

## **Topic Area 12 Office Hours Q&A**

**Q: Is there a limitation on the amount of funding non-university collaborators can get from the award?**

A: Yes, non-university partners cannot have more than 20% of the budget in totality.

**Q: Is collaboration with non-university collaborators required?**

A: No, it is not required.

**Q: For the pre-proposal do we need to provide letters of intent from collaborators?**

A: In the pre-application it is required that you list the collaborators information on the form, and check the check box that certifies they've agreed to be on the project.

**Q: If we wish to work DoD with industrial collaborators is that supported in this call?**

A: There's no restrictions on the institutions you can collaborate with but the research area needs to be relevant to the NE mission.

**Q: Is there a requirement to list the related publications of collaborators that don't have previous NEUP projects?**

A: You can list them for collaborators, that's the method we use to make sure we collect all of the publications even after projects have concluded. If you have been a lead PI or collaborator on an NEUP project you should list your own publications. If you can easily wrp up your collaborators that is helpful but not a requirement.

**Q: Is the CV required for collaborators or just the lead PI?**

A: At the pre-application only for the lead PI, but at the full application stage you will need to provide a CV for all key and senior personnel, which includes anyone with a substantial contribution to the project.

**Q: Could you please elaborate on joining and repair? Joining pertains only to metallic materials or ceramics as well? What are the typical components you are looking at for joining?**

A: Broadly speaking, metallics and ceramics are both of interest and your joining methodology can be EB, friction stir, any of the of the major known or even newly developed joining techniques. As for components, it can be anything that's in the primary reactor system like the pressure vessels, tubing pumps, etc.

**Q: Do we need to submit a letter of intent?**

A: For the NSUF scope areas a letter of intent is required to access those facilities. For the other CINR topic areas a letter of intent is not required.

**Q: Are non-profit organizations also exempt from the cost share requirement?**

A: There is a cost share waiver in place for this funding opportunity. Cost sharing is encouraged in the funding opportunity but not required.

**Q: Topic Area 11 mentions things like development of relevant advanced metal alloys for core materials and cladding, while topic area 12 says topics of interest include processing and fabrication**

**methods for composites, concrete, and metals. Where is the line of demarcation between these two topic areas? I'm thinking of proposing something that has aspects of both manufacturing and new materials and new test methods. Where would you put something like that?**

A: In the case of topic area 12 make sure you're looking at advanced manufacturing techniques.

**Q: If the focus is on the advanced manufacturing itself that you would put it in topic area 12 and if the proposal is weighted a little bit more towards the material and the properties of that material then you would go to 11.**

A: In this case it, it can go in either, but if you're looking at a material that can only be made through advanced manufacturing, I would suggest topic area 12.

**Q: Is it possible to submit similar proposals to two different areas if there was enough overlap that I could try going for a different flavor for either one.**

A: The applications have to be significantly different. If, for example, you're working on a different material, if you're doing a different technique, those would be appropriate to submit. The FOA doesn't permit submitting the same application to two different areas. What will happen from a functional standpoint if something is really cross cutting, is we typically make sure to involve program experts and independent experts in both aspects of that type of a topic.

**Q: 316H stainless steel was mentioned as a material of interest through powder bed fusion. Could you please suggest other alloys of specific interest? How about Alloy 709, high entropy alloys, ODS etc. Are there any materials you would not be interested in?**

A: To expand a little bit more on 316 H, the AMMT program is using this as a test case on how we can go about potentially qualifying these advanced manufactured alloys. Beyond that we are also interested in other alloys that can be made through advanced manufacturing be it ODS, 709, 800H, 617, there isn't really limit as long as you have a good understanding of what its application is going to be and understanding the environmental effects and its end use. Broadly speaking, we're interested in a number of different alloys, metallics, ceramics, and those that could be used for reactor applications.

**Q: What is the expectation in the proposal to demonstrate "significant reduction to the cost of original construction"? How much details need to be provided?**

A: One of the one of the challenges we looked at when we look at advanced manufacturing is being able to get a good cost estimate of what it's going to be if it's implemented. One of the things that we look at with advanced manufacturing is that it's not good for everything. We need to match the parts with the manufacturing and there's a scale associated with it, or even just in time manufacturing that has capability that can be done. When we look at significant costs through reduction of construction, we need to look at it for its intended parts application. What we're looking at from an advanced manufacturing standpoint is making sure that when we look at the application of this manufacturing technique, we're comparing it to a comparable traditionally manufactured part. If your proposal is suggesting that you are going to be able to reduce the cost you will need to provide an economic analysis.

**Q: We are considering a proposal to develop a framework to use ion irradiation to study the radiation tolerance of additively manufactured alloys. Could you comment whether this may work for this area**

**as a proposal supporting nuclear qualification and regulatory acceptance? Or, maybe it will be a better fit for the Area 11, which mentions radiation effects?**

A: In this case, given that we're dealing with additively and advanced manufacturing materials, I would actually put this in topic area 12. It's part of the qualification process and is definitely an area of interest.

**Q: We are interested in proposing solid state as well as fusion based AM for 316H. Should we focus more on process fundamentals or material qualification along with research training?**

A: Both topics are very important, it really depends on the specific proposal. You will need to determine which you want to focus on.

**Q: Is the cost reduction a must-have component?**

A: No, it is not

**Q: You mentioned fusion powder bed as a type of joining process, what about direct energy deposition?**

A: Yes, any sort of advanced manufacturing process we're interested in. Joining any of these advanced manufactured parts and components would be of interest as well.

**Q: Will electrodeposition be considered AM?**

A: Typically electrodeposition has been used for cladding and coating applications. In this area we're looking much more on larger structures for manufacturing now. If it can do that, then absolutely

**Q: Could cold spray be considered an additive process?**

A: Yes

**Q: Is there any particular alloy of interest under AM of ODS material?**

A: For topic area 12, we don't have a particular alloy or ODS material of interest. This is really a very broad category and we're looking for new ideas and new concepts or even better, ideas for current materials. We're open to thinking in the box and outside of the box as well.

**Q: Can I be PI on one proposal and a Co-PI on another, both submitting to Area 12?**

A: Yes. The restriction for university PIs at the pre-application stage is that you can be listed on no more than six applications, and you can only lead three of those six applications.

**Q: Is there any preference given to collaborative proposals from multiple universities or universities and national labs or universities and industries?**

A: The one place where the Department of Energy Office of Nuclear Energy encourages those collaborations is with minority serving institutions. If you look in the FOA, there is a diverse teams review criteria that's evaluated by our federal program managers. Otherwise we want you to choose the team that best fits your scope and the expertise that you need. If that lies within the National Laboratory or industry or with other universities, then we would open that up to really define what's going to work best for your specific project.

**Q. Is wire-arc AM for larger structural applications of interest and what would be the most appropriate Topic Area for submission?**

A. This is a topic that would best align with Topic Area 12 (Advanced Manufacturing Technologies).

**Q. If so, which general classes of ceramics (e.g. nitrides or carbides) are more important?**

A. That is a decision the applicant needs to address. The need to decide what will be allow them to have the best application.

**Q. Is additive manufacturing (AM) of refractory ceramics of interest?**

A. Yes

**Q. If so, which general classes of ceramics (e.g. nitrides or carbides) are more important?**

A. That is a decision the applicant needs to address. The need to decide what will be allow them to have the best application.

**Q. If carbides are of interest, should proposals focus on chromium carbides (important for MSR's using metal alloys) or other carbides (HfC, SiC)?**

A. The scope is intentionally broad to allow applicants to select materials/components/manufacturing that can provide solution for advance reactors.

**Q. Should proposals focus on the basic materials science underpinning AM of refractory ceramics?**

A. This is an option and is of interest, there is a significant amount of work that could be done in the area.

**Q. Is there an advantage to focusing on a demonstration build of a component (like a heat exchanger)?**

A. Potentially, it does help focus the effort on an end application. But it has to be balanced with the maturity of the technology.