

CABLE Conductor Manufacturing Prize

Stage 1 Rules Modification Webinar Q&A

Entry Format, HeroX, and Judges

1. Is there a limit for the number of members on a team or the number of institutions on a team?

Answer: No. There is no limit on the number of team members or institutions on a team.

2. Where can I find a link to the prize specs and format requirements, such as length?

Answer: The technical requirements can be found starting on page 15 in the [Stage 1 Rules](#). The maximum length for the technical narrative is 5,000 words.

3. May we exclude proprietary information from the public-facing video and PowerPoint presentation if we include it in the written technical narrative?

Answer: Yes, you can, and we suggest that you exclude proprietary information from the public-facing video and PowerPoint presentation. It is common practice for teams to omit proprietary information in these elements. The purpose of these documents is to present a high-level overview of your innovation to the U.S. Department of Energy, National Renewable Energy Laboratory, CABLE Prize judges, and eventually the public.

Propriety information should instead be included in the technical narrative and other non-public-facing documents, such as the letters of support. .

4. Can experts in our field of invention, such as someone with nanoparticle knowledge, for example, be a technical judge? If not, should the basic concepts be illuminated in the proposal?

Answer: The CABLE Prize Administration Team tries to ensure that at least one expert in your field of invention is a judge on your diverse review panel. However, each submission will be reviewed by a minimum of three judges. Therefore, jargon should be avoided and concepts unfamiliar to non-experts should be explained for the benefit of the other judges (or in case that the administration team is unable to find a judge that specializes in your field of invention).

5. What exactly will the teams do in Stage 1 with the \$25,000?

Answer: Winners may use the prize funds at their discretion, but teams are highly encouraged to use their awards to advance their innovation and compete in subsequent stages of the CABLE Manufacturing Prize.

This prize, as with all prizes, rewards competitors for actions they have already taken. It is NOT judged like a proposal, for which the award is based on what the competitor is

promising to do in the future. Winners are chosen based on the quality of what actually was accomplished in Stage 1. Teams competing in Stage 1 of the CABLE Conductor Manufacturing Prize, which will close on August 3, will be judged on the extent to which their entry meets or exceeds the contest goals.

6. I get an error message when I try to enter my nine-digit zip code How do I handle this?

Answer: If you get the following error message in HeroX when you try to enter your nine-digit zip code: "Nothing Found," then please enter the first five digits and include your full nine-digit zip code on your cover page.

7. Will a team be allowed to enter the competition in Stage 2 without having previously competed in Stage 1? Will a team that does not receive an award in Stage 1 be eligible to compete in Stage 2?

Answer: Yes, a team can compete in Stage 2 even if they did not compete in, or win a prize in, stage 1. However, a team must be a Stage 2 winner to participate in the final stage, Stage 3, for the grand prize.

Diversity and Inclusion

8. Should diversity and inclusion be discussed in the technical narrative?

Answer: You may refer to it there if you wish. However, the *requirement* is that a Diversity and Inclusion Plan, per [Revision 1 modifications to the rules](#), must be uploaded separately from the technical narrative as an independent document.

9. What sort of things should be included in a Diversity and Inclusion Plan? We are a very small business so not able to hire staff just for this competition.

Answer: There are many ways to support diversity and inclusion as part of your CABLE Prize Stage 1 submission other than by hiring someone, including but not limited to:

- Engaging and collaborating with diverse professional organizations, including existing diversity programs at your home organization and/or nearby organizations
- Collaborating with students, researchers, and staff in minority-serving institutions, such as historically Black colleges and universities
- Considering whether your Stage 2 or 3 work is or can be performed in disadvantaged communities, such as [economic opportunity zones](#)¹
- Disseminating results of research and development to minority-serving institutions or other appropriate institutions that serve underserved communities

¹ An economic opportunity zone is an economically distressed community where new investments may be eligible for preferential tax treatment. Localities must be nominated by a state, the District of Columbia, or a U.S. territory and be certified by the U.S. Treasury via the IRS. Click here for more information.

- Implementing evidence-based, diversity-focused education programs, such as implicit bias training for staff, in your organization
- Identifying minority business enterprises, minority-owned businesses, woman-owned businesses, and veteran-owned businesses to solicit as vendors and subcontractors for bids on supplies, services, and equipment
- Creating an advisory board with diverse members to help inform your submission
- Seeking out or planning for diverse partners to support your submission
- Considering diversity and inclusion [best practices](#) when/if ready to hire,
- Including persons from groups that are underrepresented in science, technology, engineering, and math fields as principal investigators (PIs), co-PIs, and/or other senior personnel
- Including faculty and/or students from minority-serving institutions as PIs, co-PIs, senior personnel, and/or student researchers as applicable.

10. How many points are assigned to the diversity and inclusion section?

Answer: The verbal answer at the webinar suggesting that judges may award a specific number of points for diversity and inclusion was incomplete. The diversity and inclusion plan is evaluated, scored and factored into the overall selection in two ways:

1. **Overall Submission Package:** Similar to other elements of the application (i.e., the video, the summary slide, project partners, etc.), the Diversity and Inclusion Plan itself is not assigned a specific point value, but will be considered within the context of the rest of the team’s submission package as a whole and scored per the criteria on page 15-16 of the [rules](#).
2. **Program Policy Factor:** In addition, diversity and inclusion is also considered a program policy factor, which (as described on page 27 of the [rules](#)) are additional factors that are evaluated along with the overall submission score to select winners.

Technical Clarifications

11. Is a composite material with bulk metal acceptable if it meets the goals?

Answer: Yes, a composite material with bulk metal is acceptable if it meets the threshold conductivity of 10 megasiemens per meter and increases toward the goals. If it involves bulk metal, however, it should not be classified as category 3: “non-metal”; it must be classified as “metal” if it involves bulk metal. Within the “metal” category, it can be classified as a “composite with metal and nanocarbons” (category 1) or a “composite with bulk metal without nanocarbon.” The categories do not affect how the material will be judged because they are all judged against each other and on their improvement with respect to the base element or mixture.

12. Can teams prove performance without a sample?

Answer: The Stage 1 technical narrative requires descriptions that are significantly easier to write if a team already has a sample and has measured its performance. Entries that do not describe a working sample will still be considered, however, if the scientific and technical arguments are sufficiently strong—for example, if they draw upon other experimental and theoretical results, especially taken from peer-reviewed publications.

13. What is the upper operating temperature?

Answer: There is no upper operating temperature. There is a minimum operating temperature, however: all materials must exhibit enhanced conductivity at room temperature (i. e., 20°C).

14. Do different metals need to reach the standards in their individual categories (e.g., conductivity, affordability)?

Answer: No, materials are judged against each other, not according to the categories of the materials.

In Stage 1, 2/7 of the points are related to affordability and market compared to the baseline for the chosen widespread application(s). The criteria for “breakthrough” accounts for another 2/7 of the score. For this, the material is judged on both an absolute basis (the extent to which it meets or exceeds the goals in Table 2 of the [rules](#)) and on a relative basis (the extent to which it exceeds the conductivity or conductivity, by weight, of the base element or mixture of elements). The final 3/7 of the score is related to the manufacturability of the material and the technical readiness of the concept and the team. While affordability is extremely important, cost metrics are not considered in the judging due to the current volatile nature of the cost of copper, aluminum, and other key conductors.

15. How will conductors in different material classes compete against each other in the competition (e.g., metal enhanced with nanocarbon versus metal enhanced without nanocarbon)?

Answer: All submissions to the CABLE Prize competition are evaluated according to the same rubric in which scores are assigned for each of the seven questions in the technical narrative (summarized in the previous question and detailed on page 17 of the [rules](#)). The provided material classes serve as a classification system only for submission evaluation.

16. In the “metal enhanced without nanocarbon” category (detailed on page 7 and 8 of the CABLE Prize [rules](#)), what is meant by “processing innovations”? Is the material’s manufacturing process, and thus, its subsequent affordability, considered to be a processing innovation?

Answer: Yes, the parts of the manufacturing process that do NOT involve adding new elements are considered to be a processing innovation. “Processing innovations” refers to any changes made to the material other than changing its composition to increase conductivity.

17. How will electrical-grade copper act as the standard for the affordability aspect of the competition?

Answer: Because we switched the goals from the international annealed copper standard to megasiemens per meter and siemens-meters-squared per kilogram, the copper standard is no longer used. With respect to affordability in general, while cost is very important, we did not include a specific cost metric or compare with any baseline cost because the costs for copper (and other conductor metals, such as aluminum and silver) are extremely volatile. Because of the long duration of the competition, we cannot select a reliable standard for determining the relative affordability of materials entered into the competition.

18. Can you clarify what “proof of technical readiness” my team should prepare for our Stage 1 submission package? Does my team need to prepare a 1-gram sample of the material that we are entering into the competition? Is this 1-gram sample enough?

Answer: First, to clarify, no physical sample is required for submission in Stage 1 of the prize. Instead, you must provide evidence of your readiness to fabricate the material and scale the manufacturing process to be able to produce the 1-gram sample that is required in Stage 2. It should be noted that your ability to make a 1-gram sample is not the only requirement and is not enough evidence to demonstrate manufacturability in Stage 2. Some examples of how competitors can provide proof of technical readiness in Stage 1 include:

- Evidence of how your fabrication technique could be scaled up to 1 gram;
- An explanation of the operational principles of your proposed material fabrication system for Stage 2;
- Details on how your team’s experience and qualifications allow for readiness to begin fabrication in Stage 2 (see page 16 of the [rules](#) for more details).

It is ultimately up to the individual competitors on how best to prove technical readiness for the Stage 2 fabrication via their Stage 1 submission.

Second, pages 9-10 of the CABLE Prize [rules](#) state that in Stage 2 “Competitors must submit a microscale sample (1-gram minimum, other size requirements to be provided in Stage 2 rules)” and that “Competitors will also provide preliminary plans to scale up and manufacture the material”. All together, these statements suggest that the “1-gram” example requirement for Stage 2 is a preview of the full set of standards for Stage 2. Those standards will be set when the Stage 2 CABLE Prize [rules](#) are published in Fall 2021. Feedback regarding the 1-gram standard as well as other requirements (e.g., minimum volume, cross section) will be used to inform the Stage 2 and Stage 3 contest rules.