Professor George Howard's Comments, June 5, 2017:

For the first time ever, in 2016, solar was the top source of new generating capacity in the United States, representing 39% of new installed electric capacity. To my mind, this achievement is due to two significant factors. First, of course, is The Clean Air Act. Over the last several decades, we've gone from a dirty, nonrenewable system for generating electricity to the beginnings of the totally clean and renewable electricity generating system of the future. Without The Clean Air Act, we might still be at the starting gate in our race toward a better energy future.

The second factor in solar's meteoric rise is the Swanson Effect (depicted graphically in the handout). The graph ends in 2013 with a solar cell price of $.74/watt. I was told this morning that the price of solar cells is now down to about $.42/watt for the single largest cost of solar installations that Inovateus Solar develops and constructs. A quick reflection of the impact of solar's progress is that there are currently more than a quarter of a million American jobs in the solar space—virtually all of them well-paying jobs.

I like to give my Notre Dame students the following thought experiment:

" Calculate the exact amount of pollutants that would be averted if we replaced every car, truck, bus, etc. in the United States with electric vehicles."

What would your answer be?

It turns out it's a trick question. Given the complex interconnectedness of life in the twenty-first century, if we are talking about a pre-The Clean Air Act electrical system, the answer is ZERO—the many millions of electric vehicles

would not reduce pollution one iota. Installing a super-efficient component (electric vehicles) into a highly polluting system (pre-The Clean Air Act electricity generating system) produces no overall change in pollution.

However, when a super-efficient component (electric vehicles) is paired with a non-polluting energy generation system (the staggering improvements in our grid due largely to The Clean Air Act), the overall system potentially averts all pollutants.

Or consider our government's improvement in the domain of energy efficiency. Those improvements developed symbiotically with the improvements spurred by The Clean Air Act.

One final example, taken from the solar world, and I'll be done. There are tens of thousands of brownfield sites and superfund sites spread across this nation--residuals of earlier unsustainable business practices. In most cases, brownfields are now unusable pieces of land. While solar produces totally clean electricity, there are materials and space that are required to produce this "manna from the sun" miracle. The EPA would love to put brownfields to some productive use.

The handout entitled, "Who wouldn't want a silk purse?" is an Inovateus Solar employee's analysis of a recent installation in Kokomo, Indiana. You've heard of win-win deals? Well, this is a staggering seven-win deal! Read it and smile. And if

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Duke Power and the City of Kokomo are this project's parents, then the EPA, Inovateus Solar, Altera Power, and The Clean Air Act are the project's proud grandparents. This represents public policy at its best—policies that make all of us winners. Thank You.

Biography: George Howard, Ph.D. is emeritus professor of psychology at the University of Notre Dame. Over a forty-year career, he published 17 books and over 200 articles and chapters in scientific journals and books. Early in his career he focused on scholarship in the Epistemology of the Social Sciences, serving as President of several divisions of the American Psychological Association (APA). In 2009, Dr. Howard received the Presidential Lifetime Achievement award from the APA. He also held numerous administrative posts at Notre Dame, including twice serving as the Chair of the Department of Psychology. In 1998, he was named the Outstanding Faculty Member of the University. He is a founder, owner, and director of Inovateus Solar.