**Syracuse Reviewer #2**

1. **Qualifications:** The PIs are highly qualified and bring complementary expertise to this research. They appear to have the research skills necessary to carry out this research in the time frame outlined in the proposal. They are well trained, have a history of interdisciplinary research and Popp has done energy-related research. Acuna appears to have the computer science skills necessary to create the measures proposed in the work.
2. **Reservations:** I have reservations concerning the value of the proposed research work to the field and more generally to the field of science funding. My reservations are based on several concerns. First, the research is predicated on the idea that new entrants advance a field, but the authors provide no discussion as to why this may be the case. Indeed, the third research question proposed by the authors relates in some sense to whether new entrants do advance the field by creating novel research, yet the proposal is predicated in a sense on the idea that they do. Second, the authors equate “more” research with “more” people working in an area. But often times research in a field grows by the same number of people engaging in more research. This has certainly been the case with NIH-funded investigators who expanded the number of research grants they were working on, staffing their labs with postdocs and PhD students as funding increased. Yes, the number of investigators grew, also leading to a growth in research output, but a considerable amount of the growth in research was due to an increase in the number of grants existing PI’s received. So, I am not convinced that a “body count” approach is the right approach to studying the issue of how to “grow” a field. Yet this is what the PIs propose. Third, there is some work that shows that it is not only recipients whose research is affected by a call for a new funding source, but individuals who applied and did not receive funding, suggesting that funding is not as key as the act of thinking about a research project that a research call may stimulate.[[1]](#footnote-1) There is no discussion of this concept in the proposal. Fourth, there is little-to-no discussion of how individuals not working in the field find out about newly targeted research opportunities. For example, there is no discussion of how FOAs are disseminated and make their way through the research population. The authors should address this. Fifth, I am concerned about the NSF and DOE programs that are being studied. The DOE EERE program appears to be the only program to meet the criteria of targeted. So, identification of targeted research effects rests entirely on one program. Furthermore, the authors have for my taste a somewhat loose definition of what NSF programs meet high-risk/high-reward. EAGER makes sense but it is not at all clear to me, and no convincing case was made, that NSF Cross-cutting calls are high-risk/high gain. Placing a label on something does not make it so.
3. **Strengths:** The strength of this proposal is that it raises the important question of how to increase the amount of research being done in a field. This is clearly important from a public policy perspective. It is, in my mind, misguided in that it approaches this by counting the number of people receiving funding, not the amount of research they are producing, or the amount of funding individuals have. One weakness of the proposal is that there are few targeted programs to study. So, the research really will address whether the DOE EERE program was successful in attracting people to the field who had not done research in the field before. Another strength of the proposal is that it develops a measure designed to ascertain how far a researcher has moved from previous research. It also looks at issues of novelty.
4. **Budget:** The budget appears appropriate.
5. **Recommendations:** This proposal would be strengthened considerably if the authors grounded the proposal in a discussion of why new entrants may have a comparative advantage in terms of research and define what they mean by new entrants. Different field? Younger? Etc.? It would also be enhanced by a more in-depth discussion of the concept of novelty and whether FOAs lead more research to being done by the same people.

1. Ayoubi, Charles; Pezzoni, Michele and Visentin, Fabiana. 2019. The important thing is not to win, it

   is to take part: What if scientists benefit from participating in research grant competitions? *Research Policy*, 48(1), 84-97 [↑](#footnote-ref-1)