Technical Eligibility Reference Guide

Title 17 Innovative Clean Energy: Fossil

Loan Programs Office

Summary of Title 17 Loan Guarantee Eligibility Criteria

- **Innovation:** LPO eligibility requirements stipulate that the Project must employ New or Significantly Improved Technology as compared to Commercial Technology in service in the United States, including projects that employ elements of commercial technologies in combination with New or Significantly Improved Technologies. This "innovation" must constitute one or more meaningful and important improvements in productivity or value and NOT be "Commercial Technology." Commercial Technology is defined as technology that has been installed in and is being used in three or more commercial projects in the United States in the same general application as in the proposed project.
- **Greenhouse Gas Emissions/Other Air Pollutants:** LPO eligibility requirements stipulate that the Project must avoid, reduce, utilize, or sequester anthropogenic emissions of greenhouse gases or other air pollutants. LPO determines eligibility under this requirement for this solicitation by performing an independent greenhouse gas life cycle analysis to determine whether or not the project is an improvement over a "business-as-usual" case.
- **Reasonable Prospect of Repayment**
- **Located in the U.S.**

Innovative Clean Energy: Fossil Solicitation Summary

- An "Eligible Project" is associated with fossil fuel supply or use, from a category listed in the solicitation, and:
  - Avoids, reduces, utilizes, or sequesters anthropogenic emissions of greenhouse gases or air pollutants.
  - Employs *New or Significantly Improved Technology* as compared to *Commercial Technology* in service in the United States (Innovative Technology).
  - Is located in the United States.
  - Provides a *reasonable prospect of repayment* of the principal and interest on the Guaranteed Obligation and other Project debt.

Innovative Clean Energy: Fossil Solicitation Technology Areas

- **Advanced Resource Development:** Projects that employ new or significantly improved technologies to economically develop, recover, and produce fossil energy resources with reduced greenhouse gas emissions.
- **Carbon Capture:** Projects that integrate fossil fuel usage in traditional processes with new or improved technology that captures and removes CO_2 for permanent storage in underground formations or through beneficial reuse.
- **Low-Carbon Power Systems:** Projects that use fossil fuels for electricity generation using novel processes or improved technologies that can seamlessly integrate with CO_2 capture and storage or beneficial reuse.
- **Efficiency Improvements:** Projects that incorporate new or improved technologies to increase efficiencies and substantially reduce greenhouse gas emissions associated with fossil fuel supply and use.
- **Industrial Applications:** Projects that use technologies or processes for reducing greenhouse gas emissions from industrial applications using fossil fuels, hydrogen production from fossil fuels, or the generation of high-temperature heat using fossil fuels

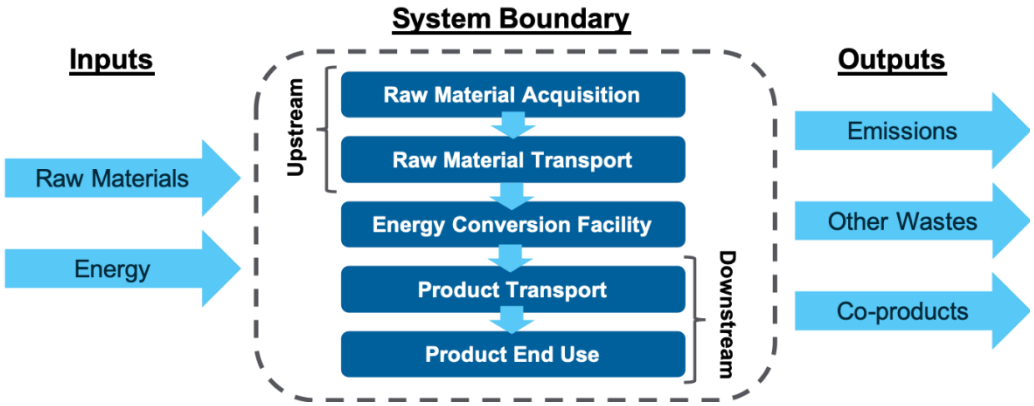
- **Air Pollutant Control:** Projects that utilize pollutant control equipment to reduce air pollutants.
- **Hydrogen Fuel Cells:** Projects that produce hydrogen from a fossil fuel for residential, industrial, or transportation applications.
- **Energy Storage:** Storage technologies for residential, industrial, transportation, and power generation, including EV bidirectional storage, newer battery chemistries & flow batteries, compressed air energy storage, pumped storage hydropower, and thermal energy storage.
- **Alternative Vehicle Fuel Distribution Facilities:** Projects that include, in appropriate cases, fuel distribution facilities, including associated hardware and software, for alternative vehicle fuels, including hydrogen, liquefied natural gas (LNG), and compressed natural gas (CNG), provided that such facilities otherwise satisfy all eligibility requirements.
- *Note: These examples are not intended to be, and are not, exclusive or limiting. They are mentioned solely with the intent of identifying types of projects that could be eligible, subject to technical review.*

Meeting the "Innovation" Eligibility Requirement

- LPO's Technical and Project Management Division (TPMD) reviews the applicant's case for meeting the innovation criteria in the Part 1 application.
- Through research, literature review, and consultation with private industry and/or DOE subject matter experts, TPMD evaluates the state of the relevant "Commercial Technology" to compare to the proposed project's technology.
- Using best engineering practices, determine whether the proposed project meets the eligibility requirements.
- Typically, TPMD will need to ask clarifying questions of the applicant to determine whether the proposed project fits the definition of *New or Significantly Improved Technology* and therefore *Eligible Project.*

Meeting the Eligibility Requirement for Greenhouse Gas (GHG) Emissions

- Applicants must submit an Attachment C, Summary Lifecycle Greenhouse Gas Emissions Data Worksheet to help LPO complete its lifecycle greenhouse gas emissions analysis of the proposed project.
- TPMD performs a Greenhouse Gas Life Cycle Assessment (GHG LCA) to quantify the full environmental impact of a product or process relative to a baseline.



GHG Life Cycle Analysis (LCA) Approach

ISO 14064 Activity	Applicant Guidance	TPMD Responsibilities
Describe the Project	✓ Author according to ISO 14064 standard requirements	✓ Validate that appropriate information has been provided
Identify and Select GHG Sources, Sinks, And Reservoirs	✓ Provide relevant information and data on the project	✓ Validate applicant-provided information and data ✓ Determine the appropriate GHG sources, sinks, and reservoirs for the baseline project
Determine the Baseline Scenario	✓ Applicants may suggest an appropriate baseline scenario	✓ Determine an appropriate baseline scenario based on the applicant's project
Quantifying GHG Emissions	Provide data on: ✓ Materials and energy used in the product life cycle ✓ Intended sequestration of GHG emissions during the product life cycle (if applicable)	✓ Validate applicant-provided data ✓ Supplement applicant-provided data with additional data and/or reasonable assumptions, where necessary ✓ Request additional information from applicants, where necessary ✓ Calculate the GHG emissions associated with the applicant's project and compare this with the baseline

Definitions and Interpretation (10 CFR 609.2)

- ***New or Significantly Improved Technology*** means a technology, or a defined suite of technologies, concerned with the production, consumption, or transportation of energy and that is not a Commercial Technology, and that has either:
  - Only recently been developed, discovered, or learned; or
  - Involves or constitutes one or more meaningful and important improvements in productivity or value, in comparison to Commercial Technologies in use in the United States at the time the Term Sheet is issued.
- ***Commercial Technology*** means a technology in general use in the commercial marketplace in the United States at the time the Term Sheet is issued by DOE
  - A technology is in general use if it has been installed in and is being used in three or more commercial projects in the United States in the same general application as in the proposed project; and
  - Has been in operation in such commercial project for a period of at least five years.
- Link: https://www.ecfr.gov/current/title-10/part-609

Technical and Financial Evaluation of Applications (10 CFR 609.7)

- **Applications will be denied if:**
  - The project is not ready to be employed commercially in the United States.
  - The project is for demonstration, research, or development.
- **DOE will consider the following factors:**
  - Does the technology have a potentially catalytic effect on the market?
  - Does the technology have the potential to be employed in other commercial projects?
  - Does the New or Significantly Improved Technology used in the project involve or constitute a meaningful improvement in productivity or value, as compared to Commercial Technology?
- "Innovative Technology" and "Greenhouse Gas Emissions" eligibility criteria are reiterated.
- This section also sets forth some criteria for determining whether the applicant has a "reasonable prospect of repayment."
- Link: https://www.ecfr.gov/current/title-10/part-609

More Information

- **Innovative Clean Energy: Fossil Solicitation Summary & Technology Areas Information:** https://www.energy.gov/lpo/innovative-clean-energy-fossil-loan-guarantees
- **Energy Policy Act of 2005, Section 1703, Title XVII:** https://www.govinfo.gov/content/pkg/BILLS-109hr6enr/pdf/BILLS-109hr6enr.pdf
- **Attachment C, Summary Lifecycle Greenhouse Gas Emissions Data Worksheet:** https://www.energy.gov/sites/prod/files/2015/02/f19/SUMMARY_GREENHOUSE_GAS_EMISSIONS_DATA_WORKSHEET_JANUARY_2015.xlsx