, where the Borrower establishes the specifications for the project and secures the services of a developer who will design and build the project at the developer's risk;

- Discuss the advanced biofuels technology equipment manufacturers of major components being considered in terms of the length of time in business and the number of units installed at the capacity and scale being considered;

- Discuss the project team members' qualifications for engineering, designing, and installing advanced biofuels refineries including any relevant certifications by recognized organizations or bodies. Provide a list of the same or similar projects designed, installed, or supplied and currently operating and with references if available; and

- Describe the advanced biofuels refinery operator's qualifications and experience for servicing, operating, and maintaining such equipment or projects. Provide a list of the same or similar projects designed, installed, or supplied and currently operating and with references if available.

2. Agreements and permits

All necessary agreements and permits required for the project and the status and schedule for securing those agreements and permits, including the items specified below, must be identified in the application.

- Advanced biofuels refineries must be installed in accordance with applicable local, State, and national codes and regulations. Identify zoning and code issues, and required permits and the schedule for meeting those requirements and securing those permits.

- Identify licenses where required and the schedule for obtaining those licenses.

- Identify land use agreements required for the project and the schedule for securing the agreements and the term of those agreements.
- Identify any permits or agreements required for solid, liquid, and gaseous emissions or effluents and the schedule for securing those permits and agreements.
- Identify available component warranties for the specific project location and size.
- Identify all environmental issues, including environmental compliance issues, associated with the project.

3. Resource assessment

Adequate and appropriate evidence of the availability of the feedstocks required for the advanced biofuels refinery to operate as designed must be provided in the application.

Indicate the type and quantity of the feedstock including storage, where applicable.

Indicate shipping or receiving method and required infrastructure for shipping, and other appropriate transportation mechanisms.

For proposed projects with an established resource, provide a summary of the resource.

4. Design and engineering

Authoritative evidence that the advanced biofuels refinery will be designed and engineered so as to meet its intended purposes, will ensure public safety, and will comply with applicable laws, regulations, agreements, permits, codes, and standards must be provided in the application.

Projects shall be engineered by a qualified entity.

Biorefineries must be engineered as a complete, integrated facility.

The engineering must be comprehensive including site selection, systems and component selection, and systems monitoring equipment.

Biorefineries must be constructed by a qualified entity.

- The application must include a concise but complete description of the project including location of the project; resource characteristics, including the kind and amount of feedstocks; biorefinery specifications; kind, amount, and quality of the output; and monitoring equipment.

Address performance on a monthly and annual basis.

Describe the uses of or the market for the advanced biofuels produced by the biorefinery.

Discuss the impact of reduced or interrupted feedstock availability on the biorefinery's operations.

- The application must include a description of the project site and address issues such as site access, foundations, backup equipment when applicable, and the environmental information documents Form RD 1940-20 and required narrative in the 7 CFR part 1940, subpart G, Exhibit H format.

Identify any unique construction and installation issues.

- Sites must be controlled by the eligible Borrower for at least the proposed project life or for the financing term of any associated federal loans or loan guarantees.

5. Project development schedule

Each significant task, its beginning and end, and its relationship to the time needed to initiate and carry the project through startup and shakedown must be provided in the application.

Provide a detailed description of the project timeline including resource assessment, project and site design, permits and agreements, equipment procurement, and project construction from excavation through startup and shakedown.

6. Equipment procurement

A demonstration that equipment required by the biorefinery is available and can be procured and delivered within the proposed project development schedule must be provided in the application.

Biorefineries may be constructed of components manufactured in more than one location. Provide a description of any unique equipment procurement issues such as scheduling and timing of component manufacture and delivery, ordering, warranties, shipping, receiving, and on-site storage or inventory.

7. Equipment installation

- Installation, and details regarding the scheduling of major installation equipment needed for project construction

- A description of the startup and shakedown specification and process

- The conditions required for startup and shakedown for each equipment item individually and for the biorefinery as a whole must be provided in the application.

8. Operations and maintenance

The operations and maintenance requirements of the biorefinery necessary for the biorefinery to operate as designed over the useful life must be provided in the application.

The application must also include:

- Information regarding available biorefinery and component warranties and availability of spare parts;

- A description of the routine operations and maintenance requirements of the proposed biorefinery, including maintenance schedule for the mechanical, piping, and electrical systems and system monitoring and control requirements, as well as provision of information that supports expected useful life of the biorefinery and timing of major component replacement or rebuilds;

- A discussion of the costs and labor associated with operations and maintenance of the biorefinery and plans for in-sourcing or outsourcing. A description of the opportunities for technology transfer for long term project operations and maintenance by a local entity or owner/operator; and

- Provision and discussion of the risk management plan for handling large, unanticipated failures of major components.

8. Decommissioning

When uninstalling or removing the project, a description of the decommissioning process. A description of any issues, requirements, and costs for removal and disposal of the biorefinery.