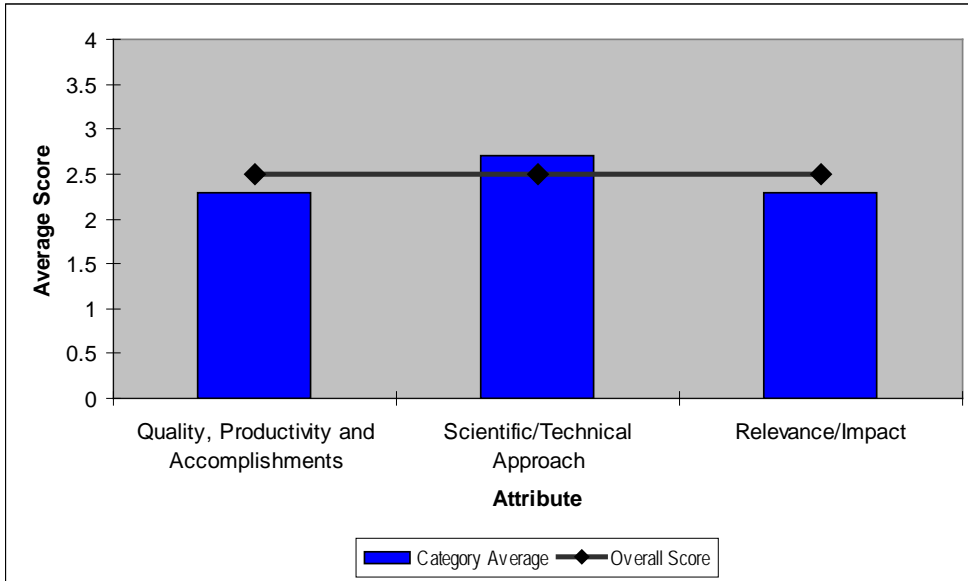


Green Energy, Arts, and Education Center

Principal Investigator: *Christopher Collins, Green Energy, Arts, and Education Center*



Project supports design and modeling for the Green Energy, Arts, and Education Center in New York. The plans are part of the Empire State Solar Initiative.

Quality, Productivity and Accomplishments (Average Rating 2.3)

Rating	Comments
2.0	Although the Green Energy Arts and Education Center will be visited by tens of thousands of students each year, it does not appear to demonstrate any real innovations.
2.0	A lot of work has gone into this project along with a lot of money. The PI seems to think it will have a big impact on the way solar is viewed in NYC. I am dubious. We have little information on the people or organizations conducting the project. The PI is a litigator. The site and building orientation are particularly ill-suited for a solar building. This is a basically a large PV array with a small ugly building under it. The cost of the building seems extraordinary – \$1,200/ft ² .
3.0	<p>Quality - The Green Energy Arts and Education Center in New York City seems to have put a good coalition together and is making a reasonable progressive step forward from Solar 1. Clearly Chris Collins comes from an impressive background to lend his talents to fundraising for this project. According to the materials, Collins has already secured \$6 million toward this project. The DOE grant of \$492,000 seems right-sized as a component of the total \$11 million cost of construction. Were it any less, it might not engender confidence in other collaborators. Where it much more, it would seem unjustified.</p> <p>Productivity - According to comments at the peer review, 19,000 residents came through Solar 1 over the last four years to take part in class instruction and 25,000 per year came through for various events. Based on the materials, Solar 1 seems to be constantly active. Solar 2, at least as far as physical design goes, seems to have the necessary components to expand on public education. Collins mentioned verbally that he expected over 100,000 visitors per year to Solar 2. I believe the report spent more than enough time describing the architectural attributes of Solar 2 and not enough describing how they would meet that visitor count.</p>

Scientific/Technical Approach (Average Rating 2.7)

Rating	Comments
2.0	It is not clear what barriers this demonstration project is supposed to overcome. I consider this project only fair in its value as a demonstration of energy efficiency and renewable energy.
3.0	As the summary states, there is no technical approach. This is just a design and build project. Although I don't think much of the building, the design specifications seem thorough and well documented. Again, there is no task or budget break down.
3.0	The technical approaches to this project lay in existing technology and known architectural techniques. The project participants clearly took the time to think through the uses of the building in relation to the structure and updated plans, as necessary, over time. Solar 2 went through various design changes, including the roof design, in order to make a more energy efficient project. Still, given the location of the project, it was difficult to see how this could be a net zero energy building. The project proposal was scant on details about how they could meet the kilowatt hour demands of this building. Under "Technical Approach," the project claims to generate more energy than it uses on an annualized basis. Yet, in order to be carbon neutral, they will need to generate as much energy in the summer as they use in the winter. It would have been helpful to see an estimate based on the 90kW array of how they would be able to be carbon neutral on an annual basis.

According to Collins and the materials, there is currently a 10kW limit on net metering in New York that would not allow much of that 90kW back on to the grid in order to reach that carbon neutral goal. In other words, the Center can be only theoretically carbon neutral unless it can deliver excess power to the grid to make up for the months that it pulls power from the utility. The proposal to allow 2MW net metering is a point for advocacy by Collins' colleagues, but it is nothing more than that at this point.

Relevance/Impact (Average Rating 2.3)

Rating	Comments
3.0	Since the Green energy Arts and Education Center has a large and highly visible PV array, and is sited in such a prominent location, it will be seen and visited by tens of thousands (or hundreds of thousands) of people each year. This alone means it will have a significant impact on the public's awareness of solar and good building design.
2.0	I am not sure the building, if it is built, will attract or impress many visitors or influence NYC decision makers. However, this is a personal observation and not based on any evidence. Beauty is in the eye of the beholder, so others may see this project differently.
2.0	I believe that the most relevant part of this project comes not in the building or the solar panels, but in the residential energy efficiency classroom that is part of the building's mission. Unlike other parts of the country and other projects under review, I find it difficult to see New Yorkers not encouraging the use renewable energy. Yet, I do see a problem in existing construction. Millions of square feet of residential construction in New York could be more energy efficient. And, on a cost per kW basis, demand side management is a better bet, especially where the most energy efficient new construction will not overcome the waste of the existing construction. So, would it not be more cost effective to set up an energy efficiency center that focuses on that aspect? Certainly the solar panels have a certain quality that attracts visitors. But, for that cost, you could deliver any number of promotional materials to visitors to an energy efficiency center. To a certain degree, having a building with 90kW worth of PV panels on it in NY to promote solar would be like building a massive wind turbine in downtown Phoenix, where we have very

limited wind capacity. So, I don't see this project contributing to reducing market barriers, at least in the short term. Perhaps it will have an impact in its advocacy roll for more net metering. Otherwise, public education of this sort is more of a time-delayed impact.

Overall (Average Rating 2.5)

Rating Comments

2.0 Since the project does not demonstrate innovation (but could have) I judge it to be fair.

2.5 I would rate this project as the least likely to succeed and the least cost effective.

3.0 This project has some good potential of actually demonstrating. Yet, the project materials did not convince me that Collins has a plan for how to generate public interest in a city that is the most crowded market in the world for things to do, see and grab one's attention. Were there plans to collaborate with schools? Which ones? What will the city government do to market this site? Solar 2 claims itself to be part of the effort to implement a 5% solar capacity goal over 10 years. But for \$11 million, a smart group of community leaders could put together a much more effective public lobbying campaign to pass those measures. Is building a small building next to the river the best use of those funds? Is there not a better way to identify and speak to those who are most skeptical?

Like other proposals in this grant period, there needs to be a comprehensive outreach and education plan. How many people do they intend to reach? What is the basis for that number? What are the strategic relationships that they created to meet that goal?

I ask the same questions that I have asked for every demonstration project:

1) Demonstration projects like this have been around for decades. What could this project do to reach out to those who could adopt these measures?

2) Were there goals established for the number of people who would see the project? Was there an attempt to get media attention for the project?

3) What metrics will the team use to track the reach of their demonstration in society, in education, among opinion leaders or among skeptical observers?

If any team cannot answer these questions, then why demonstrate anything at all?