

**Final Report to the IEEE-USA
Government Fellowship Committee**

Kenneth J. Lutz, Ph.D.
2009 Congressional Fellow in the Office of Senator Ron Wyden

November, 2010

In looking back over my year as a Congressional Fellow, the one thing that surprised me the most was how much I gained from the experience. My intent in becoming a Fellow was to step up my level of involvement in public service activities; I saw the fellowship as a way of giving something back to my country after my own long and successful career. I wanted to offer my expertise to help formulate laws that were more firmly grounded in science and technology. While I am happy that I was able to contribute to legislation, I am even more grateful for what the fellowship experience has given to me.

My entire career had been almost exclusively focused on telecommunications. When I arrived on Capitol Hill, however, I found out that there was little interest in the subject for the 111th Congress. I therefore looked for a position involving energy and the environment, intense interests of mine. Senator Wyden was heavily engaged in energy legislation, but also had a strong interest in network neutrality. My electrical engineering background positioned me well to move into the energy field; and other members of Senator Wyden's staff, when learning that I was an engineer, pulled me into other areas, such as nanotechnology. Senator Wyden's office has had many Fellows, and the staff knows how to ease Fellows into legislative work. I was given quite a lot of responsibility by the legislative staff member with whom I worked.

By the end of May, 2009, we introduced nine bills related to energy. The bill for which I was primarily responsible was the STORAGE Act (S.1091), a bill to provide investment tax credit for putting energy storage systems into the electric grid. I also worked on several of the other energy bills by doing research, for example, on the fuel efficiency of cars and energy efficiency of buildings. Although developing the legislation did not require a lot of scientific knowledge, my engineering approach to modeling the problems created descriptions that more easily allowed legislative solutions to be formulated. I spent most of the second half of my fellowship year promoting our energy bills by talking with other Congressional offices, lobbyists, and other interest groups.

Being given the opportunity to spend a full year on energy-related topics had a major influence on my career. Not only did I learn a great deal about renewable energy, energy efficiency, fossil fuels, and energy policy, I was thrust into the world of energy storage because of the bill we introduced. The day after we introduced the bill, for example, I was invited to the annual meeting of the Electricity Storage Association, which happened to be in Washington, DC. Since then, I have been heavily involved in promoting energy storage; and I have expanded my interests to the smart grid as well. I have decided that energy problems in the U.S. are more pressing and compelling than the telecommunications problems I had been solving. Furthermore, many of the skills I had developed in researching new types of telecommunications

networks are directly applicable to electrical networks. Before my fellowship ended, I had been invited to speak at four other meetings; and since my fellowship ended, I have been invited to give talks at four additional meetings around the country. I am continuing to promote energy storage and the smart grid, and my work has landed me consulting work with a project on India's power sector with the U. S. Agency for International Development (USAID).

Congress needs more science and technology policy fellows. The thirty-three of us in my fellowship year was simply not enough to fill the demand from the different Congressional offices and committees, especially since the Office of Technology Assessment was shut down in the 1990s. What I observed is that offices like to have fellows; they proudly point us out to others. In fact, many fellows, especially science fellows, remain on Capitol Hill after their fellowship year to continue to work in their offices. I also noticed that the issues that come before Congress need more engineering expertise than scientific expertise. The reason is that crafting effective legislation requires modeling to determine how it would work in the real world. Engineers are better trained in solving such problems than scientists are; yet only 5 of the 33 fellows last year were engineers.

Part of the imbalance between engineering and science fellows results from the large number of scientific societies awarding fellowships compared to the handful of engineering societies that do. I strongly encourage the IEEE-USA to increase the number of Congressional Fellowship it awards each year, given that the IEEE is the largest professional association in the world for advancing technology. And I also recommend that the IEEE-USA be more proactive in letting Congressional offices and committees know that they have a large body of expertise available to help with technical questions. I would like to acknowledge that the IEEE-USA did cosponsor four technical briefings in 2009 with Discovery Magazine; and, in my opinion, the briefings were excellent.

In summary, my fellowship year was an outstanding one. I was able to accomplish a lot, and I learned a lot. The experience has literally changed my career path from telecommunications to energy. I would encourage all IEEE members in the U.S. to seriously consider becoming fellows. If enough of you send in applications, perhaps the IEEE-USA will award some additional fellowships.