

SERI

The Solar Energy Research Institute is still in its infancy but it's growing fast

BY KENDRICK FRAZIER

Paul Rappaport leans back in his chair in his third-floor office in a modern complex on the eastern outskirts of Golden, Colo., and says, "For the first time in this whole period I'm feeling comfortable." Rappaport is the director of the fledgling Solar Energy Research Institute. SERI was born last year following a politically contentious national site selection competition. The subsequent reorganization of ERDA into a Department of Energy added a further burden of confusion. Add to that the normal start-up problems of any new enterprise, and one has the ingredients for some difficult early months.

But SERI has come out of that period in good shape. Most of those problems are now behind. Speaking earlier this month on the eve of the first anniversary of the contract signing that designated Golden as the site for SERI and only a few days before President Carter announced plans to visit SERI on Sun Day, May 3, Rappaport expressed confidence and optimism for SERI's future. He believes it will play an important role in stimulating development of solar energy in the United States.

"We've moved along pretty smartly," he says, noting that the staff has grown to 220 and work is well underway on a variety of solar energy problems. Furthermore, he has recently been given a strong sense of support from Washington. During a recent visit to Golden, Robert Thorne, who oversees energy technology for the Department of Energy, demonstrated a great interest in solar and, says Rappaport, "His plans for SERI are quite in line with what I consider to be our mission."

That mission is, in Rappaport's succinct view, "To bring about the earlier utilization of solar energy." He foresees SERI performing a central role of providing guidance to all phases of the national solar energy program. "I see SERI as an organization that should generate as good a set of facts as possible. We are the investment strategist for the Department."

In technology itself, SERI's involvement will encompass all solar energy technology—materials, photovoltaics, solar heating and cooling, solar-thermal power generation, agricultural and industrial process heat, wind power, ocean-thermal conversion and biomass conversion.

But the perspective of SERI extends far beyond technological problems. The professional staff is about equally balanced between scientists and engineers and professionals in other fields, including en-

vironmentalists, economists, sociologists, lawyers, marketing analysts, architects and even an anthropologist.

One of the many problems solar energy has had in the United States, Rappaport feels, is the tendency to view it solely as a technological problem. Rappaport intends for SERI to deal with all the kinds of issues that affect development of solar—such things as cost-competitive factors, how utilities are going to face up to solar, building codes, and promotion of life-cycle costing, to name just a few.

"We see the need to do a complete system analysis on solar, from research all the way to the marketplace," he says. "It doesn't make sense to do just blue sky research. To cope with energy in general and solar energy in particular, you have to look at the total system. It is not sufficient to deal with technology only."

Rappaport brings to SERI the fruits of a distinguished career in industrial research at RCA Laboratories in Princeton, N.J., where he was a recognized pioneer in solar energy conversion and an authority on photovoltaic conversion. His experience—and that of many other staff members—in industry gives the institute a dynamic, goal-directed flavor that he believes is a necessity in this field. "We all have a certain amount of zealotry. We're here to see solar move into the applications area sooner. . . . We're driven to see something happen."

The nation, Rappaport believes, faces a major energy problem in the next 10 to 20 years, the seriousness of which is still not widely recognized. It is essential to the nation's welfare that solar be developed. Still, for all their zeal, he and his associates have no illusions that solar is a panacea. In fact, they have been critical of those who they feel have oversold the immediate promise of solar energy and thus contributed to potential disillusionment.

"I'm not a fanatic about solar," says Rappaport, "but I'd be very happy to see 10 to 15 percent of the nation's energy needs provided by solar by the year 2000."

Essential to that goal is to help bring into being a growing, self-sustaining and profitable private industry based on solar energy technologies. One whole division of SERI, "Technology Commercialization," is devoted to that effort. It will deal with all the complex problems of getting solar

technologies into the marketplace.

One key to SERI's goal of overcoming the fragmentation that has marked solar energy efforts up to now is the solar information systems data bank SERI is establishing. It will provide the public and professionals ready access to enormous quantities of information across the solar energy spectrum, from research programs and results to solar energy laws and regulations. Photovoltaics will receive early emphasis.

Rappaport says he wants to encourage universities to get back into a "creative mode" in solar research, concentrating on frontier, cutting-edge science, rather than on near-term applications, which can be better handled by industry. "We want to get the brightest people in universities working on solar energy research." The idea is to have the Department of Energy's university research grant funds channeled to universities through SERI, which will evaluate research promise and progress.

As for SERI itself, Rappaport says he has been fortunate in acquiring very highly qualified staff members, an interdisciplinary team in solar energy the likes of which has never existed before. Many had to give up solid careers elsewhere to come to SERI. But the attractions of Colorado, the glamour of solar energy, and the appeal of pioneering in an important effort where they know they can make a contribution all have made the task easier.

Finally, Rappaport wishes to allay concerns that SERI might encroach on well-established solar energy efforts elsewhere. His office window looks out upon Golden's South Table Mountain, a mesa a mile or so northwest, where SERI is expected to construct permanent facilities starting a few years from now. ("It'll be a national showplace for solar energy," says one aide.) But his mind is on stimulating solar energy, not empire building. "We don't want to get too big. We don't want the Institute to get so large that we can't all share our thoughts." He foresees a maximum staff of 600 to 800 persons and a maximum budget of \$40 million to \$50 million.

"I'd like to emphatically state that SERI is here to help—to complement and supplement, to catalyze and synthesize. We want to see that the right things are done, but not necessarily at SERI. We should generate and catalyze needed work. But there is plenty of work in solar energy for everyone." □