

Energy and related research at the Center. In 1976, in recognition of the need to establish a broadened and comprehensive energy program to support national and Puerto Rico needs, the Nuclear Center was renamed the Center for Energy and Environment Research. At that time, research and education programs were initiated in biomass, solar thermal and photovoltaics, wind and ocean energy, waste recycling conservation research, and in the environmental and health impacts of alternate energy systems.

Firstly, CEER is a unique research institution located in an unparalleled research environment. Few places in the world offer such a diversity of research opportunities as Puerto Rico. Puerto Rico has rapidly developed into an ideal laboratory for Caribbean and subtropical energy research. CEER's unique bilingual and bicultural status has contributed to its ability to work on energy research and technology application with scientists from many neighboring Latin and South American countries.

Several of the major accomplishments of CEER for the last five or so years are:

(1) Development of an internationally recognized research program in biomass, with specific emphasis on the use of tropical grasses and sugar cane in both direct and indirect biomass conversion;

(2) Discovery of a small snail indigenous to Puerto Rico that has the ability to eliminate the parasitic host which causes schistosomiasis, a dangerous tropical disease all over the world;

(3) Internationally recognized research on the effects of energy development upon tropical marine and rainforest ecosystems;

(4) Development of comprehensive research programs in the practical application of ocean thermal energy, and in the use of solar thermal systems for industrial and agricultural application;

(5) The education and training of hundreds of Latin and South American professionals in nuclear science, nuclear medicine, environmental research and solar energy fields; and

(6) Development of excellent bilingual energy education and training.

"Programs, which are now serving as models in several other states. We believe that CEFR has become the most important Hispanic research center in the United States. We want to recognize the work and accomplishments performed by CEFR during the past 25 years. Secretary Edwards will now present the DOE Award for exceptional public service to the Director of CEFR, Dr. Juan A. Bonnet, Jr. -- Mr. Secretary.

United States Department of Energy Award for Exceptional Public Service Conferred upon Center for Energy and Environment Research, University of Puerto Rico. In recognition of its 25 years of distinguished service to the Nation in the fields of Nuclear medicine, education, training, and research. Its continuing efforts to enhance the medical, agricultural, environmental, and scientific research capabilities in Latin America exemplify the highest commitment to the spirit of international

cooperation and the strengthening of ties with our Latin American neighbors. This tradition of scientific excellence and dedication to achievement has continued as the Center turns its attention to the future energy needs of the Caribbean Basin. Dated September 13, 1982.

November 2, 1982 "As a member of the CEFR Advisory Committee, it has been gratifying to see each year how the programs of CEFR have increased in technological depth and scope, and to observe the solid accomplishments that have been made despite the funding uncertainties that have beset the programs. The accomplishments of Dr. Alexander's group in developing "energy cane" are particularly notable achievements in biomass production, and the pioneering work of Dr. Sasseor's group in exploring and demonstrating the outstanding promise of Puerto Rico as a site for ocean thermal energy production also deserves special recognition". Dr. Watt, Avery Director, Ocean Energy Program, The Johns Hopkins University.

September 12, 1962 "CEFR is a unique research institution located in an unparalleled research environment. Few places

"In the world, few places offer such a diversity of research opportunities as Puerto Rico. Puerto Rico has rapidly developed into an ideal laboratory for Caribbean and subtropical energy research. CEER's unique bilingual and bicultural status has contributed to its ability to work on energy research and technology applications with scientists from many neighboring Latin and South American countries. In the presentation of an award, Dr. Alvin Trivelpiece, Director of the Office of Energy Research, stated on September 3, 1982, "We believe that CEER has become the most important Hispanic research center in the United States." I am quite impressed with CEER's Terrestrial Ecology Division. The El Verde Field Station is an invaluable U.S. facility where both DOE and privately-supported environmental research can be conducted. Its location in the Luquillo experimental forest is of considerable historic importance because of the previous rain forest research completed there as part of the AEC program. A solid database is available on the flora and fauna of the forest and the potential for comprehensive and synthetic research in a number of important areas is greatly facilitated by such a situation. Moreover, other rainforest sites are quickly being disturbed beyond recovery in the rest of tropical America. The location of the El Verde Station in the protected Caribbean National Forest ensures future researchers continued access to this unique ecosystem." - Dr. Michael R. Witlig, Assistant Professor of Biology, Loyola University, New Orleans, LA 70118

August 23, 1982

FY 1982 APPRAISAL OF BUDGET ACTIVITIES - CEER

"Enclosed for your information is a copy of the subject appraisal for FY 1982. The appraisal reflects an overall rating of excellent for the performance of budget activities by the CEER staff." - William R. Bibb, Director Energy Programs and Support Division, Department of Energy, Oak Ridge Operations

July 22, 1982

"We appreciate the cooperation of the agency you lead in achieving the objectives of the Employment Program."

"Verano para jóvenes. Su participación en el programa ha sido de verdadero valor y significado muy positivo en el desarrollo vocacional/ocupacional de 'la Juventud Capitalina'. Hernán Padilla, Alcalde Municipio de San Juan, 14 de abril, 1981. "Este centro representa para Puerto Rico y para San Juan, su capital, una fuente de liderazgo, formulación de políticas, regulación, acción legislativa y decisiones económicas en nuestro gobierno". "Apoyo sinceramente la solicitud del Centro para continuar su operación como recurso para Puerto Rico y los Estados Unidos". Hernán Padilla, Alcalde.

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31 de marzo de 1982. "Mantenemos la copia del Informe Anual de 1981 del Centro para Estudios Energéticos y Ambientales de la Universidad de Puerto Rico, el cual encontramos muy interesante y orientador". "Consideramos de particular interés para nuestras labores la parte relacionada con los estudios sobre conservación de energía en el campo de la transportación". Ministerio de Obras Públicas, Apartado Postal 41269-Minillas Station, Santurce, Puerto Rico 00940, 23 de marzo de 1982, Tel. (809) 724-7171. "Estamos convencidos de que el Centro realiza una labor de importancia y trascendencia. Es para nosotros un placer colaborar con esta tarea y reiteramos nuestra disposición de asistirle en el futuro". Carlos T. Novoa, Director Ejecutivo, Oficina de Planificación y Presupuesto, Municipio de San Juan, San José 181-153-155, Apartado Postal 4355, San Juan, Puerto Rico, 9 de marzo, 1982. "CEER ha desarrollado una capacidad técnica altamente comercializable que debería ser atractiva para el sector privado. Además, las instalaciones y el personal seguirán estando disponibles como recurso para la UPR, con posibles fuentes de financiación que incluyen el Gobierno de Puerto Rico y DOE. Por ejemplo, el Gobierno de Puerto Rico puede utilizar a CEER para ciertas tareas durante la fase final del Proyecto de Evaluación Energética Territorial que está siendo llevado a cabo por el DOE y que está mandado por la Ley Pública 96-597. Este esfuerzo está actualmente en marcha y debe completarse en diciembre de 1982", Rich Neat.

Executive Assistant, Intergovernmental Affairs, The White House, Washington, D.C.

February 7, 1982

"The terrestrial program is in the forefront of research in the tropical rainforest areas. The application of this research will be useful throughout the Caribbean and Central American regions and should make Puerto Rico the central focus of rainforest knowledge."

"The marine program is off to a fine beginning. The kind of information that is being obtained is necessary to protect renewable resources while increasing the development of energy and other types of offshore activities."

Helen Si, Common, Director, Ecological Research Division EK-79, Office of Health and Environmental Research, Office of Energy Research, Washington, D.C. 20545

January 28 and 29, 1982

"The Biomass Program at CEER, as described by Alexander, has been exceptionally successful in achieving its initial objectives and the planned activities for the next year or two are not only well designed, but execution has already begun. The overall program, expanding from its initial limitation on tropical grasses, into a broader group of tropical biomass resources, including not only fermentable carbohydrates and lignocellulose toward gas and liquid hydrocarbon production, is certainly the best in the Americas and probably one of the best in the world."

UPR Senior Advisory Committee on Energy and Environment

May 14, 1981

"We believe that the excellent progress made by the Center over the last several years in developing strong programs in such areas as biomass and bioconversion, solar photovoltaics, conservation, and energy-related research has made the Center competitive with other research laboratories pursuing similar work. Increased efforts must be made, of course, to diversify the base of financial support for the Center including, where possible, increased support from the university itself, the Commonwealth Government, and from private industry. We believe that the Center's past and current accomplishments will

"Significantly, this diversification," - N. Douglas Pewitt, Acting Director, Office of Energy Research, U.S. Department of Energy, September 20, 1981.

Letter from Mr. Pedro Gelabert addressed to Hon. Carlos Quirés, Interagency Coordinator, La Fortaleza, San Juan, PR.

"I considered it prudent, therefore, to address you since I believe that the work that the Center carries out is commendable and necessary to continue the functioning of the Environmental Quality Board and other government agencies. Specifically, we have a strong interest in developing integrated programs in education, environment, and in the development of environmental quality standards that take into consideration the tropical conditions of our island. These projects are of high necessity not only in Puerto Rico, but throughout the Caribbean." - Pedro A. Gelabert, President, Environmental Quality Board, March 12, 1981.

Letter from Dr. Fred V. Soltero Harrington addressed to Hon. Carlos Quirés, Interagency Coordinator, La Fortaleza, San Juan, PR.

"My participation in this committee has allowed me to closely appreciate the very effective work of the Center for Energy and Environmental Studies (CEES) at the University of Puerto Rico and the achievements obtained in the research on alternative energy sources and the environmental aspects of them. The functions of the CEES are complementary to the activities of the Department of Natural Resources and those of other government agencies. The research work of the CEES is indispensable for the solution to our energy and environmental problems and for our welfare," - Fred V. Soltero Harrington, Ph.D., Secretary, Department of Natural Resources, February 20, 1981.

"I want to congratulate you on the quality of work that Don Sasser and the Center for Energy and Environment have been doing on the Landing Craft Utility (LCU) off the coast of Punta Tuna. The

uninterrupted supply of seawater to the heat transfer monitors for the Biofouling Corrosion and Materials (BCM) Program."

"Has been notable in OTEC development. The entire team is to be congratulated for finding a way to implement your excellent and creative suggestions to Mr. F. Castellon." - William E. Richards, Acting Director, Division of Ocean Energy Systems, US Department of Energy, February 10, 1981.

"We congratulate you on the excellent work done and wish you continued success in your programs." - Wilson M. Loubriel, Executive Director, Autoridad de los Puertos.

February 6, 1981

Letter from Dr. Melvin Calvin addressed to Dr. Alex G. Alexander, Head, Biomass Division, CEER:

"I have already told you how much we (the Committee) appreciate your presentation last month. We were impressed with the progress you have made towards the development of an energy cane (Sordan 11), and the fact you are beginning a movement towards the operation of a biomass fuel 300 MW power plant." - Dr. Melvin Calvin, Professor of Chemistry, University of California and Nobel Prize Winner.

January 9, 1981

"I congratulate you for achieving several of the goals in the programs of ecology and development of alternative energy sources. I urge you to continue working in search of solutions for the energy and environmental programs of our island." - Jenaro Collazo Collaxo, Secretary, Department of Social Services.

Letter from the Department of Energy addressed to Dr. Ismael Almodovar, President, University of Puerto Rico, July 21, 1980:

"Let me say at this point how pleased we are with the substantial progress made by the Center during the past five years in developing and carrying out important energy research and development programs of relevance both to the Commonwealth Government and to the Department. I am also pleased to see that you are proposing that future financial support of the Center's core activities be provided jointly by the University and the Commonwealth. We have always viewed such support as essential to the future of the Center." - Edward F. Frieman, Director of Energy Research, US Department of Energy.

A plant physiologist by the name of A.G. Alexander has been testing and breeding strains of sugar cane for energy production... He has had great success. Puerto Rico also has one of the few tropical rainforests within U.S. territory, a rainforest which has been much studied but should be truly a national center. During the last year, Dr. Laurence Tilly has joined CEER as Director of all ecological and environmental programs. He is a first-rate scientist with particular expertise in Limnology. Furthermore, in Puerto Rico, energy projects, agricultural projects, and environmental

projects all come together at one time. Prof. David M. Gates, Professor of Botany at the University of Michigan, stated this on February 4, 1980. "My Department of Energy colleagues are all impressed with the progress being made in many of the key areas and we look forward to assisting you in the next phases of the Center's activities." Richard E. Stephens, Director Division of Institutional Programs Office of Energy Research U.S. Department of Energy.

On September 19, 1979, "Esta Junta considera que el gobierno de Puerto Rico debe prestarle atención prioritaria a la problemática energética desde la perspectiva de la investigación científica. La investigación científica está dirigida al desarrollo de fuentes alternas de energía constituye la garantía y el arma más efectiva para continuar el desarrollo obtenido y alcanzar las metas de bienestar social. Entendemos que el CEEA está llevando a cabo un gran esfuerzo de investigación con el propósito de buscar alternativas que permitan que Puerto Rico se libere total o parcialmente de la dependencia energética prevaleciente." "Por último se les recomienda que se explore la alternativa de que la Oficina de Puerto Rico aporte fondos a los programas de investigación y desarrollo del CEEA." said Leco. Miguel A. Rivera Rios, Presidente, Junta de Planificación de P.R. on August 3, 1979. "As a result of our meeting and other discussion, members of the Oversight Committee have indicated satisfaction with the progress made by..."

"The CEER has made good progress during the current program year despite funding limitations and deferrals. We believe that a strong foundation has been laid for future year accomplishments." - Toni Grayson Joseph, Associate Director for Field Operations Management, Office of Energy Research, US Department of Energy, October 10, 1978

"Good progress has been made in the last twelve months in developing a stronger, more comprehensive conservation RAD program focused on specific Commonwealth needs and problems. This (Solar Technology) remains a strong research area in the overall program."

"In conclusion, the Oversight Committee is once again pleased to see the progress being made in the individual CEER research programs." - Joel Snow, Associate Director for Research Policy, Office of Energy Research, US Department of Energy, July 26, 1978

"We have been extremely pleased with the progress you and your colleagues have been making this year, and sincerely hope that the new funding level will at least allow continued, if slower, progress next year." - Joel Snow, Associate Director for Research Policy, Office of Energy Research, US Department of Energy, March 20, 1978

"I am particularly optimistic for the prospect of the Center to become an international center of environmental research and training for Latin America." - Jeff Swinebrod, Manager, Environmental Programs Division of Biomedical and Environmental Research, US Department of Energy, December 1977

"We are again pleased to see continuing progress in the evolution of the Center into a comprehensive energy research and education resource both for the University of Puerto Rico and the Commonwealth Government. We are again pleased to see good progress continuing in the various Center programs and look forward to working closely with you and your associates throughout the transition period." - Joel Snow, Associate Director for Research Policy, Office of

