



RESEARCH PROJECT GRANT LABELS

FONDO CONACYT-SENER SUSTENTABILIDAD ENERGETICA / CONVOCATORIA 2009-01



SENER



SECRETARÍA
DE ENERGÍA

# de Proyecto	Titulo de Proyecto
★ 117808	Environmental and economic assessment of scenarios to 2030 of the insertion of alternative energy sources and energy efficiency measures in the Mexican energy system based on their GHG reduction potential.
117891	Processing of CdTe / CdS Low Power Photovoltaic Modules For Industrial Sector Technology Transfer.
117914	Development of Solar Air Conditioning Systems for Coastal Zones of Mexico.
★ 118266	Energy efficiency and use of renewable sources in SMEs in the tourism sector.
★ 118301	Life cycle assessment of electrical appliances.
118502	Building systems in the homes of Mexico, diagnosis and timing of energy saving through the use of various passive systems in different climatic regions of the country.
118665	Development and validation of a methodology for estimating the impacts on energy saving by the use of passive systems in building construction for different climates in Mexico.
★ 118702	Test Station for Hybrid Micro Systems (solar-wind-engine generator) in Juchitan, Oaxaca.
★ 119089	Increased productivity and reduced consumption of electric and thermal energy in corn mills and tortilla bakeries.
★ 119248	Photovoltaic Systems Testing Station.
119693	Assessment of renewable energy resources and efficient use of resources for sustainable development of the peninsula of Baja California and Quintana Roo.
★ 119739	Potential Application of Concentrated Solar Thermal Technologies for Heat Generation Process in the Food and Textile Industries.
119788	1.2 MW or greater Wind turbine prototype.
119798	Determination of the energy potential of waves on the coast of the Baja California Peninsula.
119821	Research, design and implementation of solid state lighting (LEDs) more energy efficient public lighting applications and wide area.
★ 119880	Analysis of the potential of generating energy from organic waste in Mexico.
★ 120018	Energy efficiency and use of renewable sources in SMEs in the tourism sector.



Proyecto 119248: "Estación de Pruebas de Sistemas Fotovoltaicos"

[Ing. Jaime Agredano](#)
Responsable Técnico

Instituto de Investigaciones
Eléctricas



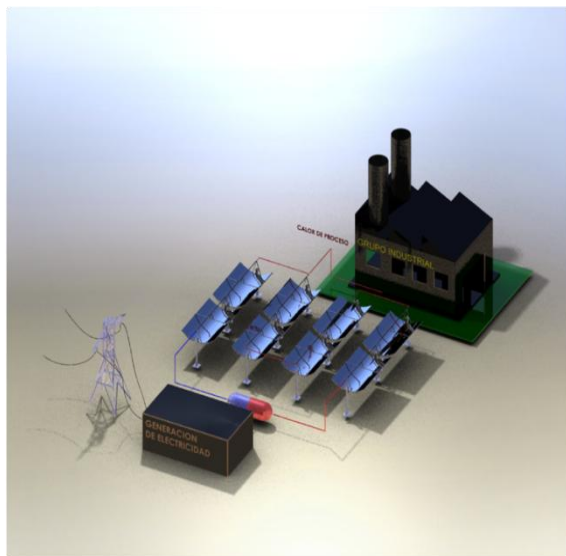
Objective: To design commission and operate a photovoltaic system testing station. The station will produce experimental data to support rural electrification programs. Given the lack of electric network infrastructure, the PV grid option can be technically and economically viable in rural scenarios.

The project includes the following stages: a reconfiguration of the original test station: Analysis of current conditions of the test station, proposed modifications and / or adjustments to the station. Reconfiguration of the graphical interface of the station, and development of proposed protocol for data acquisition. 2. Making modifications and commissioning the station. This stage includes the physical realization of the amendments raised in stage I, including calibration activities, off-season, and implementation of protocols for data acquisition and pre-processing. 3. Test Protocol Development and Work Plans

Expected Results: Support institutions that will be involved in rural electrification projects and programs using PV systems. To become the reference test station in the country aimed at development and update of national recommendations regarding the use of such systems. Acquired tests information will allow to feed valuable information for updating the current technical specifications for these facilities. Training Support to the energy sector institutions to improve knowledge of photovoltaic technology and its application in rural electrification HR Training

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Proyecto : 119739

“Potencial de Aplicación de las Tecnologías Termosolares a Concentración para la Generación de Calor de Proceso en la Industria de Alimentos y Textil ”

[Carlos Ramos Berumen](#)

Responsable Técnico

Instituto de Investigaciones
Eléctricas



Objective:

Quantify and classify the potential of concentrated solar thermal technologies for process heat generation in the food and textiles industry in order to enable increased productivity and help reduce the consumption of fossil fuels and / or electricity.

Summary:

The Electric Power Research Institute (IIE) through its Non-Conventional Energy Program conducted a study to identify the potential application that concentrated solar thermal technologies may have in food and textile industry particularly in their process heat requirements. The study will execute surveys and interviews to identify how companies consume energy and thus determine how concentrated solar thermal systems can be integrated in industrial processes. Case studies will be developed for each sector (food and textiles), with a detailed analysis of the technical and economic feasibility in order to identify those technical and nontechnical factors which may prevent the deployment and implementation of technology.

Expected Impacts

Initiate the construction of small solar plants in textile and food industries leveraging local solar resource conditions. This could allow a technical and economic maturity of the technology and the benefits could be showcased almost immediately as: Displacement of fossil fuels, contribution to energy diversification policy and energy conservation, clean energy supply with a significant reduction of air pollutants and replacement of equipment by the corresponding conventional solar and the subsequent displacement of fossil fuel.

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Proyecto 118301: "Evaluación de ciclo de vida de electrodomésticos"

[Ing. Itha Sánchez Ramos](#)

Responsable Técnico

Instituto de Investigaciones
Eléctricas



Objective:

Determine technological improvements throughout the entire life cycle of five appliances through the development of a methodology aimed to identify and quantify energy indicators (such as carbon footprint). Establish policy guidelines for efficient introduction of technology throughout the life cycle of products.

Summary:

Expected contributions will be reflected in the identification of global energy consumption reduction in Mexico in 5 appliance products: 1.- Refrigerators, 2. Washing Machines -, 3.- air conditioners, 4.- lamps and 5.-Water Pumps. Through each step of the life cycle of each product (from raw material extraction to final disposal), based on the total cost methodology, the analysis will allow us to determine the energy product inventories. Developed in parallel, is an analysis of environmentally sustainable and efficient techniques that affect each stage of the life cycle of products. The obtained scenarios may provide energy savings and emissions reductions strategies that can be translated in to policies and programs for the introduction of efficient technology applicable to national appliance through the total life cycle.

Expected Impacts:

Recursos Humanos		Productos Científicos	Productos Tecnológicos	Mas Información
Colaboration Networks	0	Publications: 5	Transferred Techonlogies: 1	
Human Resource Development	2			

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Proyecto 119089:

“Incremento de productividad y reducción del consumo de energía térmica y eléctrica en los molinos de nixtamal y tortillerías”

[Dr. Juan José Ambriz
García](#)
Responsable Técnico

Universidad Autónoma
Metropolitana-Iztapalapa



Objective:

Contribute in findings solutions that can solve process problems associated to the use of electric and thermal energy in corn and tortilla mills, aimed at improving the thermal efficiency of the process hence increasing productivity in supply chains. Develop a technology for processing corn at a lower cooking temperature aided with the use of solar panels and another technology for the management of nejayote.

Summary:

Se estudia integralmente la cadena maíz-nixtamal a partir de una muestra de regiones representativas del país. Se realizarán diagnósticos energéticos en molinos y tortillerías para identificar energéticos empleados e impacto en costos. Se evaluarán índices energéticos, acciones de ahorro de energía, su costo y rentabilidad, y la participación de tecnologías con fuentes renovables de energía. Se elaborará una metodología para la autoevaluación del consumo de energía y el potencial de ahorro. Se realizarán dos desarrollos tecnológicos en laboratorio: uno para realizar la nixtamalización a 60°C con lo que se logra ahorro e integración de equipo solar y otro disminuir la contaminación por descargas de aguas residuales, con un decantador y recirculación de sólidos y agua.

Expected Impacts

Recursos Humanos		Productos Científicos		Productos Tecnológicos		Mas Información	
Colaboration Networks:	15	Publications:	3	New Patented Products or Services	2		Contacto CONACYT
Human Resource Development	6	Materials Development	1	R&D Transferred Technologies	1		



Proyecto 120018:

“Uso eficiente de energía y aprovechamiento de fuentes renovables en las PyMEs del sector turismo”

[Dr. Sergio Romero Hernández](#)
Responsable Técnico

Instituto Tecnológico
Autónomo de México



Objective:

- 1) Conduct survey of SMEs in the tourism sector, defining its energy needs.
- 2) Develop methodologies and tools to help SMEs to make efficient use of energy.
- 3) Design and development of a tool for evaluation of investment projects in energy saving equipment.
- 4) Publication of results and making them accessible to institutions and companies involved through a Web portal.

Summary:

The overall project strategy is based on providing an expert perspective on energy and environmental engineering in order to develop the project. In the course of the mentioned proposal several scientific tools for analysis and data collection are used for development of various computational tools to help SMEs increase their energy efficiency as well as help them implement schemes for the use of renewable energy. It is very important to emphasize that all scientific and technological activities described in the proposal for its implementation have a strict focus on energy efficiency and commercial viability. .

Expected Impacts

Recursos Humanos		Productos Científicos		Productos Tecnológicos		Mas Información	
Coolaboration Networks:	1	Publications:	2	Patented New Technologies, Products or Services:	0		Contacto CONACYT
Human Resource Development:	3	Development and Improvement of Material Resources:	1	R&D Trasnfered Technologies	1		



Proyecto 117808.

“Evaluación económica y ambiental de escenarios al 2030 de la inserción de fuentes alternas de energía y medidas de eficiencia energética en el sistema energético mexicano en base a su potencial de reducción de GEI.”

[Dr. Jorge M. Islas Samperio](#)

Responsable Técnico

Centro de Investigación en Energía- UNAM (Entidad líder del proyecto)
Centro de Investigaciones en Ecosistemas – UNAM
Facultad de Química – UNAM
Instituto de Investigaciones Eléctricas
Universidad Iberoamericana Puebla

Objective:

Develop and evaluate measures, actions and technologies to reduce emissions of greenhouse gases (GHG) emissions by 2030 in Mexico, through the development of a numerical tool for economic evaluation, quantification of GHG reductions and the ranking measures and actions to implement scenarios of alternative sources and conservation and efficient use of energy.

Abstract:

The project focuses on the development of a computational tool used to simulate the actions of massive incorporation of alternative energies and measures for efficient use of energy in the Mexican energy matrix by 2030. The tool includes an assessment referred to the national scene to reduce GHG emissions in economic terms. The scope of the national energy sector and the sectors covered are: transportation, residential, commercial and public, industrial, electrical, oil and land use change.

Expected Impacts			
Recursos Humanos	Productos Científicos	Productos Tecnológicos	
Collaborative networks: formation and consolidation of a network of academics and professionals specializing in the issue of Climate Change Mitigation. Training of human resources: human resources will be formed at the graduate level on the issue of Climate Change Mitigation	Articles will be published in indexed journals in the field of knowledge issues of Climate Change Mitigation. Publish a book for specialists and general public on mitigation of climate change in Mexico.	Development of a computational tool to create and evaluate economically feasible scenarios, hierarchical Climate Change Mitigation in Mexico implementing renewable energy and energy efficiency.	<div data-bbox="1644 1172 1881 1268" data-label="Text"><p>Mas Información</p></div> <div data-bbox="1644 1286 1881 1382" data-label="Text"><p>Contacto CONACYT</p></div>



Proyecto 118702:

“Estación de Pruebas para Sistemas Micro Híbridos (solar-eólico-motogenerador) en Juchitán, Oaxaca”

[M.C. Mariano Arriaga Marín](#)
Responsable Técnico

Instituto de Investigaciones Eléctricas
Universidad del Istmo



Objective:

Size, install and operate a test station for hybrid systems with the aim of characterizing configurations of equipment and serve as national reference for rural electrification projects using related systems.

Summary:

The station will be installed on the Regional Wind Technology Center (CERT) in the region of the Isthmus of Tehuantepec. The conditions of wind and solar resources in the region make it an ideal site for the characterization of related equipment either individually or as part of a hybrid system. The facility will have an approximate photovoltaic installed capacity of 5kWp two 3kW to 5kW wind turbines, a 10kVA generator and a battery bank. In addition, the station will have interconnection to grid network for testing renewable energy equipment in these conditions. The station is intended to serve as a reference point for future rural electrification with renewable energy, validation and operation of small wind turbines as a training center in the field.

Expected Impacts

Recursos Humanos		Productos Científicos		Productos Tecnológicos		Mas Información	
Coolaboration NEeworks:	1	Publications:	2	Testing Station:	1		Contacto CONACYT
Human Resource Development:	2						



Proyecto 118266 :

“Uso Eficiente de la Energía y Aprovechamiento de Fuentes Renovables en la Pymes del Sector Turismo.”

[Ing. Augusto Sanchez Cifuentes](#)

Responsable Técnico

UNAM, Universidad Autónoma de Campeche y Universidad Veracruzana

Objective:

Systematize energy audits for hotels

Develop databases of suppliers of alternative resources

Perform technical and economic improvements

WEB Page Development

Abstract:

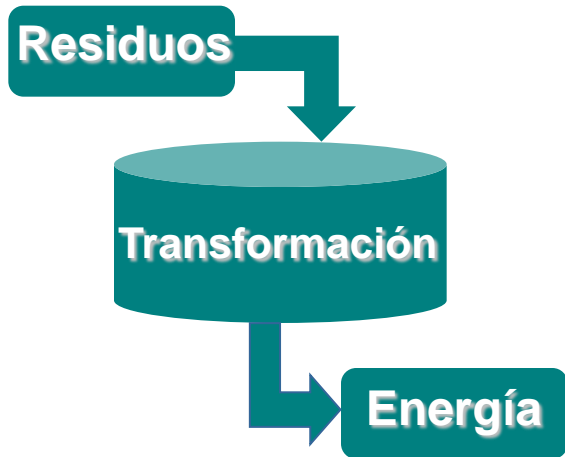
The project aims to evaluate the potential energy savings and convenience of using alternative energy sources in small and medium-sized hotels in the country. As a result of this stage, energy performance indices sorted by climatic region, and according to the category of property and services they offer. With the potential evaluated through energy audits in regional samples, determined statistically as the inventory is collected from registered hotels, determine a strategy for implementing measures in hotels, systematizing the analysis of energy efficiency and providing computer support and perform analysis to determine whether the use of alternative sources accessible to where they are located is viable. First stages will focus on the use of solar and wind power, but leaving flexibility for the analysis of other sources.

Expected Impacts:

The innovative content that is a web platform that allows interaction with SMEs in order to promote energy saving best practices and use of renewables.

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Proyecto 119880:

“Análisis del potencial de generación de energía a partir de residuos orgánicos en México.”

[Dr. Salvador Carlos Hernández](#)
Responsable Técnico

Cinvestav, Unidades Saltillo, Querétaro y Guadalajara. Instituto Tecnológico de Saltillo. ITESM Campus Saltillo.

Objective:

Assess the potential of technical integration, economic and environmental impact of bio-methane production from different organic waste.

Summary:

The project consists of a) analysis of the energy potential of organic wastes derived from various activities such as agriculture, livestock, food processing, among others, b) biogas utilization mechanisms such as electrochemical devices combined cycle or the incorporation of these mechanisms as part of more complex production systems (ie bio-refineries) may have a greater technological impact and greater economic attractiveness. The biorefinery concept is analogous to an oil refinery, but applied to raw material of biological origin and has been identified as the most promising process for the creation of a new biomass-based industry.

Expected Impacts

The analysis of the potential of Mexico for the use of biogas will identify areas of opportunity for the use of organic waste, which are often seen as a source of serious environmental problems. We seek to determine whether the technology available in the market today and under development is suitable for implementation in the use and sustainable production of biomethane, if necessary adapt them to specific needs or the relevance of developing technology and methods of its own.

Mas Información

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