





# **Track B: Autonomous Wildfire Response**

Round 2: Semifinals

Rules and Regulations v2.0

Released 12 June 2025

The XPRIZE Wildfire Track B: Autonomous Wildfire Response ("Track B") is governed by these Rules and Regulations. **These Rules and Regulations supersede all previous versions of the rules and regulations** whilst also supplementing the <u>Competition Guidelines</u> (originally published April 21, 2023, currently Version 2.2 as of August 6, 2024). While the Guidelines remain in full effect as the primary document governing the competition, at each round of the competition, this document is published to provide necessary operational details specific to that round of the competition. All participating Teams must adhere to these Rules for the rounds of the Competition in which they compete, in order to progress through the competition milestones and be qualified for selection as a winner of the competition track. Failure to adhere to these Rules may result in consequences as detailed in the Competitor Agreement.

XPRIZE may revise these Rules and Regulations at any time during the course of the competition to provide additional information or to improve the quality of the competition. Future versions, amendments, technical notes, or other documents may continue to elaborate on the operation of the competition, including exact dates and locations of events, specific technical thresholds for performance testing, and operational information. Unanticipated issues, including restrictions to travel, may also necessitate modifications to these documents. XPRIZE reserves the right to revise these Rules and Regulations as it, in its sole discretion, deems necessary or desirable.

All active teams will be notified of any revisions in a timely manner. Please send any questions or communications about them to <u>wildfire@xprize.org</u>.

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# 1. COMPETITION OVERVIEW

XPRIZE Wildfire is a 4-year, \$11 million competition incentivizing the innovation of firefighting technologies that will end destructive wildfires so that humanity and beneficial wildfire can safely co-exist. The prize aims to transform current wildfire management approaches through the development of new technologies that can rapidly and accurately detect, characterize, and respond to wildfires before they become destructive.

The \$5M Autonomous Wildfire Response Track (Track B) will transform how fires are managed and fought by rapidly and autonomously detecting and completely suppressing a destructive, high-risk fire in an environmentally challenging area with dramatically greater speed, accuracy, and precision than current best-in-class solutions, leaving any decoy fires untouched.

The \$3.5M Grand Prize will be awarded to the team that autonomously detects and suppresses a high-risk fire within 10 minutes of ignition, while ignoring decoy fires, in a 1,000 km<sup>2</sup> environmentally challenging area. Teams must monitor the area continuously for 24 hours.

## 2. ELIGIBILITY

XPRIZE believes that solutions can come from anyone, anywhere. Scientists, engineers, academics, entrepreneurs, and other innovators from all over the world were invited to form a team and register to compete. Team registration was open from the launch of the prize until May 1st, 2024. To participate in XPRIZE Wildfire: Track B, competition teams were required to create an account in the **Prize Operations Platform (POP)**. POP is an online platform through which teams register for the competition, pay the required registration fee, and submit important documents throughout the competition. Teams are expected to maintain their POP profiles throughout the competition, ensuring their profile is up to date with the most recent team information. A Team may recruit and add additional experts and members as well as combine with other competing teams at any time throughout the Competition.

Team registration was open from the launch of the prize until May 1st, 2024. Registration opened at the competition launch, with a registration fee of \$500 throughout (USD).

XPRIZE retained sole discretion to register and qualify additional teams up until the January 2025 Discretionary Late Registration deadline. Teams that registered during this period were required to meet all applicable registration and submission requirements and pay a late registration fee of \$2,000 (USD).

## 3. ROLES AND RESPONSIBILITIES

The responsible party for each of these activities is listed below. This is not a comprehensive list; please contact XPRIZE if you have any questions about any activity.

Activity	Responsibility
Design and development of the Solution	Team
Coordination of Testing Locations and operations of Field Testing	Team (semifinals) XPRIZE (finals)
Transportation of the Solution to a test location and back	Team
Deployment and setup of the Solution before any test and removal of the	Team

Table 1: Responsibilities

Solution after the end of testing	
Cost of lodging, travel etc. for Teams (XPRIZE will cover its own staff costs)	Team
Solution inspection and/or verification before and during testing	XPRIZE + Judging Panel
Collection of test data from Teams for consideration by the Judging Panel	ACUASI (XPRIZE as supervisors)
Evaluation and scoring of Teams' solutions (based on test data and reports)	Judging Panel
Selection of teams advancing to next round	Judging Panel
Selection of winning teams	Judging Panel
Issue of awards	XPRIZE

## 4. COMPETITION TIMELINE

The competition is structured into three rounds over three years. These are the milestones that Teams must accomplish in order to progress in the Competition. Qualifying, Semifinals and Finals rounds.



Table 2: Competition Calendar.Dates may be subject to change.

TRACK B: AUTONOMOUS WILDFIRE RESPONSE COMPETITION CALENDAR				
Date	Event	Details		
April 21, 2023	Official Competition Launch	Team Registration Opens, Competition Guidelines Released		
April 21 - May 17, 2023	Competition Guidelines Public Comment Period	Comments may be sent to <u>wildfire@xprize.org</u>		
April 21 - May 1, 2024	Registration Period	Registration Deadline: March 31, USD \$500		
		Signed Competitor Agreement required with payment		
May 1, 2024	Qualifying Technical Submission Deadline	Details provided in the Rules & Regulations		
July 2024	Qualified Teams Announced	Advancing teams will share a milestone prize purse of USD \$750K		
October 2024	Team Summit	In-person meetings to introduce teams to each other and foster collaboration opportunities		
January 2025	Discretionary Late Registration Closes	Late Registration Fee, USD \$2,000		
April 2025	Semifinals System Technical Verification Deadline	Detailed technical submission		
June 2025	Semifinalist Teams Announced	Advancing teams will demonstrate their systems during the Semifinals site visits		
July-October 2025	Semifinals Testing	Outdoor testing environment; 3rd party verification		
December 2025	Finalist Teams Announced	Advancing teams will share a milestone prize purse		
February 2026	Finals System Technical Verification Deadline	Detailed technical submission		
July 2026	Finals Testing	Outdoor testing environment		
August 2026	Final Award Ceremony and Winners Announced	Winning team will be awarded the grand prize; Lockheed Martin Accurate Detection & Intelligence Bonus Prize Awarded		

# 5. SEMIFINALS

Up to 15 Semifinalist Teams will physically demonstrate the autonomous detection, navigation, and suppression capabilities of their solutions 'in-situ' at a single location of their choosing. Semifinals testing will be conducted between 01 July to 31 October 2025. During Semifinals Testing, teams must demonstrate that their solutions are at the claimed TRL within the STV and can integrate and scale to meet the Finals testing requirements.

Following Semifinals Testing, the Judging Panel will select up to five **Finalist Teams** to split a Milestone Prize of \$750,000 (USD) and proceed to Finals Testing In July 2026.

## SEMIFINALS APPLICATION

Prior to participating in **Semifinals Testing**, teams will be required to submit materials as part of the finals application process. The semifinals application will provide documentation that is required by XPRIZE and its contract assessors to plan and execute In-Situ testing and evaluation of the team's technologies. The application will also contain materials and documentation to update the judges on the latest developments to the team's technologies and be used for the assessment and verification of the teams technologies and processes. The **Semifinals Application** deadline is as indicated below, and pertains directly to each team's individual testing schedule.

Semifinals Application consists of the following submissions,

1. **Letter of Intent.** Completed Google Form letter of intent to compete in the XPRIZE Wildfire Track-B Semifinals during assigned dates. Letter of Intent <u>Google form</u> to be used by all teams can be found using this <u>link</u>. Testing dates between 01 July 2025 - 31 October, 2025 are to be confirmed with each team. Teams must also confirm the testing location by this date. Each team will be provided with a three (3) day testing window. *Deadline: 20 June 2025* 

2. **In-Situ Planning Document**. Lists essential planning information such as location, dates, times, list of personnel attending semifinals testing, contact information and an intended run of show. Template provided by XPRIZE <u>link</u>. *Deadline: <u>Two Weeks Prior</u> to Team Test Date* 

3. **Concept of Operations.** Include an overall system concept of operations diagram and write-up of processes which correspond directly to your site for semifinals. Include the entire end-to-end solution from detection, verification, autonomous flight, suppression and confirmation of threat extinguishment. Include information on the use and operation of the system in different weather conditions, terrain, and times of day/night. Teams can resubmit documentation from the Semifinals System Technical Verification (STV) to accomplish this portion if there are no changes. *Deadline: <u>Two Weeks Prior</u> to Team Test Date (Final Updates can be submitted up to 31 October 2025).* 

- Teams to use filename: team name\_ConOps
- If you are submitting updates, please add \_updateDDMMYY to the end of the filename.

4. **Quad chart of the Solution**. Quad chart with updated milestones and Technology Readiness Level (TRL)<sup>1</sup>. Template provided by XPRIZE. Teams are welcome to provide additional quad charts for each sub-system. Teams can resubmit documentation from STV to accomplish this portion if there are no changes. To remain competitive, technology should be at a minimum of TRL-6 for semifinals In-Situ testing. *Deadline: <u>Two Weeks Prior</u> to Team Test Date (Final Updates can be submitted up to 31 October 2025).* 

- Teams to use filenames:
  - Main Quad: team name\_QuadChart
  - Subsystem Quads: team name\_QuadChart\_subsys1(2 etc)
  - If you are submitting updates, please add \_updateDDMMYY to the end of the filename.

5. **System diagram**. Include a complete system diagram, including subsystems such as detection technology/sensors, telecommunications, control, transport/payload delivery, Autonomous piloting system, fire suppression/extinguishing systems, data analysis, Al/ML, data storage, alerting systems. Teams can resubmit documentation from STV to accomplish this portion if there are no changes, or make additions or updates to those documents submitted during STV or post testing and resubmit. *Deadline: <u>Two Weeks Prior</u> to Team Test Date (Final Updates can be submitted up to 31 October 2025).* 

- Use filename: team name\_STVsysdiag
- If you are submitting updates, please add \_updateDDMMYY to the end of the filename.

6. **AI/ML Plan**. Artificial Intelligence and/or Machine Learning Plan. To include a flow diagram of the data analysis and wildfire verification process. Include methodologies used to identify false positives and a description of the algorithms used within the autonomous detection process and decision process to launch suppression systems. Teams are welcome to use their own format that can include research papers, white papers or technical descriptions provided all of the data requested within the AI/ML Plan Template (found using this link) is included. Teams can resubmit documentation from STV to accomplish this portion if there are no changes, or make additions or updates to those documents submitted during STV or post testing and resubmit. *Deadline: Two Weeks Prior to Team Test Date (Final Updates can be submitted up to 31 October 2025).* 

- Use filename: team name\_STVAlplan
- If you are submitting updates, please add \_updateDDMMYY to the end of the filename.

<sup>&</sup>lt;sup>1</sup> It is recommended that technology be at minimum of TRL 6 for semifinals testing.

7. **Scalability Assessment & Plan.** Teams are required to provide demonstrable proof during their semifinals test or have a feasible plan or other proof that documents that they are capable of scaling, within the remaining time, to meet or exceed the finals testing requirements. In addition to the scalability plan teams are required to answer the questions with the Scalability Assessment <u>Google form</u> to be used by all teams can be found using this <u>link</u>. *Deadline: <u>Two Weeks Prior</u> to Team Test Date. Teams testing in July can submit two days prior to testing.* 

## SEMIFINALS TESTING

Semifinals testing will be conducted **in-situ** via site visits by XPRIZE and ACUASI at a single localized location chosen by each team. Teams must not propose multiple sites and are responsible for securing permissions, setting up a safe and relevant outdoor test environment, and conducting their demonstrations.

Teams will have three consecutive days (up to 8 hours/day including a 2-hour max drive) within their assigned testing window July 1 – October 31, 2025 to demonstrate their autonomous end-to-end wildfire response system, including smart detection, navigation, and suppression.

Demonstrations may be integrated or conducted as sub-systems, but teams lacking full integration must provide a clear, feasible plan with timelines, TRL milestones, and rough-order-of-magnitude (ROM) costs to advance toward Finals testing. Teams must prioritize this demonstration over other commercial or parallel events.

Teams must also contribute to the development of a <u>Technology Readiness Assessment</u> (<u>TRA</u>) report by responding to technical questions and providing supporting documentation.

Teams are to provide live demonstrations of the following systems and capabilities:

### LIVE DEMONSTRATIONS

Teams are to provide live demonstrations in a simulated, relevant environment of their choosing. Teams are responsible for all aspects other than evaluation for the demonstration. Teams must abide by local and national laws and regulations whilst demonstrating their solution. Teams are responsible for all logistics and must comply with all applicable laws and safety regulations. Teams must be available throughout the three-day testing window to answer questions from XPRIZE and assessors.

In the event of force majeure (e.g., natural disaster, extreme weather), extensions or rescheduling will be considered case by case. This may result in the team testing window

being extended or rescheduled. Throughout the three day semifinals testing window teams must demonstrate the following systems and capabilities:

1. Smart Wildfire Detection Teams must demonstrate their system's ability to autonomously detect and classify high-risk fires while ignoring false positives and decoy sources such as water vapor, clouds, or low-intensity, static fires. Demonstrations should occur, at a minimum, within a small, controlled area using simulated fire or heat sources to activate sensors. Teams must prove network connectivity between detection devices, if relevant. They should also present any AI capabilities or data integration models used to predict high-risk conditions. All solutions must demonstrate scalability to a 1,000 km<sup>2</sup> area, under challenging environmental conditions. While integrated end-to-end systems are preferred, teams may demonstrate subsystems separately. Strong teams will instill confidence in their ability to scale and meet Finals requirements.

Demonstrations must show:

- Operation within an outdoor area using simulated fire/heat.
- Differentiation between true fires and false positives.
- Present any AI capabilities or data integration models used to predict high-risk conditions
- Network connectivity and scalability to a 1,000 km<sup>2</sup> area.
- Integration with suppression systems (preferred).

2. Autonomous Navigation & Safety Mechanisms Teams must demonstrate their solution's ability to operate autonomously from detection through suppression, incorporating "human-on-the-loop" autonomy—where systems function without human input during testing but allow for supervision and manual override. Demonstrations should showcase safe autonomous operation over a reduced range, with the capability to scale to greater distances and beyond visual line of sight (BVLoS). Systems must operate effectively at 30 km/h (20 mph).

Teams must prove airworthiness, obstacle avoidance, secure payload handling (including emergency jettison, reload, and carry), safety cutoffs, and fail-safes such as lost communication and flyaway prevention protocols. Solutions must not cause harm in operation or delivery. For systems using multiple unmanned aircraft, coordination and collision avoidance must be documented and demonstrated. Strong teams will show end-to-end autonomy, including navigation to/from targets with full payloads, automated reconfiguration or reloading, and the ability to enter standby or continue operations after suppression.

Teams must showcase safe, autonomous operations across terrain, including:

- Human-on-the-loop autonomy with manual override.
- Operational capability at ≥30 km/h.

- Navigation to/from targets, obstacle avoidance, lost comms protocols, emergency jettison, and secure payload handling.
- Prove airworthiness, obstacle avoidance, secure payload handling (including emergency jettison, reload, and carry).
- BVLoS readiness and safety cutoffs for multi-UA systems (fail-safes such as lost communication and flyaway prevention protocols).

3. **Autonomous Suppression of a notional fire/target.** *Teams must demonstrate their autonomous suppression system's ability to accurately deliver sufficient suppressant payload(s) onto a target or notional fire.* Live fire is not required, but teams must showcase the system's ability to carry and deploy payloads intended to suppress an incipient stage wildfire within 10 minutes of detection. If live fire is demonstrated, a notional fire must still be used for assessment purposes. All suppressants—especially novel formulations—must be listed and proven to meet or exceed globally recognized standards, including NFPA 1143, NFPA 1145, and EPA guidelines. A Technology Readiness Assessment (TRA) of the suppression system will be conducted using the <u>XPRIZE TRA Framework</u>.

Teams must demonstrate rapid and autonomous delivery of fire suppression payloads onto a notional fire. Suppressants must:

- Be non-toxic and meet NFPA 1143/1145 and EPA standards.
- Be listed and justified with documentation.
- Include proof of delivery accuracy and system integration.
- Be capable of fully suppressing an incipient-stage fire

## **DEMONSTRATION REPORTS**

XPRIZE staff and ACUASI will document each team's technical performance and readiness during the live demonstrations. This includes capturing video, imagery, and collecting written documentation in collaboration with the teams while onsite. These materials will be provided to the independent panel of XPRIZE Wildfire Judges for their assessment. The judging panel will assess the three main subsystems—Smart Detection, Autonomous Navigation & Safety, and Autonomous Suppression—along with the overall system using the <u>XPRIZE TRA Framework</u> as part of the system capabilities assessment. Teams will also be evaluated on their scalability to meet Finals criteria. After review, judges will convene for a selection summit to name up to five (5) finalist teams.

1. **Complete System Technology Readiness Assessment.** XPRIZE consultants (ACUASI) will conduct an independent Technology Readiness Assessment (TRA) of the complete system and the above three sub-systems. These assessments will be conducted during the demonstrations and through interviews with teams during site visits, and requests for information (RFI) and documentation. Responses to requests for information are to be provided within 24hrs of the request.

Teams should be at a minimum of TRL-6 for semifinals testing and are expected to demonstrate to the TRL listed on their quad-chart or higher. The <u>XPRIZE TRA Framework</u> questions relate to TRL-6 and In-Situ semifinals testing. For teams that do not meet or exceed **TRL-6**, ACUASI will refer to the questions contained within the XPRIZE TRA Framework to identify the correct TRL of the assessed system.

2. **Scalability Assessment.** ACUASI and each competing team will review the Scalability Assessment supplied at the Semifinals Application. Teams are to demonstrate their ability to meet the requirements of finals testing, within the remaining timeframe (time between semifinals testing window and finals testing July 2026). Persistent monitoring of a 1,000km<sup>2</sup> area, detection and full suppression within 10 minutes of ignition of any high-risk wildfires.

## SUMMARY TABLE AND WEIGHTING

The table below summarizes the assessment criteria and weighting within each assessment category.

ACTIVITY	Demonstrated Measures of Success	Weight
Smart Wildfire Detection	Accuracy of detection	20%
	Viability of long term detection at scale	
	Durability of detection system	
	Smart detection capabilities (high-risk fires, false positives)	
	Fire behaviour and prediction modeling	
	<b>Ingestion and analysation of data</b> to warn of high fire risks (e.g. weather, winds, fuel load, drought, human activities)	
	Notifications and reporting of detection activities and risks	
Autonomous Navigation & Safety	<b>Flight duration and speed</b> to achieve 30km return range in 10 minutes from launch command	20%
	Safe autonomous operation and navigation, airworthiness, obstacle avoidance, flyaway avoidance, lost comms, safety cutoffs, secure payload handling	

#### Table 3: Assessment Criteria Summary and Weighting

	(emergency payload jettison, secure carry, secure reload). Collision avoidance for swarm operations	
	BVLoS capable & Human-On-the-Loop at range	
	<b>Functionality in Complex Terrain:</b> Teams' solutions will have to demonstrate the ability to function effectively in steep or otherwise difficult terrain. Operation in challenging, hard-to-reach areas and high-wind slopes, challenging terrain, and sustained winds of 30 km/h	
	<b>Functionality in High Winds:</b> Teams' solutions will be tested to assure ability to function in 30km/h (20mph), both in terms of ability to fly or operate in this environment, as well as ability to deliver suppression materials in these difficult wind conditions	
	<b>Environmental toxicity</b> any negative environmental impacts of operation	
Autonomous Suppression	Accuracy of suppression system	20%
	Efficacy of suppression system	
	Safety of suppression system (includes environmentals)	
	Airworthiness of suppression system	
	Autonomy of suppression system operation	
	Autonomy of suppression system refill/recharge	
Technology Readiness	Assessed TRL of Smart Wildfire Detection System	20%
Assessments	Assessed TRL of Autonomous Navigation and Safety	
	Assessed TRL of Autonomous Suppression	
	Assessed TRL of Integrated Overall Solution	
Scalability	Number of sufficient answers to the <u>10 questions within the</u> <u>scalability assessment.</u>	20%

# 6. FINALS TESTING OVERVIEW

During Finals Testing, up to five (5) Finalist Teams will physically demonstrate solutions at a single location (to be confirmed). Teams must demonstrate that their solutions can autonomously detect and autonomously suppress high-risk fires over an area of 1,000 km<sup>2</sup>,

whilst discounting any decoy fires. Teams will be expected to monitor the 1,000 km<sup>2</sup> space for a period of up to 24 hours and respond to any high risk fires within that time, fully suppressing the fire to extinguished within 10 minutes of ignition. Decoy fires and false positives are to be identified and left untouched. *Teams should refer to Guidelines section* 3.5 (*Track B*) for *Finals Testing Judging Criteria*.

For the purpose of repeatability and fair testing the expected fire during finals testing will be based on a NIST standard fire crib constructed of locally purchased timbers. Details on the fire crib can be found using this <u>link</u>. To replicate a high-risk fire, the fire will begin to move, reaching a maximum distance of 2 meters from the point of ignition using a series of interconnected fire cribs.

Following Finals Testing, the Judging Panel will select the winning **Team** to receive the Finals Prize of \$3,500,000 (USD).

The Lockheed Martin Accurate Detection & Intelligence Bonus Prize, totaling USD \$1,000,000, will be awarded to one or more eligible teams participating in Track B: Autonomous Wildfire Response whose Competition entries successfully demonstrate the most accurate, precise, and rapid detection.

## FINALS APPLICATION

Prior to participating in **Finals Testing**, teams will be required to submit materials as part of the finals application process. The Finals application will provide documentation that is required by the local and federal government organizations to enable operation of the team's technologies for the purposes of testing and evaluation. The application will also contain materials and documentation to update the judges on the latest developments to the team's technologies and be used for the assessment and verification of the teams technologies and processes. The **Finals Application** deadline and content is to be confirmed.

# FINALS SYSTEM TECHNICAL VERIFICATION (STV)

Prior to participating in **Finals Testing**, teams will be required to submit materials as part of the finals application process. The **Finals System Technical Verification (STV)** deadline is February 20, 2026 11:59PM PST (subject to change). Further details will be published on selection of the Finalist Teams.

Details to be released at YE2025.

## **FINALS TESTING CRITERIA**

Details to be released at YE2025. *Teams should refer to Guidelines section 3.5 (Track B) for Finals Testing Judging Criteria.* 

## 7. HEALTH, SAFETY AND ENVIRONMENT

Developing and testing novel wildfire management technology is inherently dangerous. Safety is our top priority. XPRIZE works with an array of best-in-class professionals to design testing scenarios that achieve the appropriate balance of challenging and safe. Working closely with certified Fire Managers, we will take every precaution to ensure the safety of all participants, judges, and the public during testing. Safety controls stand as the most critical aspect of all testing rounds of this Competition.

XPRIZE acknowledges that there is a possibility that something does not go according to plan, and we develop comprehensive risk mitigation plans in partnership with the relevant testing partners and landowners. Although we believe solutions can come from anywhere, prior to advancing to later stages in the Competition, teams will be assessed on their safety planning and understanding of fire management and the inherent risks. Due to the nature of XPRIZE Wildfire testing, Teams may be required to obtain Commercial General Liability insurance coverage. Teams should refer to Exhibit C of the <u>Competitor Agreement</u> for details on competition insurance requirements.

To minimize the impact of the Competition on the environment, Competition entries must minimize environmental harm and ensure safety of participants and surrounding communities. All teams must comply with the following requirements:

• Teams must research and obtain any necessary permits for operation in the Competition Area as it pertains to their tested solution. XPRIZE will collaborate with teams in this activity.

• Teams will comply with all relevant environmental, health, and safety regulations.

• Teams must ensure compliance with NFPA Wildfire Codes and Standards and/or comparable international codes and standards.

• Teams may not employ, influence, or harm any form of life in their approaches to the challenge, and should make every effort to avoid detrimental effects on all conservation values.

• Teams must ensure that solutions are fully functional and will not pose a risk to other competitors, judges, safety personnel, or observers.

• Teams must recover equipment and supplies that are deployed within the **Competition Area**. Any disposable portions of the system must be declared and accepted by Judges as causing no harm prior to deployment in the Competition Area.

XPRIZE reserves the right to adjust the Competition Guidelines and Rules & Regulations based on the latest scientific and legal information available at the time to ensure personal and environmental safety. XPRIZE will make all final determinations on safe and acceptable operating conditions for Competition operations. XPRIZE reserves the right to disqualify teams who are found to be operating in an unsafe or unethical manner, whether at official testing sites or at their own facilities.

## 8. MODIFICATIONS TO ENTRY

Throughout the competition, except during testing, teams are welcome to continue to develop, iterate, and adapt their solutions; however, prior to Finals testing in 2026, any major changes to any Unmanned Aerial Systems or Vehicles (UAV/UAS) after the application for flight operations with the local/national aviation authorities will need to be re-approved by the relevant authority. It is recommended that teams limit any changes to UAS/UAVs platforms and limit the modifications to UAV/UAS platforms or payloads that would alter the aerial performance, platform size, weight or power supply after civil aviation applications have been submitted. Teams are recommended to inform XPRIZE of any intended UAV/UAS platform changes as soon as possible. XPRIZE can provide advice on the current application process for civil aviation approvals and if changes can be permitted.

## 9. INTELLECTUAL PROPERTY (IP)

As of the date of submission, each Team must own, or hold appropriate license rights to, all technologies, methods, resources, and Intellectual Property included in its submission.

Teams will retain ownership of their Intellectual Property on any technology or data integration techniques and processes they bring to the Competition, and which they develop as part of their Competition entry. All details relating to team technology, innovations, or methods submitted to XPRIZE at the submission deadlines will remain strictly confidential unless clearly and specifically noted. Please refer to the Competitor Agreement for more details.

# 10. GLOSSARY

Accurate (Accuracy, Accurately): The correctness (closeness to true value) and quality of the wildfire observation and intelligence (includes fire behavior characterization and false positives).

**Advisory Board:** A select group of prominent advisors who contribute their wisdom, knowledge and guidance to various aspects of the prize.

#### **Autonomous Wildfire Response**

One of two Competition tracks in the XPRIZE Wildfire, focused on the rapid and intelligent detection, response, and full suppression of an incipient stage destructive wildfire.

**Base Camp:** A camp that teams will use to manage their operations and launch their Solution into the Competition Area during testing.

**Bonus Prize:** There will be a Bonus Prize Purse in the amount of \$250,000 (USD) that may be awarded at the Judging Panel's discretion to one or more Finalist Teams whose Solutions demonstrate groundbreaking achievements.

Buffer Area: An area surrounding the test site

**Competition:** Refers to XPRIZE Wildfire, including both or either tracks.

**Competition Area:** The location selected and/or approved by XPRIZE to conduct testing.

**Competition Guidelines:** Document for the public and for teams that describes the requirements and parameters of the competition.

**Competitor Agreement:** A legal and binding document that details the responsibilities of competitors for the prize.

**Dead Out (DO):** The state of a fire being completely out, with no smoldering or burning areas.

**Decoy fires:** Safely contained fires and other false positives (e.g., solar panels, water vapor).

**Discretionary Late Registration:** A limited opportunity to enable select teams to join the Competition after the standard registration deadline. Interested teams should contact XPRIZE for more details about entering at wildfire@xprize.org.

**Environmentally Challenging:** In this Competition the definition is inclusive of man-made obstacles and/or structures, vegetation, terrain, and weather conditions. Specifically, fuel type (mixed fuel), terrain (steep, ≥45% slopes) and (near) Red Flag Weather.

**Extreme Weather:** Heavy rain, lightning, storms, snow, extreme winds (>30kmph/20mph) or hail that persists for more than 6 hours during a team's programmed demonstration activities.

**False Positives:** items and environmental features that can be mistaken for fires in detection. False positives are largely associated with hot spots - reflective and hot surfaces,

such as water bodies and solar panels, and include other environmental features such as water vapor, which can be mistaken for smoke.

**Finals Testing:** The last set of testing events for the prize that will determine the Grand Prize winning team(s).

**Finals System Technical Verification (STV):** This is a mandatory update to ensure teams are prepared to proceed to Finals Testing. This will most likely consist of written and filmed components.

**Fuel:** Plant material that acts as fuel for wildfires, including grass, shrubs, trees, dead leaves, and fallen pine needles.

Full suppression: Extinguish the fire ('fire out') and any spot fires.

High-Risk Fire: A fire that began moving or reached 2 meters in diameter.

**Incipient Stage Wildfire:** A fire which is in the initial or beginning stage and which can be controlled or extinguished by portable fire extinguishers, Class II standpipe or small hose systems without the need for protective clothing or breathing apparatus.

**Judging Panel:** The subject matter and technical experts who serve as an impartial and independent evaluation team for all aspects of this prize. Judges score the team submissions and make the final award determinations in both the Semifinals and the Finals Competitions.

**Practice Area:** An area at the Finals Testing Location, not to overlap with the Competition Area, where teams will be permitted to trial and troubleshoot their Solutions during a period of time to be determined by XPRIZE prior to Testing.

Precise (Precision, Precisely): (Location) proximity to the target fire.

**Prize Operations Platform (POP):** The standard internal XPRIZE portal for teams to input data for use in this Competition.

**Prize Purse:** This refers to money offered, won, or received as a prize. It also refers to the overall amount of funds allocated to all prizes in this competition.

**Public Comment Period:** Feedback about the Competition Guidelines may be submitted by any readers, including prospective competitors from April 21 - May 17, 2023. XPRIZE will review the comments and take any potential revisions to the guidelines into consideration.

**Qualifying Technical Submission:** This submission consists of a series of questions to be answered that outline the expertise, capabilities and plans for the functional technology that

each team will create. It will also require an Executive Summary of up to two pages of text, and any supporting images, diagrams, or charts.

**Red Flag Weather:** Weather conditions that fuel extreme wildfire events. These conditions include low fuel moisture and relative humidity, sustained high winds around 30 km/h or gusts greater than 56 km/h, unstable atmosphere, and high temperatures.

**Round:** A stage of the competition which includes a judged activity (submission or field testing) and results in a downselection of competing teams.

**Rules and Regulations:** A set of documents detailing the testing protocols, specific rules, dates/times, and other details that will govern the Competition and will be binding on teams for Track A and Track B.

**Semifinals Testing:** The set of testing events for the prize that will help determine which teams progress to Finals Testing.

**Semifinals System Technical Verification (STV):** This is a mandatory team-provided update to ensure teams are prepared to proceed to Semifinals Testing and consists of written and filmed components which will be reviewed by the Judging Panel.

**Solution:** This refers to a team's specific system (including the operator interface, all sensors, software and mechanical parts) that will be used in the competition.

**System Technical Verification (STV):** The process by which Qualified Teams demonstrate they are prepared to proceed to Extreme Conditions Testing. This submission will consist of written and filmed components which the Judging Panel will review to verify each team's ability to participate in testing.

#### **Team Definitions**

- **Interested Team**: A team or individual that is interested in participating in the Competition and has created a profile in the XPRIZE POP system.
- **Registration in Progress**: A team that has completed registration but has not yet paid the fee and signed the Competitor Agreement.
- **Registered Team**: A team that has paid the required registration fee, signed the Competitor Agreement, and is eligible to submit a Qualifying Submission for the Judging Panel's review.
- **Qualified Team**: A team that has been selected by the Judging Panel from the pool of Registered Teams based on the strength of their Qualifying Submission.
- **Semifinalist Team**: A team that has successfully completed the necessary technical submission and is approved by the Judging Panel to advance in the Competition.
- **Finalist Team**: A team that has successfully completed Semifinals Testing and is approved by the Judging Panel to attend Finals Testing.

**Time Limit:** The maximum amount of time teams will be allowed to collect data during Semifinals and Finals Testing.

UA: Uncrewed Aircraft, AKA; Drone, UAV, UAS

**UAV:** Uncrewed Aerial Vehicle, AKA; Drone, UAS, UA

**UAS:** Uncrewed Aerial System, AKA; Drone, UAV, UA

**Wildland-Urban Interface (WUI):** The Wildland-Urban Interface (WUI) is where a community meets or mixes with the wildland; it is where the risk to life and assets is most heightened.