

FAST Commissioning for Pumped-Storage Hydropower Prize Official Rules

April 1, 2019

Preface

The U.S. Department of Energy Furthering Advancements to Shorten the Time (FAST) to Commissioning Prize will be governed and adjudicated by this Official Rules Document, which establishes the rules and requirements for the FAST Commissioning Prize. The prize administrator reserves the right to modify this Official Rules document if necessary and will publically post any such notifications as well as notify registered prize participants.

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Executive Summary

The U.S. Department of Energy (DOE) Water Power Technologies Office (WPTO) invites you to share your ideas to reduce the time, cost, and risk from concept to commissioning, excluding permitting, for pumped-storage hydropower (PSH). Finalists will receive vouchers for up to 50 hours of support from one of four DOE national laboratories to prepare for a pitch contest which will result in up to 3 winners and up to \$550,000 of combined cash prizes and voucher support.

[Join the Challenge](#)

The Furthering Advancements to Shorten Time (FAST) Commissioning for Pumped-Storage Hydropower Prize aims to attract ideas to reduce the time, cost, and risk required to commission PSH projects. This is the first prize of its kind and is structured to support anyone with a great idea and the motivation to develop their idea into a full business concept.

Today's electricity system is changing rapidly and hydropower and PSH have an essential role in contributing to the resilience, reliability, and affordability of the U.S. power system. PSH is by far the largest source of energy storage on the grid, and it will play a key role in supporting increased integration of variable generation resources. But large capital investments and long lead times for PSH commissioning are deterrents to would-be developers and utilities.

The goal of the prize is to catalyze new solutions, designs, and strategies to accelerate PSH development by reducing the time, cost and risk to commission PSH. Ideas could include innovative PSH ideas, new layouts, creative construction management, improved construction equipment, application of advanced manufacturing, or standardization of equipment.

Important Dates¹

- **Release of Prize: April 1, 2019**
- **Concept Stage Closes:** *Concept Stage Submission Deadline:* June 7, 2019
- **Concept Stage Winners Announcement:** *Notification of Up to 10 Finalists for Incubation:* July 2019
- **Incubation Stage Starts:** *Incubation Support (up to 50 hours of technical assistance):* July – October 2019
- **Incubation Stage Closes:** *Submission of Final Report and Pitch Deck:* October 2019
- **Pitch Contest Stage:** *FAST Prize pitch contest:* October 2019
- **Grand Prize Winner Announcement:** *pitch contest Winners Announced:* October 2019
- **Grand Prize Winners Voucher Support:** *Prize Winners Voucher Period:* Voucher support (up to 3 winners and up to \$550,000 of combined cash prizes and voucher support): November 2019 – September 2020

¹ All dates are subject to change including contest openings, deadlines, and announcements. Final dates for the close of the incubation stage and the pitch contest will be posted at or before the announcement of winners of the Concept Stage. Sign up for updates at <https://www.herox.com/FAST>

1.0 INTRODUCTION

Sponsored by DOE WPTO, this PSH Furthering Advancements to Shorten Time to Commissioning Prize, or FAST Prize, encourages innovative thinkers to develop ways to reduce the time, cost, and risk associated with PSH from concept to commissioning, excluding permitting. The purpose of the prize is to identify ideas that can reduce the time to commission PSH and transforms these ideas into more mature concepts that could be used and adopted by the hydropower and PSH community. This program will support teams by providing cash prizes, technical expertise from the National Laboratory FAST partners² and showcasing the solutions at a live pitch contest.

This document is the official rules for the FAST Commissioning Prize. Participants are encouraged to visit the [HeroX website](#) for more information on how to submit their innovative solutions for prize consideration and review the preliminary analysis on the major barriers to commissioning PSH, which can also be found on the [HeroX site](#). The prize will also be advertised on Challenge.gov.

1.1 Commissioning Pumped-Storage Hydropower: Topic Areas

It is widely understood that primary barriers to PSH development in the U.S. are lengthy construction and implementation timelines due to the long-term investment periods associated with physical development and commissioning. The large capital investments and long lead times required to get PSH commissioned serve as a deterrent to developers and utilities. Innovative approaches and new technologies for reducing construction and commissioning timelines are needed to increase interest in further development. Although PSH project costs and risks are also deterrents to development, the focus of this program is on improving overall project timelines.

The FAST Commissioning Prize is part of a multi-lab effort to conduct industry-relevant analysis and support industry-driven concepts and technologies to reduce the time, cost, and risk to commission PSH, with the ultimate goal of halving the time to commission PSH from 10 years to less than five. For the purpose of this prize, commissioning includes: detailed engineering, site preparation, equipment procurement, and construction activities. Although permitting and licensing requirements are essential to the commissioning of a PSH project, submissions dealing with either permitting or licensing will not receive any funding or vouchers under this prize.

Through an analysis conducted by the FAST National Laboratory partners, PSH design and construction have been identified as the main areas ripe for innovation to reduce the overall time to commission PSH. Because construction is the most costly and timely aspect of PSH development, innovation in that area could have the largest impact. Time-saving aspects of construction can include physical and/or logistical technologies, such as new or improved material and equipment, and optimized management efficiencies of on-site logistics. Likewise, innovative and alternative approaches to PSH component design might provide meaningful and realizable improvements to time and cost but might also incur more risk.

² National laboratories partners include: Argonne National Laboratory, National Renewable Energy Laboratory, Oak Ridge National Laboratory, and Pacific Northwest National Laboratory.

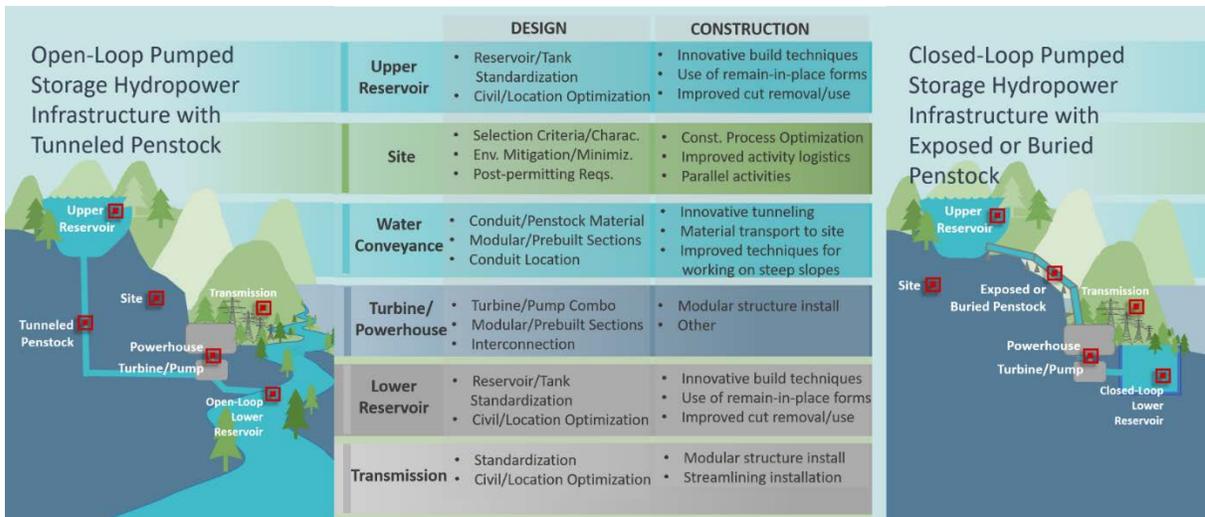


Figure 1. Representation of PSH design and construction considerations for improving the commissioning timeline of PSH projects.

Sources: ORNL, 2019.

The following five areas have been identified as key areas that have the greatest potential for reducing the timeline, cost, and risk associated with PSH commissioning. While the prize seeks all potential solutions to reduce the time, costs, and risks for PSH commissioning, these are the areas that have been identified as the greatest opportunities:

- 1. Innovative Site Selection, Design, and Engineering:** This area focuses on the overall site selection, layout, design, and engineering of PSH and pertains to accomplishing the same effect and function of a traditionally designed PSH facility but with different and/or innovative designs/approaches, variations, or hybrids of current practices to minimize the time and/or cost of development.
- 2. Creative Construction Management and Contracting Strategies:** This area focuses on the logistics (planning and scheduling) and efficiencies involved with managing construction processes, activities, and personnel and is aimed at improving time management of the overall construction process, with consequential reductions in cost. There can be significant benefit of engaging a construction contractor in the design process to reduce construction times.
- 3. Improved Construction Equipment Design and Application:** This area focuses on improved construction technologies that outperform conventional equipment and innovative applications of existing construction technologies. It can include ideas on how the U.S. market can leverage global lessons learned and technical advances from large civil infrastructure projects.
- 4. Advanced Construction Materials and Manufacturing:** This area focuses on advanced construction material selection (e.g., concrete, steel, novel material application) and advanced manufacturing technologies that may improve project timelines and/or costs.
- 5. Standardized Equipment, Monitoring, and Control Technologies:** This area focuses on the standardization and/or modularization of equipment technology and components that may reduce project construction timelines and/or cost.

The supporting preliminary analysis can be found on the [HeroX FAST prize website](#).

1.2 Participant Eligibility

The Prize competition is open only to: (a) citizens or permanent residents of the United States; and (b) private or non-federal public entities, such as townships, tribes, corporations, or other organizations that are incorporated in and maintain a primary place of business in the United States. DOE employees, employees of sponsoring organizations, members of their immediate families (spouses, children, siblings, parents), and persons living in the same household as such persons, whether or not related, are not eligible to participate in this Prize. Federal entities and federal employees, acting within the scope of their employment, are also not eligible to participate in any portion of this Prize. Employees of an organization that co-sponsors this program are not eligible to participate in any prize contest in this program. National laboratory employees are also not eligible to participate in any prize contest in this program.

2.0 PRIZE STAGES AND AWARDS

The PSH FAST Commissioning Prize has 3 stages: (1) Concept; (2) Incubation; (3) Pitch Contest. All ideas are open at the Ideation Stage, and up to 10 Finalists will be selected to enter the Incubation Stage. In the Incubation Stage, participants will be paired with one – or more – of the four national laboratory partners and receive up to 50 hours of support, which could include technical analysis or other support, in advance of a pitch contest. The pitch contest will determine which of the finalists will receive the cash and voucher Grand Prizes.

The three stages are as follows:

STAGE 1: CONCEPT

- Solicit the best concepts to reduce the time, costs, and risks associated with pumped-storage hydropower commissioning.
- Concepts can identify one or more of the five areas identified in Section 1 which their solution addresses.
- Participants submit their concept via the [HeroX online form](#).
- Concepts will be evaluated based on technical innovation, technical feasibility, market feasibility, risk mitigation, and team.
- The prize administrator will screen completed submissions and assign subject matter expert judges to independently score the content of each submission.
- Up to 10 winners will be selected by the prize administrator, in consultation with DOE, for up to 50 hours of support from one of the four national laboratory partners.³
- More information on the evaluation criteria can be found in Section 4: Evaluation.

STAGE 2: INCUBATION

- Winners are paired with one or more of the four national laboratories to receive 50 hours of support from July through October 2019 in advance of the pitch contest.

³ National Laboratories include: Argonne National Laboratory, National Renewable Energy Laboratory, Oak Ridge National Laboratory, and Pacific Northwest National Laboratory.

- Participants work with the national laboratories to advance their concept maturity and refine their value proposition for the PSH community.
- Work conducted with the national laboratories can include analysis, communications support, or light technical support.
- Participants submit a 10-page final report 72 hours prior to the pitch contest and a slide deck 24 hours prior to the pitch contest.
- The prize administrator will screen the submissions and determine if the participant has submitted its materials.
- Should Stage 2 participants fail to submit the required report and pitch deck, there will be no invitation to pitch for Stage 3.

STAGE 3: PITCH CONTEST

- Participants will present in front of a live audience, with a 10-minute pitch and 5-minute question and answer period.
- Participants will be judged based both on their pitch and their required technical submission and will be evaluated based on technical innovation, technical feasibility, market feasibility, risk mitigation, and team.
- Pitch contest will be judged by a panel of judges appointed by DOE. Judges will also consider the 10-page Incubation submission in their scoring.
- The prize administrator, in consultation with DOE, will select the contest winners.
- More information on scoring can be found in Section 4: Evaluation Criteria. More information on the evaluation process can be found in Section 5: How We Score.
- Contest winners will be announced at the pitch contest.
- Up to 3 winners will be chosen for up to \$550,000 of combined cash prizes and voucher support.

Contest Funding:

Contest	Winners	Prizes
Concept	Up to 10	50 hours of services at national laboratories
Incubation	Up to 10	Invitation to pitch at grand prize event
Pitch Contest	Up to 3	Up to \$550,000 of combined cash prizes and voucher support

3.0 HOW TO COMPETE

General Submission Requirements

1. To participate visit the ideation platform at <https://www.herox.com/American-Made-Challenges> and click Login to register and join the FAST Prize Concept community.
2. Complete a submission online at <https://www.herox.com/FAST> before the contest closing date.

3.1 STAGE 1: CONCEPT

Any eligible team or individual can compete in the Concept Stage, but only winners of this stage can participate in the subsequent Incubate Stage and compete in the Pitch Contest. There are no limits on the number of submissions from any one team. Submissions will be completed

using the HeroX platform. Participants are required to submit administrative information, and the Technical Narrative Sections on the HeroX platform.

The following Administrative fields are required for submission (these fields are entered into the HeroX platform):

- Title
- Short description (2-3 sentences) – Description will be made public.
- Contact info
- Participating team members
- Topic Area choices

The Technical Narrative Sections are as follows (these fields are entered into the HeroX platform). Each Technical Narrative Section has a limit on the number of words allowed in the form. The questions below are only meant to serve as general guidelines.

- **Problem Statement – up to 2,000 characters**
- **Innovation Description – up to 8,000 characters**
 - How does the innovation reduce time, cost, risk of commissioning PSH?
 - Is this solution already being adopted by industry, or is this a novel concept?
 - What is the current status of development?
- **Technical Feasibility Description – up to 8,000 characters**
 - What has been the technology research to date (e.g., document searches, discussions with experts)? Has the concept been vetted by any external parties?
 - Is there a proof of concept (e.g., basic technology tests, design concept tests, prototype development)?
 - Are there any technology risks/challenges (e.g. equipment, material, process) associated with your concept and how will they be mitigated?
- **Market Feasibility Description – up to 8,000 characters**
 - Is the idea addressing a big problem and is there evidence that customers will be willing to pay for the solution?
 - What is the financial potential for commercialization? Is there an addressable market size?
 - Are there any environmental concerns with the concept, and if so, how will they be addressed?
- **Team and Qualifications – up to 5,000 characters**
 - Who are the key members associated with the concept?
 - What are the key strengths of your team?
 - What are the gaps that currently exist on the team, and how will they be addressed?
- **Needs to be Addressed by Lab Partners⁴ – up to 1,000 characters**
 - Identification of needs that could be addressed through support by FAST National Laboratories Partners as part of the Incubation Stage

Optional Attachments:

- Appendix A – Key personnel (short paragraph biographies), including LinkedIn hyperlinks.

⁴ Please note that this section will not be evaluated, but is for informational purposes only.

- Appendix B – Supporting materials (drawings, etc.). Only the first five pages will be reviewed.
- Appendix C – Single PowerPoint slide with summary information. No format provided. Slide will be used both for internal DOE/prize administrator and public facing purposes.

3.2 STAGE 2: INCUBATION

The 10 winners of the Concept Stage are invited to continue to refine their concept in preparation for the pitch contest. During this period, the winners will access to up to 50 hours of support from the National Laboratory FAST Partners. More information about the agreements that will be used to conduct this work can be found in Appendix A. The 50 hours of support are only for use from the beginning of the Incubation Stage up until the pitch contest.

While it is not a requirement to use the 50 hours of support, all Incubation Stage competitors are required to submit two deliverables by the end of the Stage: (1) a Technical Narrative at least **72 hours before the pitch contest**; and (2) a Pitch Deck at least **24 hours before the pitch contest**.

Each Technical Narrative Section has a limit on the number of words allowed in the form. The questions below are only meant to serve as general guidelines.

- **Problem Statement – up to 2,000 characters**
- **Innovation Description - up to 8,000 characters**
 - How does the innovation reduce time, cost, risk of commissioning PSH?
 - Is this solution already being adopted by industry, or is this a novel concept?
 - What is the current status of development?
- **Technical Feasibility Description – up to 8,000 characters**
 - What has been the technology research to date (e.g., document searches, discussions with experts)? Has the concept been vetted by any external parties?
 - Is there a proof of concept (e.g., basic technology tests, design concept tests, prototype development)?
 - Are there any technology risks/challenges (e.g. equipment, material, process) associated with your concept and how will they be mitigated?
- **Market Feasibility Description – up to 8,000 characters**
 - Is the idea addressing a big problem and is there evidence that customers will be willing to pay for the solution?
 - What is the financial potential for commercialization? Is there an addressable market size?
 - Are there any environmental concerns with the concept, and if so, how will they be addressed?
- **Team and Qualifications – up to 5,000 characters**
 - Who are the key members associated with the concept?
 - What are the key strengths of your team?
 - What are the gaps that currently exist on the team, and how will they be addressed?
- **Work Conducted with National Laboratory Partner⁵ – up to 1,000 characters**

⁵ Please note that this section will not be evaluated but is for informational purposes only.

- Work conducted with National Laboratory partner, including progress made during incubation period (if applicable)

Optional Attachments:

- Appendix A – Key personnel (short paragraph biographies), including LinkedIn hyperlinks.
- Appendix B – Supporting materials (drawings, etc.) Only the first five pages will be reviewed.
- Appendix C – Single PowerPoint slide with summary information. No format provided. Slide will be used both for internal and external purposes.

Participants are required to submit the pitch deck 24 hours in advance of the competition, as part of their submission for the Incubation Stage.

It is recommended that, at a minimum, each 10-minute pitch include the following components, which align with the technical scoring criteria:

- Problem Statement
- Innovation Description
- Technical Feasibility
- Market Feasibility
- Why Should YOUR Team be Selected?

3.3 STAGE 3: PITCH CONTEST

In addition to the submission of the final report 72 hours prior to the pitch contest, each participant will deliver a public-facing presentation on their concept to a panel of judges. This public pitch challenges participants to convince an expert panel of judges of the technical underpinnings, business case, and feasibility of deployment of their concept. Participants should be prepared to discuss the extent of their market analysis and validation in their presentation to defend their concept.

Presentations are limited to 10-minutes followed by 5-minutes for questions from the judges. A laptop computer will be provided for digital presentations. Presentations should be submitted on a USB flash key to the Prize organizers during check-in along with any drivers needed to support presentation animation. USB drives should be clearly marked with the participant's name. Prize officials will make an effort to return the USB device at the end of the event, but this is not guaranteed.

4.0 EVALUATION CRITERIA AND SELECTION PROCESS

This section contains information on how participants will be evaluated, including the specific criteria, throughout the course of the FAST Prize.

4.1. STAGE 1: CONCEPT - EVALUATION CRITERIA AND REVIEW PROCESS

4.1.1 EVALUATION CRITERIA

There are two levels of criteria that will be applied to all participants at the Concept Stage. *Level 1 Administrative Compliance Criteria* is considered core review and will be used to determine whether the participant is eligible for the prize. Should a participant not pass the administrative compliance criteria the proposal will be not considered for *Level 2 Technical Innovation Criteria*. *Level 2 Technical Innovation Criteria* will be applied to all submissions that meet the Administrative Compliance Criteria.

Concept Stage Criteria are summarized in the Table below:

Description	Scoring
Level 1 Criteria – Administrative Compliance Criteria	
Is the participant eligible?	Yes/No
Is the concept applicable to pumped storage hydropower?	Yes/No
Does the concept address at least one of the following: time saving, cost reduction, or risk reduction/mitigation for pumped-storage hydropower commissioning?	Yes/No
Level 2 Criteria – Technical Innovation (100 points)	
Innovation: The participant demonstrates the innovativeness of their solution. This includes: <ul style="list-style-type: none"> • How the concept/technology advances the state-of-art. • Impact on time to commissioning. • Impact on total costs for the project. • Whether the idea is aligned with one of the five major opportunity areas. 	25/100
Technical Feasibility: The participant effectively demonstrates the technical feasibility of their solution, including: <ul style="list-style-type: none"> • Technology research (e.g., document searches, discussions with experts). • Proof of concept (e.g., basic technology tests, design concept tests, prototype development). • Identification of, and mitigation plan for associated technical risks associated with developing their technology, such as limits of design. 	25/100
Market Feasibility: The participant demonstrates the feasibility of adoption of their solution, including: <ul style="list-style-type: none"> • Financial potential for commercialization, including financial feasibility of the concept. • Feasibility of achieving market adoption and successful deployment of the technology and cites barriers that might limit access to required factors of production/implementation. • How they will overcome capital requirements, financing obstacles, marketing challenges, or other non-IP barriers. • Identification of environmental issues associated with the concept including any drawbacks and/or environmental barriers associated with adoption. 	25/100
Team: <ul style="list-style-type: none"> • Extent to which relevant experience in all aspects of the project indicate team will be able successfully develop the proposed solution. • Diversity of expertise and backgrounds (i.e., technological, entrepreneurial, business, and policy). 	25/100

<ul style="list-style-type: none"> • Sufficiency of plan to or demonstrated experience in engaging appropriate outside expertise. 	
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Submissions must include protective markings, where necessary, as set forth in Appendix A, Section 11. All submissions that do not include protective markings will be considered to have been submitted with unlimited rights and may be published or used for any purpose whatsoever.

4.1.1 EVALUATION PROCESS

The prize administrator screens all completed submissions and, in consultation with DOE, assigns subject matter expert judges to independently score the content of each submission. The judges will be composed of Federal and non-Federal subject matter experts with expertise in relevant areas. Judges will review concept stage submissions according to the described evaluation criteria. Judges may not (A) have personal or financial interests in, or be an employee, officer, director, or agent of any entity that is a registered participant in the Prize; or (B) have a familial or financial relationship with an individual who is a registered participant.

The prize administrator, in consultation with DOE, will select the 10 winners of this Stage.

4.2 STAGE 2: INCUBATION - EVALUATION CRITERIA AND REVIEW PROCESS

During the Incubation Stage, all teams have the option to use their 50 hours of support from their assigned national laboratory(ies). No participant is required to work with their assigned laboratory(ies). However, 72 hours before the pitch contest, all participants must submit a final submission that includes their innovation, proof of concept, and supporting material for review for the judges and DOE. This should include a section on progress made during the technical support period for the national laboratory(ies). Additionally, participants must submit a pitch deck 24 hours prior to the pitch contest.

Submissions must include protective markings, where necessary, as set forth in Appendix A, Section 11. All submissions that do not include protective markings will be considered to have been submitted with unlimited rights and may be published or used for any purpose whatsoever.

Evaluation Criteria	
Did the participant submit the final submission 72 hours prior to the pitch contest?	Yes/No
Did the participant submit a pitch deck 24 hours prior to the pitch contest?	Yes/No

The prize administrator will screen the submissions and, in consultation with DOE, make a determination if the participant has submitted its materials. Should Stage 2 participants fail to submit the required report and pitch deck, there will be no invitation to pitch for Stage 3.

4.3 STAGE 3: PITCH - CONTEST EVALUATION CRITERIA AND REVIEW PROCESS

4.3.1 EVALUATION CRITERIA

Each finalist will be required to do a 10-minute pitch with a 5-minute question and answer period at a live pitch contest. The participants will be evaluated based on their pitch and their final report submitted at the end of Stage 2: Incubation.

Criteria that will be used for selection of the Grand Prize winners during the pitch contest event are shown below:

Description	Scoring
Technical Criteria (60 points)	
Innovation: The participant demonstrates the innovativeness of their solution. This includes: <ul style="list-style-type: none"> • How the concept/technology advances the state-of-art. • Impact on time on commissioning. • Impact on costs for commissioning. • Whether the idea is aligned with one of the five major opportunity areas. 	20/100
Technical Feasibility: The participant effectively demonstrates the technical feasibility of their solution, including: <ul style="list-style-type: none"> • Technology research (e.g., document searches, discussions with experts). • Proof of concept (e.g., basic technology tests, design concept tests, prototype development). • Product development assessments. • Identification of, and mitigation plan for associated technical risks associated with developing their technology, such as limits of design. 	20/100
Market Feasibility: The participant demonstrates the feasibility of adoption of their solution, including: <ul style="list-style-type: none"> • Financial potential for commercialization, including financial feasibility of the concept. • Feasibility of achieving market adoption and successful deployment of the technology and cites barriers that might limit access to required factors of production/implementation. • How they will overcome capital requirements, financing obstacles, marketing challenges, or other non-IP barriers. • Identification of environmental issues associated with the concept including any drawbacks and/or environmental barriers associated with adoption. 	20/100
Entrepreneurship Criteria (40 points)	
Qualification of team to move forward with solution, including identification of partners or advisors, and/or gaps in existing team	20/100
Demonstrates thorough market analysis including issues and challenges	10/100
Quality of pitch, including graphics and supporting materials	10/100
Total	

4.3.2 EVALUATION PROCESS

All completed submissions from Stage 2: Incubation will be assigned by the prize administrator, to subject matter expert judges. Judges will independently review each submission and then attend the pitch contest event and judge. The judges will be composed of Federal and non-Federal subject matter experts with expertise in relevant areas. Judges will review pitch contest submissions according to the described evaluation criteria. Judges may not (A) have personal or financial interests in, or be an employee, officer, director, or agent of any entity that is a registered participant in the Prize; or (B) have a familial or financial relationship with an individual who is a registered participant. Additionally, National Laboratory staff that participated in the Incubation Stage will not participate as judges in the pitch contest.

Competitors will provide a live, in-person presentation to a panel of expert judges and members of the public. The details and agenda for the event will be provided 30 days in advance of the event. Judges' scores will be informed by the written materials as well as their assessments at the pitch contest. The prize administrator, in consultation with DOE, will select the contest winners, informed by the judges' evaluation. The winners of the prizes will be announced at the pitch contest.

Appendix A - Additional Terms and Conditions

1. REQUIREMENTS

Your submission for the FAST Prize is subject to the following terms and conditions:

- You must post the final content of your submission or upload the submission form online at <https://www.herox.com/FAST Prize> before the Concept Phase closes. Late submissions or any other form of submission may be rejected.
- All submissions that you wish to protect from public disclosure must be marked according to the instructions in Section 11. Unmarked or improperly marked submissions will be deemed to have been provided with unlimited rights and may be used in any manner and for any purpose whatsoever.
- You must include all the required submission's elements. The prize administrator may disqualify your submission after an initial screening if you fail to provide all required submission elements. Competitors 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 DOE or NREL, is indecent, obscene, defamatory, libelous, 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 contest described in this document, these rules will form a valid and binding agreement between you and the U.S. Department of Energy and is 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 contest described here and no other contest on the HeroX platform or anywhere else.
- The prize administrator, when feasible, may give competitors an opportunity to fix non-substantive mistakes or errors in their submission packages.

2. INCUBATION SUPPORT PAIRING SYSTEM

The prize administrator will coordinate with the other DOE national laboratories intending to work with competitors. All Concept stage winners will have their submission materials distributed to these entities. Winners of the Concept stage will then be able to negotiate specifics with their lab partner and quickly begin support work.

3. VERIFICATION FOR PITCH WINNER PAYMENTS:

The prize administrator will verify the identity of a participant selected to receive the prizes. Receiving a prize payment is contingent upon fulfilling all requirements contained herein. The prize administrator will notify winning participants using provided email contact information after the date that results are announced. Each participant will be required to sign and return to the prize administrator, within 30 days of the date the notice is sent, 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 competitor will be

disqualified from the competition and receive no prize funds if: (i) the person/entity cannot be contacted; (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.

4. TEAMS AND SINGLE ENTITY PITCH 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 as they deem appropriate. The prize administrator will not arbitrate, intervene, advise on, or resolve any matters between team members.

5. SUBMISSION RIGHTS

By making a submission, and consenting to the rules of the contest, a competitor is granting to DOE, the prize administrator, and any other third parties supporting DOE in the contest, permission to use the submission consistent with the Rules of this Prize. Portions of submissions that are marked as protected from public disclosure according to Section 11 will be treated accordingly. Potential uses of submissions include posting or linking to the non-protected portions of the submission on the prize administrator or HeroX platforms, including the contest website, DOE websites, and partner websites, and the inclusion of the submission in any other media, worldwide. The submission may be viewed by the DOE, administrator, and judges for purposes of the contest including but not limited to screening and evaluation purposes. The prize administrator and any third parties acting on their behalf will also have the right to publicize competitor's name and, as applicable, the names of competitor's team members and organization, and the abstract for their idea at the Ideation stage on the contest website indefinitely.

By entering, Competitor represents and warrants that:

1. Competitor has not included third-party content (such as writing, text, graphics, artwork, logos, photographs, dialogue from plays, 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 and/or disclosed by competitor in the submission, and (ii) competitor has either obtained the rights to use such third-party content or the content of the submission is in the public domain without any limitations on use;
2. Unless otherwise disclosed in the submission, the use thereof by prize administrator, or the exercise by prize administrator or others acting on its behalf of any of the rights granted by competitor under these rules, 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;
3. All persons who were engaged by the competitor to work on the submission or who appear in the Submission in any manner have:
 - a. Given competitor their express written consent 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;

- b. Provided written permission to include their name, image or pictures in or with the submission (or if a minor who is not competitor's child, competitor must have the permission of their parent or legal guardian) and competitor may be asked by prize administrator to provide permission in writing;

6. COPYRIGHT

Each competitor represents and warrants that the competitor is the sole author and copyright owner of the submission; that the submission is an original work of the participant or that the participant has acquired sufficient rights to use and to authorize others, including DOE, to use the submission, as specified throughout the rules, that the submission does not infringe upon any copyright or upon any other third party rights of which the participant is aware; and that the submission is free of malware.

7. CONTEST SUBJECT TO APPLICABLE LAW

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

8. RESOLUTION OF DISPUTES

The U.S. Department of Energy is solely responsible for administrative decisions, which are final and binding in all matters related to the contest.

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 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. Competitors and potential winners may be required to show proof of being the authorized account holder.

9. PUBLICITY

The winners of these prizes (collectively, "Winners") will be featured on the 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.

10. LIABILITY

Upon registration, all participants agree to assume and, thereby, have assumed any and all risks of injury or loss in connection with or in any way arising from participation in this contest or development of any submission. Upon registration, except in the case of willful misconduct, all participants 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 related entities 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 Director of the Water Power Technology Office, the Director has determined that no liability insurance will be required of competitors to compete in this competition per 15 USC 3719(i)(2).

11. SUBMISSION MARKING AND FOIA

All materials submitted to DOE as part of a submission become DOE records. Any confidential commercial information contained in a submission should be designated in writing at the time of submission.

Participants are required to employ protective markings in the following manner:

The cover sheet of the submission must be marked as follows and identify the specific pages containing trade secrets or commercial or financial information that is privileged or confidential:

Notice of Restriction on Disclosure and Use of Data:

Pages [list applicable pages] of this document may contain trade secrets or commercial or financial information that is privileged or confidential and is exempt from public disclosure. Such information shall be used or disclosed only for evaluation purposes. The Government may use or disclose any information that is not appropriately marked or otherwise restricted, regardless of source. [End of Notice]

The header and footer of every page that contains trade secrets or commercial or financial information that is privileged must be marked as follows: "May contain trade secrets or commercial or financial information that is privileged or confidential and exempt from public disclosure."

In addition, each line or paragraph containing trade secrets or commercial or financial information that is privileged or confidential must be enclosed in brackets.

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 FOIA representative prior to the release of materials.

12. 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.

Federal employees are subject to the non-disclosure requirements of a criminal statute, the Trade Secrets Act, 18 USC 1905. The Government may seek the advice of qualified non-Federal personnel. The Government may also use non-Federal personnel to conduct routine, nondiscretionary administrative activities. The respondents, by submitting their response, consent to EERE providing their response to non-Federal parties. Non-Federal parties given

access to responses must be subject to an appropriate obligation of confidentiality prior to being given the access. Submissions may be reviewed by support contractors and private consultants.

13. GENERAL CONDITIONS

DOE reserves the right to cancel, suspend, and/or modify the contest, or any part of it, at any time. If any fraud, technical failures, or any other factor beyond DOE's reasonable control impairs the integrity or proper functioning of the contest, as determined by DOE in its sole discretion, DOE may cancel the contest.

Although DOE indicates in the FAST Prize Concept and Pitch phases that it will select up to several winners for each phase, DOE reserves the right to only select competitors that are likely to achieve the goals of the program. If, in DOE's determination, no competitors are likely to achieve the goals of the program, DOE will select no competitors to be winners and will award no prize money.

14. PRIZE ADMINISTRATOR

The prize administrator is the Alliance for Sustainable Energy, LLC operating in its capacity as the Managing and Operating Contractor for the National Renewable Energy Laboratory (NREL). The U.S. Department of Energy, Water Power Technology Office (WPTO) is the Federal Agency sponsor of the prize.

15. INCUBATION STAGE SUPPORT

Incubation stage support means technical support by one of the four national laboratories that are part of the FAST Commissioning prize. DOE has provided funds to the four laboratories to support this technical assistance. Labs and participants will enter into a suitable agreement for the 50 hours of assistance, e.g., Short Form CRADA, technical assistance agreement, or other agreement for conducting work that is authorized under the Lab's Management & Operating Contract and is acceptable to the Lab Contracting Officer.

16. VOUCHER FUNDING

Vouchers are part of the Grand Prize winners prizes purse. DOE funds have been provided directly to the lab to conduct a mutually agreed upon scope of work between the lab and the winner. Vouchers will be conducted under a Cooperative Research and Development Agreement (CRADA) similar to the CRADA developed for the Small Business Voucher program: <https://www.sbv.org/pdfs/sbv-short-form-crada.pdf> The Vouchers are time-limited and are for use through September 2020.

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