Official Rules
American-Made Large Animal and Solar System Operations (LASSO) Prize

Modification 1

January 2025

Preface

The U.S. Department of Energy's American-Made Large Animal and Solar System Operations (LASSO) Prize will be governed by 15 U.S.C. §3719 and this Official Rules document. This is not a procurement under the Federal Acquisitions Regulations and will not result in a grant or cooperative agreement under 2 Code of Federal Regulations 200. The Prize Administrator reserves the right to modify this Official Rules document if necessary and will publicly post any such notifications as well as notify registered prize competitors.

Contents

Modification Summary

Modification Number and Date	Page(s)	Modification Summary
Revision 1 January 2025	Throughout Document	Updated Section Numbers and related references (see Table of Contents)
	Throughout Document	$1,800,000 added to total prize pool; number of potential winning teams increased by 2 for each phase of the Standard Track
	Throughout Document	Clarified “integration” and “interaction” mean co-location (of cattle grazing and PV array)
	Throughout Document	Added competitor organization to the list of required team information for Standard Track Phase 1 and Phase 2A, and to Operating Projects Track Phase 1
	Throughout Document	Clarified that certain submission items and pieces of information are mandatory, not suggested, for submission
	19, 21	Added link to recording and slide deck of informational recording and additional webinar date to Key Dates
	13, ,22, 28	Added eligibility restriction: projects located only within feedlots or finishing pens are not eligible to participate
	17, 39, 52-53, 57, 67	Winners of Phase 1 (both Standard Track and Operating Projects Track) will receive no-cost technical assistance from NREL agrivoltaics experts
	18, 25, 97, 103-104	Added Inclusive Outreach Bonus Prize, which adds a total of $15,000 to the overall prize pool
	16-18	Updated summaries: Standard Track Phase 2B and Phase 3, Operating Track Phase 2, and LASSO Data Bounty Bonus Prize

	20-21	Added Largest PV System Bonus Prize and Inclusive Outreach Bonus Prize winner announcement dates
	19	Updated the Standard Track Phase 2A submission deadlines as follows: December 1, 2025, 5 p.m. ET (Updated from November 27, 2025) May 28, 2026, 5 p.m. ET (No Change) November 30, 2026, 5 p.m. ET (Updated from November 26, 2025)
	24-25	Updated eligibility in Sections 1.4.2 and 1.4.5
	26	Updated link to study on community perceptions of large-scale solar PV installations in footnote
	30, 41	Added link to optional Phase 1 summary slide template for both Standard Track and Operating Projects Tracks
	33	Reordered bullets under suggested content team provides and updated the Site Description explanation
	53	Clarified that Operating Projects Track teams cannot make location changes after Phase 1, not that no alterations to the site are allowed (e.g., adding sensors for data collection may be necessary)
	40	Updated requirements for Category 4 – Plans for Data Collection: Removed footnote about aggregate total energy production Removed detailed time series data from list of suggested data (moved to Section 7.6.1.1 as required data)

	40, 45, 61	Removed “community perceptions” from list of suggested supplementary data points of interest
	41-42	Basic information about Operating Projects Track winning projects may be made public (e.g., project name, size, executive summary)
	42-43	Removed the energy production modeling data requirement in Operating Projects Track Phase 1
	45	Specified cattle health and performance as suggested data points of interest for the LASSO Data Bounty Bonus Prize
	51	Clarified that DOE may conduct site visits for Operating Project Track Phase 1 teams
	52	Added note that teams in the Standard Track should, to the extent possible, design their PV arrays such that sections of the array co-located with cattle grazing are separately monitorable from sections that are not co-located
	53-54	Added “while meeting soil and plant resource concerns” to Criteria 2 Cattle Integration
	57	Added an additional document upload requirement to Phase 2A’s soil compaction measurements
	56-57	Removed requirement to submit modeled array output from Standard Track Phase 2A. Added requirement to specify area of PV array to be co-located with grazing.
	59	Added requirement to specify site seeding plan
	60	Updated phrasing of two of the bullets under Category 2 (Cattle Integration):

		• Details on Cattle Grazing Operations: Changed the phrase "the animal age ranges" to "the cattle classes and age range" • Grazing Management Plan: Changed the phrase "plant and soil health components" to "plant community and soil health components, including the amount (%) of bare ground"
	61	Removed footnote about aggregate total energy production
	62	Added outreach costs to preliminary budget categories
	64-65	Removed bullet "Construction budgets and financing plan are plausible"
	66-80	Added official rules for Standard Track Phase 2B
	80-96	Added official rules for Standard Track Phase 3 and Operating Projects Track Phase 2
	97–106	Added official rules for LASSO Data Bounty and Inclusive Outreach Bonus Prizes
	112	Added three program policy factors: The size of the PV array(s), with larger typically being desirable; the degree to which the cattle are integrated with the PV system, with more integration being desirable; and the domestic content of the array, with higher percentage domestic content being desirable

1 Executive Summary

The U.S. Department of Energy (DOE) Solar Energy Technologies Office (SETO) is launching the American-Made Large Animal and Solar System Operations (LASSO) Prize. This $10 million prize supports the design and demonstration of cost-effective co-location of photovoltaic (PV) systems with cattle grazing.

The LASSO Prize aims to establish and expand cattle agrivoltaics sites across the United States and to gather comprehensive data and develop best practices for the co-location of solar and cattle grazing. Through a multiphase competitive approach, the prize will incentivize developers, farmers and ranchers, researchers, and other stakeholders to collaborate and develop innovative solar cattle grazing systems and practices. Key goals include:

- Collecting valuable data on costs, impacts, and operations of different cattle agrivoltaics sites across the United States.
- De-risking cattle agrivoltaics designs and operations to facilitate wider adoption.
- Showcasing successful cattle agrivoltaics business and operational models.

By highlighting the dual benefits of energy production and agriculture, the prize aims to support the United States in meeting its decarbonization goals while ensuring sustainable land use.

There are two tracks in the prize: the Standard Track and the Operating Projects Track. The Standard Track is structured to run in several phases, each phase focusing on different aspects of a project, including teaming, system and grazing plan design, construction, implementation, and multiyear data collection. The Operating Projects Track is only for operational cattle agrivoltaics projects and focuses on team building and data collection.

Three bonus prizes will be awarded. The Largest PV System Bonus Prize will be awarded to the team with the largest direct current (DC)-rated PV system over 5 megawatts (MW)-dc from eligible Standard Track Phase 2B submissions. The second bonus prize, the LASSO Data Bounty Bonus Prize, will be awarded to the team from Standard Track Phase 3 or Operating Projects Track Phase 2 that submits the datasets and analyses deemed most valuable and that go above and beyond the minimum requirements. The third bonus prize, the Impactful Outreach Bonus Prize, will be awarded to up to three teams that plan and execute the most inclusive and impactful outreach about, and regarding the implementation of, their field day community event during Standard Track Phase 3 or Operational Projects Track Phase 2.

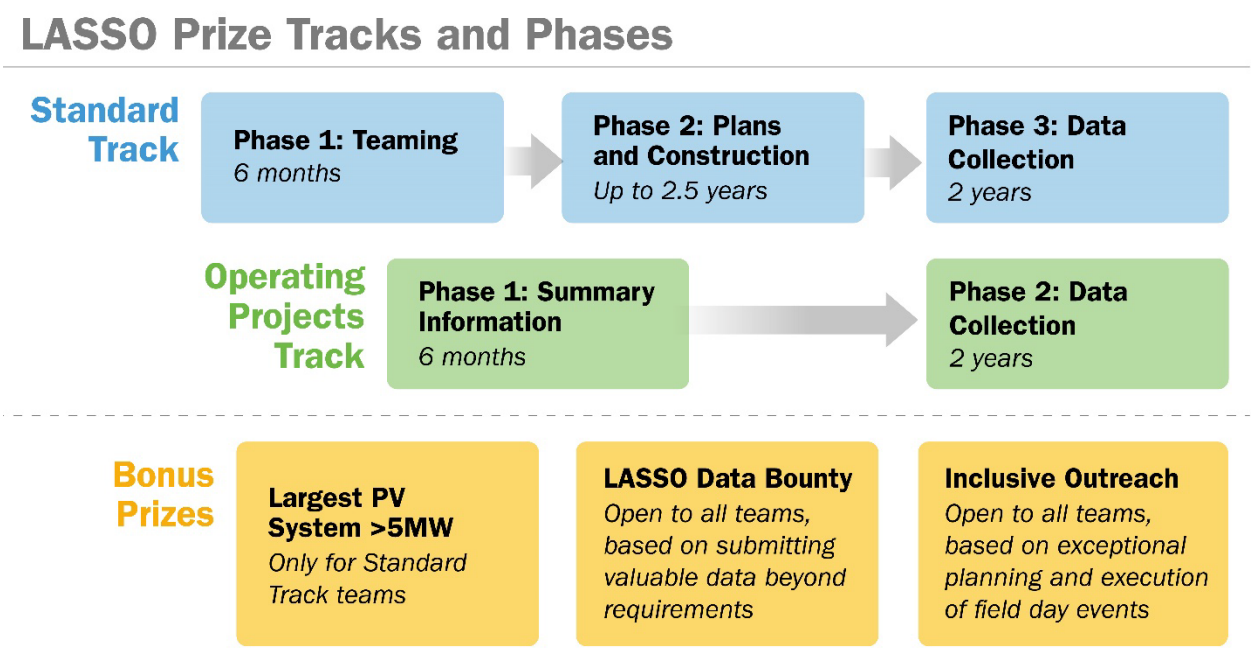

Figure 1. LASSO Prize timeline

The prize is open to teams of U.S.-based individuals and organizations ("competitors"), including solar developers, ranchers, and farmers. Additionally, the prize encourages teams to include members who are hardware or software manufacturers, local governments, utilities, commodity organizations, historically underserved producers,[1] researchers, Extension programs, and/or universities with expertise in cattle research and agrivoltaics. Successful submissions for the LASSO Prize will demonstrate integration of PV with cattle grazing, promote sustainable agricultural and energy practices, enhance land use efficiency, and support rural economies. **Note that cattle agrivoltaics entails the co-location of solar and cattle grazing and does not include rooftop PV systems, projects only within feedlots or finishing pens, projects without integration/co-location of the cattle and the PV array, or projects that include PV co-location with any livestock other than cattle.**

1.1 Prizes

Winning teams from the Standard Track and Operating Projects Track will split a combined cash prize pool of up to $10 million between all phases of the prize as shown below. The Prize

1 Historically Underserved Farmers and Ranchers | Natural Resources Conservation Service. https://www.nrcs.usda.gov/getting-assistance/underserved-farmers-ranchers.

Administrator reserves the right to amend the total prize amount and/or number of awards in either or both tracks, and for each of the bonus prizes, if it does not receive sufficient applications.

1.1.1 Standard Track Awards

Table ES 1. Standard Track Awards

Phase		Number of Awards	Cash Prize Award Per Team	Total Prize Pool
Phase 1		Up to 16	$50,000	$800,000
Phase 2	2A	Up to 9	$225,000	$2,025,000
	2B	Up to 9	$225,000	$2,025,000
	Bonus Prize: Largest PV System >5 MW-dc	Up to 1	$100,000	$100,000
Phase 3	3A	Up to 9	$100,000	$900,000
	3B	Up to 9	$100,000	$900,000
	3C	Up to 9	$100,000	$900,000
	3D	Up to 9	$100,000	$900,000
	Bonus Prize: LASSO Data Bounty[2]	Up to 1	$100,000	$100,000
	Bonus Prize: Inclusive Outreach	Up to 2	$5,000	$10,000
Total			Up to $1,105,000 (including bonus prizes)	$8,660,000

2 A single award will be given for the LASSO Data Bounty Bonus Prize, selected from the total applicant pool inclusive of both the Standard and Operating Projects Tracks.

In addition to the cash prizes noted above, Standard Track Phase 2 teams will be awarded up to 24 hours of no-cost technical assistance from NREL agrivoltaics experts. See Section 5.2.1 and Section 6.2.1 for more information

1.1.2 Operating Projects Track Prizes

Table ES 2. Operating Projects Track Awards

Phase		Number of Awards	Cash Prize Award Per Team	Total Prize Pool
Phase 1		Up to 3	$50,000	$150,000
Phase 2	2A	Up to 3	$100,000	$300,000
	2B	Up to 3	$100,000	$300,000
	2C	Up to 3	$100,000	$300,000
	2D	Up to 3	$100,000	$300,000
Bonus Prize: LASSO Data Bounty[3]		Up to 1	$100,000	$100,000
Bonus Prize: Inclusive Outreach		Up to 1	$5,000	$5,000
Total			Up to $555,000 (including bonus prize)	$1,455,000

In addition to the cash prizes noted above, Operating Projects Track Phase 2 teams will be awarded up to 8 hours of no-cost technical assistance from NREL agrivoltaics experts. See Section 4.2 and Section 7.2.2 for more information.

[3] Note: A single award will be given for the LASSO Data Bounty Bonus Prize, selected from the total applicant pool inclusive of both the Standard and Operating Projects Tracks.

1.2 Prize Tracks and Phases

1.2.1 Standard Track Overview Phase 1 and Phase 2

Phase 1: Team Formation and Project Planning

Competitors (either individuals or organizations) will form teams composed of solar developers (required); cattle ranchers or farmers (required); and other stakeholders (optional) such as landowners, Extension agents, historically underserved producers, research organizations, local utilities, product developers, and commodity organizations. In Phase 1, teams are asked to identify at least one potential site and develop a plan for integrating PV systems with cattle grazing. Submission requirements include team information, project details, a comprehensive narrative, a summary slide, and letters of support. The goal of Phase 1 is to lay the groundwork for Phase 2 and Phase 3, ensuring that competitors have a solid foundation and a feasible plan for their cattle agrivoltaics projects.

Phase 2A: Detailed Planning, Design, and Permitting

In Phase 2A, teams will refine their project plans; finalize system design; and complete thorough project due diligence, including receiving/producing engineering designs and drawings, receiving applicable land use permits or approvals, and submitting an interconnection application. This phase requires updated team information, detailed system specifications, and a comprehensive narrative addressing design enhancements or adjustments, construction timelines, cattle integration plans, and data collection strategies for Phase 3. Successful completion of this phase will prepare teams for the construction and data collection phases.

Teams must obtain National Environmental Policy Act (NEPA) determination prior to the conclusion of Phase 2A to be eligible for a Phase 2A award. Teams are encouraged to begin the NEPA determination process as soon as they have been notified of their Phase 1 award and a minimum of 60 days before the submission deadline.

Phase 2B: Construction and Initial Operation.

Teams will construct their agrivoltaics systems, demonstrate operational viability, obtain interconnection approval, and begin cattle integration. Submissions must include comprehensive documentation including system photos, as-built drawings, Permission to Operate documentation or an independent engineer's report, and evidence of cattle integration. Teams are also required to submit records of the cattle herd prior to its integration with the PV system, a detailed two-year data

collection plan, and a communications plan that includes field day community event(s). While cattle must be on-site by phase end, full integration with the PV array is not immediately required if more time is needed for maintenance and/or recovery of the soil or vegetation. DOE and the Prize Administrator may conduct interviews and site visits before announcing winners, and technical assistance from NREL experts is available throughout the phase. Teams must win Phase 2B to advance to Phase 3.

1.2.2 Operating Projects Track Phase 1

Phase 1: Documentation of Existing Projects

Teams with eligible cattle agrivoltaics systems that are fully operational by the Phase 1 application deadline and that are over 250 kW-dc will submit comprehensive project documentation, including team information, system specifications, cost information (which will not be made public), and cattle integration details. Teams will also submit a communications strategy that includes field day community event(s). The goal of this phase is to collect information on the design and operational aspects of these systems in preparation for Phase 2.

1.2.3 Standard Track Phase 3, Operating Projects Track Phase 2

In these phases, teams will collect and analyze data over two years, submitting reports every six months (Standard Track subphases 3A–3D; Operating Projects Track subphases 2A–2D). Teams will track and report PV system performance/energy production; maintenance activities; cattle growth, health, production, and behavior; and financial metrics, including costs and revenue. Energy production data must be detailed (1- to 15-minute intervals) and will be made public through PVDAQ with optional anonymization. Teams must host at least one field day community event during later subphases (3B–3D for Standard Track, 2B–2D for Operating Projects Track) to share their experiences with stakeholders. Although cattle must be on-site during these phases, they are not required to be integrated/co-located with the PV array at all times. Teams should maximize integration to the extent that it benefits cattle, soil, and vegetation health. Teams must pass all criteria for each subphase to receive awards, though data showing challenges is equally as valuable as data showing successes.

The rules for Standard Track Phase 3 and Operating Projects Track Phase 2 have been combined as the requirements for data collection, reporting, field day community event(s), and evaluation criteria are the same. See Section 7 for more details.

1.2.4 Bonus Prizes

The LASSO Prize offers three bonus prizes: the Largest PV System Bonus Prize, the LASSO Data Bounty Bonus Prize, and the Inclusive Outreach Bonus Prize. For more information about the bonus prizes, see Section 8.

Largest PV System

The Largest PV System Bonus Prize will be awarded to the team with the largest operational DC-rated PV system over 5 MW-dc from eligible Standard Track Phase 2B submissions. This bonus prize encourages teams to build high-capacity PV systems that push the boundaries of current U.S. cattle agrivoltaics operations. Note: Only the capacity of the PV systems that cattle are integrated/co-located with will be counted toward the system size in determining the winner of this bonus prize (i.e., if a team's project includes a 6-MW-dc PV system, but cattle only graze under and around a 5-MW-dc portion of the system, only that 5 MW-dc will be considered toward the bonus prize).

LASSO Data Bounty

The LASSO Data Bounty Bonus Prize will be awarded to the team that provides the most valuable additional datasets beyond minimum requirements. Suggested data includes panel soiling, soil health, plant community structure and function; cattle biometrics and performance, cattle behavior, and/or additional PV system metrics. Submissions will be evaluated on data quality (methodology, specifications, completeness) and potential impact for future research and deployment.

Inclusive Outreach

The Inclusive Outreach Bonus Prize will award up to three teams for exceptional planning and execution of their field day community events. Teams will be evaluated on the effectiveness of their outreach and event execution, with emphasis on accessibility, engaging diverse audience, clear messaging, and post-event communication.

The bonus prizes described above are designed to incentivize exceptional performance beyond the core requirements of the LASSO Prize.

1.3 Key Dates

The following tables below for key LASSO Prize dates.

Table ES 3. Standard Track Key Dates

Date	Standard Track Events
Phase 1 (September 2024–May 2025)	
Sept. 10, 2024	Open for Phase 1 Submissions
Sept. 24, 2024, 1 p.m. ET Dec. 4, 2024, 1 p.m. ET	A recording of the informational webinar and slide deck can be found on HeroX.
March 6, 2025, 5 p.m. ET	Phase 1 Submission Deadline
May 2025	Phase 1 Winner Announcement (Anticipated)
Phase 2 (May 2025–March 2028)	
May 2025*	Phase 2A Open for Submissions
Dec. 1, 2025, 5 p.m. ET May 28, 2026, 5 p.m. ET Nov. 30, 2026, 5 p.m. ET	Phase 2A Submission Deadlines[4]
Rolling Announcement; Feb. 2026–Feb. 2027	Final Phase 2A Winners Announced
Rolling Opening Date: Feb. 2026–Feb. 2027*	Phase 2B Open for Submissions
Feb. 9, 2028, 5 p.m.	Phase 2B Submission Deadline
March 2028*	Final Phase 2B Winners Announced

[4] Approximately 30–60 days after each Phase 2A submission deadline, the Prize Administrator will publicly announce the winners, notify the winners, and request the necessary information to distribute the prizes. Phase 2A has multiple submission deadlines to accommodate projects developing on different timelines.

Date	Standard Track Events
	Largest PV System Bonus Prize Winner Announced (Standard Track)
Phase 3 (April 2028–May 2030)	
April–Sept. 2028*	Phase 3A Data Collection Period
Oct. 19, 2028, 5 p.m. ET	Phase 3A Submission Deadline
Oct. 2028–March 2029*	Phase 3B Data Collection Period
April 19, 2029, 5 p.m. ET	Phase 3B Submission Deadline
April 2029–Sept. 2029*	Phase 3C Data Collection Period
Oct. 18, 2029, 5 p.m. ET	Phase 3C Submission Deadline
Oct. 2029–March 2030*	Phase 3D Data Collection Period
April 18, 2030, 5 p.m. ET	Phase 3D Submission Deadline and Final Report Deadline LASSO Data Bounty Prize Submission Deadline
May 2030*	LASSO Data Bounty Bonus Prize Winner Announced Inclusive Outreach Bonus Prize Winner(s) Announced – Standard Track
Winners for Phases 3A–3D will be announced, and awards will be paid, approximately 30–60 days following each submission deadline.	

*Exact dates to be determined.

Table ES 4. Operating Projects Track Key Dates

*Exact dates to be determined

Date	Operating Projects Track Events
Phase 1 (September 2024–May 2025)	
Sept. 10, 2024	Open for Phase 1 Submissions
Sept. 24, 2024, 1 p.m. ET Dec. 4, 2024, 1 p.m. ET	A recording of the informational webinar and slide deck can be found on HeroX.
March 6, 2025, 5 p.m. ET	Phase 1 Submission Deadline
May 2025	Phase 1 Winner Announcement (Anticipated)
Phase 2 (June 2025–May 2027)	
June–November 2025*	Phase 2A Data Collection Period
December 18, 2025, 5 p.m. ET	Phase 2A Submission Deadline
December 2025–May 2026*	Phase 2B Data Collection Period
June 18, 2026, 5 p.m. ET	Phase 2B Submission Deadline
June–November 2026*	Phase 2C Data Collection Period
Dec. 17, 2026, 5 p.m. ET	Phase 2C Submission Deadline
December 2026–May 2027*	Phase 2D Data Collection Period
June 17, 2027, 5 p.m. ET	Phase 2D Submission Deadline and Final Report Deadline LASSO Data Bounty Prize Submission Deadline Inclusive Outreach Bonus Prize Winner Announced – Operating Projects Track
May 2030*	LASSO Data Bounty Prize Winner Announced (date aligned with Standard Track)
Winners for Phases 2A–2D will be announced and awards will be paid approximately 30–60 days following each submission deadline.	

1.4 Eligibility and Competitors

1.4.1 General Eligibility

The information below applies to both the Standard and Operating Projects Tracks.

Only submissions relevant to the program goal requirements laid out in Section 2.2 of this document will be considered for an award. The Prize Administrator has the right to refuse any submission for incompleteness or unresponsiveness to the program goal requirements.

The prize is open only to the following:

- Private (for-profit and nonprofit) entities
- Non-Federal government entities, such as states, counties, Tribes, and municipalities
- Academic institutions (and national laboratories are not eligible to compete on teams, but they may support teams in the competition if they are engaging in compliance with lab partnership requirements)
- Individuals who are citizens or legal permanent residents of the United States.

Teams are subject to the following requirements:

- The lead applicant must be based in the United States.
- A group of individuals competing as one team may win, provided that the online account holder of the submission is a U.S. citizen or permanent resident.
- Individuals competing as part of a team are eligible to participate if they are legally authorized to work in the United States.
- The project site must be in the United States.
- Teams **must include** a U.S.-based solar developer and a U.S.-based rancher or farmer.
- PV arrays sited solely on feedlots or finishing pens are not eligible LASSO Prize awards; only PV arrays integrated with cattle grazing will be considered when determining system capacity and prize eligibility.
- Project PV systems must be a minimum of 250 kW-dc[5] total. Only the capacity of the PV system that the cattle graze under and around will be counted toward system size for

[5] Larger systems are desirable, see Section 3.7.4 (Standard Track) and Section 4.7.4 (Operating Projects Track).

determining winners (e.g., a 4-MW-dc PV array with only 250 kW-dc that cattle graze under will be counted as a 250-kW-dc system when system size is considered for awards).

- Private entities must be incorporated in and maintain a primary place of business in the United States.
- Academic institutions must be based in the United States.
- DOE employees, members of their immediate families (e.g., spouses, children, siblings, or parents), and persons living in the same household as such persons, whether related or not, are not eligible to participate in the prize.
- Individuals who worked at DOE (federal employees or support service contractors) within six months prior to the submission deadline of any phase are not eligible to participate in any prize phases in this prize.
- Federal entities and federal employees are not eligible to participate in any portion of the prize.
- Entities and individuals publicly banned from doing business with the U.S. government, such as entities and individuals debarred, suspended, or otherwise excluded from or ineligible for participating in federal programs, are not eligible to compete.
- Individuals participating in a foreign government talent recruitment program[6] sponsored by a country of risk[7] and teams that include such individuals are not eligible to compete.
- Entities owned by, controlled by, or subject to the jurisdiction or direction of a government of a country of risk are not eligible to compete.

[6] A foreign government sponsored talent recruitment program is defined as an effort directly or indirectly organized, managed, or funded by a foreign government, or a foreign government instrumentality or entity, to recruit science and technology professionals or students (regardless of citizenship or national origin, or whether having a full-time or part-time position). Some foreign government sponsored talent recruitment programs operate with the intent to import or otherwise acquire from abroad, sometimes through illicit means, proprietary technology or software, unpublished data and methods, and intellectual property to further the military modernization goals and/or economic goals of a foreign government. Many, but not all, programs aim to incentivize the targeted individual to relocate physically to the foreign state for the above purpose. Some programs allow for or encourage continued employment at U.S. research facilities or receipt of federal research funds while concurrently working at and/or receiving compensation from a foreign institution, and some direct competitors not to disclose their participation to U.S. entities. Compensation could take many forms, including cash, research funding, complimentary foreign travel, honorific titles, career advancement opportunities, promised future compensation, or other types of remuneration or consideration, including in-kind compensation.

[7] DOE has designated the following countries as foreign countries of risk: Iran, North Korea, Russia, and China. This list is subject to change.

- To be eligible, an individual authorized to represent the team must agree to and sign the following statement upon registration with HeroX:

  I am providing this submission package as part of my participation in this prize. I understand that the information contained in this submission will be relied on by the federal government to determine whether to issue a prize to the named competitor. I certify under penalty of perjury that the named competitor meets the eligibility requirements for this prize competition and complies with all other rules contained in the Official Rules document. I further represent that the information contained in the submission is true and contains no misrepresentations. I understand false statements or misrepresentations to the federal government may result in civil and/or criminal penalties under 18 U.S.C. § 1001 and § 287, and 31 U.S.C. §§ 3729-3733 and 3801-3812.

DOE may conduct a risk review, through government resources, of the competitor and project personnel to identify potential risks of foreign interference. The result(s) of a risk review may supersede the results of the prize competition, preventing DOE from selecting a submission or reversing the selection of a submission for a prize. The results of a risk review are not appealable.

1.4.2 Track-Specific Eligibility

Teams with existing arrays that plan to introduce cattle to their systems or make alterations to existing arrays before introducing cattle are eligible for the Standard Track. Teams with cattle agrivoltaics systems already built and operational, with cattle integrated, at the time of the Phase 1 application deadline are ineligible for the Standard Track but may be eligible for the Operating Projects Track. See Section 4 for details.

For both the Standard and Operating Projects track, Phase 2 eligibility is limited to winners of Phase 1 of the respective track. Additionally, in the Standard Track, teams must win Phase 2A to be eligible for Phase 2B and must win Phase 2B to be eligible for Phase 3.

1.4.3 Applying to Multiple Tracks

Projects may only be submitted to a single track, either to the Standard Track or to the Operating Projects Track.

1.4.4 Competitors on Multiple Submissions

Competitors are allowed to be a part of multiple teams and/or submissions. Each submission must be for a distinct project or system (i.e., has unique location, design parameters, and team) and meet all eligibility criteria specified in the rules. However, a competitor may only be the lead on one submission.

1.4.5 Bonus Prize Eligibility

The Largest PV System Bonus Prize is open to teams in **Standard Track Phase 2B**. All eligible teams from this phase will automatically be considered for the bonus prize, with no additional submission materials required. The size of the PV system that will be considered when awarding this prize is only the portion of the PV system with which the cattle are integrated/co-located. See Section 8.1 for more information on requirements.

The LASSO Data Bounty Bonus Prize is open to teams in both the **Standard Track Phases 3A–3D** and **Operating Projects Track Phases 2A–2D**. Teams must submit additional information-rich datasets and reports (e.g., data with higher spatiotemporal resolution, or additional data addressing important topics such as soil health, plant community structure and function, panel soiling, cattle biometrics and performance, cattle behavior, etc.) by the end of Phase 3 (Standard Track) or the end of Phase 2 (Operating Projects Track) to be eligible. See the Executive Summary for key dates and Section 7.2 for more details on data requirements for all competitors and suggestions for additional data teams could collect and submit for the LASSO Data Bounty Bonus Prize. See Section 8.2.1 for more information on bonus prize requirements.

The Inclusive Outreach Bonus Prize is open to teams in both **Standard Track Phase 3** and **Operating Projects Track Phase 2**. Teams must submit documentation of their plans and efforts to provide accessible, inclusive, and impactful outreach about their projects and their field day community events, as well as documentation of the outreach efforts they conducted and the results of the field days. See Section 8.3 for more information on requirements.

2 Background

2.1 Prize Background

Analysis of potential pathways toward a carbon-free electricity system indicate that the United States may need to deploy almost 1 terawatt of PV capacity by 2035, which could require approximately 6 million acres of land.[8] Despite positive attitudes toward PV systems among most people who live close to one, local opposition to development and issues related to land use are becoming more frequent barriers to PV deployment, with more local jurisdictions passing restrictions or bans on new renewable energy deployment.[9] Developers cite local opposition as a primary factor in project delay or cancellation. One major concern is the conversion of agricultural land and the impact such conversion has on local communities and farmers or ranchers.

Agrivoltaics has the potential to reduce land-use conflict. Most of the U.S. Department of Energy (DOE) Solar Energy Technologies Office's (SETO's) agrivoltaics research is focused on co-locating PV systems with pollinator habitat, specialty crops, or small animals that can help manage vegetation (primarily sheep), each with multiple existing examples in the United States. Resources[10] are available for agricultural producers, landowners, and developers to learn about agrivoltaics implementation and best practices.

According to the U.S. Department of Agriculture, 29% of the land in the United States is grassland and pasture range,[11] primarily used for cattle. Co-location of cattle grazing and PV systems is a major opportunity to reduce land use conflict, preserve agricultural land, increase landowner and farmer/rancher revenues, and may also benefit animal welfare and plant and soil health while easing some of the barriers to solar energy deployment. Stakeholders have indicated the primary barriers to co-location of cattle grazing and PV systems are added costs (e.g., to increase structural support) and the lack of examples and information that show viability and validate the benefits. This prize will bring together solar developers; farmers or ranchers; and other stakeholders to form

8 U.S. Department of Energy. Solar Futures Study. https://www.energy.gov/eere/solar/solar-futures-study.

9 Impact of Siting Ordinances on Land Availability for Wind and Solar Development. https://www.nrel.gov/docs/fy24osti/87476.pdf; Understanding Support & Opposition to Large-Scale Renewable Energy Projects. https://eta-publications.lbl.gov/sites/default/files/ccsd_t2_results_summary_final.pdf.

10 Agrivoltaics: Solar and Agriculture Co-Location. https://www.energy.gov/eere/solar/agrivoltaics-solar-and-agriculture-co-location.

11 U.S. Department of Agriculture Economic Research Service. Maps and State Rankings of Major Land Uses. https://www.ers.usda.gov/data-products/major-land-uses/maps-and-state-rankings-of-major-land-uses/.

teams; build pilot sites; and collect data on best practices, costs, applicable business models, and associated energy and agricultural outcomes.

2.2 Program Goal Requirements

Only submissions relevant to the goals of the American-Made Large Animal and Solar System Operations (LASSO) Prize are eligible to compete. The Prize Administrator must conclude that all of the following statements are true for submissions to be eligible:

- The designs and business models described in the submission have the potential to benefit the United States.
- The activities or proposed activities do not involve the lobbying of any federal, state, or local government office.
- The projects described in the submission involve the co-location of cattle grazing and a solar photovoltaic (PV) system.
- The cattle agrivoltaics system described in the submission has a **rated capacity of at least 250 kW-dc**; larger systems are desirable. See Section 3.7.4 (Standard Track) and Section 4.7.4 (Operating Projects Track).
- If the cattle are integrated/co-located with only a portion of the total PV system, that portion has a capacity of at least 250 kW-dc.
- The cattle agrivoltaics design and business model described in the submission could be translated and/or scaled to other locations in the United States.

2.3 Diversity, Equity, Inclusion, and Accessibility

DOE is committed to investing in innovations that deliver benefits to the American public and lead to commercialization of technologies and products that foster sustainable, resilient, and equitable access to clean energy. Further, DOE is committed to supporting the development of more diverse, equitable, inclusive, and accessible workplaces to help maintain the nation's leadership in science and technology. As such, teams are encouraged to incorporate diversity, equity, inclusion, and accessibility into their projects.

2.4 National Environmental Policy Act Determinations

The National Environmental Policy Act (NEPA) was signed into law on January 1, 1970. NEPA requires federal agencies to assess the environmental effects of their proposed actions prior to making decisions. Competitors who win Standard Track Phase 1 and move on to Standard Track Phase 2A

will be **required to complete the NEPA process and receive NEPA determination for their projects in order to be eligible for a Phase 2A award**. Teams that do not receive NEPA determination will not be eligible for a Phase 2A award. See Section 5.6.5. Teams in the Operating Projects Track with existing systems do not need to obtain a NEPA determination.

NEPA determinations are made by DOE's NEPA Office, not by the Prize Administrator.

2.5 Applications Not of Interest

Applications that do not present strategies that address the goals specified in Section 2.2 (Program Goal Requirements) will not be considered:

- Applications in which the PV system capacity is rated less than 250 kW-dc will not be considered.
- Applications in which the PV system is wholly on a roof, feedlot, or finishing pen, or in which where there is no significant integration/co-location of the cattle and the PV system will not be considered.
- Applications in which cattle graze under/around a portion of the PV system with rated capacity less than 250 kW-dc (even if the total system is larger than 250 kW-dc) will not be considered.
- Applications for co-location of PV systems that include PV co-location with any livestock other than cattle, such as sheep, goats, bison, rabbits, etc., will not be considered.

2.6 Additional Requirements

Please read and comply with the additional requirements in Appendix A.

COMPETITORS WHO DO NOT COMPLY WITH THESE REQUIREMENTS MAY BE DISQUALIFIED.

3 Prize Rules: Standard Track Phase 1

3.1 Goal

The first phase of the Standard Track of the LASSO Prize aims to incentivize competitors to form teams that collectively have the resources and expertise to design and pilot practical approaches that demonstrate the feasibility and benefits of cattle agrivoltaics systems. Note that cattle agrivoltaics entails the co-location of solar and cattle grazing and **does not include systems where the PV is on a roof or in which where there is no significant integration/co-location of the cattle and the PV system**. Competitors participating in Phase 1 will form teams, identify at least one potential

site, and describe a plan for co-locating PV with cattle grazing. This phase is designed to lay the groundwork for Phase 2 where teams will design and build their agrivoltaics systems.

3.2 Prizes

Phase 1 of the Standard Track of the LASSO Prize offers up to 16 cash prizes of $50,000 each. The total prize pool is up to $800,000 in cash awards.

Teams must win Phase 1 to participate in Phase 2. For additional Standard Track eligibility, please see Section 1.4.

3.3 How To Enter

Go to HeroX, click on the "Solve This Challenge" button, and follow the instructions for registering and submitting all required materials before the submission deadline. Competitors can also form teams or find partners through the HeroX platform via the teaming resource.[12] It is the competitors' responsibility to use this resource, reach out, and form their own teams, should they so desire.

3.4 Important Dates

Refer to the timeline on HeroX and in the Executive Summary for relevant dates and deadlines.

3.5 Standard Track Phase 1 Prize Process

This phase of the prize consists of the following steps:

1. **Submission**—Competitors form teams and then develop and submit comprehensive project proposals for integrating PV with cattle grazing. Teams must complete their submissions online before the submission deadline.
2. **Evaluation**—The Prize Administrator screens submissions for eligibility and completion and assigns subject matter experts as reviewers to independently score the content of each submission. The reviewers evaluate the following criteria for each submission:
    - **Category 1—Organizations, Partnerships, and Collaboration:** Each team member's mission, history, expertise, and role in the project
    - **Category 2—Proposed Project Design:** The overall approach for integrating PV with cattle grazing, including the preliminary PV system design; site layout; basic grazing plan; and any innovative operational, business, or financial arrangements as well as the plan for

[12] LASSO Prize Teaming Form. https://www.herox.com/LASSO/resource/1934.

installation of the PV system, including any considerations regarding the soil, forage, cattle, and/or other factors

- **Category 3—Benefits, Impact, and Scalability:** The plans for outreach and education efforts in the community, plans for specific benefits to the community, and the potential for scaling

3. **Announcement**—After the winners are publicly announced, the Prize Administrator notifies them and requests the necessary information to distribute cash prizes.

3.6 What To Submit

A complete submission package must include the following items:

- **Team and Project Information** (required; select elements will be made public)
- **Narrative** (required; will not be made public)
- **Summary PowerPoint Slide** (required; will be made public; applicants may use the template[13] provided through HeroX[14])
- **Letters of Support** (required; will not be made public)
- **Supporting Documentation** (optional; will not be made public).

The following sections give guidance on what information to provide and how reviewers will evaluate and score your submission. Reviewers will evaluate your submission by assigning a single score (0–6) for each scored submission section, based on their overall agreement or disagreement with a series of statements.

Table 1. Phase 1 Standard Track Scoring Scale

0	1	2	3	4	5	6
Non-responsive	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

[13] To assist Teams, the Prize Administrator is providing an elective template to illustrate the types of information needed to evaluate Teams. Teams are not required to use this template and may submit using any form or format of their choosing. However, all submissions should address the substantive measures outlined in the template and described in this Rules document.

[14] Optional Template: Submission Summary Slide. https://www.herox.com/lasso/resource/1937.

3.6.1 Team and Project Information

Enter the basic information listed below and upload the requested documentation about your submission directly on the HeroX submission form. The HeroX submission form specifies the same required information and documentation. Each team will be made up of multiple team members ("competitors") as outlined in the eligibility criteria. See Section 1.4. The team will put forward one competitor to be the lead competitor. The lead competitor will be the main point of contact and in charge of submissions and distribution of winnings. See Appendix A for more information.

Elements marked with an asterisk (*) will be made public.

Team Information (submitted via HeroX submission form)

- Project title*
- Lead competitor name*
- Lead competitor organization*
- Lead competitor type (cattle rancher/farmer, dairy farmer, landowner, solar developer, historically underserved producer organization, product developer, commodity organization, utilities, universities, other [please specify])
- Lead competitor address (street, city, state, and nine-digit ZIP code)
- Lead competitor contact information (email, phone number, and links to any professional online profiles)
- Lead competitor resume or curriculum vitae (CV)
- For each other competitor on the team, please provide:
    - Competitor name*
    - Competitor organization*
    - Resume / CV
    - Competitor type
    - Contact information (email, phone number, and links to any professional online profiles)
    - Brief description of role/contribution to the project.

- **Document Upload:** Upload a spreadsheet or chart detailing each competitor's role on the team in the proposed project (e.g., a responsible, accountable, supportive, consulted, and informed [RASIC][15] chart).

Project information (submitted via HeroX submission form) must include:

- Anticipated project site location(s) (county/municipality and state)
- Site control status for each potential site (e.g., owned by a team member, under an active lease agreement, etc.)
- Anticipated total PV system capacity (kW-dc)
    - Note: Systems must have a minimum capacity of 250 kW-dc, but larger systems are desirable [see Section 1.4 for information on eligibility and Section 3.7 for information on how we determine winners]. If the cattle are integrated/co-located with only a portion of the total PV system, that portion must have a capacity of at least 250 kW-dc).
- Quantity and description of cattle that will be or are anticipated to be part of the project and integrated/co-located with the PV system. Description of cattle must include breed(s), animal age range, and whether the cattle are beef or dairy cattle.
- Executive Summary (250-word maximum) consisting of an overview of the project concept and its potential impact
- **Document Upload:** Upload a high-level Gantt chart[16] or other project management chart identifying key resources, tasks, and milestones.

3.6.2 Narrative

Every submission must address each of the following three categories. The content bullets are only suggestions to guide your responses. Responses for each category do not have a word limit; however, **your aggregate response in the narrative document must not exceed 5,000 words**, not including captions, figures, graphs, and/or references. A word count must be included at the end of

[15] A RASIC chart is a project management tool used to clarify roles and responsibilities within a team or organization. The acronym RASIC stands for: Responsible (the person(s) who do the work to achieve the task, with the possibility of multiple responsible individuals), Approver (the person who makes the final decision and has ultimate ownership, typically one), Support (the person(s) who provide assistance or resources needed to complete the task), Informed (the person(s) who need to be kept informed about the task's progress and completion), and Consulted (the person(s) who need to be consulted for their input or advice).

[16] A Gantt chart is a visual project management tool that shows a project's schedule. It uses horizontal bars to represent tasks, indicating their start and end dates.

your submission. The submission summary slide, letters of support, and supporting documentation do not count against this word count. You may also include **up to 10 supporting photos, images, figures, or graphs**. The reviewers will score the questions based on the content you have provided.

Table 2. Phase 1 Standard Track Narrative

Narrative Maximum 5,000 words and up to 10 supporting images or figures (PDF)
Category 1—Organizations, Partnerships, and Collaboration List partners, their roles, and their contributions
Suggested content team provides: • **Lead Competitor:** Briefly describe yourself/your organization, including mission/goals, history, and areas of expertise. Explain your role in the project and why you are well-suited to lead this agrivoltaics initiative. Highlight any previous experience with similar projects or relevant accomplishments. • **Other Team Members:** Briefly describe the other team members, including mission/goals, history, and areas of expertise. Explain each member's roles and what they will contribute to the project. Highlight any previous experience with similar projects or relevant accomplishments.
Category 2—Proposed Project Design Provide a high-level overview of your proposed agrivoltaics system, showcasing your initial ideas and plans for integrating solar energy production with cattle grazing
Suggested content team provides: • **Project Overview:** Provide an overview of your proposed approach for integrating PV with cattle grazing. • **Site Description**: Briefly describe the grazing/array site, including the total acreage of the site and the estimated coverage area of PV system(s) in acres. Identify the type of ecological site (i.e., plant communities) on which cattle grazing will occur.

- **System Design:** Discuss the preliminary design, components, and layout of the PV system. Please describe what stage of development your project is in (i.e., predevelopment, development, construction, existing array but cattle are not yet integrated, etc.).
- **Innovation:** Highlight any unique or innovative equipment, agricultural practices, grazing practices, control systems, system designs, or methods that will be implemented and how they will improve the project.
- **Installation Plan:** Detail the plan for installation of the PV system, including any considerations regarding the soil, cattle, and/or other factors.
- **Cattle Management and Grazing Plan:** Discuss your overall cattle management and grazing plan for this project, including an explanation of the frequency with which the cattle will be co-located with the solar system, how many cattle will be co-located, what portion of the PV system they will be co-located with (both in area and kW-dc), and the logic behind the plan.
- **Data Collection and Analysis Plan:** Briefly describe how your project will collect and share data on system performance/energy production, operations and maintenance (O&M) procedures and events, cattle growth, cattle health, milk production (if applicable), and any other data points you propose to track.
- **Site Control:** If the site(s) is/are not currently owned or leased by a team member, provide a plan for obtaining control before Phase 2A is completed.

Category 3—Benefits, Impact, and Scalability

Describe the economic, environmental, and social benefits of the project

Suggested content team provides:

- **Plans for Outreach, Education, and Any Benefits Provided**: Briefly explain your plans, in whatever level of finalization they exist, to use this project to educate the public, share the results of this project, and/or provide any other specific benefits to any groups not directly involved in the project and the community where the project will be located.
- **Scalability:** Briefly explain how your project's design and approach may be scaled and replicated in other locations, showcasing its potential to benefit others and promote widespread adoption of agrivoltaics systems. Also explain how the project may provide information about barriers and challenges that inform future projects.

3.6.3 Submission Summary Slide (Will Be Made Public)

Make a public-facing, one-slide submission summary that introduces your team and your project. Teams may use the template[17] available on HeroX but are not required to do so. Any text must be readable and must be in at least 14-point font.

3.6.4 Letters of Support (Required)

Letters of support are required from all team members who are not the lead. The letters of support should briefly describe the member's role in the project, what they will be contributing and how they plan to collaborate with other team members. Optional letters of support from outside of the team may include letters of support from other partners, stakeholders, and community members. These letters should detail their commitment to the project, specify their roles and contributions, and express their support for the initiative.

3.6.5 Supporting Documentation (Optional)

To support the narrative document (see Section 3.6.2), teams may upload a single PDF of additional supporting documentation (up to 15 pages), which could include items such as executive summaries or signature pages of relevant permits, site control documentation, feasibility studies, technical specifications, environmental impact assessments, or other materials that support the viability and potential success of your project.

3.7 How We Determine and Award Winners

The Prize Administrator will screen all completed submissions and ensure that all competitors are eligible. Next, the Prize Administrator, in consultation with DOE, will assign subject matter expert reviewers who independently score the content of each submission. The reviewers will be composed of federal and/or external nonfederal subject matter experts and representatives with expertise in areas relevant to the competition. They will review the team's submission package according to the criteria below.

3.7.1 Scoring Criteria

The expert review team will consider the below scoring criteria in relation to the entirety of the Phase 1 submission package. In addition, reviewers will score an overall "reviewer recommendation," which has no direct corresponding submission requirement. Rather, it is an overall assessment of all

[17] To assist Teams, the Prize Administrator is providing an elective template to illustrate the types of information needed to evaluate Teams. Teams are not required to use this template and may submit using any form or format of their choosing. However, all submissions should address the substantive measures outlined in the template and described in this Rules document.

materials submitted through HeroX. Reviewers will evaluate the submission by assigning a single score (0–6) for each section based on their overall agreement or disagreement with a series of statements.

Scoring criteria are as follows in Table 3.

Table 3. Phase 1 Standard Track Criteria

Category 1—Organizations, Partnerships and Collaboration
A single score on a scale of 0–6 is provided, taking the following statements into consideration: • **Team:** The lead organization has compelling reasons for participating in the LASSO Prize and has demonstrated relevant experience, which makes them exceptionally well-suited to lead this agrivoltaics initiative. Their previous accomplishments in similar projects underscore their capability and readiness to succeed. • **Other Team Members**: The project includes a strong and diverse group of partners. The other team members bring complementary resources and expertise. As a group, the team is fully capable of designing and deploying a scalable cattle agrivoltaics system and collecting data on said system for two years. Additionally, roles and responsibilities are clearly defined and agreed upon.
Category 2—Proposed Project Design
A single score on a scale of 0–6 is provided, taking the following statements into consideration: • **Project Overview:** The project offers a well-conceived and practical approach for integrating PV with cattle grazing, demonstrating a balanced design that effectively optimizes both activities. • **System Design, Installation Plan, and Innovation:** The project proposes system(s) totaling at least 250 kW-dc co-located with cattle grazing (larger systems are desirable, see Section 3.7). The technology and any innovations are described in detail and have strong potential to scale in the market. The installation plan is thorough and lays out any specific considerations for soil and cattle. • **Cattle Management and Grazing Plan:** The cattle management and grazing plan is designed to thoroughly and effectively evaluate the viability, benefits, and impacts of co-location of cattle and PV.

- **Data Collection Plan:** The data collection plan is designed to effectively evaluate the viability, benefits, and impacts of the co-location of cattle and PV. It outlines robust methods for collecting and sharing data on (at a minimum) system performance, energy production, O&M procedures and events, cattle growth and health, and milk production (if applicable). The applicant specifies any additional metrics they plan to track and/or analysis they plan to perform.
- **Site Control:** If site(s) is/are not currently owned or leased by a team member, a plan to obtain site control by end of Phase 2A is clearly explained and plausible.

Category 3—Benefits, Impact, and Scalability

A single score on a scale of 0–6 is provided, taking the following statements into consideration:

- **Plans for Outreach, Education, or Any Benefits Provided**: Submission demonstrates that the team has thought about how to maximize the benefits of this project for the public and puts forth compelling ideas to do so.
- **Scalability:** The application presents a clear and feasible approach for scaling and replicating its design in other locations, highlighting its potential to benefit others, and promoting the widespread adoption of cattle agrivoltaics systems. The application is also clear about how challenges and barriers with the approach and design could be identified, solved, or shared to improve the public understanding of cattle agrivoltaics and inform future projects.

Reviewer Recommendation

There is no direct corresponding submission requirement for this score. Rather, it is an overall assessment of all materials submitted though HeroX

A single score on a scale of 0 to 6 is provided, taking the following statement into consideration:

- The team and plan should be strongly considered for a prize.

3.7.2 Reviewer Panel Scoring

The scoring of submissions will proceed as follows:

- Experts will review each submission individually and assess the team's response to each statement in the three areas described in Section 3.7.1.

- Reviewers will score each category, including the Reviewer Recommendation, with 0–6 points, depending on the degree to which the reviewer agrees that the submission reflects the statements for consideration.
- Each category score will be added together to generate a total score for the submission.
- The total scores from each reviewer will be averaged to produce a final score for the team. This score will inform the judge's decisions on prize awards.

Note: Expert reviewers also provide comments on the submissions they review. The Prize Administrator intends to provide comments to teams after the winners are announced. The comments are the opinions of the expert reviewers and do not represent the opinions of DOE.

3.7.3 Interviews

DOE may decide to interview some or all teams. The interviews, if requested, are required for the award. They would be held prior to the announcement of the winners and would serve to help clarify questions the reviewers may have.

3.7.4 Final Determination

DOE will designate a federal employee as the judge before the final determination of the winners. Final determination of the winners by the judge will consider the reviewers' feedback and scores, application of program policy factors (see Section A.13), including the overall size of the PV system (with larger systems being desirable), and the interview findings (if applicable).

In addition, systems over 5 MW-dc are also eligible to be considered for a bonus prize in Phase 2B. See Section 8 for more details.

3.7.5 Announcement

Approximately 30–60 days after the submission deadline, the Prize Administrator will publicly announce the winners, notify the competitors, and request the necessary information to distribute the prizes.

3.8 Additional Terms and Conditions

See Appendix A for additional requirements.

COMPETITORS THAT DO NOT COMPLY WITH THE ADDITIONAL REQUIREMENTS IN Appendix A MAY BE DISQUALIFIED

4 Prize Rules: Operating Projects Track Phase 1

4.1 Goal

The Operating Projects Track of the LASSO Prize aims to incentivize the owners, operators, and managers of cattle agrivoltaics projects that are completed and operational with cattle grazing at the time of the Phase 1 application deadline to share information, data, and experiences with DOE and the agrivoltaics community.

This track consists of two Phases: Phase 1, in which teams will provide project and site information and documentation; and Phase 2, in which teams will provide data and information over a 2-year period.

Please note that no site location changes will be allowed after the Phase 1 award.

4.2 Prizes

Phase 1 of the Operating Projects Track offers up to 3 cash prizes of $50,000 each. The total prize pool is up to $150,000 in cash awards. Additionally, teams will receive up to 8 hours of technical assistance from NREL to refine their data collection plans in Phase 2.

Teams must win Phase 1 to participate in Phase 2.

4.3 How To Enter

Go to HeroX, click on the “Solve This Challenge” button, and follow the instructions for registering and submitting all required materials before the submission deadline.

4.4 Important Dates

Refer to the timeline on HeroX and Section 1.3 for relevant dates and deadlines.

4.5 Operating Projects Track Phase 1 Prize Process

This phase consists of the following steps:

1. **Submission**—Teams develop and submit comprehensive project packages with all information specified below. Teams complete their submission packages and submit them online before the submission deadline.

2. **Evaluation**—The Prize Administrator screens submissions for eligibility and completion and assigns subject matter expert reviewers to independently score the content of each submission. The reviewers evaluate the following criteria for each submission:

   - **Category 1—Organizations, Partnerships, and Collaboration:** Evaluates the team's mission, history, expertise, and roles, along with partner involvement and contributions. Teams must list members and partners and their roles, as well as provide descriptions of the lead competitor and the other team members.
     - Note that each team may be made up of multiple competitors. The team will put forward one of the competitors to be the lead competitor. The lead competitor will be the main point of contact for the team and in charge of submissions and distribution of winnings.
   - **Category 2—Agrivoltaics Design Information for Existing Project:** Collects information on the agrivoltaics design and details of system design and funding sources.
   - **Category 3—Cattle Integration:** Collects information on the integration of cattle with the PV system. Teams describe grazing operations, health and safety measures, and solutions to integration challenges.
   - **Category 4—Plans for Data Collection:** Discusses data collection plans for system performance/energy production, O&M procedures and events, cattle growth and health, and milk production (if applicable). Teams may also collect and share additional data of interest, including data on soil health, plant community structure and function, hydrologic function, water management, erosion management, cattle health and performance, cattle behavior, or other pieces of information the team considers meaningful. These supplementary datasets can contribute to teams' submissions to the Data Bounty Bonus Prize (see Section 8.2). Teams must outline data collection methods.
   - **Category 5 —Benefits, Impact, and Scalability:** Assesses the project's economic, environmental, and social benefits, as well as the project's scalability.

3. **Announcement**—After the winners are publicly announced, the Prize Administrator notifies all teams and requests the necessary information to distribute cash prizes.

4.6 What To Submit

A complete submission package must include the following items:

- **Team and Project Information** (required; select elements will be made public)

- **Narrative** (required; will not be made public)
- **Summary PowerPoint slide** (required; will be made public; teams may use the template[18] provided through HeroX, but are not required to do so)
- **Letters of Support** (required; will not be made public).
- **Communication Plan** (required; will not be made public)

4.6.1 Team and Project Information

List basic information about your submission directly through the HeroX submission form. Elements marked with an asterisk (*) will be made public.

Team information (to be submitted via HeroX submission form) must include:

- Project title*
- Lead competitor name*
- Lead competitor organization*
- Lead competitor type (cattle rancher/farmer, dairy farmer, landowner, solar developer, historically underserved producer group, product developer, commodity organization, other [please specify])
- Lead competitor address (street, city, state, and nine-digit ZIP code)
- Lead competitor contact information (email, phone number, and links to any professional online profiles)
- Lead competitor resume or curriculum vitae (CV).
- From each other team member, please provide:
    - Name*
    - Organization*
    - Competitor type
    - Contact information (email, phone number, and links to any professional online profiles)

[18] To assist Teams, the Prize Administrator is providing an elective template to illustrate the types of information needed to evaluate Teams. Teams are not required to use this template and may submit using any form or format of their choosing. However, all submissions should address the substantive measures outlined in the template and described in this Rules document.

  - Brief description of role/contribution to the project.
  - Resume or CV.

- **Document Upload**: A spreadsheet detailing each team member's role in the proposed project (e.g., a RASIC[19] chart).

Project information (to be submitted via HeroX submission form) should include:

- Project name.*
- Project site location (county/municipality, state, ZIP code).*
- Executive summary (250-word maximum) consisting of an overview of the project concept and its current and potential future impact.*
- PV system capacity (kW-dc)* (
- **Note:** Systems must have a minimum capacity of 250 kW-dc. If cattle are only integrated/co-located with a portion of the system, that portion must have a minimum capacity of 250 kW-dc. Larger systems are desirable; see Section 4.7.4 for more information.)
- Total acreage of grazing site.*
- Coverage area of PV system(s) in acres
- The utility in whose service territory the project is located.
- The total cost of the PV system (from design and planning through energizing the system, including fees for permits and approvals, NOT including costs for cattle or cattle-specific infrastructure – those costs are to be submitted separately).
- Estimated or documented additional cost of the PV system due to integrating cattle, (from design and planning through energizing the system, including fees for permits and approvals, NOT including costs for cattle or cattle-specific infrastructure such as equipment to provide drinking water or temporary cattle fencing used internally to the site) relative to the cost of a PV system of the same size and in the same location not designed to integrate cattle.

[19] A RASIC chart is a project management tool used to clarify roles and responsibilities within a team or organization. The acronym RASIC stands for: Responsible (the person(s) who do the work to achieve the task, with the possibility of multiple responsible individuals), Approver (the person who makes the final decision and has ultimate ownership, typically one), Support (the person(s) who provide assistance or resources needed to complete the task), Informed (the person(s) who need to be kept informed about the task's progress and completion), and Consulted (the person(s) who need to be consulted for their input or advice).

- Costs associated with procuring cattle or contracting a grazer/rancher, and for cattle-specific infrastructure such as equipment to provide drinking water or temporary cattle fencing used within the site.

Teams must upload documentation related to their project including:

- **Required documentation (please upload documents separately):**
    - **Document Upload:** Engineering designs and drawings, or as-builts
    - **Document Upload:** Fully executed interconnection agreement
    - **Document Upload:** Applicable land use permit or approval (e.g., Conditional Use Permit, Special Use Permit, etc.) received from the authority having jurisdiction
    - **Document Upload:** Photos of the array with cattle.

4.6.2 Narrative

Every submission must address each of the following five categories. The content bullets are only suggestions to guide your responses. Responses to each of the five categories do not have a word limit; however, **the aggregate response must not exceed 7,000 words**, not including captions, figures/graphs, and/or references. A word count must be included at the end of your submission. You may also include **up to 15 supporting photos, images, figures, or graphs**. The reviewers will score the questions based on the content you have provided.

Table 4. Phase 1 Operating Projects Track Narrative

Narrative Maximum 7,000 words and 15 supporting images or figures (PDF)
Category 1—Organizations, Partnerships, and Collaboration List partners, their roles, and their contributions
Suggested content team provides: • **Lead Competitor:** Briefly describe the lead competitor, including mission/goals, history, and areas of expertise. Explain the lead competitor's role in the project to date and future role during Phase 2.

- **Other Team Members:** Briefly describe the other competitors on the team, including mission/goals, history, and areas of expertise. Explain each competitor's role in the project to date, and what they will contribute to the data collection and outreach efforts.

Category 2—Design of Existing Project

Provide detailed information about the design of your existing operational cattle agrivoltaics project.

Suggested content team provides:

- **Ownership Structure:** Explain the agrivoltaics system's land, PV array, and cattle ownership structure.
- **Design Specifications:** Describe the design of the PV system, including the type and arrangement of solar panels (manufacturer and model), mounting structures, inverter (manufacturer and model), and any other critical components. State the percent of domestic content[20] for the PV system. Specify any custom hardware, specialized software, or other nonstandard aspects of the PV system design and control systems. Describe what design measures you took to prevent structural, electrical, or other safety hazards for cattle and humans.
- **Site Description:** Briefly describe the project site, including total acreage of the grazing area, coverage area of the PV system(s) in acres, the layout of the site, and site's ecological site type (i.e., plant communities).

Category 3—Cattle Integration

Describe the ongoing approach to integrating cattle with the PV system. Describe how grazing patterns and animal health and safety are managed at the existing project, and outline challenges that have arisen and how you have addressed them.

Suggested content team provides:

- **Details on Cattle Grazing Operations:** Explain basic details about your ongoing cattle grazing operation, including the average herd size that grazes this site, the breed(s) of cattle that are

[20] Teams may choose to use the New Elective Safe Harbor method of domestic content calculation as provided by the Internal Revenue Service and described here: https://www.energy.gov/eere/solar/federal-solar-tax-credits-businesses#:~:text=What%20are%20the%20bonus%20credits%3F.

in the herd, the age ranges of the cattle, and the total area of the grazing site (including land not also occupied by the PV system).

- **Grazing Management Plan:** Describe your grazing management plan, including an explanation of the frequency, timing, and duration with which the cattle are integrated/co-located with the solar system, the stocking rate, the size and capacity of the portion of the PV system that the cattle are integrated/co-located with (both in area and kW-dc), and the logic behind the plan. Explain whether this is the only site the cattle graze or if they are moved during the year, and the anticipated schedule and methods for collecting and recording cattle-related information during Phase 2. Describe any input received from an outside specialist (e.g., Extension agents, Federal agency personnel), if applicable.
- **Animal Health and Safety:** Explain the measures you take to maintain the health and safety of the cattle while they are integrated/co-located with the solar infrastructure, and how those differ from measures taken in the absence of solar infrastructure. Note any health or safety events (if applicable) or any observed benefits (if applicable).

Challenges and Solutions: Discuss any challenges related to cattle integration and how you have or plan to address and overcome these challenges.

Category 4—Plans for Data Collection

Discuss your plans for data collection, focusing on system performance, energy production, O&M procedures and events, cattle growth and health, and milk production (if applicable).

Suggested content team provides:

- **Data Collection Methods**: Outline the methods and tools you will use to collect data on system performance, energy production, O&M procedures and events, findings and costs, cattle growth and health, and milk production (if applicable). Detail any supplementary data points you plan to track, such as additional detailed time-series energy production data, data on soil quality and plant health, hydrologic function and water management, cattle health and performance, cattle behavior, or other pieces of information the team considers meaningful, and how you will measure and share those pieces of information.[21]

[21] Teams may collect and share additional data points of interest, including detailed time-series energy production data, data on soil quality, water management, community views, or other pieces of information the team considers meaningful. These supplementary datasets can contribute to teams' submissions to the LASSO Data Bounty Bonus Prize (see Section 1.2).

Category 5—Benefits, Impact, and Scalability Economic, environmental, and social benefits of the project
Suggested content team provides: • **Plans for Outreach, Education, or Any Benefits Provided**: Briefly explain your plans to use this project to educate the public, to share the results of this project, and/or to provide any other specific benefits to any groups not directly involved in the project and the community where the project will be located. Alternatively, explain how you have already met these stated goals. • **Scalability:** Briefly explain how your project's design and approach may be scaled and replicated in other locations, showcasing its potential to benefit the broader community and promote widespread adoption of cattle agrivoltaics systems.
Reviewer Recommendation
• There is no direct corresponding submission requirement for this score. Rather, it is an overall assessment of all materials submitted in HeroX.

4.6.3 Submission Summary Slide (Will Be Made Public)

Make a public-facing, one-slide submission summary that introduces your team, your mission, and your project. Teams may use the template[22] available on HeroX, but are not required to do so. Any text must be readable and must be in at least 14-point font.

4.6.4 Letters of Support (Required)

Letters of support are required from all team members who are not the lead. The letters of support should briefly describe the team member's role in the project, how they have been and plan to continue collaborating with other team members, and their support for the project. Optional letters of support from outside of the team may include letters from other partners, stakeholders, and community members. These letters should detail their commitment to the project, specify their roles and contributions, and express their support for the initiative.

[22] To assist teams, the Prize Administrator is providing an elective template to illustrate the types of information needed to evaluate teams. Teams are not required to use this template and may submit using any form or format of their choosing. However, all submissions should address the substantive measures outlined in the template and described in this Rules document.

4.6.5 Communications and Outreach Plan (2,500-Word Maximum)

Teams must submit a comprehensive communications and outreach plan consisting of two parts: a general communications and outreach plan and a field day community event(s) plan.

1. General Communications and Outreach Plan

This part must detail the team's strategies for communicating news and lessons from their cattle agrivoltaics project with the public, and for reaching a broad range of stakeholders. This plan should include:

- A variety of outreach mechanisms and communication methods to be used, ensuring accessibility for diverse audiences (such as bi-lingual translation, combination of audio and visual, combination of online and offline channels, etc.).
- An explanation of the target audience segments and tailored messaging for each segment (e.g., local community members and groups, local government officials and associations, farmers and ranchers, farming and ranching groups and associations, solar developers and associations, etc.)..
- Planned frequency and timeline of communications.
- Metrics for measuring the success and impact of the communications and outreach efforts.
- The names and contact information for the person or group responsible for overseeing the communication and outreach efforts.

2. Field Day Community Event(s) Plan

This part should focus on the team's approach to planning, executing, and following up on the required Operating Projects Track Phase 2 field day community event(s), which will take place in Operating Projects Track Phases 2B–2D. The plan should include:

- A preliminary list of priority attendees and stakeholders.
- An outline of a possible agenda and activities for the event(s).
- Pre-event communication strategies to local community and key attendees and stakeholders about the field day(s) to generate interest and spread awareness.
- Post-event communication strategies to share the outcomes and lessons learned from the field day(s).

- Metrics for evaluating the success and impact of the field day event(s).

Teams should ensure that both parts of the communications and outreach plan are well-integrated and aligned with the overall goals of their cattle agrivoltaics project. The Field Day Community Event Plan will automatically fulfill part of the submission requirements for the Inclusive Outreach Bonus Prize (see Section 8.3 for Bonus Prize details).

4.7 How Award Winners are Determined

The Prize Administrator will screen all completed submissions and ensures that all competitors are eligible. Next, the Prize Administrator, in consultation with DOE, will assign subject matter expert reviewers who independently score the content of each submission. The reviewers will be composed of federal and external nonfederal subject matter experts and representatives with expertise in areas relevant to the prize. They will review the team's submission package according to the criteria above.

4.7.1 Scoring Criteria

The expert review team will consider the scoring criteria below in relation to the entirety of the Phase 1 submission package. In addition, reviewers will score an overall "reviewer recommendation," which has no direct corresponding submission requirement. Rather, it is an overall assessment of all materials submitted through HeroX. Reviewers will evaluate the submission by assigning a single score (0–6) for each section based on their overall agreement or disagreement with a series of statements.

Table 5. Phase 1 Operating Projects Track Scoring Scale

0	1	2	3	4	5	6
Non-responsive	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

Scoring criteria is as follows in Table 6.

Table 6. Phase 1 Operating Projects Track Scoring Criteria

Category 1—Organizations, Partnerships, and Collaboration
A single score on a scale of 0–6 is provided, taking the following statements into consideration:

- The lead organization has compelling reasons to participate in the LASSO Prize and has demonstrated relevant experience, which makes them exceptionally well-suited to lead this project.
- The project includes a strong and diverse group of team members, each of which bring complementary resources and expertise. Roles and responsibilities are clearly defined and agreed upon.

Category 2—Design of Existing Project

A single score on a scale of 0–6 is provided, taking the following statements into consideration:

- The project demonstrates a clear, reasonable, and well-documented agrivoltaics design, with detailed specifications and a satisfactory explanation of modifications from standard designs.
- The project ownership structure is clearly explained.

Category 3—Cattle Integration

A single score on a scale of 0–6 is provided, taking the following statements into consideration:

- The grazing management plan is well-developed, ensuring optimal integration with the PV system and using sustainable agricultural practices. The plan is responsive to the ecological site type of the location, takes the details of the cattle grazing operation into account, and is likely to maintain or improve soil quality and plant health.
- Measures for maintaining animal health and safety are comprehensive and clearly defined, ensuring the well-being of the cattle alongside the solar infrastructure.
- Challenges related to cattle integration have been addressed.

Category 4—Plans for Data Collection

A single score on a scale of 0–6 is provided, taking the following statements into consideration:

- The project demonstrates thorough preparation for Phase 2 data collection, including clear plans for collecting relevant data.
- The overall readiness of the project for Phase 2 is evident, with all necessary elements in place.

Category 5—Benefits, Impact, and Scalability
A single score on a scale of 0–6 is provided, taking the following statements into consideration: • Submission demonstrates that the team can maximize the benefits of this project for the public. • The project presents a clear and feasible approach for scaling and replicating its design in other locations, highlighting its potential to promote the widespread adoption of cattle agrivoltaics systems. • The Communications and Outreach Plan demonstrates that both the General Communications and Outreach Plan and the Field Day Community Event Plan are well-integrated and aligned with the overall goals of the cattle agrivoltaics project. It shows a commitment to engaging diverse stakeholders and fostering community involvement.
Reviewer Recommendation
A single score between 0-6 is provided, taking the following statements into consideration: • The team and plan should be strongly considered for a prize.

4.7.2 Reviewer Panel Scoring

The scoring of submissions will proceed as follows:

- Experts will review each submission individually and assess the team's response to each statement in the five criteria areas described in Section 4.6.2.
- Reviewers will score each section 0–6, depending on the degree to which the reviewer agrees that the submission reflects the statements for consideration.
- Each section score will be added together to generate a total score for the submission.
- The total scores from each reviewer will be averaged to produce a final score for the team. This score will inform the judge's decisions on prize awards.

Note: Expert reviewers also provide comments on the submissions they review. The Prize Administrator intends to provide comments to teams after the winners are announced. The comments are the opinions of the expert reviewers and do not represent the opinions of DOE.

4.7.3 Interviews and Site Visits

DOE may decide to interview a subset of teams and/or visit a subset of project sites. The interviews and/or visits would be held prior to the announcement of the winners and would serve to help clarify questions the reviewers may have. Participating in interviews and site visits is required; neither interviews nor site visits are indicators of a team's likelihood of winning.

4.7.4 Final Determination

DOE will designate a federal employee as the judge before the final determination of the winners. Final determination of the winners by the judge will take into account the reviewers' feedback and scores, interviews (if applicable), and the application of program policy factors (such as geographic diversity and size of PV system). See Section A.13 for more information. Systems over 5 MW-dc are also automatically eligible for a bonus prize. See Section 8.1 for more details.

4.7.5 Announcement

Approximately 30–60 days after the submission deadline, the Prize Administrator will publicly announce the winners, notify the winners, and request the necessary information to distribute the prizes.

4.8 Additional Terms and Conditions

See Appendix A for additional requirements.

COMPETITORS THAT DO NOT COMPLY WITH THE ADDITIONAL REQUIREMENTS IN Appendix A MAY BE DISQUALIFIED.

5 Prize Rules: Standard Track Phase 2A

5.1 Goal

Standard Track Phase 2 focuses on advancing the proposed projects from Phase 1 through implementation (Phase 2A) and construction (Phase 2B).

In Phase 2A, teams will conduct thorough project due diligence, including completing detailed plans, establishing site control (if not yet done), securing necessary permits, and finalizing designs. In addition to cash prizes, the Prize Administrator is offering no-cost technical assistance from NREL agrivoltaics experts to support Phase 2A and 2B Standard Track teams – see Section 5.2.1 and Section 6.2.1 for more details.

Phase 2 is subject to NEPA (42 U.S.C. § 4321, et seq.). NEPA requires federal agencies to assess the environmental impacts of their proposed actions prior to making decisions. In Phase 2, teams must comply with all NEPA requirements as described in Section 5.6.5.

The Solar Energy Technologies Office aims to build a robust clean energy manufacturing sector and supply chain in the United States that produces cost-competitive clean energy products. Therefore, it encourages LASSO competitors to build systems with domestic content.

To the extent possible, teams should incorporate into system and site designs and plans for cattle management the ability to monitor portions of the PV array co-located with cattle grazing separately from portions not co-located with cattle grazing. If cattle will only be integrated/co-located with a portion of the total PV array, that portion should be identifiable in the energy production data; each inverter input should include either only co-located modules/strings or only non-co-located modules/strings, not both.

5.2 Prizes

In Phase 2A, up to 9 teams will each win $225,000 in cash awards, for a total prize pool of up to $2,025,000 in cash awards.

Submissions will be accepted via three submission deadlines: Nov. 27, 2025, 5 p.m. ET (6 months after Phase 2A opens); May 28, 2026, 5 p.m. ET (12 months after Phase 2A opens); and Nov. 26, 2026, 5 p.m. ET (18 months after Phase 2A opens). If teams submit to the first deadline and are not selected for award, they may reapply to the second or third deadline for re-evaluation. If teams submit to the second deadline and are not selected for award, they may reapply to the third deadline for re-evaluation. Teams may submit up to three times total for consideration. Teams will be notified if all Phase 2A funds have been awarded before the second or third submission deadline.

During Phase 2A, teams are permitted to change their proposed Phase 1 site locations. No site location changes will be allowed after Phase 2A.

A team must win Phase 2A to participate in Phase 2B.

5.2.1 Technical Assistance

Teams in Standard Track Phase 2A receive up to 16 hours between two rounds of no-cost technical assistance from NREL agrivoltaics experts: up to 8 hours early in the phase to discuss general plans and get broad feedback, and the remainder of the 16 hours (less the time used in early in the phase) before submission to review complete data collection plans and get specific feedback. Teams should be ready to begin receiving technical assistance no later than 60 days before the submission deadline. The Prize Administrator will connect each team with the technical assistance.

5.3 How To Enter

Go to HeroX, click on the "Solve This Challenge" button, and follow the instructions for submitting all required materials before the submission deadline.

5.4 Important Dates

Refer to the timeline on HeroX and the Executive Summary for relevant dates and deadlines.

5.5 Prize Steps—Phase 2A

5.5.1 Phase 2A Prize Steps

1. **Submission**—Teams develop and submit comprehensive documentation for their agrivoltaics system design, system specifications and drawings, grazing management plans, permits and approvals, construction plans, NEPA compliance (see Section 5.6.5), and Phase 3 data collection strategies. Teams complete their submission packages and submit them online prior to the deadline.

2. **Evaluation**—The Prize Administrator screens submissions for eligibility and completion and assigns subject matter experts as reviewers to independently score the content of each submission. The reviewers evaluate the following criteria for each submission:

    - **Criteria 1 Project Viability**: A well-documented design, realistic timeline with milestones, plausible budget with secured financing, and robust risk management strategies.

    - **Criteria 2 Cattle Integration**: A grazing management plan that integrates with the PV system using sustainable practices and ensures animal health and safety while

meeting soil and plant resource concerns with appropriate risk management strategies.

- **Criteria 3 Readiness for Phase 3**: Clear data collection plans.
- **Criteria 4 Financing:** A detailed and realistic preliminary budget, with a robust funding plan.

3. **Announcement**—After the winners are publicly announced, the Prize Administrator notifies them and requests the necessary information to distribute cash prizes.

5.6 What To Submit: Phase 2A

A complete submission package must include the following items:

- **Updated Team and Project information** (required; select elements will be made public)
- **System Details and Documentation** (required; will not be made public)
    - Must include 1) engineering designs and drawings, 2) proof of submission of an interconnection application, and 3) applicable land use permit or approval received from the authority having jurisdiction.
- **Narrative** (required; will not be made public)
- **Letters of Commitment and Support** (optional; will not be made public)
- National Environmental Policy Act (NEPA) Determination Documentation (required; made public as part of the NEPA determination process).

For Phase 2A, the following details provide guidance on what information to provide and how reviewers will evaluate and score your submission.

5.6.1 Updated Team and Project Information

List basic information about your submission directly in the HeroX submission form. Elements marked with an asterisk (*) will be made public. If your team has changed in any way since your Phase 1 submission, please include the new team members' information. Otherwise, you can submit the exact same material from Phase 1.

Team information (to be submitted via HeroX submission form) must include:

- Project title*
- Lead competitor name*

- Lead competitor organization*
- Lead competitor type (cattle rancher/farmer, dairy farmer, landowner, solar developer, historically underserved producer group, product developer, commodity organization, other [please specify])
- Lead competitor address (street, city, state, and nine-digit ZIP code)
- Lead competitor contact information (email, phone number, and links to any professional online profiles)
- Lead competitor resume or curriculum vitae (CV)
- From each other team member, please provide:
    - Name*
    - Organization*
    - Competitor type
    - Contact information (email, phone number, and links to any professional online profiles)
    - Resume or curriculum vitae (CV)
    - Brief description of role/contribution to the project.

An updated spreadsheet detailing each team member's role in the proposed project (e.g., a RASIC[23] chart).

Project information (to be submitted via HeroX submission form) should include the:

- Project site location (county/municipality, state, ZIP code)*
- A high-level overview (250 words maximum) of the changes in the project since Phase 1 of the prize
- Executive summary (250 word maximum, entered directly into HeroX submission form) consisting of an overview of the project concept and its potential impact.*

[23] A RASIC chart is a project management tool used to clarify roles and responsibilities within a team or organization. The acronym RASIC stands for: Responsible (the person(s) who do the work to achieve the task, with the possibility of multiple responsible individuals), Approver (the person who makes the final decision and has ultimate ownership, typically one), Support (the person(s) who provide assistance or resources needed to complete the task), Informed (the person(s) who need to be kept informed about the task's progress and completion), and Consulted (the person(s) who need to be consulted for their input or advice).

5.6.2 System Details and Documentation

Teams will provide the following information about their project directly through the HeroX website.

Project information must include the:

- Project name*
- Total PV system capacity (kW-dc)*
    - Note: Systems must have a minimum capacity of 250 kW-dc. If cattle are only integrated/co-located with a portion of the system, that portion must have a minimum capacity of 250 kW-dc. Larger systems are desirable; see Section 5.7.4 for more information.
- Total acreage of grazing site*
- Estimated total coverage area of PV system (or systems, if there are multiple on the site) in acres*
- Estimated coverage area of PV system that will be co-located with cattle grazing, in acres*
- The utility in whose service territory the project is located
- Site control status
- Interconnection process status (select one):
    - Applied for interconnection
    - Completed feasibility study
    - Completed system impact study
    - Completed facilities study
    - Received interconnection approval or agreement
    - Fully executed interconnection approval or agreement.
- Permitting process status, including an identification of the applicable authorities having jurisdiction (e.g., state department of environment, county board, etc.). Note that projects are expected to receive all applicable federal, state, and local permits and approvals from the appropriate authority having jurisdiction before proceeding to construction.
- Construction process status, including:

- Signed agreements with Engineering, Procurement, and Construction (EPC) company
- Project contractors have received Notice to Proceed

Financial estimates should include:

- The total estimated cost of the project
- How much money (USD$) has already been spent or committed for this project

Teams must upload documentation related to the design, development, and financing of their project including, but not limited to:

- **Required documentation (please upload documents separately):**
  - **Document Upload:** Engineering designs and drawings
  - **Document Upload:** Proof of submission of an interconnection application
  - **Document Upload:** Applicable land use permit or approval (e.g., Conditional Use Permit, Special Use Permit, etc.) received from the authority having jurisdiction
  - **Document Upload:** Budget spreadsheet and/or pro forma
  - **Document Upload:** Spreadsheet containing soil compaction measurements on the planned project site (to be compared to post-construction compaction measurements). Include relevant metadata and methodological information. Guidance on soil compaction measurement is available through the provided technical assistance (see Section 5.2.1).
  - **Image Upload:** 5-10 high-resolution (minimum size 2100 x 1500 pixels) photographs showing representative views of the grazing site and planned location of the PV array, and showing the state of vegetative/soil cover
- **Recommended documentation (please combine all documents into a single PDF and include a table of contents):**
  - Proof of site control, consisting of either a fully executed contractual agreement or a deed, title, or other evidence of land ownership
  - Executed contractual agreement(s) minimum requirements: A signed contractual agreement that details the parties to the agreement, provides a description of the property (including address and which project it refers to), describes the solar system, and lays out the general terms of the agreement, including any payments

- Deed, title, or other evidence of land ownership
- Results of interconnection studies
- Interconnection approval/agreement
- Proof of Notice to Proceed

5.6.3 Narrative

Submissions must address each of the following four categories. The content bullets are only suggestions to guide your responses. Responses to each of the four categories do not have a word limit; however, **the aggregate response must not exceed 6,000 words**, not including captions, figures/graphs, and/or references. A word count must be included at the end of your submission. You may also include **up to five supporting images, figures, charts, or graphs as needed** (e.g., to illustrate the grazing management plan or the breakdown of funding sources). The reviewers will score the questions based on the content you have provided.

Table 7. Phase 2A Standard Track Narrative

Narrative Maximum 6,000 words and five supporting images or figures (PDF)
Category 1—Agrivoltaics Design, Changes, and Construction Timeline Provide detailed information about your agrivoltaics design, including any modifications or improvements made since Phase 1. Describe the current design specifications and explain the reasons for any changes. Outline your construction timeline, including key milestones and expected completion dates. Highlight how you plan to ensure the timely and successful construction of your cattle agrivoltaics system.
Suggested content team provides: • **Design Specifications:** Describe the current design of the PV system, including the type (manufacturer and model) and arrangement of solar panels, mounting structures, inverter (manufacturer and model), and any other critical components. State the overall percent of

domestic content for the PV system.[24] Specify any custom hardware, specialized software, or other nonstandard aspects of the PV system design and control systems.

- **Safety Measures**: Describe what design measures you are taking to prevent structural, electrical, and/or other safety hazards for cattle and humans.
- **Modifications and Improvements:** Detail any changes or improvements made to the design since Phase 1, explaining the reasons.
- **Construction Timeline:** Provide a construction schedule for major site activities such as site preparation and civil engineering; installation of racking system; installation of panels; and installation of inverters, conduit, and wiring. The schedule should include estimates for major milestones such as Notice to Proceed, commencement of construction, substantial completion, and commercial operation. The schedule may be provided in the format of a Gantt chart[25] or equivalent project management chart.
- **Risk Management:** Explain how you will manage potential risks and ensure the timely and successful completion of the construction process.
- **Site Description**: Provide a description of the layout of the site. Identify the type of ecological site (i.e., plant communities) on which cattle grazing will occur. Identify the amount (%) of bare ground on the grazing site. Describe the pre-/post-construction (re)seeding plan to ensure site vegetation (if applicable), including a general description of the seeding mix to be used.
- **O&M**: Describe the planned O&M activities, including frequency, who will conduct these activities, and how the activities will accommodate the cattle.

Category 2—Cattle Integration

Describe the approach to integrating cattle with the PV system. Describe plans to manage grazing patterns, ensure animal health and safety, and outline risk mitigation strategies.

[24] Teams may choose to use the New Elective Safe Harbor method of domestic content calculation as provided by the Internal Revenue Service and described here: https://www.energy.gov/eere/solar/federal-solar-tax-credits-businesses#:~:text=What%20are%20the%20bonus%20credits%3F.

[25] A Gantt chart is a visual project management tool that shows a project's schedule. It uses horizontal bars to represent tasks, indicating their start and end dates.

Suggested content the team provides:

- **Details on Cattle Grazing Operations:** Explain the basic details of your cattle grazing operation, including the average herd size you expect to graze this site, the breed(s) of cattle that will be in the herd, the cattle classes and age range, whether the animals are beef or dairy cattle, and the total area of the grazing site (including land not occupied by the PV system).
- **Grazing Management Plan**: Describe your grazing management plan, including an explanation of the frequency, timing, and duration with which the cattle will be integrated/co-located with the solar system, the stocking rate, the size and capacity of the portion of the PV system that the cattle will be integrated/co-located with (both in area and kW-dc), and the logic behind the plan. Explain whether this will be the only site the cattle will graze or if they will be moved during the year, and the anticipated schedule and methods for collecting and recording cattle-related information during Phase 3. Also include a discussion of how the proposed grazing plan will maintain and/or improve the plant community and soil health components, including the amount (%) of bare ground. Describe any input from an outside specialist (e.g., Extension agents, Federal agency personnel), if applicable.
- **Animal Health and Safety:** Explain the measures you will take to maintain the health and safety of the cattle while they are integrated/co-located with the solar infrastructure, and how those differ from measures taken in the absence of solar infrastructure.
- **Risk Mitigation Strategies:** Discuss any anticipated challenges related to cattle integration and how you plan to address and overcome these challenges.

Category 3—Plans for Phase 3 Data Collection and Sharing

Discuss your plans for data collection in Phase 3, focusing on system performance, energy production, O&M, cattle growth and health, and milk production (if applicable). Explain the methods and tools you will use for data gathering and analysis.

Suggested content team provides:

- **Data Collection Methods**: Outline the methods and tools you will use to collect data on system performance/energy production, O&M procedures and events, cattle growth and

health, milk production (if applicable), and overall findings and costs.[26] Detail any supplementary data points[27] you plan to track, such as additional detailed time-series energy production data, data on soil health and plant community structure and function, hydrologic function, water management, erosion management, cattle health and performance, cattle behavior, or other pieces of information the team considers meaningful, and how you will measure and share those pieces of information.

Category 4—Funding

Provide a summary that ties the budget and funding sources together, demonstrating that your project is financially viable. Highlight how the funding will be allocated across different phases of the project and how it will support the achievement of your project goals.

This section should offer a clear and comprehensive picture of your financial plan, showcasing your ability to manage project costs effectively and secure the necessary funding to ensure successful implementation.

Suggested content team provides:

- **Preliminary Budget:** Provide an overview of your project's budget, how you arrived at your estimates, and estimated changes in cost for each category relative to a traditional PV array or cattle grazing operation, as appropriate. Include estimated costs for the following categories:
    - **Design and Planning:** Costs for system design, engineering, and site assessments
    - **Equipment and Materials:** Costs for solar panels, mounting structures, inverters, fencing, watering systems and any other necessary equipment and materials
    - **Installation and Construction:** Costs for labor to install the solar array and set up the grazing infrastructure
    - **Permits and Approvals:** Fees for obtaining necessary permits
    - **O&M:** Ongoing costs for running and maintaining the system
    - **Cattle management:** Cost of managing cattle

[26] See Section 7.6.1 for details on data collection requirements.

[27] These supplementary datasets can contribute to teams' submissions to the LASSO Data Bounty Bonus Prize (see Section 8.2).

- **Data Collection and Analysis:** Costs for executing planned data collection.
- **Outreach:** Costs for project outreach and publicity, including for the field day community event(s)

- **Funding Sources:** Describe where the funding for your project will come from:
  - **Internal Funding:** Funds from your team members
  - **Grants and Awards:** Any grants or prizes received or applied for, including the LASSO Prize
  - **Investments:** Funds from investors
  - **In-Kind Contributions:** Noncash support like donated equipment or volunteer work (excluding technical assistance received as part of the LASSO Prize)
  - **Other Sources:** Any other sources of funding.
- **Funding Status:** Describe the status of raising capital for the project. If not complete, please detail the plan to obtain remaining required capital. Additionally, clarify how any cost overruns will be dealt with.
- **Business Agreements**: Describe the preliminary (or final, if appropriate) arrangements between team members and any other parties with financial interest in the project (e.g., land leasing/use arrangements and cost deviations from the norm, fees/payments for grazing access/vegetation management, plans for sharing ongoing costs or revenue, etc.).

5.6.4 Letters of Support (Optional)

Include any new letters of support from key partners, stakeholders, or community members. These letters should detail their commitment to the project, specify their roles and contributions, and express their support for the initiative. If there are any new team members, a letter of commitment from each new member is required.

5.6.5 National Environmental Policy Act Determination Documentation

To be eligible for Phase 2A award, each team must provide:

- A copy of their submitted EQ-1 form[28]
- A final NEPA determination number
- A summary of the NEPA determination received for their project (250-word maximum)

To obtain a NEPA determination, teams must submit their planned project via an EQ-1[29] Form to DOE on the Project Management Center website[30] at least 60 days prior to the Phase 2A submission deadline to allow adequate time for review and processing. After submitting the EQ-1, teams must email the Prize Administrator at LASSOPrize@nrel.gov with a copy of the submitted EQ-1 form.

A step-by-step guide on how to submit an EQ-1 form can be found on energy.gov.

5.7 Scoring and How Award Winners Are Determined—Phase 2A

The Prize Administrator screens all completed submissions and ensures that all competitors are eligible. Next, the Prize Administrator, in consultation with DOE, assigns subject matter expert reviewers who independently score the content of each submission. The reviewers will be composed of federal and external nonfederal subject matter experts and representatives with expertise in areas relevant to the prize. They will review the team's submission package according to the criteria in Section 5.7.1 below.

5.7.1 Scoring Criteria

The expert review team will consider the following scoring criteria in relation to the entirety of the Phase 2A submission package: Project Viability, Cattle Integration, Readiness for Phase 3, and Financing. Reviewers will evaluate the submission by assigning a single score (0–6) for each scored submission section based on their overall agreement or disagreement with a series of statements.

Table 8. Phase 2A Standard Track Scoring Criteria

Project Viability

[29] A copy of the EQ-1 form can be found at: https://www.eere-pmc.energy.gov/PMCRecipient/EQ_Sample.docx

[30] https://www.eere-pmc.energy.gov/NEPA.aspx

The project has a well-documented design, realistic timeline with milestones, plausible budgets with secured financing, and robust risk management strategies.
A single score on a scale of 0–6 is provided, taking the following statements into consideration: • The project demonstrates a clear, reasonable, and well-documented design, with detailed specifications and justified modifications that enhance the feasibility and effectiveness of the cattle agrivoltaics system. • The construction timeline is comprehensive, realistic, and includes well-defined milestones, demonstrating a strong plan for obtaining all required permits and timely completion of construction. • Risk management strategies are robust, effectively addressing potential challenges and ensuring the project's successful implementation.
Cattle Integration The grazing management plan integrates with the PV system using sustainable practices and ensures animal health and safety with appropriate risk management strategies.
A single score on a scale of 0–6 is provided, taking the following statements into consideration: • The grazing management plan is well-developed, ensuring optimal integration with the PV system and using sustainable agricultural practices. The plan is responsive to the ecological site type of the location, takes the details of the cattle grazing operation into account, and is likely to maintain or improve soil health and plant community structure and function. • Measures for maintaining animal health and safety are comprehensive and clearly defined, ensuring the well-being of the cattle alongside the solar infrastructure. • Potential challenges related to cattle integration are thoughtfully anticipated, with practical solutions provided to address and mitigate these issues.
Readiness for Phase 3 The project is well-prepared for Phase 3, with clear data collection plans.

A single score on a scale of 0–6 is provided, taking the following statement into consideration: • The project demonstrates thorough preparation for Phase 3 data collection, including clear plans for collecting required data.
Financing The preliminary budget is detailed and realistic, with a robust funding plan. The financial summary demonstrates the project's viability and the team's capability to manage costs and secure necessary funding.
A single score on a scale of 0–6 is provided, taking the following statements into consideration: • **Preliminary Budget:** The preliminary budget is comprehensive, detailed, and provides clear and realistic estimates for each cost category. • **Funding Sources:** The funding plan is defined and reasonable. The plan showcases the team's proactive efforts to secure necessary financial support and their capability to sustain the project throughout its life cycle. • **Financial Viability and Allocation:** The summary effectively ties the budget and funding sources together, demonstrating the project's financial viability. The overall financial plan for the project showcases the team's ability to manage project costs effectively and secure the necessary funding for successful implementation.

5.7.2 Reviewer Panel Scoring

The scoring of submissions will proceed as follows:

- Experts will review each submission individually and assess the team's submission materials response to each scoring criteria statement as described in Section 5.7.1.
- Reviewers will score each section 0–6, depending on the degree to which the reviewer agrees that the submission reflects the statements for consideration.
- Each section score will be added together to generate a total score for the submission.
- The total scores from each reviewer will be averaged to produce a final score for the team. This score will inform the judge's decisions on prize awards.

5.7.3 Interviews

DOE may decide to interview teams. The interviews, if requested, are required for award and would be held prior to the announcement of the winners and would serve to help clarify questions the reviewers may have.

5.7.4 Final Determination

DOE will designate a federal employee as the judge before the final determination of the winners. Final determination of the winners by the judge will consider the reviewers' feedback and scores, interviews (if applicable), and the application of program policy factors (such as geographic diversity and size of PV system). See Section A.13 for more information.

5.7.5 Announcement

Approximately 30–60 days after the Phase 2A submission deadlines, the Prize Administrator will publicly announce the winners, notify the teams, and request the necessary information to distribute the prizes.

TEAMS THAT DO NOT COMPLY WITH THE ADDITIONAL REQUIREMENTS IN Appendix A MAY BE DISQUALIFIED.

6 Prize Rules: Standard Track Phase 2B

Modification 1 Note: The entirety of Section 6 is new. For better readability, changes have not been highlighted.

6.1 Goal

Standard Track Phase 2 focuses on advancing the proposed projects from Phase 1 through design, obtaining applicable permits, development of detailed plans (Phase 2A) and construction (Phase 2B). In Phase 2B teams will complete the construction of the agrivoltaics systems, the interconnection and commissioning of the system, the introduction of cattle, and the demonstration of the cattle agrivoltaics system's operation. Additionally, teams will prepare for Phase 3, which includes data collection over the course of two years and holding field day community event(s) to showcase the projects.

SETO aims to build a robust clean energy manufacturing sector and supply chain in the United States that produces cost-competitive clean energy products. Therefore, it encourages LASSO competitors to build systems with domestic content.

Note: Although cattle are expected to be on-site by the end of Phase 2B, full integration with the PV array is not expected to necessarily take place immediately if maintenance and/or recovery time for soil or vegetation is needed post-construction.

Note: To the extent possible, teams should incorporate into system and site designs and plans for cattle management the ability to monitor portions of the PV array co-located with cattle grazing separately from portions not co-located with cattle grazing. If cattle will only be integrated/co-located with a portion of the total PV array, that portion should be identifiable in the energy production data: each inverter input should include either only co-located modules/strings or only non-co-located modules/strings, not both.

6.2 Phase 2B Prizes

In Phase 2B, up to nine winning Phase 2A teams will complete the construction of their agrivoltaics systems. Each Phase 2B winning team will receive $225,000 after successful completion of construction and initial operational testing, for a total Phase 2B prize pool of $2,025,000.

Teams may submit their Phase 2B submissions **as soon as they meet all Phase 2B criteria up until the final submission deadline Feb. 9, 2028, 5 p.m. ET**. Prizes will be awarded on a rolling basis, approximately 60–90 days following submission. If not selected for award after their initial submission in Phase 2B, teams are allowed and encouraged to resubmit up until the final submission deadline.

Teams must win Phase 2B to participate in Phase 3.

6.2.1 Technical Assistance

During Phase 2B, teams receive up to 8 hours of no-cost technical assistance from NREL agrivoltaics experts to discuss and refine data collection plans and methodologies. This technical assistance will NOT include review of the full submission package. Teams should be ready to begin receiving technical assistance no later than 60 days before the submission deadline. The Prize Administrator will connect each team with the technical assistance.

6.3 How To Enter

Go to HeroX, click on the “Solve This Challenge” button, and follow the instructions for submitting all required materials before the submission deadline.

6.4 Important Dates

Refer to the timeline on HeroX and Executive Summary for relevant dates and deadlines.

6.5 Standard Track Phase 2B Prize Steps

1. **Submission**—Teams complete the construction of their agrivoltaics systems and submit comprehensive final documentation, including photos of the completed system; executed interconnection agreement; as-built system drawings; and Permission To Operate documentation or an independent engineer's report. Additionally, teams submit records of cattle and grazing management about the herd that will graze the agrivoltaics site or use publicly available information to compile the relevant metrics and information for comparable herds and locations. Teams also submit the detailed plan for the two-year data collection effort in Phase 3, and the communications plans for outreach about, and the hosting of, their field day community event(s) (to be held during subphases 3B–3D). Finally, teams submit a final budget (with actual costs) for the project. All submission packages must be completed and submitted online before the submission deadline.

2. **Evaluation**—The Prize Administrator screens submissions for eligibility and completion and assigns subject matter expert reviewers to independently score the content of each submission. The reviewers evaluate the following criteria for each submission:

    - **System Completion Evidence**—Assesses proof of completed construction and interconnection, including comprehensive system photos; as-built drawings; executed interconnection agreement; Permission to Operate documentation or independent engineer's report; and documentation of the introduction of cattle on-site (e.g., photos of cattle at the PV array or separate grazing area, agreements detailing grazing plans).[31]

    - **Records of Cattle and Grazing Management**—Evaluates the completeness and usefulness of provided records or comparable alternative data points for future comparisons during Phase 3.

    - **Communications and Outreach Strategy**—Evaluates the integrated plan for general communications and the field day community event(s). Assesses stakeholder identification, tailored messaging, variety of communication methods, accessibility measures, and potential impact in promoting cattle agrivoltaics awareness. Includes evaluation of the field day planning, preliminary agenda, attendee outreach, and post-event communication strategies.

[31] DOE reserves the right to send someone, employed by DOE or from a DOE designated third party, to visit the site in person to collect evidence that the system is completed, should DOE desire to do so.

- **Data Collection Plan**—Assesses the plan's completeness, specificity, and feasibility for tracking required and additional data points (see Section 6.6.5 for details). Evaluates the plan's reasonableness, scalability, replicability, risk management strategies, and process for developing best practices.
- **Budget**—Evaluates the final budget for completeness and clarity, and for usefulness of insights into the cost tradeoffs of cattle agrivoltaics systems relative to standard PV arrays and traditional cattle grazing operations.

3. **Announcement**—After the winners are publicly announced, the Prize Administrator notifies them and requests the necessary information to distribute cash prizes.

6.6 What To Submit

A complete submission package must include the following items:

- **Updated Team and Project information** (required; select elements will be made public)
- Evidence of the Complete Construction of the Agrivoltaics System, including:
  - **System Details and Documentation** (required; will not be made public)
  - One-Page Project Summary and Photo Documentation (required; will be made public)
- Records of Cattle and Grazing Management (required; will not be made public)
- **Communications and Outreach Plan:** (required; will not be made public)
- **Detailed Data Collection Plan**: (required; will not be made public)
- **Final Budget**: (required; will not be made public)

For Phase 2B, all scoring criteria are pass/fail. If teams are not selected for award, they will be provided with feedback on any failed criteria. Teams may address the feedback and resubmit their Phase 2B submission as many times as needed until the Phase 2B submission deadline. See Section 6.7.1 for more information.

6.6.1 Updated Team and Project Information

List basic information about your submission directly through the HeroX submission form. Elements marked with an asterisk (*) will be made public.

Team information (to be submitted via HeroX submission form) must include:

- Project title*

- Lead competitor name*
- Lead competitor organization*
- Lead competitor type (cattle rancher/farmer, dairy farmer, landowner, solar developer, historically underserved producer group, product developer, commodity organization, other [please specify])
- Lead competitor address (street, city, state, and nine-digit ZIP code)
- Lead competitor contact information (email, phone number, and links to any professional online profiles)
- Lead competitor resume or curriculum vitae (CV)
- From each other team member, please provide:
    - Name*
    - Organization*
    - Competitor type
    - Contact information (email, phone number, and links to any professional online profiles)
    - Resume or curriculum vitae (CV)
    - Brief description of role/contribution to the project.

Document Upload: An updated spreadsheet detailing each team member's role in the proposed project (e.g., a RASIC[32] chart). If no changes have been made since the Phase 2A submission, the same document may be uploaded.

Project information (to be submitted via HeroX submission form) should include:

- Project site location (county/municipality, state, nine-digit ZIP code)*
- Detailed summary (1,000-word maximum) of the changes in project and site design, team composition, business or financial arrangements, and operational plans (including PV array

[32] A RASIC chart is a project management tool used to clarify roles and responsibilities within a team or organization. The acronym RASIC stands for: Responsible (the person(s) who do the work to achieve the task, with the possibility of multiple responsible individuals), Approver (the person who makes the final decision and has ultimate ownership, typically one), Support (the person(s) who provide assistance or resources needed to complete the task), Informed (the person(s) who need to be kept informed about the task's progress and completion), and Consulted (the person(s) who need to be consulted for their input or advice).

O&M and cattle management) since Phase 2A of the prize (if any such changes have been made)

- Executive summary (250-word maximum, entered directly into HeroX submission form) consisting of an overview of the project concept and its potential impact.*
- Total acreage of site, including co-located and non-co-located grazing and PV array areas
- Coverage area of total PV system(s) in acres (including parts of system not co-located with cattle grazing)*
- Coverage area of PV system co-located with cattle grazing*
- Total capacity of the PV system (in kW), and capacity of the portion of the PV system co-located with cattle grazing (if different; in kW)*
- The utility in whose service territory the project is located.

6.6.2 Evidence of the Complete Construction of the Agrivoltaics System

6.6.2.1 System Details and Documentation (Will Not Be Made Public)

Teams must provide the following documentation to prove the completion of the built agrivoltaics system:

- Photos of completed system (these do not have to be aerial photographs or show the entirety of the site, but should demonstrate the completion of construction and the hardware and infrastructure included as part of the project)
- As-built drawings
- Proof of an executed interconnection agreement
- Permission to Operate documentation or an independent engineer's report
- Documentation of cattle integration, including:
    - Photos of the cattle introduced on-site, integrated/co-located with the PV array if appropriate or in a separate on-site grazing area not integrated/co-located with the PV array if more time is needed for maintenance and/or soil or vegetation recovery
    - An agreement detailing roles, responsibilities, start date and general plan for cattle grazing, signed by all relevant parties

- The O&M agreement for the PV array, signed by all relevant parties.

All documentation should be combined into a single PDF with a table of contents and uploaded to HeroX.

6.6.2.2 One-Page Project Summary and Photo Documentation (Will Be Made Public)

Teams must submit a one-page project summary describing their agrivoltaics system design and cattle management plan, including:

- **Project Overview:** A brief introduction to the agrivoltaics project, including its location, size, and key objectives.
- **System Specifications:** High-level details about the PV system, such as the total installed capacity, type of PV modules used, and the mounting structure(s) employed to accommodate cattle grazing.
- **Cattle Management Plan:** A concise description of the cattle grazing plan, including the breed(s) and number of cattle, grazing rotation schedule, and any specific strategies used to optimize animal well-being and pasture quality.
- **Unique Features or Innovations:** Highlights of any distinctive aspects of the project, such as novel PV designs or control systems, cattle monitoring systems or technologies, or grazing management techniques.
- **Project Partners:** Recognition of any key partners, such as farmers, ranchers, developers, researchers, or community organizations, that have contributed to the project's success.

The summary should be written in accessible language for a general audience and provide a high-level understanding of the project. Teams must include 2-4 high-resolution photos (minimum size 2,100 x 1,500 pixels) of the completed agrivoltaics system (these do not count against the one-page limit and should be submitted as attachments). The photos should clearly showcase the PV arrays, cattle grazing areas, and any unique design elements. The summary and photos will be used to publicly showcase the projects and share highlights with interested stakeholders.

6.6.3 Records of Cattle and Grazing Management (3-page limit)

Teams must provide records of cattle and grazing management for the cattle herd that will graze the agrivoltaics site (with the understanding that the specific individual animals within the herd may have changed over this time period due to purchases, sales, slaughters, deaths, calving, etc.). This

information should refer to the time period (ideally a 2-year time-period) prior to the herd being integrated with the PV array, and must include:

- Herd size, cattle class (e.g., cows/calves, steers, heifers, etc.), ages, purpose (e.g., beef, dairy, etc.), and breed(s)
- Previous grazing site size (if the herd was previously grazing a different site)
- Overview of the grazing management plan that was previously in place (to be compared to any changes in grazing plan that will accommodate co-location with PV)
- Average daily weight gain
- Calving percent and percent open cows (as applicable)
- Deaths, sales, and number of cattle slaughtered (per six months, if such frequency is available)
- Average age of slaughtered cattle
- Average daily milk production (as applicable)
- Any notable health or safety events/observations from the herd prior to participation in the agrivoltaics project
- Any notable behavioral events/observations from the herd prior to participation in the agrivoltaics project.

All data should have a minimum duration of 2 years. If possible, the records should have at least a six-month frequency.

If no records exist (e.g., if the herd is newly assembled), teams must explain why and provide estimates of all comparable data points as specified above from publicly available research or data, with links and/or citations.

Teams should combine all information into a single PDF document that is no more than three pages and include a table of contents (which will not count toward the page limit).

Records of cattle and grazing management, by default, will not be made public, but teams may elect to allow DOE and/or NREL to publish their records by making the appropriate selection on the HeroX submission form.

6.6.4 Communications and Outreach Plan (2,500-Word Maximum)

Teams must submit a comprehensive communications and outreach plan consisting of two parts: the general communications and outreach plan and the field day community event(s) plan.

1. General Communications and Outreach Plan

This part should detail the team's strategies for communicating news and lessons from their cattle agrivoltaics project with the public, and for reaching a broad range of stakeholders. This plan should include:

- A variety of outreach mechanisms and communication methods to be used, ensuring accessibility for diverse audiences (such as bi-lingual translation, combination of audio and visual, combination of online and offline channels, etc.)
- An explanation of the target audience segments and tailored messaging for each segment (e.g., local community members and groups, local government officials and associations, farmers and ranchers, farming and ranching groups and associations, solar developers and associations, etc.)
- Planned frequency and timeline of communications
- Metrics for measuring the success and impact of the communications and outreach efforts
- The names and contact information for the person or group responsible for overseeing the communication and outreach efforts.

2. Field Day Community Event(s) Plan

This part should focus on the team's approach to planning, executing, and following up on the required Phase 3 field day community event(s), which will take place during Standard Track Phases 3B–3D. The plan should include:

- A preliminary list of priority groups of attendees and stakeholders
- An outline of a possible agenda and activities for the event(s)
- Pre-event communication strategies to local community and key attendees and stakeholders about the field day(s) to generate interest and spread awareness
- Post-event communication strategies to share the outcomes and lessons learned from the field day(s)

- Metrics for evaluating the success and impact of the field day event(s).

Teams should ensure that both parts of the communications and outreach plan are well-integrated and aligned with the overall goals of their cattle agrivoltaics project. The Field Day Community Event Plan will automatically fulfill part of the submission requirements for the Inclusive Outreach Bonus Prize (see Section 8.3 for Bonus Prize details).

6.6.5 Detailed Data Collection Plan (2,500-Word Maximum)

Teams must submit a detailed data collection plan that outlines the steps for tracking, collecting, and submitting the required data points for Phase 3 (see Section 7.6.1 for details) and any additional data points proposed for the LASSO Data Bounty Bonus Prize (see Sections 7.6.1.2 and 8.2 for details). Teams are encouraged to use their 8 hours of technical assistance from NREL agrivoltaics experts to refine their data collection plans before submission. The Prize Administrator will help connect teams with NREL experts. The plan must include:

- **Data Points**: A list of all data to be collected, including both required and additional data points (to be considered for the LASSO Data Bounty Bonus Prize). See Section 7.6.1 and Section 8.2 for details on required and suggested data
- **Data Collection Methodologies**: A description of how each type of data will be collected (e.g., sensors, manual measurements, surveys, observations of cattle behavior), including spatial and temporal resolution and steps taken to ensure scientific rigor and replicability
- **Data Collection Schedule**: The frequency and duration of data collection for each data point
- **Data Storage**: How the collected data will be stored and organized
- **Potential Challenges and Mitigation Strategies**: Any potential risks or challenges that may affect data collection and how they will be mitigated.

The data collection plan should be specific, realistic, and aligned with the competition's data requirements and objectives.

6.6.6 Final Budget

Teams must submit a final budget (either a spreadsheet, a PDF, or both) with an overview of the project development costs (broken out by category), funding sources, and final business agreements.

Costs must be shown for the following categories:

- **Design and Planning:** Costs for system design, engineering, and site assessments

- **Equipment and Materials:** Costs for solar panels, mounting structures, inverters, fencing, watering systems and any other necessary equipment and materials
- **Installation and Construction:** Costs for labor to install the solar array and set up the grazing infrastructure
- **Permits and Approvals:** Fees for obtaining necessary permits
- **O&M:** Ongoing costs for running and maintaining the system (estimated or set by contract)
- **Cattle management:** Cost of managing cattle, clarifying added costs due to agrivoltaics system (estimated or set by contract)
- **Data Collection and Analysis:** Costs for executing planned data collection.
- **Outreach:** Costs for project outreach and publicity, including for the field day event(s).

If teams encounter other major cost categories, those should also be included and explained.

The sources of funding must also be explained, including whether the funding is:

- **Internal Funding:** Funds from your team members
- **Grants and Awards:** Any grants or prizes received or applied for, including the LASSO Prize
- **Investments:** Funds from investors
- **In-Kind Contributions:** Noncash support like donated equipment or volunteer work (excluding technical assistance received as part of the LASSO Prize)
- **Other Sources:** Any other sources of funding.

Finally, teams must describe the final business arrangements between team members and any other parties with financial interest in the project (e.g., land leasing/use arrangements and cost deviations from normal, fees/payments for grazing access/vegetation management, plans for sharing ongoing costs or revenue, etc.).

6.7 Scoring and How Award Winners Are Determined

The Prize Administrator screens all completed submissions and ensures that all competitors are eligible. Next, the Prize Administrator and DOE will review and score the content of each submission according to the criteria in Section 6.7.1.

6.7.1 Scoring Criteria

The Prize Administrator and DOE will consider the Table 9 scoring criteria in relation to the entirety of the Phase 2B submission package.

Table 9. Phase 2B Standard Track Scoring Criteria

Phase 2B Scoring Criteria	

Completed Construction	Pass/Fail
	• **System Completion Documentation:** Team provides clear, comprehensive photos of the fully constructed agrivoltaics system, including PV panels, mounting structures, interconnection points, and grazing areas; as-built drawings; proof of executed interconnection agreement; and the signed O&M agreement
	• **Inspection Report:** Team submits a completed independent engineering report that confirms compliance with all safety and regulatory standards
	• Documentation of cattle integration: Team submits
	  ○ Photos showing the cattle integrated/co-located with the PV array (if applicable) or on-site but not integrated/co-located (if time for maintenance and/or recovery of soil and vegetation is needed)
	  ○ An agreement detailing roles, responsibilities, start date, and general plan for cattle grazing, signed by all relevant parties

Records of Cattle and Grazing Management	Pass/Fail • Records are complete and useful as a comparison to the data expected to be collected during Phase 3. If no records exist, the provided data points are complete and useful as a comparison, and appropriate citations are provided.

Communications and Outreach Plan	Pass/Fail • The General Communications and Outreach section identifies key audiences and tailored messaging for each. It outlines a variety of outreach mechanisms and communication methods to be used and specifies a regular frequency and timeline of communications. The plan includes effective metrics for measuring the success and impact of the communications and outreach efforts. Additionally, the plan addresses accessibility requirements, ensuring that communications and outreach efforts are inclusive and able to reach a diverse audience. • The Field Day Community Event(s) section includes a preliminary list of key groups of attendees and stakeholders and the best communications methods to reach them. The Plan also includes a preliminary outline of the agenda and activities of the field day(s), and details how the team will communicate with the local community and key attendees and stakeholders about the field day(s) ahead of time to generate interest and spread awareness. The plan also describes post-event communication strategies to share the outcomes and lessons learned from the field day(s) and specifies metrics for evaluating the success and impact of the field day event(s). • The Communications and Outreach Plan demonstrates that both the General Communications and Outreach Plan and the Field Day Community Event Plan are well-integrated and aligned with the overall goals of the cattle agrivoltaics project. It shows a commitment to engaging diverse stakeholders and fostering community involvement.
Data Collection Plan	Pass/Fail • Plan is complete and lists all data points the team anticipates collecting; clearly describes collection methods,

	frequency, and data storage; and includes an assessment of potential risks and challenges along with appropriate mitigation strategies. • The data collection plan is reasonable, specific, scalable, and replicable, demonstrating a clear understanding of the LASSO Prize's data requirements and objectives, and considers its potential for long-term implementation in real-world cattle agrivoltaics projects.
Final Budget	Pass/Fail • The final budget is complete, clear, and provides insights into the cost tradeoffs of cattle agrivoltaics systems relative to standard PV arrays and traditional cattle grazing operations.

6.7.2 Reviewer Panel Scoring

The scoring of submissions will proceed as follows:

- Experts will review each submission individually and assess the team's submission materials' response to each scoring criteria statement as described in Section 6.7.1.
- Reviewers will score each scoring criteria statement as pass/fail and communicate their recommendations to the prize judge.
- If teams are not selected, they will receive comments/feedback and will be able to resubmit until the final Phase 2B submission deadline. It is strongly recommended they take that feedback into account in the next submission.

6.7.3 Interviews and Site Visits

DOE may decide to interview a subset of teams and/or visit a subset of project sites. The interviews and/or visits would be held prior to the announcement of the winners and would serve to help clarify questions the reviewers may have. Participating in interviews and site visits is required; neither interviews nor site visits are indicators of a team's likelihood of winning.

6.7.4 Final Determination

DOE will designate a federal employee as the judge before the final determination of the winners. Final determination of the winners by the judge will consider the reviewers' feedback and scores, application of program policy factors, and the interview findings (if applicable).

6.7.5 Announcement

Approximately 30–60 days after the submissions are received, the Prize Administrator will publicly announce winning teams, notify the winning teams, and request the necessary information to distribute the awards.

TEAMS THAT DO NOT COMPLY WITH THE ADDITIONAL REQUIREMENTS IN Appendix A MAY BE DISQUALIFIED.

7 Prize Rules: Standard Track Phase 3 and Operating Projects Track Phase 2

Modification 1 Note: The entirety of Section 7 is new. For better readability, changes have not been highlighted.

7.1 Goal

Phase 3 of the Standard Track and Phase 2 of the Operating Projects Track focus on data collection to evaluate the performance and impact of the implemented agrivoltaics systems. Over the course of two years, teams will gather data on PV system performance/energy production, and cattle outcomes (e.g., growth, milk production) and health. Teams will develop and document best practices. These phases aim to generate and share insights into the viability of, and tradeoffs associated with, cattle agrivoltaics systems. Additionally, teams must publicize and host at least one field day community event to share their agrivoltaics projects and initial experiences with interested community members and stakeholders. These events will take place during subphases 3B–3D (Standard Track) or 2B–2D (Operating Projects Track)—i.e., at least six months after projects are put into operation.

Note: Cattle are not required to graze under or be integrated/co-located with the PV array at all times (of day or year); rather, the expectation is that teams will maximize integration/co-location in ways that protect the health and welfare of the cattle, soil, and vegetation. While there is no minimum requirement for how much time cattle must directly be integrated/co-located with the PV array throughout these sub-phases, submissions and plans will be evaluated on their potential

contribution to the broader understanding of cattle agrivoltaics, including the breadth and depth of data on cattle-PV array integration.

Note: Teams' data collection plans will serve as a basis for determining the completeness of submissions for Standard Track Phase 3 and Operating Projects Track Phase 2. All data points included in the plans should be included in submissions for Standard Track Phase 3 and Operating Projects Track Phase 2. If, during one of the subphases, circumstances render collection of a particular data point impossible, DOE and the Prize Administrator may still consider a submission complete if the team articulates a valid reason why that specific data point could not be collected.

Note on data publicity: Data submitted as part of Standard Track Phase 3 and Operating Projects Track Phase 2 will not be made public without permission from the submitting team, with the following exceptions:

- Narrative or descriptive summaries, which may include summary statistics/analysis of the energy, agricultural, cattle, and/or financial outcomes and may be written and published after consultation with the submitting team.
- Energy data will be made publicly available through PVDAQ, with baseline levels of anonymization (see Section 7.6.1.1 for details).
- DOE may publicly highlight team successes and publish the lessons learned and best practices from this initiative. Teams that do not want their submission elements or other documents to be made public will need to mark them according to the instructions in Appendix A.4.

Teams may, when submitting data, elect to allow their data to be made publicly available without summary or anonymization using the submission form on HeroX.

7.2 Prizes

7.2.1 Standard Track Phase 3

Over the course of Phase 3, up to nine teams will each win up to $400,000 in cash awards, for a total prize pool of up to $3,600,000. Teams will submit semi-annual (every six months) data reports for a potential prize award of $100,000 per submission.

Teams may begin the first six-month data collection period as soon as they receive notification of winning Standard Track Phase 2B.

Cattle must be on site prior to Phase 3, but do not necessarily have to be fully integrated into/co-located with the PV array if time is needed for maintenance and/or recovery of the soil or vegetation post-construction. Cattle should be integrated with the PV array as soon as is appropriate.

Teams will submit data covering the four consecutive six-month periods following the start of their data collection. Teams must start data collection by April 19, 2028, at the latest to be able to submit six months of data by the first subphase final submission deadline in October 2028. Submissions will be evaluated, winners announced and notified, and awards paid, within approximately 30–60 days of each submission on a rolling basis.

Teams must submit deliverables for each subphase before the specified deadlines. Failure to submit for any subphase may, at the Prize Administrator's discretion, result in disqualification from subsequent subphases of the competition.

Final data submission deadlines include:

- Phase 3A: Oct. 19, 2028, 5 p.m. ET
- Phase 3B: April 19, 2029, 5 p.m. ET
- Phase 3C: Oct. 18, 2029, 5 p.m. ET
- Phase 3D: April 18, 2030, 5 p.m. ET.

7.2.2 Operating Projects Track Phase 2

Over the course of Operating Projects Track Phase 2 up to three teams will each win up to $400,000 in cash awards, for a total prize pool of up to $1.2 million in prizes. Teams will submit semi-annual (every six months) data reports for a potential prize award of $100,000 per submission.

Teams may begin data collection as soon as they receive notification of winning Operating Projects Track Phase 1 and will submit data covering the four consecutive six-month periods following the start of their data collection. Teams must start data collection by June 18, 2025, at the latest to be able to submit six months of data by the first subphase submission deadline in December 2025.

At the beginning of Phase 2 of the Operating Projects Track, teams will receive up to 8 hours of technical assistance from NREL to refine their data collection plans. The Prize Administrator will connect each team with the technical assistance.

Teams must submit deliverables for each subphase by the specified deadlines. Failure to submit for any subphase may, at the Prize Administrator's discretion, result in disqualification from subsequent subphases of the competition.

Final data submission deadlines include:

- Phase 2A: Dec. 18, 2025, 5 p.m. ET
- Phase 2B: June 18, 2026, 5 p.m. ET
- Phase 2C: Dec. 17, 2026, 5 p.m. ET
- Phase 2D: June 17, 2027, 5 p.m. ET.

7.3 How To Enter

Go to HeroX, click on the "Solve This Challenge" button, and follow the instructions for submitting all required materials before the submission deadline.

7.4 Important Dates

Refer to the timeline on HeroX and Section 1.3 for relevant dates and deadlines.

7.5 Prize Steps

Standard Track Phase 3 and Operating Projects Track Phase 2 of the prize both consist of the following steps:

1. **Submission**—Teams operate the solar PV arrays and graze the cattle on-site, including underneath the arrays. PV operation and grazing must occur for a total of two years across all four subphases, with regular data collection and submission for each of the sub-phases of Standard Track Phase 3 and Operating Projects Track Phase 2. Cattle are not required to graze under/be co-located with the PV array at all times (of day or year); rather, the expectation is that teams will maximize integration only in ways that protect the health and welfare of the cattle, soil, and vegetation. While there is no minimum requirement for how much time cattle must be integrated/co-located with the PV array throughout these subphases, submissions and plans will be evaluated on their potential contribution to the broader understanding of cattle agrivoltaics, including the breadth and depth of data on cattle-PV array integration.

    - Teams complete their submission packages and submit them online before the final submission deadlines. Teams will organize and host at least one field day community event (see Section 7.6.2) and submit the required documentation of their outreach and completed event.

    - **Data submissions for Phase 3A–3D (Standard Track) and Phase 2A–2D (Operating Projects Track) must include required data in the following categories:**

- PV system energy production data in kWh-ac, with a 1–15-minute frequency, and associated environmental data (irradiance, temperature, and windspeed)
- O&M activities completed, and any notable events/issues
- Herd size changes (increase or decrease), average daily weight gain, average daily milk production (as applicable), calving percent and percent open cows (as applicable), deaths, slaughters, or sales of animals (as applicable), cattle management information, and any notable health, safety, or behavioral events/observations during the subphase
- Costs incurred during the subphase, broken out by category and which team member incurred the cost (O&M; cattle management; leases; etc.)
- Income/revenue generated during the subphase, broken out by category and which team member generated the revenue (energy sales; sales of animals, meat or milk; leases, etc.)
- Any changes to PV array O&M or to cattle management made during the subphase or planned for the next subphase
- Any changes to business or financial arrangements between or among parties relevant to the cattle agrivoltaics project
- Best practices for cattle agrivoltaics operation and management

- Teams must indicate their choices about data publicity and anonymization using the HeroX submission form. By default, the only data that will be made publicly available is PV energy production data, which will be published on PVDAQ with a baseline level of anonymization of system location, system details, and raw output data. Teams will be able to choose the displayed name of their system on PVDAQ, and whether the names of the team or team members are associated with it. See Section 7.6.1.1 for details. DOE and NREL also reserve the right to write and publish narrative or descriptive summaries—which may include summary statistics, analyses, or derived best practices—based on any data teams submit, after consultation with the submitting team.

2. **Evaluation**—The Prize Administrator screens submissions for eligibility and completion and, in conjunction with DOE, reviews and evaluates the content of each submission on the following criterion:

- Data submissions must be complete, accurate, and meet or exceed the minimum level of detail required
- **Note**: Data indicating the actual successes and challenges of implementing cattle agrivoltaics systems are all valuable. There is no reward for data that exclusively show successful outcomes. Teams are not required to demonstrate exceptional outcomes in terms of energy production, income/revenue, livestock performance, and/or soil or vegetation changes. Data showing the challenges of the cattle agrivoltaics system or business model are equally important, provided teams have made diligent efforts to achieve positive outcomes.

3. **Announcement**—After the winners are publicly announced, the prize administrator notifies them and requests the necessary information to distribute cash prizes.

7.6 What To Submit (Both Standard and Operating Projects Tracks)

For each semi-annual submission (Standard Track 3A, 3B, 3C, 3D and Operating Projects Track 2A, 2B, 2C, 2D), a complete submission package must include the following items:

- **Semi-Annual Data Reporting** (required; submissions will not be made public, but summaries, summary analyses, or photos may be made public after consultation with the team)
- Field Day Community Event Progress or Final Report (required; will not be made public)

For Standard Track Phase 3 (3A-3D) and Operating Projects Track Phase 2 (2A-2D), all scoring criteria are pass/fail. See Section 7.7.1 for more information.

7.6.1 Semi-Annual Data Reporting

The semi-annual data reporting consists of both qualitative information and quantitative data. Teams will submit a summary report containing qualitative information, as well as separate files for each type of quantitative data.

Upload a comprehensive summary narrative (Qualitative Summary Report PDF) that includes (limit 5,000 words):

- Overview of O&M activities.
- Description of cattle management practices (including if different from plan), and observations of typical cattle interactions with the PV array, as well as any observed atypical interactions. This must include the frequency of cattle rotation and/or movement between

grazing sites inside and outside the PV array, and the frequency and extent of supplemental feeding.

- Description of notable events/issues relevant to the PV array (outages, damage, etc.) including dates/times and durations, as well as the dates and approximate times of cleanings and maintenance.
- Herd management summary (herd size changes, pregnancies, births, deaths, slaughters, sales).
- Animal performance summary (average daily weight gain, milk production if applicable)
- Health, safety, and/or behavioral observations related to the cattle.
- Changes to PV array O&M or cattle management, or changes planned for the following subphase.
- Changes to business or financial arrangements.
- Best practices developed for managing and operating cattle agrivoltaics project.
- Description and/or update of optional data included/being tracked for the LASSO Data Bounty bonus prize. See Section 8.2 for more information.
- Five to 10 high-resolution (minimum size 2,100 x 1,500 pixels) photographs taken from the same locations and perspectives as those required in Section 5.6.2 for teams in the Standard Track – showing representative views of the site and PV array, and showing the state of vegetative/soil cover.

Quantitative Data and Documentation (Excel spreadsheets or PDFs) – Upload as separate documents:

- **System Specifications (Excel spreadsheet):** A spreadsheet containing the PV system and environmental sensor specifications and metadata as described below. Teams are encouraged to use the provided template for this information.[33] See Section 7.6.1.1 for details. The information provided in this spreadsheet will also allow NREL experts to model predicted energy generation from your system, which can be compared to actual generation and used to gain insight into potential sources of reduced performance (if applicable), and to improve existing agrivoltaics modeling capabilities. The results of this modeling can be shared with you if desired.

[33] To assist teams, the Prize Administrator is providing an elective template to illustrate the types of data and formatting needed to evaluate submissions. Teams are not required to use this template and may submit using any form or format of their choosing. However, all submissions should address the substantive measures outlined in the template and described in this Rules document.

- **Energy Production Data (Excel spreadsheet):** A spreadsheet containing PV system energy production (kWh-ac) from the revenue-grade meter and the inverter in kWh with a frequency between 1-15 minutes. Non-energy yielding nighttime data can be removed. Teams are encouraged use the provided template for submitting energy production data.[34] See Section 7.6.1.1 for details. Teams may also provide credentials for NREL experts to access their monitoring systems to directly download the specified data (such data must be available for download from the monitoring systems if teams elect to use this option).
- **Detailed Cattle Data (Excel spreadsheet or PDF):** A spreadsheet or PDF with detailed information on livestock performance and health, including herd size and changes; average daily weight gain; calving percent and percent open cows; deaths, slaughters, or sales of animals; and average daily milk production (if applicable).
- **Grazing Management Data (Excel spreadsheet):** A spreadsheet with the dates and approximate times of cattle rotations and/or movements between grazing sites co-located with and not co-located with the PV array. If there are multiple grazing sites/paddocks co-located with the array that cattle are rotated between, identify which paddock(s) is(are) being used during each rotation, and provide a site diagram identifying the location of each paddock/grazing site within the PV array boundaries. If paddock boundaries are not fixed, identify the approximate section of the PV array where cattle are grazing for each rotation. If cattle are not rotated at all (which should be explained in the grazing management plan), submit a blank spreadsheet.
- **Soil Compaction Data (Excel spreadsheet):** A spreadsheet containing soil compaction measurements from a representative sample of locations on the project site. Include relevant metadata and methodological information. Guidance on soil compaction measurement is available through the provided technical assistance (see Sections 5.2.1 and 6.2.1 for the Standard Track, and Section 7.2.2 for the Operating Projects Track).
- **Financial Documentation (Excel spreadsheet):** A spreadsheet specifying costs incurred and revenue generated during the subphase, the cost/revenue category (e.g., payments for O&M, cattle management, PV array repair, land lease, etc.), and the team member that incurred the costs or received the revenue. Separate costs and revenues into separate tabs of the spreadsheet.

[34] To assist teams, the Prize Administrator is providing an elective template to illustrate the types of data and formatting needed to evaluate submissions. Teams are not required to use this template and may submit using any form or format of their choosing. However, all submissions should address the substantive measures outlined in the template and described in this Rules document.

- **LASSO Data Bounty Bonus Prize Data (Excel spreadsheets or PDFs):** A separate spreadsheet or PDF for each type of data being collected or topic being studied for the LASSO Data Bounty Bonus Prize. See Section 8.2 for more information.
- **Supplementary Documentation (Excel spreadsheets or PDFs):** If applicable, upload any additional documentation such as photographs, diagrams, and/or detailed reports on specific events, issues, or lessons learned

Submit all documents through the HeroX platform. Ensure that each document is clearly labeled with your project name, track name, which type of data the document contains (energy production, cattle data, etc.), and the reporting period.

7.6.1.1 Detailed Energy Production Time Series Data

Detailed energy production time series data submitted for the LASSO Prize will be made public through PVDAQ, with optional levels of anonymization as described below, and must adhere to the following guidelines:

Required data points for all submitted time series (Energy Production Data spreadsheet or API access to monitoring system):

- Irradiance (GHI or POA, any sensor type)
- Output power (AC) at the inverter (kW)
- Output power (AC) at the revenue-grade meter (kW)
- Either:
    - Back-of-module temperature from at least 3 modules in different areas of the array
    - Ambient temperature and windspeed as measured in at least 2 different areas of the array

Note: Teams may also choose to submit multiple channels for a given data point (if, for example, the PV system has multiple inverters or meters).

For Standard Track teams, as noted in the rules for Standard Track Phases 2A and 2B, portions of the PV array co-located with cattle grazing should be monitorable separately from portions not co-located with cattle grazing. Teams must submit the energy production data for these different portions of the array (co-located and not co-located) in separate files and clearly label the files. If teams are providing log-in access to a monitoring tool, the inverter inputs for co-located and non-co-

located modules (or other relevant level of monitoring aggregation of modules) must be identified clearly.

For Operating Projects Track teams, if cattle are integrated/co-located with only a portion of the total PV array, teams should submit data for the separate portions (co-located with cattle grazing and not co-located with cattle grazing) in separate files and label the data clearly (or clarify the boundaries if providing log-in access to a monitoring tool). If aggregation at that exact boundary is not possible (i.e., there is no way to track the output of only the portion of the array the cattle are integrated/co-located with separately from the rest of the array), teams should provide the closest comparable separation (i.e., provide data for portions of the array that most closely match the co-located and non-co-located portions).

Temporal Resolution: Time series data must have a temporal resolution of between 1 and 15 minutes.

Required PV system specifications/metadata to be submitted include (Systems Specifications spreadsheet):

- System location (U.S. state; time zone; latitude and longitude of the approximate center of system, with a precision of four decimal points)
- System commercial operation date (mm/dd/yyyy)
- Total rated generation capacity of all PV modules in kW-dc
- Total rated inverter capacity of all inverters in kW-ac
- Number of PV modules in the array
- PV cell chemistry (e.g., monocrystalline silicon, polycrystalline silicon, cadmium telluride)
- PV module technology (e.g., TOPCon, PERC, HJT, XBC)
- Module rated power (Pmp) in W-dc
- Number of cells in each module, and whether they are full cells or half-cut cells
- PV module faciality (e.g., monofacial, bifacial)
- Module length and width
- Nominal rated power of a single inverter in kW-ac
- Total number of inverters and PV source strings in the array
- Number of modules per source string and number of source strings per inverter
- Mounting type (standard ground mount, raised ground mount, novel mounting system, etc.) – list all that apply
- Mounting configuration (2-in-portrait, 4-in-landscape, etc.)

- Tracking type (fixed tilt, single-axis tracking, dual-axis tracking) and whether the system has backtracking
- Tilt angle (for fixed tilt) or North-South slope (for single-axis tracking systems)
- Rotation limit angle(s) in decimal degrees
- Azimuth(s)
- Pitch (row edge to row edge)
- Ground clearance height

Other required system specifications/metadata to be submitted (Systems Specifications spreadsheet):

- Temperature sensor locations
- Anemometer locations (if applicable)
- Contact information for the person who can answer questions about the data

How To Upload Data

There will be two options for submitting time-series data. Teams can choose the most suitable option for them of the following:

- Upload the files containing the PV system specifications and time series data to HeroX
- Upload the file containing the PV system specifications to HeroX and supply the Prize Administrator with the credentials to a monitoring service where the Prize Administrator can access and copy the time series data from the PV system.

Anonymization features:

By default, submitted data sets will be published with the following anonymization features:

- System location: The precision of the system's published location is reduced according to the size of the system as detailed in Table 10.
- Inverter and module metadata: The specifications and make and model of the inverter and the PV modules are not made public.
- Electric data: The published values of electric output (current and power) from PV modules, combiners, inverters, and revenue-grade meters are normalized (i.e., divided) by their respective DC or AC capacity value.

Teams have the option of waiving certain or all default anonymization using the HeroX submission form. The results of waiving any of these features will be the following:

- **System location**: The waiver will result in making the system's location public on PVDAQ using the nominal precision (a minimum of four decimal points).
- **Inverter and module metadata**: The waiver will result in the disclosure on PVDAQ of the make and model of the inverters and PV modules or of their basic specifications (for inverters: AC capacity, maximum DC current, and minimum DC voltage; for PV modules: nameplate capacity, Isc, Voc, temperature coefficient of maximum power, and solar cell technology).
- **Electric data**: The waiver will result in the disclosure of the raw values of electric output on PVDAQ.

Table 10 shows examples of precision with which the location of PV systems without a location anonymization waiver will be published for various system size ranges.

Table 10. Examples of Precision (Exact Location: 34.4662°N, 117.5828°W)

Size Range (kW-dc)	Published Precision	Example	Rounding Action
250–1,000	2 decimals	34.47°N, 117.58°W	Round to nearest second decimal degree
1,001–5,000	1.5 decimals	34.45°N, 117.60°W	Round to nearest 0.05 decimal degree
5,001–20,000	1 decimal	34.5°N, 117.6°W	Round to nearest first decimal degree
>20,000	0.5 decimals	34.5°N, 117.5°W	Round to nearest 0.5 decimal degree
>100,000	0 decimals	34°N, 118°W	Round to nearest integer degree

7.6.1.2 Additional Data Suggested for LASSO Data Bounty Bonus Prize

In addition to the data required for all teams to participate in Standard Track Phase 3 and Operating Projects Track Phase 2, teams are encouraged to collect and submit additional data about their projects that are information rich and address questions or topics important to furthering the

mission of the Solar Energy Technologies Office.[35] The following list includes suggested data teams can consider collecting and submitting toward the LASSO Data Bounty Bonus Prize. This list is neither exhaustive nor mandatory. See Section 8.2 for more information about the Bonus Prize and submissions. Suggested data includes:

- Measurements of panel soiling
- Soil carbon levels
- Soil NPK levels
- Other measurements of soil quality, such as the levels of other nutrients, the presence of contaminants, or the precise amount (%) of bare ground
- Plant community structure and function, including species composition
- Hydrologic function, water management, or erosion management
- Detailed cattle health or biometrics data
- Detailed cattle movement/behavior data (e.g., from sensors, cameras, accelerometers, etc.)
- Milk fat percentage and protein content
- Additional PV (or attached energy storage) system channels of data (e.g., on-site wind speed and direction, energy storage system energy inflow and outflow, inverter DC input, transformer low- and high-side current and voltage).

7.6.2 Field Day Community Event Progress or Final Report

For each semi-annual submission deadline, teams must submit either a progress or final report for their planned field day community event per the instructions below. Once the event is completed and a final report has been submitted, teams are exempt from additional submissions related to the event. If an event is not completed by the final submission deadline (Phase 3D for Standard Track or Phase 2D for Operating Projects Track), then **$20,000 will be deducted from the team's final award**.

Note: Field day community events should be held only during subphases 3B–3D (Standard Track) or 2B-2D (Operating Projects Track)—i.e., not within the first six months of operation.

[35] The U.S. Department of Energy (DOE) Solar Energy Technologies Office (SETO) has three main priorities: drive innovation in technology and soft cost reduction to make solar affordable and accessible for all Americans; enable solar to support the reliability, resilience, and security of the grid; and create a sustainable industry that supports job growth, manufacturing, and the circular economy in a wide range of applications.

Progress Report Guidelines

Progress reports have a 1,000-word maximum (with up to five additional tables, graphs and images) and must include:

- Event overview and objectives
- Planned date and location
- Target audience and number of expected attendees
- Outline of activities and presentations
- List of partners or collaborators (if any)
- Status of event planning, including promotion and outreach updates and discussion of any challenges encountered and mitigation strategies
- Next steps and timeline for event completion.

Final Report Guidelines

The final report has a 3,000-word maximum with up to 20 additional tables, graphs, and images, as well as the materials used for any presentations given at the event and must include:

- Event summary, including date, location, and duration
- Detailed description of activities and presentations (with the files and/or materials used for any presentations attached to the end of the report – the presentation files/materials will not count toward the word limit)
- Number, stakeholder type (e.g., community member, farmer/rancher, elected official, solar developer, etc.), and organizational affiliation (if applicable) of attendees
- Outcomes and achievements of the event
- Feedback received from participants
- Lessons learned
- Impact on the community and relevance to project goals
- Photos from the event
- Follow-up actions or plans resulting from the event
- The files and/or materials for any presentations given at the event.

Note: Teams must notify the prize administrator via email (LASSO.Prize@nrel.gov) of the planned event date and location at least 60 days in advance. DOE and/or the Prize Administrator reserve the right to attend teams' events.

7.7 Scoring and How Award Winners Are Determined

The Prize Administrator screens all completed submissions and ensures that all teams are eligible. Next, the Prize Administrator and DOE will review and score the content of each submission according to the criteria in Section 7.7.1.

7.7.1 Scoring Criteria

The Prize Administrator and DOE will consider the Table 11 scoring criteria in relation to the entirety of each subphase 3A–3D (Standard Track) and subphase 2A–2D (Operating Projects Track) submission package. Teams must receive a "pass" score for all bulleted criteria to be considered for a subphase award.

Table 11. Standard Track Phase 3 and Operating Projects Track Phase 2 Scoring Criteria

Scoring Criteria	
Data Completeness / Quality	Pass/Fail • Submission package is complete, and includes summary report and all required data points (DOE and the Prize Administrator may give a passing score if the team articulates a valid reason why a specific data point could not be collected in that subphase) • Notable and relevant events are documented and explained, including their impact on the PV array, the site, and/or the herd • Changes (either made during the subphase or planned for future implementation) to PV array O&M, site management, and/or cattle management are clearly explained and justified, and are likely to improve the overall outcomes of the project

Field Day Community Event Progress or Final Report	Pass/Fail For progress reports: • Report provides a clear, comprehensive plan for the upcoming field day event, demonstrating the team's thoughtful preparation and progress towards hosting a successful field day community event For final report: • Report fully documents the executed field day event, its outcomes, and its impacts. It clearly articulates the event's value to the project and community, presents participant feedback and lessons learned, and outlines well-justified follow-up actions or plans

7.7.2 Reviewer Scoring

The scoring of submissions will proceed as follows:

- The Prize Administrator and DOE will review each submission individually, assess the team's submission materials in response to each scoring criteria statement as described in Section 7.7.1, and assign a suggested pass/fail score.
- This score will inform the judge's decisions on prize awards.

7.7.3 Interviews and Site Visits

DOE may decide to interview a subset of teams and/or conduct site visits for a subset of projects. The interviews and/or site visits would be held prior to the announcement of the winners of each subphase and would serve to help clarify questions the reviewers may have. Participating in interviews and site visits is required; neither interviews nor site visits are an indication of a team's likelihood of winning.

7.7.4 Final Determination

DOE will designate a federal employee as the judge before the final determination of the winners. Final determination of the winners by the judge will consider the reviewers' feedback and scores, application of program policy factors, and the interview/site visit findings (if applicable).

7.7.5 Announcement

Approximately 30–60 days after each subphase (Standard Track 3A–3D and Operating Projects Track 2A–2D) final submission deadline, the Prize Administrator will publicly announce the winning teams, notify the winning teams, and request the necessary information to distribute the awards.

TEAMS THAT DO NOT COMPLY WITH THE ADDITIONAL REQUIREMENTS IN Appendix A MAY BE DISQUALIFIED.

8 Bonus Prizes

This section outlines the official rules for the LASSO Prize's three bonus prizes: Largest Photovoltaic System, LASSO Data Bounty, and Inclusive Outreach.

8.1 Largest Photovoltaic System Bonus Prize

The Largest PV System Bonus Prize will be awarded to the Standard Track Phase 2B submission with the largest DC-rated PV system over 5 MW-dc. The prize is $100,000. No additional submission materials are needed for this evaluation. All eligible teams will automatically be considered for the bonus prize. Only the capacity of the PV systems that cattle are integrated/co-located with will be counted toward the system size in determining the winner of this Bonus Prize (i.e., if a team's project includes a 6 MW-dc PV system, but cattle only graze under and around a 5 MW-dc portion of the system, only that 5 MW-dc will be considered toward the bonus prize).

The Solar Energy Technologies Office aims to build a robust clean energy manufacturing sector and supply chain in the United States that produces cost-competitive clean energy products. Therefore, it encourages LASSO competitors participating in the Largest PV System Bonus Prize to build systems with domestic content.

8.1.1 How We Determine Winners and Scoring Criteria

The winner of the Largest PV System Bonus Prize will be selected based on the largest DC-rated PV system over 5 MW-dc from eligible submissions for Standard Track Phase 2B. In the event of a tie, the prize will be split evenly among the winners.

8.2 LASSO Data Bounty Bonus Prize

The LASSO Data Bounty Bonus Prize will award $100,000 to the team that shares the most valuable, information-rich datasets and analyses from their cattle agrivoltaics projects that go above and beyond the minimum data requirements. All submitted data sets may, at the discretion of DOE, be made public via NREL, DOE, OpenEI, or the Open Energy Data Initiative (even if the submitting team is not selected for the Bonus Prize). Teams will be given the option to partly anonymize their submissions. See Section 8.2.1 for suggested (nonexhaustive) data of interest. This bonus prize aims to promote transparency, collaboration, and the sharing of insights that can benefit the broader

agrivoltaics community and advance the mission of the Solar Energy Technologies Office.[36] Teams participating in either Standard Track Phase 3 or Operating Projects Track Phase 2 are eligible for this bonus prize; however, the winner will not be announced until the end of Standard Track Phase 3. See Section 1.3 for the prize timeline.

8.2.1 What To Submit

Teams will propose data points to track and/or topics to investigate, as well as methodologies with which to do so, as part of their Standard Track Phase 2B Detailed Data Collection Plan (see Section 6.6.5) or Operating Projects Track Phase 1 (see Section 4.6.2). Teams should ensure that their data collection methodologies are rigorous and replicable and that any applicable approvals have been granted. Teams are encouraged to use Technical Assistance resources available through DOE and NREL (see sections 5.2.1 and 6.2.1 (Standard Track), and 4.2 (Operating Projects Track) for details) to refine and finalize their data collection plans and methodologies. Teams will submit these additional data sets as part of their Standard Track Phase 3 (3A–3D) or Operating Projects Track Phase 2 (2A–2D) submission materials (see Section 7.6.1 for more information). Teams should ensure that the specifications of any equipment used in measurement or collection are provided, and that submitted datasets are complete, accurate, and valuable for future research that furthers the mission of the Solar Energy Technologies Office.

The following list, which is neither exhaustive nor mandatory, includes suggested data teams can consider collecting and submitting toward the LASSO Data Bounty Bonus Prize:

- Measurements of panel soiling
- Soil carbon levels
- Soil NPK levels
- Other measurements of soil quality, such as the levels of other nutrients, the presence of contaminants, or the amount (%) bare ground
- Plant community structure and function, including plant species composition
- Hydrologic function, water management, or erosion management
- Detailed cattle health or biometrics data
- Detailed cattle movement/behavior data (e.g., from sensors, cameras, accelerometers, etc.)

[36] The U.S. Department of Energy (DOE) Solar Energy Technologies Office (SETO) has three main priorities: drive innovation in technology and soft cost reduction to make solar affordable and accessible for all Americans; enable solar to support the reliability, resilience, and security of the grid; and create a sustainable industry that supports job growth, manufacturing, and the circular economy in a wide range of applications.

- Milk fat percentage and protein content
- Additional PV (or attached energy storage) system channels of data (e.g., on-site wind speed and direction, energy storage system energy inflow and outflow, inverter DC input, transformer low- and high-side current and voltage). See Table 12 for additional suggested data channels for PV or energy storage system data.

Table 12 includes suggested PV system or energy storage system-related data points teams may consider collecting and submitting in addition to the baseline data requirements detailed in Section 7.6.1.1. For each additional PV or energy storage system-related data point collected and submitted, teams must also provide—in the same document as the PV system specifications (see Section 7.6.1.1.)—the make, model, and relevant specifications of the measurement device (for Conditions data and Irradiance data) or for which the data point is relevant (for Battery data, Combiner data, Meter data, and Transformer data).

Table 12. Suggested PV System or Energy Storage System-Related Data Points Teams

Irradiance	GHI (Class A)
	GHI (Class B)
	DNI (Class A)
	POA (Class A)
	POA (unclassified)
Battery data	Battery voltage in
	Battery voltage out
	Battery current in
	Battery current out
	Battery temperature
	Battery state of charge
	Battery state of health
	Energy Inflow (kWh)
	Energy Outflow (kWh)

Conditions	Wind speed (if not provided for baseline data requirements)
	Wind direction (if not provided for baseline data requirements)
	Tracker inclinometer
Inverter Data	Inverter DC Input (Amps)
	Inverter DC Input (Volts)
	Inverter AC output (Amps)
	Inverter AC output (Volts)
	Inverter AC output (Power Factor)
	Inverter accumulated energy (kWh)
	Inverter Temperature
	Combiner DC input (Amps)
Combiner Data	Combiner DC output (Amps)
	Combiner DC output (Volts)
	Revenue-grade meter AC output (Amps)
Revenue-grade meter	Revenue-grade meter AC output (Volts)
	Revenue-grade meter AC output (Hz)
	Revenue-grade meter AC output (Power Factor)
	Revenue-grade meter accumulated energy (kWh)
	Transformer low-side current
Transformer Data	Transformer high-side current
	Transformer low-side voltage
	Transformer high-side voltage
	Transformer power factor

Format: For PV- or energy storage system-related data channels, DOE is providing an elective template (also linked in Section 7.6.1.1 for details) to illustrate the types of information needed to evaluate whether teams meet minimum requirements. Teams are not required to use this template and may submit using any form or format of their choosing. All submissions should address the substantive measures outlined in the templates and described in this Rules document. For other types of data, teams should specify relevant equipment information, specify units for all applicable measurements, specify locations of measurements based at a single point, include measurement times and dates, include appropriate documentation (e.g., an example of a survey instrument), and generally ensure that all data provided are useful for further research. Data, specifications, and documentation may be submitted as Excel spreadsheets or PDFs.

Anonymization: When submitting data for the LASSO Data Bounty Bonus Prize (alongside submissions for Standard Track Phase 3 and Operating Projects Track Phase 2), teams will have the option on HeroX to request anonymization of their data (if it is made public) in the following ways:

- Equipment details (manufacturer, model) not made public
- Reduced precision in site latitude/longitude (note: this is not possible for data that includes sampling at precise locations within the site for which those locations are important)
- Name of team/team members not made public

8.2.2 How We Determine Winners and Scoring Criteria

The expert review team will consider the below scoring criteria in relation to all LASSO Data Bounty Bonus Prize entries. Reviewers will evaluate the submission by assigning a single score (0–6) for each section based on their overall agreement or disagreement with a series of statements.

Table 13. LASSO Data Bounty Bonus Prize Scoring Scale

0	1	2	3	4	5	6
Non-responsive	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

Scoring criteria are as show in Table 14.

Table 14. LASSO Data Bounty Bonus Prize Scoring Criteria

Category 1— Data Quality
A single score on a scale of 0–6 is provided, taking the following statements into consideration: • Methodology for data collection is complete, rigorous, replicable, and ensures high-quality data collection • System or device specifications are complete and provided with data submissions (if applicable) • Data submissions are complete, units are specified, and data are well organized
Category 2— Data Impact
A single score on a scale of 0–6 is provided, taking the following statements into consideration: • Data are relevant to important questions related to the mission of the Solar Energy Technologies Office • Data are complete, extensive, and of high enough quality to be usable in further research or analysis to address one or more such important questions

8.2.3 Interviews and Site Visits

DOE may decide to interview a subset of teams and/or conduct site visits for a subset of projects. The interviews and/or site visits would be held prior to the announcement of the winners and would serve to help clarify questions the reviewers may have. Participating in interviews and site visits is required; neither interviews nor site visits are an indication of a team's likelihood of winning.

8.2.4 Final Determination

DOE will designate a federal employee as the judge before the final determination of the winners. Final determination of the winners by the judge will consider the reviewers' feedback and scores, application of program policy factors (see Section A.13), and the interview/site visit findings (if applicable).

8.2.5 Announcement

Approximately 30–60 days after the Standard Track Phase 3D submission deadline, the Prize Administrator will publicly announce the LASSO Data Bounty Bonus Prize winner, notify the winning team, and request the necessary information to distribute the prize award.

8.3 Inclusive Outreach Bonus Prize

The Inclusive Outreach Bonus Prize will award $5,000 to up to three teams ($15,000 total prize pool) that plan and execute the most inclusive and impactful outreach about, and implementation of, their field day community event(s) during Standard Track Phase 3 or Operational Projects Track Phase 2. Efforts should include providing for accessibility needs, outreach to as many relevant audiences as possible, approachable messaging, the use of a variety of communication methods and formats, and an effective field day. Teams should also engage in outreach to important stakeholder groups about their field days and the outcomes after hosting them. The winning teams may also receive recognition in the Solar Energy Technologies Office's Best Practices Guide for Inclusive Solar Energy Communications.

Up to two teams in the Standard Track may win an Inclusive Outreach Bonus Prize, and up to one team in the Operating Projects Track may win an Inclusive Outreach Bonus Prize. The Prize Administrator reserves the right to amend the total prize amount and/or number of awards for teams in either or both tracks if an insufficient number of qualified applications are received.

8.3.1 What To Submit

Teams will submit the following materials, which will be used for this bonus prize.

For the Standard Track, submissions include:

- For Phase 2B, Communications and Outreach Plan (see Section 6.6.4)
- For Phase 3, Field Day Community Event Final Report (see Section 7.6.2)

For the Operating Projects Track, submissions include:

- For Phase 1, Communications and Outreach Plan (see Section 4.6.2)
- For Phase 2, Field Day Community Event Final Report (see Section 7.6.2)

No additional submission materials will be required.

8.3.2 How we Determine Winners and Scoring Criteria

The Prize Administrator and DOE will consider the below scoring criteria in relation to all Inclusive Outreach Bonus Prize entries. Reviewers will evaluate the submission by assigning a single score (0–6) for each section based on their overall agreement or disagreement with a series of statements.

Table 15. Inclusive Outreach Bonus Prize Scoring Scale

0	1	2	3	4	5	6
Non-responsive	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

Scoring criteria is as shown in Table 16.

Table 16. Inclusive Outreach Bonus Prize Scoring Criteria

Category 1— Outreach Effectiveness
A single score on a scale of 0–6 is provided, taking the following statements into consideration: • The team implemented a comprehensive communication strategy that effectively reached and engaged a diverse range of relevant audiences, including underrepresented groups and those with varying levels of technical knowledge • The team's messaging was clear, approachable, and used a variety of communication methods and formats to ensure broad accessibility and understanding of the project's goals and potential community impacts
Category 2— Event Execution and Community Impact
A single score on a scale of 0–6 is provided, taking the following statements into consideration: • The field day event was well planned and effectively executed, addressing a wide range of accessibility needs and creating an inclusive environment that encouraged participation from all segments of the community • Post-event communication thoroughly documented and shared outcomes, demonstrating tangible community benefits and providing valuable insights for future inclusive solar energy initiatives

8.3.3 Interviews and Site Visits

DOE may decide to interview a subset of teams and/or conduct site visits for a subset of projects. The interviews and/or site visits would be held prior to the announcement of the winners and would serve to help clarify questions the reviewers may have. Participating in interviews and site visits is required; neither interviews nor site visits are an indication of a team's likelihood of winning.

8.3.4 Final Determination

DOE will designate a federal employee as the judge before the final determination of the winners. Final determination of the winners by the judge will consider the reviewers' feedback and scores, application of program policy factors (see Section A.13) and the interview findings (if applicable).

8.3.5 Announcement

Approximately 30–60 days after the Operating Projects Track Phase 2D submission deadline, and approximately 30–60 days after the Standard Track Phase 3D submission deadline, the Prize Administrator will publicly announce the winning team(s), notify the winning team(s), and request the necessary information to distribute the prize award(s).

TEAMS THAT DO NOT COMPLY WITH THE ADDITIONAL REQUIREMENTS IN Appendix A MAY BE DISQUALIFIED.

Appendix A: Additional Terms and Conditions

A.1 Requirements

Your submission for the American-Made Large Animal and Solar System Operations (LASSO) Prize is subject to the following terms and conditions:

- You must post the final content of your submission or upload the submission form online by 5 p.m. ET on the prize deadline date, before the prize's phase submission period closes. Late submissions or any other form of submission may be rejected.
- You must include all the required elements in your submission. The Prize Administrator may disqualify your submission after an initial screening if you fail to provide all required submission elements. Teams may be given an opportunity to rectify submission errors due to technical challenges.
- Your submission must be in English and in a format readable by Microsoft Word or Adobe PDF. Scanned hand-written submissions will be disqualified.
- Submissions will be disqualified if they contain any matter that, in the sole discretion of the U.S. Department of Energy (DOE) or the National Renewable Energy Laboratory (NREL), is indecent, obscene, defamatory, libelous, and/or lacking in professionalism, or demonstrates a lack of respect for people or life on this planet.
- If you click "Accept" on the HeroX platform and proceed to register for any of the prizes described in this document, these rules will form a valid and binding agreement between you and DOE and are in addition to the existing HeroX Terms of Use for all purposes relating to these contests. You should print and keep a copy of these rules. These provisions only apply to the prize described here and no other prize on the HeroX platform or anywhere else.
- The Prize Administrator, when feasible, may give teams an opportunity to fix non-substantive mistakes or errors in their submission packages.
- As part of your submission to this prize, you will be required to sign the following statement:

  I am providing this submission package as part of my participation in this prize. I understand that the information contained in this submission will be relied on by the federal government to determine whether to issue a prize to the named competitor. I certify under penalty of perjury that the named competitor meets the eligibility requirements for this prize competition and complies with all other rules contained in the Official Rules document. I further represent that the information contained in the submission is true and contains no misrepresentations. I understand false statements or misrepresentations to the federal

government may result in civil and/or criminal penalties under 18 U.S.C. § 1001 and § 287, and 31 U.S.C. §§ 3729-3733 and 3801-3812.

A.2 Verification for Payments

The Prize Administrator will verify the identity and role of all team members before distributing any prizes. Receiving a prize payment is contingent upon fulfilling all requirements contained herein. The Prize Administrator will notify winning teams using provided email contact information for the lead individual or entity ("competitor") that was responsible for the submission. Each team will be required to sign and return to the Prize Administrator, within 30 days of the date on the notice, a completed NREL Request for ACH Banking Information form and a completed W9 form (https://www.irs.gov/pub/irs-pdf/fw9.pdf). In the sole discretion of the Prize Administrator, a winning team will be disqualified from the competition and receive no prize funds if: (i) the person/entity does not respond to notifications; (ii) the person/entity fails to sign and return the required documentation within the required time period; (iii) the notification is returned as undeliverable; (iv) the submission or person/entity is disqualified for any other reason.

In the event of a dispute as to any registration, the authorized account holder of the email address used to register will be deemed to be the lead competitor. The "authorized account holder" is the natural person or legal entity assigned an email address by an Internet access provider, online service provider, or other organization responsible for assigning email addresses for the domain associated with the submitted address. All competitors may be required to show proof of being the authorized account holder.

A.3 Competitors and Single-Entity Awards

The Prize Administrator will award a single dollar amount to the designated primary submitter, whether consisting of a single or multiple entities. The primary submitter is solely responsible for allocating any prize funds among its member competitors or teammates as they deem appropriate. The Prize Administrator will not arbitrate, intervene, advise on, or resolve any matters or disputes between team members or competitors.

A.4 Treatment of Submission Materials

The elements of the submission that are designated public will become publicly available as part of this prize. Therefore, these elements must not include trade secrets or business-sensitive, proprietary, or otherwise confidential information.

If it is necessary to share trade secrets or business-sensitive, proprietary, or otherwise confidential information, it should only be done in an element that is NOT designated as public. Any confidential,

proprietary, or privileged information must be marked as described below. Failure to comply with these marking requirements may result in the disclosure of the unmarked information under the Freedom of Information Act or otherwise.

The submission must be marked as follows and identify the specific pages containing trade secrets, confidential, proprietary, or privileged information: “Notice of Restriction on Disclosure and Use of Data: Pages [list applicable pages] of this document may contain trade secrets, confidential, proprietary, or privileged information that is exempt from public disclosure. Such information shall be used or disclosed only for evaluation purposes. [End of Notice]”

The header and footer of every page that contains confidential, proprietary, or privileged information must be marked as follows: “Contains Trade Secrets, Confidential, Proprietary, or Privileged Information Exempt from Public Disclosure.” In addition, each line or paragraph containing proprietary, privileged, or trade secret information must be clearly marked with double brackets.

DOE, the Prize Administrator, and any other third-party supporting DOE in the contest assume no liability for the public disclosure of any information in the elements designated public and for any unmarked information any element NOT designated as public.

Furthermore, by making a submission and consenting to the rules of the contest, the teams and competitors are granting to DOE, the Prize Administrator, and any other third parties supporting DOE in the contest, a license to display publicly and use the elements of the submission that are designated as public and any unmarked information in the elements of the submission that are NOT designated as public for government purposes, including posting or linking elements on websites or publicizing the submissions and competitors in the media and other announcements. Teams and competitors are granting to DOE, the Prize Administrator, and other third parties a limited license to use or disclose any properly marked information for evaluation purposes only.

A.5 Representation and Warranties

By entering, teams and competitors represent and warrant that:

1. The team’s entire submission is an original work by the team members and the team has not included third-party content (such as writing; text; graphics; artwork; logos; photographs; likeness of any third party; musical recordings; clips of videos, television programs, or motion pictures) in or in connection with the submission, unless (i) otherwise requested by the Prize Administrator or disclosed by the team in the submission, and (ii) the team acquired the necessary rights to use and to authorize others, including DOE, to use the submission, as specified throughout the rules.

- To the best of the team's knowledge, the use of the submission in the prize, including any use by DOE or the Prize Administrator, does not and will not infringe or violate any rights of any third party or entity, including, without limitation, patent, copyright, trademark, trade secret, defamation, privacy, publicity, false light, misappropriation, intentional or negligent infliction of emotional distress, confidentiality, or any contractual or other rights.
- All persons who were engaged by the team or a team member to work on the submission or who appear in the submission in any manner have:
    - Given their express written consent, that is satisfactory to the Prize Administrator, to submit the submission for exhibition and other exploitation in any manner and in any and all media, whether now existing or hereafter discovered, throughout the world
    - Provided written permission to include their name, image, or pictures in or with the submission (or, if a minor who is not a competitor's child, the team must have the permission of the minor's parent or legal guardian), that is satisfactory to the Prize Administrator, and the team may be asked by the Prize Administrator to provide permission in writing
    - Not been and are not currently under any contract or agreement that results in any ongoing obligations resulting from the use, exhibition, or other exploitation of the submission, including but not limited to union or guild agreements.
- The submission is free of malware.

A.6 Contest Subject to Applicable Law

All contests are subject to all applicable federal laws and regulations. Participation constitutes each participant's full and unconditional agreement to these Official Rules and administrative decisions, which are final and binding in all matters related to the contest. This notice is not an obligation of funds; the final award is contingent upon the availability of appropriations.

A.7 Resolution of Disputes

DOE is solely responsible for administrative decisions, which are final and binding in all matters related to the contest.

Neither DOE nor the Prize Administrator will arbitrate, intervene, advise on, or resolve any matters between team members or among competitors.

A.8 Publicity

The winners of these prizes (collectively, "winners") will be featured on DOE and NREL websites.

Except where prohibited, participation in the contest constitutes each winner's consent to DOE's and its agents' use of each winner's name, likeness, photograph, voice, opinions, and/or hometown and state information for promotional purposes through any form of media worldwide, without further permission, payment, or consideration.

A.9 Liability

Upon registration, all competitors agree to assume any and all risks of injury or loss in connection with or in any way arising from participation in this contest. Upon registration, except in the case of willful misconduct, all competitors agree to and, thereby, do waive and release any and all claims or causes of action against the federal government and its officers, employees, and agents for any and all injury and damage of any nature whatsoever (whether existing or thereafter arising, whether direct, indirect, or consequential, and whether foreseeable or not), arising from their participation in the contest, whether the claim or cause of action arises under contract or tort.

In accordance with the delegation of authority to run this contest delegated to the judge responsible for this prize, the judge has determined that no liability insurance naming DOE as an insured will be required of competitors to compete in this competition per 15 U.S.C. § 3719(i)(2). Competitors should assess the risks associated with their proposed activities and adequately insure themselves against possible losses.

A.10 Records Retention and Freedom of Information Act

All materials submitted to DOE as part of a submission become DOE records and are subject to the Freedom of Information Act. Where necessary, materials should be marked as noted in Section A.4. Such information will be withheld from public disclosure to the extent permitted by law. Without assuming any liability for inadvertent disclosure, DOE will seek to limit disclosure of such information to its employees and to outside reviewers when necessary for review of the application or as otherwise authorized by law. This restriction does not limit the government’s right to use the information if it is obtained from another source.

Competitors will be notified of any Freedom of Information Act requests for their submissions in accordance with 29 C.F.R. § 70.26. Competitors may then have the opportunity to review materials and work with a Freedom of Information Act representative prior to the release of materials. DOE does intend to keep all submission materials private except for those materials designated as “will be made public.”

A.11 Privacy

If you choose to provide HeroX with personal information by registering or completing the submission package through the contest website, you understand that such information will be transmitted to DOE and may be kept in a system of records. Such information will be used only to respond to you in matters regarding your submission and/or the contest unless you choose to receive updates or notifications about other contests or programs from DOE on an opt-in basis. DOE and NREL are not collecting any information for commercial marketing.

A.12 General Conditions

DOE reserves the right to cancel, suspend, and/or modify the prize, or any part of it, at any time. If any fraud, technical failure, or any other factor beyond DOE's reasonable control impairs the integrity or proper functioning of the prize, as determined by DOE in its sole discretion, DOE may cancel the prize. Any performance toward prize goals is conducted entirely at the risk of the competitor, and DOE shall not compensate any competitors for any activities performed in furtherance of this prize.

Although DOE may indicate that it will select up to several winners for each prize, DOE reserves the right to only select teams that are likely to achieve the goals of the program. If, in DOE's determination, no teams are likely to achieve the goals of the program, DOE will select no teams to be winners and will award no prize money.

DOE may conduct a risk review, using Government resources, of the team and project personnel for potential risks of foreign interference. The outcomes of the risk review may result in the submission being eliminated from the prize competition. This risk review, and potential elimination, can occur at any time during the prize competition. An elimination based on a risk review is not appealable.

A.13 Program Policy Factors

Although the scores of the expert reviewers will be carefully considered, it is the role of the prize judge to maximize the impact of prize funds. The Prize Administrator deems certain factors not necessarily addressed in the evaluation criteria evaluated by independent expert reviewers to be worthy of consideration. The following is a list of such factors. In addition to the reviewers' scores, the below program policy factors may be considered in determining winners:

- The size of the PV array(s), with larger typically being desirable.
- The degree to which the cattle are integrated/co-located with the PV system, with more integration being desirable.
- Geographic diversity and potential economic impact of projects.

- Whether the use of additional DOE funds and provided resources is nonduplicative and compatible with the stated goals of this program and the DOE mission generally.
- The degree to which the submission exhibits technological or programmatic diversity when compared to the existing DOE project portfolio and other teams.
- The degree to which the submission is likely to lead to increased employment and manufacturing in the United States or provide other economic benefits to U.S. taxpayers.
- The degree to which the submission will accelerate transformational technological, financial, or workforce advances in areas that industry by itself is not likely to undertake because of technical or financial uncertainty.
- The degree to which the submission supports complementary DOE-funded efforts or projects, which, when taken together, will best achieve the goals and objectives of DOE.
- The degree to which the submission expands DOE's funding to new recipients who have not been supported by DOE in the past.
- The degree to which the submission enables new and expanding market segments.
- Whether the project promotes increased coordination with nongovernmental entities toward enabling a just and equitable clean energy economy in their region and/or community.
- The degree to which the submission furthers SETO's goals.
- The overall use of domestic content and materials in the project.

A.14 National Environmental Policy Act Compliance

This prize is subject to the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321, et seq.). NEPA requires federal agencies to assess the environmental impacts of their proposed actions prior to making decisions. For additional background on NEPA, please see DOE's NEPA website at http://nepa.energy.gov/.

Although NEPA compliance is a federal agency responsibility and the ultimate decisions remain with the federal agency, all competitors in the LASSO Prize will be required to assist in the timely and effective completion of the NEPA process in the manner most pertinent to their participation in the prize competition. Competitors may be asked to provide DOE with further information such that DOE can conduct a meaningful evaluation of the potential environmental impacts.

A.15 Definitions

Prize Administrator means both the Alliance for Sustainable Energy, LLC, operating in its capacity under the Management and Operating Contract for NREL and DOE's Solar Energy Technologies Office. When the Prize Administrator is referenced in this document, it refers to staff from both the

Alliance for Sustainable Energy, LLC, and DOE Solar Energy Technologies Office staff. Ultimate decision-making authority regarding prize matters rests with the DOE director of the Solar Energy Technologies Office

A.16 Return of Funds

As a condition of receiving a prize, competitors agree that if the prize was made based on fraudulent or inaccurate information provided by the competitor to DOE, DOE has the right to demand that any prize funds or the value of other noncash prizes be returned to the government.

ALL DECISIONS BY DOE ARE FINAL AND BINDING IN ALL MATTERS RELATED TO THE PRIZE.