



fellowship

Dr. Cyrus Wadia
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Award Year: 2005



Success Stories

STAR Fellow Pursues Clean Energy Solutions With an Eye to the Rising Global Population

As the Assistant Director for Clean Energy and Materials Research and Development at the White House Office of Science and Technology Policy (OSTP), Dr. Cyrus Wadia supports the President's science advisor and senior staff by providing the science and technology facts and key issues pertaining to major energy and advanced materials policy decisions. His group also helps distill the President's higher level agenda into budget initiatives and convenes executive branch officials for the coordination that is necessary to implement those initiatives. The office works at the intersection of science and policy, Dr. Wadia adds, "with a mission to remain highly objective and impartial" to provide the best science and technology input into the policy development process.

As an undergraduate at the Massachusetts Institute of Technology (MIT) in the 1990s, Cyrus spent a summer in Washington, D.C., working on policies for solar and renewable energy. He was interested in technology innovation, but at the time lacked many outlets for that interest. After receiving his M.S. in Chemical Engineering, Cyrus worked in Silicon Valley for 8 years, and when he returned to obtain his Ph.D. from the University of California, Berkeley, in Energy and Resources—which he received in 2009—he worked on green technologies for solar energy, a portfolio that continued to grow.

Receiving a STAR Fellowship during his graduate studies, says Cyrus, was "path critical" because he was working on unconventional topics, blending resource economics and nanoparticle chemistry. Working on such diverse topics under one professor is difficult; added to that, few direct funding vehicles exist for graduate students to pursue their own ideas. As a result, many graduate students work on problems defined for them.

Cyrus, however, was "trying to do something very different," and very high risk, making it unlikely that any Berkeley professor would take on his project. Only after Cyrus received his STAR Fellowship did his advisor agree to work with him. The research produced several patents, and Cyrus was awarded the prestigious MIT Technology TR35 World Top Young Innovator Award and other honors. Pursuing his path was difficult, but the STAR Fellowship provided Cyrus the flexibility "to work on the problem as I defined it and needed to define it."

Dr. Wadia comments, "What I'm doing now has been part of a continuous career trajectory," building on a long-standing interest in clean technology. At a higher level, he is interested in how energy services can help reduce poverty by raising the standard of living in the developing world. Another of his major motivations is to develop and support clean energy to mitigate the impacts of climate change. "Clean energy provides the perfect outlet" for his interests because it is in that field that the important elements converge, such as policy, science and technology, and economic wealth to be created around low-carbon technologies. Because the field is in its infancy, "it's an exciting time to be part of it."

Dr. Wadia and Berkeley colleagues published a seminal paper, "Materials Availability Expands the Opportunity for Large-Scale Photovoltaics Deployment," on the Earth's abundant materials that can be used for clean energy. Since the paper was published, hundreds of millions of dollars have been invested in funding materials systems that on the surface may not appear to be high-performing but that have the characteristics of being highly abundant and low cost. Through the paper, "we have created awareness around a new type of solution set that could turn into something."

The OSTP office that Dr. Wadia is part of covers a broad portfolio of issues that can include such topics as future EPA carbon regulations, a new U.S. Department of Energy solar permitting program, an interagency initiative to reduce methane leaks from oil and gas exploration, and many others. Two major issues that he covers are critical minerals, which primarily are rare earth elements, and the materials genome initiative.

Dr. Wadia comments that the public needs to be cognizant of the fact that in the next 30 years, there will be three billion new middle-class consumers added to the global population. That will have huge implications for such resources as energy, raw materials, water and land. If society's infrastructures and energy services are going to move to clean, renewable energy, then "we'll have to think completely differently about how we use, procure or manipulate materials." He adds: "It's going to take a lot of creativity, a lot of innovation," and the public needs to recognize that the problems are real and will face the planet, so society must do its best to deal with them directly.

Regarding scientists, Dr. Wadia suggests that many in the field are not viewing their clean energy technology solutions in the broader context of how they will bring their technologies to the market and scale them beyond. "That's incredibly challenging, and there's no silver bullet," but that type of thinking is needed. Every chance he gets, Dr. Wadia publicizes the message that science and innovation are needed. "Show me how that technology will scale to three billion new middle-class consumers on top of the two and half billion that we have today. We've got to figure that out."

Outside of work, Dr. Wadia is an outdoor enthusiast who enjoys riding his bicycle and pursuing recreation in the mountains. Currently, however, his favorite activity is to spend time with his wife and two boys.

