2007

ITER

English

Instituto Tecnológico y de Energías Renovables S.A., ITER, was founded in 1990 by the Cabildo Insular de Tenerife, the island's administrative authority. It was aimed to cover the need of starting a new research field in the islands to reduce the exterior energy supplying dependence and allow a cleaner and sustainable development.

ITER´s creation tried to promote technological research and development related with the use of renewable energies and other aspects that contribute to the regional socio-economic development such as subterranean hydro resources, seismic-volcanic surveillance and prediction, environmental control and the development of communication and information technologies.

After several shareholder incorporations, ITER´s social capital is shared out as follows: Caja General de Ahorros de Canarias 7.74 %, ITC 6.06%, Cabildo Insular de Tenerife 80.95 % e ITER 5.25%.

At the present time, the institute has a multi-disciplinary team of more than 200 professionals, comprising of three R+D areas and a Diffusion Department.

Activities

A) Electricity generation with renewable energies

b) Renewable energy research and development projects

Investee companies

SOLTEN II Granadilla S.A.

Energía verde de la Macaronesia I

Energía verde de la Macaronesia II

Eólicas de Tenerife, AIE

Fundación ITER

Parque Eólico Punta de Teno

Agencia Insular de la Energía de Tenerife,Fundación Canaria

Parque Científico y Tecnológico de Tenerife

Constante Solar S.L.

NAP África Occidental-Islas Canarias, S.A.

Soluciones Eléctricas Insulares, S.L.U.

Aims

A) To implement and promote renewable energies applied researches

B) To develop technological systems for renewable energy uses.

C) To coordinate energy D+R projects in the Canary Islands.

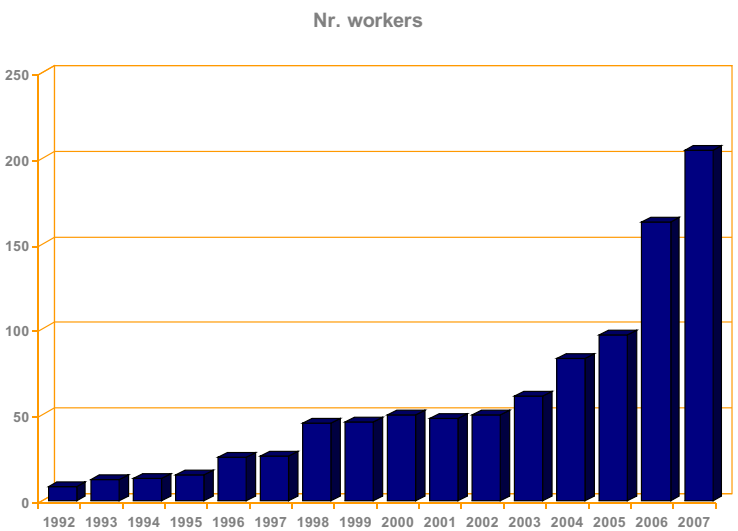
D)To create the needed infrastructure for the development of local research activities, engineering and industry.

E) To develop results for the local industry and export the know-how to other countries and archipelagos.

F) To promote the relation with the scientific community at national and international level.

G) Scientific personnel training in all renewable energy fields.

Staff



ORGANIZATION

The Institute is organized into three areas: renewable energies, engineering and the environment research Division. It counts as well with a Diffusion Department that gives support to all of these departments.

Renewable Energies Area

Wind Energy Department

The Wind Energy Department takes over the management of the three wind parks existing in ITER, as well as the proposals for the installation of future wind parks. It is in charge of all the projects related with wind energy, and takes over the design, operation and the carrying out of experiences in the wind tunnel and the prediction of the meteorological conditions of the MM5 model.

Another interesting research line is related with insular territories and 100% renewable communities.

Photovoltaics Department

Like the Wind Energy Department, this department manages and conducts the operation of the three existing photovoltaic plants in ITER: the 28 kWp photovoltaic plant and the two new photovoltaic plants installed in 2007, SOLTEN I of 13 MW and SOLTEN II of 11MW.

They carry out proposals and projects for the installation of new photovoltaic plants, it manages the installation and operation of the PV module factory of ITER and develop studies and projects in the field of solar photovoltaic, hybrid systems, and hydrogen.

Bioclimatism Department

It Investigates and develops architectural techniques that will allow the design and construction of buildings according to the climate, geomorphology of the territory, vegetation and water, so that there can be a decrease in energy use and an increase in the thermal comfort. Furthermore, the Bioclimatism department offers and supplies technical advice in other projects and activities developed by the Institute.

Engineering Area

Information Technology Departament

The Information Technology Department and New Technologies at ITER provides support to the rest of departments in the installation of Information Systems and is in charge of the design, selection, implantation and assistance.

It is also involved in investigation project elaboration, development and diffusion in the Information Technology sector, all of this partly sponsored by external financial programs of different public administrations at all levels.

These projects allow a continuous technological actualization process in the department, as well as keeping up with the new arising tendencies related to the implantation of Information Systems.

The department also participates in international projects for the design and development of telematic platforms.

Electronics Departament

The Electronics department researches and develops electronic equipments for renewable energies, mainly inverters and regulators applied in photovoltaic energy, microprocessors for the control and regulation of systems, programmable robots, thermostats and meteorological stations.

They also give support for activities of other ITER departments and projects, for example, the development of acquisition and monitoring systems in bioclimatic houses, or the help during the installation and start off and maintenance in SOLTEN plants.

Environmental Area

Reduction of Volcanic Risks

The Environmental Research Division works on the two major scientific and technical actions recommended by the international scientific community for reducing volcanic risk in active volcanic regions. One of them is to elaborate volcanic hazard maps which are useful to perform a better plan for the use of the territory. The other one is to establish a multidisciplinary approach for the volcanic monitoring program, which include geodetic, geophysical and geochemical techniques, to strength the early warning system.

Ground Water resources

Ground water resources are an important economic and natural resource for oceanic volcanic islands. The Environmental division performs research activities on how ground water systems work for a better management of this resource in oceanic volcanic islands.

Environmental Quality

The department develops measure systems to improve the estimation of atmospheric contaminants form natural and anthropogenic sources, like the ones based in remote optical sensors.

Diffusion Department

The Diffusion Department coordinates the diffusion activities like conferences, workshops, courses or publications, etc., and the training activities that take place in the institute. It is also in charge of the Institute's publications and the actualization and maintenance of its website and gives basic advice to private individuals about installation companies, courses and other information of interest related to the activities of the Institute.

The Department manages ITER Diffusion facilities, such as the Technologic Walkway, the Visitors Centre, and the 25 Bioclimatic Dwelling, coordinating visits to these and to the rest of the Institute's facilities that can be visited on an exceptional basis upon request.

INSTALLATIONS

ITER´s terrains are located in the Industrial Estate of Granadilla, in the southern coast of the island of Tenerife, covering a total of 400.000 m2. ITER was conceived as an experimental and diffusion area, where the institute has carried out several projects that will be described below.

Wind Parks

ITER counts today with three active wind parks: the Experimental Platform of 2.86 MW, the 4.8 MW Park, and the 5.5 MW one. As a whole, these three Wind Parks have an energetic production of 36.764 MWh per year. This avoids the consumption of 3.169.100 kg or 3169.1 Equivalent Tons of oil, which would needed to generate the same amount of energy by the conventional way. The atmospheric emission of 29.411 Tons of CO_2, 198.5 Tons of So_2, 73.5 Tons of NOx and 4.4 tons of CO are annually avoided.

Chemistry, Gas Isotope and Ground water Lab

The Environmental Area develops several activities in this laboratory, such as the chemical and isotopic characterization of gases and ground water and the determination of other environmental parameters.

It is provided with a wide variety of instrumentation: spectrophotometer of atomic absorption (AES), induced-coupled plasma atomic emission spectrophotometer (ICP-AES), gas chromatography (GC), gas micro-chromatography (GC), mass chromatography (GC/MS), quadruple mass spectrometry (QMS), ionic chromatography (IC), high-performance liquid chromatography (HPLC), alpha spectrometer, UVA spectrophotometer, NDIR spectrophotometer, etc.

The environmental area has also a mobile unit, the **Ecocar.** It measures environmental pollution in several points of the island periodically, such as urban and industrial areas.

It's equipped with a meteorological station, and continuous sensors of ozone (O_3), sulphur dioxide (SO_2), nitrogen oxides (NOx), carbon monoxide (CO) and carbon dioxide (CO_2).

Solar Photovoltaic Energy

In addition to the solar photovoltaic energy demonstrative installations located in the Technological Walkway and those placed in each of the Bioclimatic Houses; which even though are installed individually, will be connected to grid in order to supply the whole dwelling, the institute counts with two plants connected to grid: the 28 kWp photovoltaic plant located in the roof of ITER´s main building and the solar photovoltaic platform SOLTEN I located in the terrains of the Industrial Estate of Granadilla, made up of 130 modules of 100 kW connected individually to a low powered electric grid. Each module of 100 kW belongs to different private individuals, being ITER the executor, manager and maintainer of the installations.

Electronics Laboratory

The lab of the department is completely equipped and qualified for designing and develloping prototypes and electronic devices. It counts with: Industrial machinery for serial development of prototypes, both small and middle sized (dispenser for paste, Pick and Place, convection dryer oven), machinery for quick development of double sized and high frequency prototypes, test instrumentation for the design process, either analogical or digital (logic analyzer, oscilloscopes, wave generators, frequencymeter, power sources), etc.

Technological Walkway

It is an outdoor technological walkway, integrated into the ravine that crosses the Industrial Estate of Granadilla, next to the main building of ITER. It was inaugurated in November 1998, and since then, it has received more than 8000 visitors per year among students and general public.

The walkway exhibits application examples based in renewable energies, which help the public learn about them. Other related material about the energetic sector is explained, like energetic saving and the rational use of the resources.

Wind Tunnel

The Wind Tunnel is an installation provided with a test section in which a rectilinear uniform flow of air with a constant speed can be obtained. Inside the ITER´s Wind Tunnel's test section, real objects and scaled models are located to observe the real effect of the wind over them, so that it can be studied. The test section has been built in a modular and exchangeable manner, so that it can be perfectly adapted for the requirements of each and every test.

The innovations in its construction, power plant and control, make the tunnel extremely competitive in terms of costs and features as well as suitable for a wide range of applications, such us: Agricultural R+D, civil Engineering, architecture, renewable Energies, sports Training.

The outstanding features of the aerodynamic tunnel for Civil Tests are: closed circuit, test room with 2x2 m^2 of section and 3m long, 56 m/s maximum speed of operation, nine fans of 22 kW each one, controlled by a frequency converter.

25 Bioclimatic Houses

These houses make up a bioclimatic dwelling. Each single-family house is built following bioclimatic criteria (taking into account the climatic conditions of the place, using recycled and recyclable materials, etc) and optimizing the environmental conditions (renewable energies/and integration, water and waste processing, etc).

The main goal of the project is to find a combination of strategies that allow to achieve sustainable solutions to the energy problem in buildings. The solutions presented by each bioclimatic design open new ways to get the maximum integration of renewable energy systems in habitable structures.

Visitors Centre

The Visitors Centre is a project of the architect César Ruiz Larrea, winner of the 25 Bioclimatic Dwelling contest which is, together with the Technologic Walkway part of the Dissemination's facilities of ITER.

The architect was entrusted to design this building which should serve as a welcoming place for the visitors of the complex as well as a place to exhibit the monitored results of the dwelling, once they have been made.

With the goal of maximizing the educative efficiency of the Visitors Centre, it counts with an exhibition tour which hopes to attract the visitor's attention on energy matters, their most common sources, their impact in the environment, their limited characteristic, as well as the alternative use of the renewable energies. The centre includes different area modules, audiovisuals, computers where people can surf in the internet, etc.

The centre also counts with a conference room with capacity for approximately 100 persons and a cafeteria.

WIND ENERGY
DEPARTMENT

Management of the Wind Parks

The Department manages the three wind farms installed in the land of ITER in Granadilla. These parks are: the Experimental Platform, the 4.8 MW MADE Park and the 5.5 MW ENERCON Park.

The 2.83 MW Experimental Platform began to operate in December 1990 with five wind turbines, financed by several institutions (ITER, Cabildo de Tenerife, Canary Islands Government and the European Commission). The main aim was to study the functioning of different types of wind turbines and technologies to see which suited best to the location of Granadilla. This wind park was expanded over the next four years, reaching an output of 2.83 kWp and a total of nine different wind turbines, with powers between 150 and 500 kW. Eventually, these wind turbines joined this platform for self-consumption, mainly desalination plants.

The 4.8 MW MADE Park, in operation since 1996, is made up of eight machines Made AE-46 600 kW. This configuration was adopted in 2000 as result of a change in the technology, in which these wind turbines replaced the MADE 16 AE-30 that had half of its unit power. This change was introduced in order to reduce the acoustic impact, improving at the same time the efficiency and production of the park

The 5.5 ENERCON Park**,** installed in 1998, was self-financed by ITER. It consisted of eleven ENERCON E-40 turbines with 500 kW of nominal power and each one had its own transformation station.

The re-powering projects for these parks are submitted under the order of the Industry General-Directorate of the Government of the Canary Islands that lay down the technical-administrative conditions requiered for the re-powering of the current wind parks.

The department continues with the management, invoicing and technical-administrative support to the maintenance team of ITER Wind Parks.

New Wind Park

On May 4, 2007 a public tender was convened for the power allocation in the form of new wind park installations to inject energy into the Canary Islands electrical systems, by order of April 27 of the General-Directorate of Industry published in the BOC 89.

ITER applies to this call with three wind parks:

- 18.4 MW Wind Park of the Arico Environmental Complex. Municipality of Arico. Promoted by ITER.
- 18.4 MW Wind Park. Municipality of Granadilla. Promoted by the Economic Interest Grouping "Parques Eólicos de Granadilla", in which ITER participates.
- 18.4 MW Areté Wind Park. Municipality of Granadilla. Promoted by the Economic Interest Grouping "Parques Eólicos de Granadilla".

ITER rendered support services and writing of projects in two installations presented in a contest for the power allocation in the category of extension and installation of Wind Park with the associated consumption of the electrical Canarian systems as stated in the Order of May established by the Industry General-Directorate published in the BOC 102.

EUCLIDES weather station tuning:

During the year 2007 the operation of the weather station and its components were revised, proceeding with its tuning and relocating the station's control equipment in a control room designated exclusively for this use.

The sensor wiring was revised together with the connection between them and the data acquisition equipment (Datalogger). The thermo-hygrometer was replaced temporarily by a new one, so that relative humidity registers are obtained again. Finally, the time and accuracy of the two axed monitoring solar system have been tested and rehabilitated with a protective paint.

Weather Forecasts:

Throughout the year 2007 several changes in ITER's weather forecasting system has been made.

At the beginning, calculations were made by means of a cluster of 4 to 6 nodes and using the MM5 model, which provided a limited graphic output.

This system has been replaced by new machine, a "Quad Core," which is more powerful than the cluster. This machine will deal exclusively with the calculations, while the other one will provide the needed graphical output, thereby making the system faster and more efficient than the previous one.

On the other hand, the weather forecast calculations are now made with the WRF model ("Weather Research and Forecasting Model ") that has updated applications with more efficient tools for the selection of domains, prediction of wind, etc.

Nowadays the department is in process of programming to make local and regional predictions, as well as offering a meteorological information web service.

Control Centre

Following the Royal Decree 1454/2005, and later the Royal Decree 661/2007, the electricity producing installations in special regime must be attached to a Generation Control Centre (GCC). These centres must be provided with an adequate connection to the operator of the control and monitoring commands of the generation of these installations. The mentioned centres must as well, guarantee a safe dialogue in real-time with the Electricity Grid and its functioning, 24 hours a day, 365 days a year.

ITER´s Wind energy and Information Technologies Department started during the year 2007 the process that will allow the future establishment of an associated control centre to which the wind and photovoltaic plants will remain connected.

Execution of sports training tests in the wind tunnel

The calculation of the aerodynamic drag of a group of cyclist was another project carried out in the wind tunnel during 2007.

The tests were conducted at a constant speed of 40 km/h changing the bicycle types and the components, as well as clothing, with the aim of achieving the minimum aerodynamic drag and the maximum performance of the athletes.

Invoicing Change and Cost Deviation

The approval of the Royal Decree 661/2007 has forced a change in the invoice of the wind parks, which up to the moment invoiced making reference to the RD 436/2004. The main difference of the new Royal Decree is the obligation to invoice the diverting costs for the wind parks of more than 1 MW of installed power. The option of invoicing the energy at a fix price or at a market price is still valid.

The cost deviation should be sent, on a daily basis, to the system operator hourly forecast of the generation in the facilities. These files, daily or intradayly, should de hung in the web page (https://www.sireweb.endesa.es/), started by the operator. Once the generated energy has been invoiced by the wind park, the sent forecasts must be compared with the real generation of the wind park. If the deviation is more than 5%, either over or under the forecasted value and depending in which hourly based period this deviation took place, there is a subtraction in the total value of the bill. In addition, the calculation of the supplement per reactive power has been modified and it is now carried out hourly. The department has taken advantage of this requirement to carry out electricity production curves tailored for each of its parks, and to study the behaviour of the predictions and dynamics

Extremely Large Telescope Design Study

The ELT Design Study is a technology development program carried out by several institutions and companies from Europe, Israel and Australia and co-financed by the Sixth Framework Programme of the European Commission.

This project started in 2005, in which ITER participates in the work package on Wind Studies.
The following tasks took place during 2007:
- Construction of a 20% porosity wind screen for the first model
- A 20% variable porosity wind screens for the construction of the second scaled model
- Implementation of the second scaled model.
- Testing of the two models in the wind tunnel.
- Shipment of these two models to the boundary-layer wind tunnel for their corresponding tests.

Project elaboration of the infrastructure execution of big renewable energy installations

During the year 2007, ITER has bet for the photovoltaic installations. Because of this, the activities of the photovoltaic department have needed the participation of other departments in the renewable areas.

The wind department has written several projects of private initiative in the municipality of Arico, with a total power of 35MW. The projects of two photovoltaic plants in the Insular Solid Waste Plant have been written as well, giving answers to all the requirements made by the administration in order to obtain the corresponding licences.

PHOTOVOLTAICS DEPARTMENT

Technical assistance to the Euro-Solar Programme, Energy and Communication for Remote Areas in Latin America

The Euro-Solar is a regional programme for Development Aid of the European Union focused in the most disadvantaged regions of South America, coordinated by EuropeAid of the European Commission. The main goal is the deployment of 600 hybrid systems (with photovoltaic and wind energy) for the energy supply in rural isolated areas of eight countries of Central and South America: Honduras, Guatemala, Nicaragua, Bolivia, Peru, Salvador, Paraguay and Ecuador.

The system consisted of wind turbines, photovoltaic panels and satellite dish, which would be connected to an educational area and a health area, providing them with electricity supply and Internet connection.

The energy generated by these systems will be used partly to facilitate the access to the new technologies: Internet and computing that are a basic part of this programme. Due to the conditions of the surroundings where these systems are to be installed, the access for the internet connection must be done via satellite. The connection aerials needed, will have to be integrated with the system of energy generation, so that a standard system is obtained.

One of the main priorities of the system is to sensibly improve, at least at local range, the education. It is one of the basic needs that have to be solved with this program; therefore, the systems must be installed, whenever possible, next to schools. Nevertheless, we can not miss that the benefit is planned for the entire community, so the system must be shared by all.

During the previous actions to the presentation of Euro-Solar programme simulations of meteorological conditions in the target regions have been done. The obtained results ensured that, despite low conditions of annual averages for the obtaining of wind energy, the availability of it, is enough to make up for moments in which the solar radiation is deficient.

Within the frame of the programme, ITER´s objectives are to guarantee enough technical tools and evaluation criteria of the equipment so that the programme takes place efficiently, and to ensure that the target groups have an effective access to the benefits of the programme.

During 2007, the minimum technical specifications of the entire equipment bade within the frame of the program have been written attending to: the standard system definition, all of its components, as well as the elaboration of a reference document that covers the requirements and restrictions of the components. Furthermore, the elaboration of cost estimations for the equipment, the documents that define the selection criteria and award and a control list of the supplied material.

Ofra-Ingenieros Public Park

The new Ofra-Ingenieros Park is the first public park that is dedicated to renewable energies in Tenerife.

ITER, through an agreement with the City Council of La Laguna, has participated during 2007 in the design and implementation of the wind and photovoltaic installations. These installations are aimed to achieve the energy self-supply of the park and to the demonstrative installation of renewable energies that compound the didactic itinerary of the park.

The installed renewable energy systems are 2 low power wind turbines, which supply the classroom, and Photovoltaic panel on the roof of the classroom and the snack bar, which´s energy production is injected into the general grid of UNELCO and is equivalent to the electric consumption of the whole park lighting.

The didactic itinerary is formed by a number of facilities spread over the park, complemented by its explanatory panels, which makes it easier to track it without a guide.

The applications that make up the itinerary are:

Thermo-siphon equipment, solar oven, solar clock, Source powered by photovoltaic energy, Wind turbine (nacelle and 2 of its 3 blades (each 15 metres long)).

This itinerary is complemented by one didactic classroom-workshop that is equipped with audiovisual and educational material, in which toys like an helicopter and a biplane with solar panels, a fan and a car that work with hydrogen, a hydrogen and solar experimentation system and other experimental toys based in diverse renewable energies are shown.

PV Module Factory

The creation project of a PV module factory in ITER's installations was originated by the need to continue and extend the investigations in this work area that have been carried out in the Institute through the past years. The plant's main goal is the fabrication and characterization of PV modules that can be installed in projects in which the Institute is involved in. This factory will be the first to work in the archipelago and will contribute to face the increasing demand of the PV market in Spain and particularly in the Canary Islands. The factory will be installed in a warehouse of approximately 1000 m^2, and the storage area occupies 1500m^2.

During this year the department has carried out the development of the project, the purchase of machinery and raw materials needed for the operation of the factory and has started with it´s construction, which is scheduled for the first half of the year 2008.

The factory will include the production lines with a maximum capacity of about 80 MW at full time. Nonetheless, due to the main goal of the factory, the estimated production for the year 2008 is of 10 MW, which will start in April after training the staff that will be hired. The second production line will be ready in mid-ends of May, which will allow a production of 20 modules per hour.

HYRESS, Hybrid Renewable Energy systems for the supply of services in rural settlements of Mediterranean Partner Countries.

The strategic aim of the proposed Project is to remove the knowledge barriers by installing renewable energy hybrid systems and the creation of electric mini-grids.

An efficient tool to apply and fulfil the strategic aim is the development, installation, testing and evaluation (technically and socially) of the performance of low-cost pilot hybrid renewable energy systems and mini-grids in selected remote sites far away from the grid, in the Mediterranean Partner Countries.

The hybrid system will consist of photovoltaic plants, small wind generators, hydrogen subsystems and biomass combustion and/or solar heaters that will be installed in selected areas of the Mediterranean Partner Countries to provide energy and thus to aid the increase of the standard of living of these rural communities.

The systems will be configured and sized after taking into account the local conditions. Three of such systems will be installed in remote rural areas of Egypt, Morocco and Tunisia. The hybrid systems should fulfil criteria such as modularity, robustness, use simplicity and will also require very low maintenance.

ITER, together with the collaboration of the National Agency for Energy Conservation from Tunisia (ANME), is working in the design of the system. The village of Ksar Ghilene, which is located near an oasis in the desert region of Tunisia has been pre-selected.

In this village there are already PV systems supplying with electricity about fifty houses, a school and a community clinic. It has also a PV pumping system as well as public showers equipped with solar-heaters, nonetheless, the village still remains far away from the national grid.

During 2007 ITER continued with the development of this cooperation project and after several meetings the definition of the complementary system has been completed. This system will enrich the already existing renewable energy installations with an alternating hybrid wind-photovoltaic mini-grid.

This way, during 2008, the installation of the system in the target area of operation, following the specifications defined in the defined project will be possible.

SOLTEN I

At the beginning of the year 2007 the construction and total connection to the electricity grid distribution of the first phase project of the Solar Platform of Granadilla in Tenerife was completed, consisting of a photovoltaic installation of 130 plants of 100kW power each, all connected to the electricity grid distribution on the island.

Likewise, after the submission of the application in late 2006 at the Industry Ministry and the company UNELCO for extending the project to 20MW, this year such an extension has been carried out after receiving all required permits.

ITER promoted the creation of a new company named SOLTEN II Granadilla, S.A. to carry out this enlargement.

SOLTEN II Granadilla, S.A.

This company is created with the goal of managing, promoting and exploiting the photovoltaic plants that are meant to be installed in the terrains ITER owns, along with the terrains belonging to the Industrial Estate of Granadilla where today lies SOLTEN I.

A capital expansion has been done to carry out these new installations, offering the participation as shareholders of this new Society to private investors. The proposed enlargement is of 11MW consists of three photovoltaic installations, one of 7MW and another two of 2MW.

The characteristics of this enlargement are detailed next.

7MW in SOLTEN

This installation consists of 7 MW, organized in units of 100kW each, connected to the electric grid in mid tension and located in the same plot of SOLTEN I in Granadilla Industrial Estate (at 1.5 kilometres away from ITER).

It consists of 70 PV units of 100kW each one, destined to electricity generation. Each unit occupies 800 m^2 and is composed of PV panels assembled on a light aluminium modular structure.

The 70 units are connected to the mid tension connection point of the electricity distribution company, UNELCO-Endesa, being the plant only connected to one mid tension meter.

4MW in ITER´s Terrain

During 2007 started the construction of this project which consists of the installation of 4MW divided in two areas: 20 units of 100kW in the former Euclides area (Zone 1) and 20 units on structures like the ones used in SOLTEN (Zone 2).

Zone 1

The 2MW PV project is located in ITER´s terrains, in the plot that was previously occupied by the EUCLIDES concentrating plant. It consist of 20 units, each one of 100 kW, connected to the mid tension electric grid.

The PV plants will be located in the roof of ITER new buildings: One installation of 1MW power (10 units of 100kW) will be located on the biggest warehouse and 900kW more, will be distributed on the roofs of other 7 warehouses. The remaining 100kW will be installed on a pergola that will cover the car park located in front of ITER´s main building. Each unit occupies an area of 800 m2 and will be compound of PV panels assembled on a light aluminium modular structure.

The 20 PV plants will be connected in mid tension to a Connection Point given by the electricity distribution company Unelco- Endesa.

Zone 2

This installation consists of 20 units of 100kW each, which are appointed for electric energy generation, by means of a mid tension grid connection, and will be located south of the maintenance building.

These panels will be assembled on aluminium and modular light structure, like the one used in SOLTEN I, with 10º slope and oriented towards the south.

Further on, these plants will be moved to the roofs of the new ITER buildings, which will be used as laboratories, warehouses and other services.

DEPARTMENT

9MW Finca Verde

The Finca Verde Project consists in the installation of a 9 MW photovoltaic plant with mid tension grid electric connection in a known place as "Las Esquinas-Arico" in the municipal term of Arico.

This installation is property of a sole owner, EVM 2 Energías Renovables, S.L., and is made up by 90 solar photovoltaic plants of 100kW each.

During the year 2007 took place the preparation of the terrains, so that they were ready in the year 2008 for the construction of the installation.

Electric Substation 66/20kV of 50MVA and general infrastructures for the evacuation of the energy generated in the photovoltaic plants of 7 MW and 4 MW at ITER.

The construction of the solar photovoltaic plants of 7MW y 4MW in ITER´s terrain demand the evacuation of the generated energy to the grid.

During this year, ITER has elaborated a project that defines the necessary infrastructure involved in the execution of a transformer substation 66/20 kV of 50 MVA. In order to allow the evacuation of the generated energy in both 7 MW and 4MW, as well as the power corresponding to the rest of the projects developed in the area, even those made before, the high voltage will be connected with the existing substation of the Industrial Estate of Granadilla and the mid voltage lines will connect with the existing transformation centres.

Underground Mid Voltage line to connect photovoltaic installations in the Municipal Term of Arico.

This project consists in the elaboration of an underground mid voltage line for the connection

This project grew from the need of connecting several photovoltaic installations of different promoters (including Finca VERDE 9MW) in the municipal term of Arico in the distribution grid, in the future UNELCO´s substation "Arico II", in the area known as Finca Mogán, with the aim of evacuating the energy generated in the mentioned plants.

ITER has elaborated this project during the year 2007.

"Casa del Ganadero" Project

This project consists in a photovoltaic plant with a total power of 17.670 kW installed in the roof of the "Casa del Ganadero" which belongs to the Cabildo Insular of Tenerife, in the Municipal Term of San Cristobal de La Laguna. The Cabildo subscribed an agreement with ITER for the construction and exploitation of the photovoltaic installation.

The installation, which ended in May 2007, is located in the roof of four pergolas that cover the area of the stands and are connected to a low power electric grid. The photovoltaic platform consists of 114 PV modules of crystalline silicon, appointed in the electric energy generation. This installation covers a surface of approximately 148 m^2, mounted in a light aluminium structure, wholly modular, designed by ITER.

BIOCLIMATISM DEPARTMENT

25 Bioclimatic Dwellings

Nowadays the buildings based in energy saving criteria seem to be the natural path to follow, nonetheless, when the "25 Bioclimatic Dwellings for Tenerife" project started, these type of buildings were totally new, experimental and the first ones to be built in the archipelago. The project started with the goal of contributing the non stop energetic demand that was taking place in the island. This increase is due, partially, to the installation of thermal conditioning systems in buildings which don't take into account the climatic conditions, therefore, the need of introducing new architectonic models where energy saving prevailed, without scarifying esthetical or functional criteria. The International Contest of 25 Bioclimatic Dwellings for the island of Tenerife comes up as a channel to achieve this.

More than 400 projects of architects of 38 different countries were presented with a sole aim; present a house applying bioclimatic criteria to optimize thermal comfort throughout the year.

25 projects were selected, which as a whole make up a development with a no contaminant emission, adequate waste treatment and maximum respect towards the environment slogan.

Once the contest ended, work started in the different fields that involved the execution and materialization phase of the project. Its ending has been prolonged in time because of the many difficulties found.

Among these adversities we can point out:

The participation of 25 different architect groups, of 11 different nationalities who had to write an execution plan faithful to the project presented in the contest and that had to fulfil the Spanish legislation valid at the moment, very different to those existing in the countries of origin. All of this caused a delay in the established deadlines for the project drafting, translation and endorsement. This made the forecasted terms established for the project's writing, translation and visa turned out longer than expected.

The concurrence of the starting point of the project with a strong period in the construction term challenged the buildings site contest, which couldn't be undertaken entirely, but ordered in groups of five houses.

The use of unusual materials and building techniques in the island also influenced negatively at the time of hiring workers and fulfilling the deadline.

All these difficulties have made of each house a challenge for the professionals involved, nevertheless, to have these types of dwellings in the island of Tenerife, with ease to create social conciseness about the importance of taking part in environmental problems.

In December of 2007, most of the projects were materialized, although work is still being done to end the integration of the renewable energies. Each house is equipped with solar collector systems to obtain warm water and a photovoltaic installation to generate electricity. Work is also still being made to improve the houses and the development as a whole.

The definitive project for the monitoring and data take-up is being developed according to the changes that have been done in the houses and the intention to generate a system adapted to each of them, but that can return uniform and comparable data that can be used for a coherent investigation.

Monitoring the houses will give data to compare the good operation of the materials and bioclimatic criteria used in order to correct those solutions that don't give optimum results so that they can be used as a reference for future constructions.

Having 25 different models favours the establishment of comparisons between them and that they can be used to choose which constructive solutions are better than others, at the time that are an exhibition of different architectonic styles.

Technical Advice

The department covers the needs of technical advice for other projects and activities developed by the institute. Mainly, the activities are divided into two fields: the energetic evaluation of buildings and the design of renewable energy installations.

The energetic evaluations are made by simulations or real working conditions throughout the implementation of inside and outside sensors for its later monitoring and interpretation. Once the evaluation has been made, we will proceed to disclose the energetic functioning of the different buildings to contribute in the users and group consciousness.

The design of renewable energies includes both their integration in buildings and in big installations: optimizing designs, energy models and elements used in buildings, defining models to integrate passive and active solar energy strategies in small and big scale and optimizing the integration techniques, planning and building big renewable energy installations.


AHORRAR
ENERGÍA...

INFORMATION AND COMMUNICATIONS TECHNOLOGIES

ITER and the Cabildo of Tenerife have reached an agreement to develop internet portals and web sites for each municipality

ITER has reached an agreement with the Cabildo of Tenerife to coordinate and develop the internet portal Tenerife Local, oriented to provide a wider presence in the internet, gathering all in the internet portal called www.tenerifelocal.es , as well as raising the e-administration abilities. This project is found under the PMC (Continuous Island municipality Modernization Plan) frame. During the year 2007 work has been done to developed this portal, as well as in the city council portals selected as pilot experiences: Buenavista del Norte and Santiago del Teide. A free software tool, PISTA Local +, has been used to achieve this. It was developed to be used with the PISTA MAP program, and was made freely available for local administrations across Spain.

In the particular case of Tenerife, extensive adaptations were made in order to adjust the application so that it suited the requirements identified both in the Cabildo de Tenerife as well as in pilot town councils.

ITER and the Cabildo of Tenerife have reached an agreement to develop R&D in information and communication technologies and to develop the electronic applications of the e-administration

During the established collaboration between ITER and the Cabildo Insular de Tenerife different aspects of the development, installation and exploitation of the communication and informatics services have been explored, as well certain support activities in the field of improving management of resources and quality of service: during 2007, a survey program was initiated for CAU users (Users Attention Centre) of the Insular Institute of Informatics and Communication (I3C). With these surveys, the I3C wants to know the satisfaction grade of the users

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SOLTEN monitoring System

During the year 2007, the different photovoltaic plants have been connected within the SOLTEN project. This connection process to the electric grid is followed by the establishment of a communication system that allows a remote data gathering from the TEIDE 1000 inverters and the energy counters found in each plant. This monitoring system, in the current version allows maintaining a register of all the functioning variables of the inverters. During the year 2007 the plant is starting to have optical fibre for the communication improvement.

Connectivity Project for PTA (Parent-Teacher associations), youth associations and women associations in Tenerife.

After the works of identifying the locations and studying the connection possibilities during the year 2006, in the year 2007 the connectivity model for these associations was finally defined, not depending in their physical location. To achieve this, each association was given a mobile phone technology 3G HSDPA.

Development of applications and websites

During 2007, aside from the development efforts of web pages and software applications above mentioned various activities of application development and web pages have been carried out as general support to ITER and other projects:

- ITER website. During 2007 a new ITER website has been designed to replace the currently existing www.iter.es

- DINATIC project. As support to the activities developed in this project.

- EQUAL Semilla project. Within this project the web sites www.equal-semilla.org and http://observatorio.equal-semilla.org were developed containing general information about the project.

- Subscription of shares of SOLTEN II Granadilla management application

Collaboration with the La Laguna University (ULL)

During 2007, the collaboration with the ULL has continued in different application fields:

- Development of a self-guided vehicle. This project aims to achieve a self-guided vehicle that can make independent routes throughout the campus of the 25 bioclimatic dwellings. The integration of different systems and guided sensors have been carried out, and several funding programmes have been applied to gain subventions. ITER has been a subsidy for hiring an investigator within the program Incorporating PhD People and technology-applied to businesses.
- Participation in the training program of "Dinamizadores de la Innovación". ITER has incorporated, during its training period one of these persons to carry out the practical work of diagnoses of the R&D in the organization.
- Presentation of a set of proposals. During the year 2007 three project proposal with collaborations between the ULL ITER were presented in the field of Innovation and Development of the Information Society.

DINATIC Project

ITER collaborates with the Canarian Foundation ITER in the development of the DINATIC project, which seeks the effort to unify the Internet Rural and Tenerife local programs, with the aim of promoting the use of the ICT in the rural areas, and lessen the digital barriers between the urban and the rural areas. During the year 2007, this project has carried out the campaign within the World's Internet Day 2007, in collaboration with the Insular Net of Telecentres of Tenerife. Also, it has carried out diffusion activities for the Information Society in the frame of the Espacio Avanza. The Tenerife Energy Agency collaborated with these activities.

WAVENERGY Project

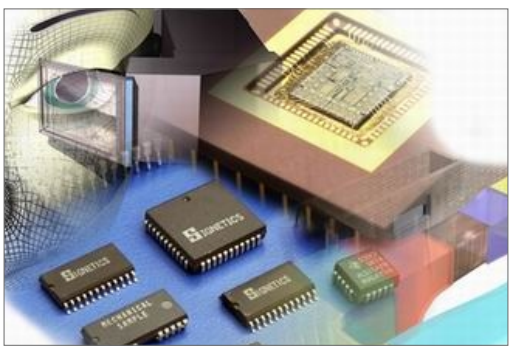
During the year 2007 the activities of the project have continue, carrying out a comparative study of the different marine energy sources that can be used and take advantage of in the Canary Islands. ITER has been the site of a transnational seminar where experts of well known international prestige in the field of the renewable energies in general and particularly in marine energy participated.

Euro-Solar Project

European Program of external assistance led by the Office of Cooperation EuropeAid of the European Commission. It is a community initiative aimed towards the reduction of poverty, allowing remote rural communities hitherto without access to electricity, to benefit from renewable electric energy.

ITER has signed a subsidy contract for the execution of the "Actions for the development of the Euro-Solar Program, definition of the technical specifications, the quality control of the supplies and the continuous evaluation of the program".

During the year 2007 the technical specification, that the installations offered in the frame of the program, must fulfil were written. Along with the preparation of the detailed specifications that have been described in the selection and award, as well as the control list of the material supplied.



Information Centre Management at ITER

The supporting infrastructures of the information systems have been reinforced by the improvement of the outside communications through the MetroLAN of the Cabildo Insular of Tenerife. This has allowed a better offer of internet services with the minimum communication retards. The server park and storage systems have been renewed, process that will continue during the year 2008, until the equipment of the new Data Processing Centre is complete (CPD), which will centralize all ITER´s information systems. Within this implantation strategy of the new services, a new documental management tool is in configuration process, following the path towards achieving a drop of the printed documents flow of the organization. Succeeding this, the Administration department has received support for the implantation and selection of an integral management tool (ERP), which integrates the different financial and management areas of ITER´s resources. Finally, the meteorological broadcast system, based in the MM5 model, has been replaced by a WRF. The change in the software has been used to proceed to the substitution of the hardware systems used to execute the application and obtain a better yield. This task has been carried out under the supervision of the Wind Energy Department.

PEBACAN Project

This project is also carried out in collaboration with the Canarian Foundation ITER. It has been done during the year 2007 and was granted within the initiative of "Dinamización" of the "Plan Avanza". Its main goal to achieve is its diffusion at a regional level of the achievements obtained with the introduction of the PEBA (High Speed Connection Extension Plan) infrastructure in the region.

EQUAL- Semilla Project

The activities of this project have ended during this year. ITER has participated, among other activities, in the development of an e-training platform adapted to the special characteristics of disabled people.

ELECTRONICS DEPARTMENTS

Triphasic Inverters Production for SOLTEN and SOLTENII projects.

This project is about an initial production of a series of 130 power inverters for SOLTEN and another one of 110 power inverters for SOLTEN II. There is yet to determined the additional quantity of inverters for other projects.

The inverter was designed for the photovoltaic plants of the SOLTEN project, which is a modification of the TEIDE inverter that was previously designed and manufactured by ITER. Fundamentally, the control pad is redesigned changing it from analogue to digital which makes it easier to operate. The power phase and the filters are adjusted for their adaptation to 100kW. It is an energetically efficient device that consumes the minimum energy possible and requires an electronic design with small losses.

Monitoring of the 25 bioclimatic dwellings

Environmental parameters register in the Bioclimatic dwellings. Temperature, humidity and energy consumption data will allow evaluating the bioclimatic behaviour of the houses. An electronic system of measurement and register with grid connection is being developed for this purpose.

It is necessary to adapt the design to each case because of the special features of each house. The systems will be installed progressively till the complex is complete.

The customized electronic is fully developed and assembled in the department. It includes graphics, tactile terminals and remote intelligent sensors connected via radio.

Development of a 100kW inverter for a photovoltaic plant

Co-financed project between ITER, Government of the Canary Islands and the European Social Fund (ESF) within the framework of the Operative program of the Canary Islands 2000-2006. The Department of Electronics collaborates with the "Fundación Canaria ITER" in this project.

The aim of the project is to develop an inverter that will be dedicated to the mass-production at ITER and used in photovoltaic generation plants up 100 kW.

During 2005 and 2006 several prototypes were done so that the initial design has been improved progressively. The first phase of this project concluded in 2006 and ended with the production of a series of 60 units of the TEIDE 100 inverter that are now working in SOLTEN plants.

The production of inverters continued during 2007, producing 140 more units. At the same time the inverters were manufactured several aspects were improved like communications and self-diagnoses as well as some adjusts in the power filters (condensers and inductance bank).

Monitoring and display for the Ofra-Ingenieros Park

Customized electronic has been done for several informative posters.

Measures and displays of several physical parameters were needed. Big LCD numerical displays have been designed and manufactured as well.

ENVIRONMENTAL AREA

VOLCANIC SURVEILLANCE OF THE CANARY ISLANDS

The goal of this project is to materialize work related with the geochemical program (discreetly) for the volcanic surveillance of the Canary Islands. During the year 2007 geochemical surveillance tasks have taken place in the volcanic systems of El Hierro, Cumbre Vieja (La Palma), Timanfaya (Lanzarote), NW Dorsal Tenerife, NE Dorsal Tenerife, y Teide (Tenerife). A monthly gas recollection has also taken place in the Teide´s crater. To carry out these tasks they have counted with the scientific collaboration of the University of Tokyo (Japan), The University of Florence (Italy) and the INGV-Palermo (Italy). The hydro-geochemistry is also a very important part of this program; therefore a net of 19 observation points have been used to examine the ground water system of the island of Tenerife to determine the chemical-physical parameters needed for the volcanic surveillance. (DGSE-GOBCAN; 100.000€; 2007).

TENAIR 2007

The environmental quality and the improvement of our knowledge about the atmospheric pollution emission sources in Tenerife, as well as their inmission levels is the goal of this project. To materialize this goal, there is a mobile unit with sensors that continuously measure atmospheric pollutants (particles, SO_2, NOx, O_3, CO and Co_2), as well as a canister and electrovalve system to take air samples and periodic analysis of volatile organic compounds (VOCs) in the environment air of Tenerife. They also count with remote optic sensors (COSPEC y OPFTIR) that allows the pollutant evaluation.

MALPASO 2007

With the aim of improving the geochemical program for the volcanic surveillance of the volcanic complex of the island of El Hierro, this project has added three geochemical permanent stations. One of these stations does, since the year 2003 a continuous mode monitoring of the diffuse flow of CO_2 and H_2S in the intersection of three structural axes of the island. The rest of the geochemical stations make a continuous register of the Radon gas emission to the atmosphere from the ground and are located in the Restinga and Sabinosa. The GPS continuous monitoring is done with the collaboration with the Nagoya University. (Cabildo Insular de El Hierro; 18.000 €; 2007)

GLOBAL CO2 VOLCANOES

The goal of this project is to re-evaluate the global CO_2 emission to the atmosphere coming from underground volcanism. The estimated value is of 100 million tons per year, nonetheless, this value is underestimated now that is does not take into consideration the diffuse emission of CO_2 to the atmosphere due to the volcanic activity. In consequence ITER is carrying out diffuse emission studies of CO_2 in 25 active volcanoes in Papúa Nueva Guinea Indonesia, Filipinas, Japan, Ecuador, Galápagos, Iceland, Nicaragua and Chile. During the year 2007 scientific campaigns have been going on in the volcanic systems in West Eifel and Laacher See (Germany), Lac Pavin and Puys Chain (France), Olot and Calatrava (Spain mainland), Nasu-Chasudake (Japan), Solforata and Calva di Selci (Italy) MEC; 119.000€; 2006-2008).

SPANISH VOLCANOLOGY NETWORK

The main object of this project is to call the third meeting of the technical-scientific national community related with volcanology with the aim of materializing a DAFO analysis about several aspects concerning the volcanology in Spain. Likely, this project pretends to achieve the motivation to create the Spanish Volcanology Society. (Presidencia, Gobierno de Canarias; 18.000 €; 2007)

TEIDE 2007

Since 1997, ITER has carried out work to optimize and improve the volcanic surveillance in the island of Tenerife. Nine geochemical stations and nine more geodetic ones are operated and maintained within the frame of this project for the volcanic surveillance of Tenerife. Three of the nine GPS antennas have been handed by the Nagoya University which collaborates actively with the surveillance task. Beside these geochemical and geodetic surveillance tasks in continuous mode, other geodetic surveillance work is done in discreet mode with the goal of optimizing the volcanic surveillance in the island of Tenerife. (Cabildo Insular de Tenerife; 240.000€; 2007)

FOGO 2007

This project's goal is to evaluate the emission rate of gasses from the volcano Fogo to the atmosphere, as well as evaluating the volcano surveillance program that exists nowadays. (D. G. Relaciones con Africa, Gobierno de Canarias, 9.000 €; 2007).

GEOTERCAN 2007

With the aim of evaluating the geothermal potential in Tenerife, ITER signed an agreement with the PETRATHERM España S.L Company in the month of October. Within the frame of this agreement, ITER has elaborated a useful data base to materialize the first evaluation and analysis of the future works to make the geothermal exploration in the island of Tenerife.(PETRATHERM Spain; 30.000 €; 2007).

Scientific International Assistance in the year 2007

The volcanological investigation group at ITER travelled to Cape Verde and Nicaragua to give technical and scientific assistance. This assistance was required by several institutions form Cape Verde and by the INETER (Nicaragua). In addition to these assistances of the ITER group in developing countries, ITER was required by the National Geophysics and Volcanology Institute of Italy and the University of Rome to evaluate the H_2S emission rate located next to Rome.

Conferences and Publications

Six scientific publications in scientific magazines of the SCI and about thirty abstracts were presented in international scientific meetings.

Other merits related with the investigation task in the year 2007

- The Director of ITER´s Environmental Area was invited by the National University of Taiwan to give a conference about "Diffuse CO_2 emission and volcanic activity" in the 9th International Congress if Gas Geohemistry celebrated in Taipei during the past September 2007.
- A special volume was published in the scientific magazine PURE AND APPLIED GEOPHYSICS "Terrestrial Fluids, Earthquakes and Volcanoes" Vol. II, where the Director of ITER´s Environmental Area was invited as chief editor of the mentioned volume.
- The Tenerife 2009 proposal was remitted with the aim of achieving the venue of the most important International Congress about Volcanic Risk in the island of Tenerife. The proposal of Tenerife 2009 was approved unanimously.

DIFFUSION DEPARTMENT

Visitors Centre

This building belongs to the Diffusion Department facilities, and is the starting point of the visit to the Technological Walkway complex and the 25 Bioclimatic Dwellings. Moreover the building itself is part of the visit, where concepts related with energy, like for example, sources, transformation processes, consumption and environmental impacts can be viewed in its exhibition ramps.

A selection of posters submitted to the international competition "25 Bioclimatic Dwellings for the island of Tenerife" can be seen as well as the CLARITY exposure about Climate Change, Impacts, Causes and Solutions.

In the conference room of the Visitors Centre various events are organized and hosted, the ones carried out during the year 2007 are:

ITER Scientific Committee Meeting, SOLTEN photovoltaic plants presentation, Technical spreading conferences about the first phase conclusions of the Wavenergy project.

Other interesting ceremonies that have taken place in the Visitors Centre, and had as main goal to raise awareness of the installations and activities in which ITER is working, were the visit of a Senegal Government delegation and the visit of several Spanish senators.

Technological Walkway

This installation, dedicated to the diffusion of different kinds of renewable energies and environmental related topics, is visited mainly by the educational community, that take this walkway as an opportunity to complete practically the contents on renewable energy given at school. About 8000 persons passed through the Walkway during the year 2007.

In order to extend and complement this route in 2008, the Area of Sustainability, Territory and Environment of the Cabildo Insular de Tenerife agreed an educational visit to the Environmental Complex of Arico along with the visits to the Visitors Centre. This agreement between different organizations tries to join forces to achieve a common aim, to develop responsible and respectful social conscience with the Environment.

"25 Bioclimatic Dwellings"

One of the main goals of this project is the diffusion of the term bioclimatism, to closen up this type of construction to society and above all to the sector directly related with building activities and urban planning.

To achieve this, the department coordinated technical visits to the dwellings which are arranged with a previous appointment and depend on the availability of the Bioclimatism Department´s technicians. They can also be visited during the open door day celebrated within the frame of Eolica´s Festival that during the year 2007 received 2200 people.

Bioclimatism related publications: A book was published as a result of the contest "25 Bioclimatic Dwellings in the island of Tenerife" which included the 25 winning projects and other 20 that were pre-selected. This book can be found in the Visitors Centre shop. To ease the bioclimatic techniques application within the frame of the project ERAMAC, two other publications were also made. A "Practical Guide of Bioclimatic Techniques" and " The Action Guide for Buildings and of the good use of Thermal Insulation", that can be downloaded in the website www.iter.es.

Eolica Festival

Coinciding with the celebration of this Festival in ITER´s installations, an open door day takes place in which visitors can go to the different installations of the Institute, which normally remain closed to the public.

During this day people can participate in different activities and projects that are being carried out, as well as getting involved in activities which, coordinated by the department of Diffusion, are being developed. These activities are useful to get to know better the Institute, as well as to closen up such important concepts to visitors as energetic saving or the different use of renewable energies systems.

To achieve these goals, during the festival in the year 2007, the following activities were carried out: "Solar flower pots" workshop, Wind energy workshop, Solar Scalextric, Solar boats workshop, Practical workshop about Hydrogen technology, solar kitchen exhibition, Guided visits around the solar platform SOLTEN and the wind tunnel, Solar Kitchen assembly, guided visits to the bioclimatic dwellings, which contained performances about bioclimatism and energy saving.

Master Program in renewable energies

The aim of the Master in Renewable Energy is to provide post-graduate students the opportinity to fill the gap between the growing industry demand for specialised renewable energy expertise and the skills available in the job market.

The degree consists of three different university expertises, allowing students to specialize in one or more of these three areas: solar energy, wind energy and enterprises and economy of energy.

ITER collaborates in the carrying out of this Masters, assuming part of the teaching load given by researchers and technicians from the departments of Wind Energy, Photovoltaic, Electronics and the Environmental Area.

The Tenerife Energy Agency also participated in the teaching, collaborating with ITER, which is one of its foundational partners. The solar energy branch was taught in the installations of the Institute.

All work done related with the master, both those related with the teaching and with the students accommodation, the branch of solar energy and the practices have been coordinated by the diffusion department.

Publications and activities of the Diffusion Department

The diffusion department gives support to the rest of ITER´s departments in the activities of information spreading, and publications, looking for the most appropriate way to do so. It is in charge of the management necessary for the outside publications such as posters, brochures, information guides about renewable energies, etc. It administers the web page of the institute as well as the publication of the trimester bulletin called LessCO_2, distributed within centres, Organisms, Collectives and businesses related with the energy sector at a national scale, as well as to European Institutions.

The department is also in charge of the organization of campaigns, seminars, courses, etc. focused in the diffusion of renewable energies and the activities developed at ITER. In 2007, as part of these activities, its worth mentioning:

The participation in the celebration in the Helio-physics year, an act organized by the Science and the Cosmos Museum, which offered the visitors different applications that use the Sun as their energy source.

The participation in the "Sociedad del Conocimiento y del Cambio Climático" day, which explained the benefits of using renewable energy sources versus the conventional ones throughout projects such as the Photovoltaic Platform SOLTEN that can bind society in the implantation of this type of installations.

The celebration of the European Wind Day, with an open door day of the three wind parks at ITER.

The participation in the Science Fair of La Orotava in which ITER has participated since the first edition and this year counted with 8000 visitors according to official sources.

The collaboration with the town hall of Santa Ursula for the development of the Mobility Week and contribute with different material.

Another activity in which the department participated for the second consecutive year was the Seminar about Communication, Education and Participation against Climate Change, that was celebrated in Cordoba the 24 -25 of May of the year 2007, organized by the Climate Change Spanish office and the General Secretary's office of Sustainability of the Environment regional ministry of Andalucia. This Seminar has as main goal to unify the different national professionals that are working directly or indirectly in this field to coordinate the initiatives that are taking place.

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