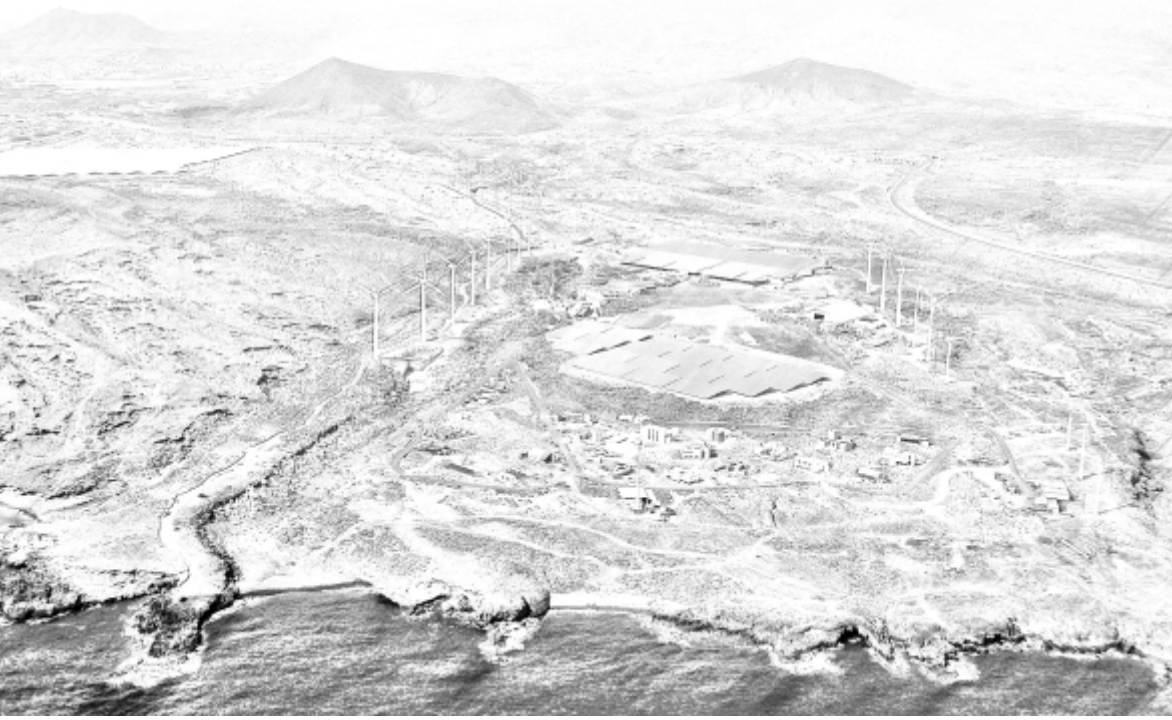
Group

ITER

INSTITUTE OF TECHNOLOGY AND RENEWABLE ENERGIES S.A.



Group

ITER

ACTIVITIES AND MANAGEMENT REPORT

Polígono Industrial de Granadilla
E38600 Granadilla de Abona
Santa Cruz de Tenerife
Tel +34 922 391 000
Fax +34 922 391 001
email iter@iter.es

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1 INTRODUCTION

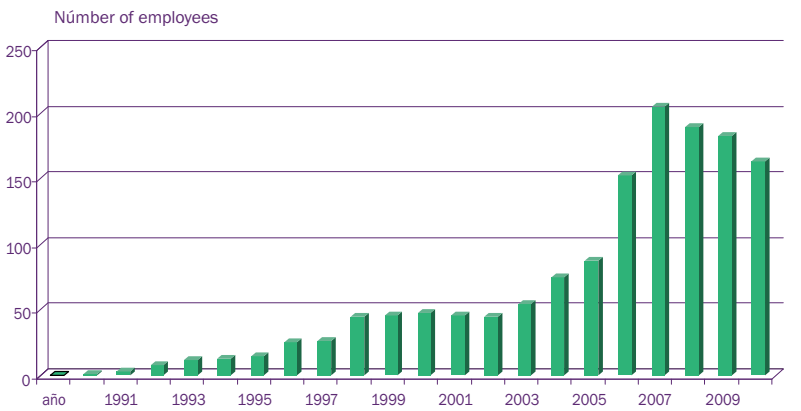
In 1990 the Cabildo Insular de Tenerife creates ITER as a solution to the island´s need of having a Research Centre of Renewable Energies and New Technologies. During its development, the Institute has not only grown in number of facilities and staff, but has branched into a group of entities which enables the attainment of the activities entrusted within its corporate purpose. These entities make up Group ITER.

Among the activities developed by these entities we can highlight the implementation and promotion of research applied to renewable energies and everything dealing with them, the infrastructure needed for the development of research, engineering and the local industry, and of the export of know-how to other countries and archipelagoes.

The Group ITER is made up of the following companies listed in the table bellow.

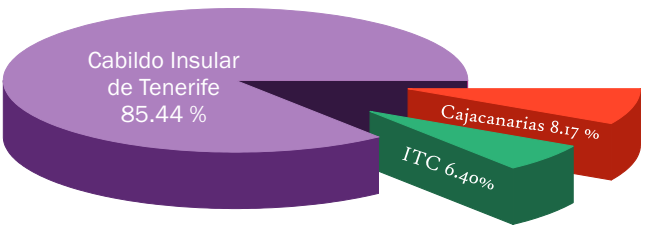
Companies	ITER´s Share
Fundación ITER	100%
Eólicas de Tenerife, AIE	50%
Agencia Insular de la Energía de Tenerife, Fundación Canaria	23,53%
Parques Eólicos de Granadilla AIE	30%
NAP África Occidental-Islas Canarias S.A.	48,52
Soluciones Eléctricas Insulares S.L.	100%
Energía Verde de la Macaronesia S.L (EVM)	39,94%
EVM2 Energías renovables S.L.	30%
Solten II Granadilla S.A.	21,55%
SOLTEN III Arico, S.A.	100%
Instituto Tecnológico y de Telecomunicaciones de Tenerife S.L.	100%
Instituto Volcanológico de Canarias	100%

The Group ITER relies on a multidisciplinary team of 163 professionals which work coordinately in the different activities carried out by the group.



Instituto Tecnológico y de Energías Renovables SA

Public limited company constituted on December 27th, 1990. The Cabildo Insular de Tenerife is the main shareholder and after several incorporations, ITER´s share is distributed in the following way:



Reserach activities and technological development related with the use of renewable energies were meant to be promoted with the creation of the Institute. Other interesting aspects for the regional social and economical development of the island such as the groundwater resources, seismic-volcanic prediction and surveillance, environmental control, and development of communication and information technologies are also promoted nowadays.

Since the beginning, the Institute follows two main action lines: electricity generation with renewable energies and the execution of investigation projects related with renewable energies, environment and engineering.

The activities developed in the Institute can be classified within these action lines and are specially entrusted in its social purpose:

a) To implement and promote renewable energies applied research.
b) To develop technological systems for renewable energy uses.
c) To coordinate energy R & D 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.

Fundación ITER

Foundation established the 3rd of December, 1997, of which ITER is the only shareholder.

The foundation has as social purpose the promotion, development of scientific, technical and economical activities in renewable energies and technologies that contribute to reduce the dependence on imported oil, to obtain stable and competitive prices and to guarantee minimum energy supplies for production and elevation of drinkable water in exceptional situations.

For the development of these aims the Foundation carries out different actions:

- Awarding of financial grants.
- Awarding of grants to institutions.
- Participation in the development of activities from other entities that carry out overlapping or complementary activities with the Foundation.
- Studies, research, courses and conferences.
- Publications, exhibitions and other cultural activities.

Eólicas de Tenerife, AIE

Economic Interest Association established on November 27th, 1995 and registered in the Company House of Santa Cruz de Tenerife.

It is integrated by Unelco Participadas SA, el Instituto Tecnológico de Energías Renovables SA and Made Energías Renovovables SA. The social purpose of the Association is the cooperation between the shareholders for the development and research in the field of wind energy, by means of the promotion, construction, exploitation and management of the resources of Tenerife, increasing therefore the wind energy exploitation in the island.

Eólicas de Tenerife owns the 4.8 MW Wind Farm installed in ITER lands, which consists of 8 MADE AE-46 wind turbines, each one with 600 kW nominal power. It has an annual energy production of 14 GWh.

Agencia Insular de la Energía de Tenerife, Fundación Canaria

Foundation established the 26th of July, 2005. The foundational members of the Tenerife Energy Agency are Cabildo Insular de Tenerife, Instituto Tecnológico y de Energías Renovables SA, Fundación Canaria Caja Rural Pedro Modesto Campos, Loro Parque SA, Endesa Distribución Eléctrica SL, Compañía Transportista de Gas de Canarias SA and Asociación Hotelera y Extrahotelera de Tenerife, La Palma, La Gomera y El Hierro.

As established in its social purpose, the foundation aims to coordinate and collaborate with the different administrations, particularly those from the island, to promote measures for the rationalization of energy production and consumption that enable to achieve the highest level of energy self-sufficiency in the island. It also develops, in collaboration with local bodies, the implementation of dissemination, promotion and implementation programs of actions related with renewable energies and energy efficiency and saving.

Parques Eólicos de Granadilla, AIE

Economic Interest Association constituted on January 4th, 2005. The partners of this group are Instituto Tecnológico y de Energías Renovables SA, Polígono Industrial de Granadilla Parque Tecnológico de Tenerife SA and the company Granadilla SueloSur SL.

The social purpose of the Group is the accomplishment and cooperation among the partners for the development and research in the area of wind power by means of the promotion, construction, exploitation and administration of the wind resources of the island of Tenerife, prosecuting at last instance the increase of its use.

NAP África Occidental-Islas Canarias SA

Trading company established the 28th of April, 2006, and registered in the Company House of Santa Cruz de Tenerife. It is shared by a big number of companies including Chafiras SA, Construcciones Gomasper SL, Obras y Servicios Daltre SL and Instituto Tecnológico y de Energías Renovables SA.

This society focuses its activities on the purchase of infrastructure for the establishment of the Neutral Access Node NAP in Tenerife, the operation and maintenance of the telecommunications networks within the NAP of clients housed at the neutral point, as well as of the own ones of the centre.

The NAP of Tenerife will help Africa to reduce the cost of Internet connection, will focus the international traffic of data to this continent and will also manage the regional communication.

Soluciones Eléctricas Insulares SL

Trading company established the 17th of July, 2007 which is totally shared by Instituto Tecnológico de Energías Renovables SA.

As established in its social purpose, this limited company deals with the manufacturing, installation, marketing and distribution, both in national territory and abroad, of all sorts of articles and materials related to electricity and renewable energy in general, as well as the construction, repair, restoration and preservation of the building works and, specifically, facilities involving directly or indirectly the use of renewable energies.

The company also carries out researches or technical projects and offers advisory services, technical support and engineering management within the field of any activity in renewable energy and technological innovation, together with research, development and demonstration for the development of the activities listed above.

Energía Verde de la Macaronesia SL

Trading company established the 10th of October, 2007 and shared by Sumitomo Corporation, ITER, Cerco Tenerife SL, Feralon Canarias SL, and two private investors.

As established in its social purpose, the limited company Energía Verde de la Macaronesía is aimed to promote, design, construct and exploitate all kinds of renewable energy plants, as well as to implementate and promote any type of applied research in the field of renewable energies and develope systems or techniques for the use of them.

EVM2 Energías renovables SL

Trading company established the 10th of October, 2007. It is a limited company whose main shareholders are Proparsa 2000 SA, ITER SA, Cerco Tenerife SL and Feralon Canarias SL.

The social purpose is the promotion, design, construction and exploitation of all kinds of renewable energy plants as well as the implementation and promotion of any type of applied research in the field of renewable energies and the development of systems or techniques that allow the use of them.

Solten II Granadilla SA

Trading company established the 26th of October 2007 and shared by private investors and ITER.

Solten II Granadilla SA deals with the acquisition, promotion, management, development and exploitation of PV solar platforms, as well as with the production, transport and distribution of electricity from solar photovoltaic platforms.

Private investors interested in the production of PV solar energy connected to the grid have, this way, the opportunity to participate by means of the purchase of shares in sustainable initiatives for the economical and industrial development of the island, contributing to increase the participation of renewable energy in the primary energy balance of the Canary Islands.

SOLTEN III Arico SA

Trading company established the29th of October, 2008, and registered in the Company House of Santa Cruz de Tenerife. It is totally shared by Instituto Tecnológico de Energías Renovables PLC.

This public limited company is in care of the promotion, design, builing and exploitation of every kind of renewable energies plants, as well as to carry out and promote any kind of applied researches in this field and develop technical systems that allow the use of this energies.

Instituto Volcanológico de Canarias SAU

Public limited company constituted on June 29th, 2010. It is entirely shared by the Instituto Tecnológico y de Energías Renovables SA.

The institute works to improve the knowledge the population has on the volcanic phenomenon present in the Canary Islands. The Institute works to improve the management of the volcanic risk as well as the advantages of living in an active volcanic area in oder to contribute to the sustainable development of the cities located in volcanic territories.

The following activities are specially entrusted within the corporate purpose, among others:

- the cooperation and coordination among public administrations to carry out and promote the volcanic research, with special emphasis in the reduction of the volcanic risk.

- to help to improve and optimize the knowledge on the volcanic phenomenon to improve the management and to contribute to the sustainable development of the societies established in volcanic territories.

- to promote training of scientific and technical staff in all the fields concerning volcanoes.

- to help to improve the response before volcanic phenomena.

- to promote and to stimulate scientist and technical collaboration and the creation of a network of knowledge on the volcanic phenomenon.

- to collaborate with the Canarian Universities in the subjects related with volcanic matters.

- to promote the dissemination of science in volcanic matters to contribute to a better education and culture on and about the volcanic phenomenon.

- to develop research, technical projects, advising, technical assistance, work direction, and training in environmental matters.

Instituto Tecnológico y de Telecomunicaciones de Tenerife, SL

Trading company established the 20th of April, 2009. It is totally shared by Instituto Tecnológico de Energías Renovables SA.

As established in its social purpose, this limited company has as aim the construction, exploitation, installation, management and maintenance of all types of networks and telecommunications infrastructures including the wiring through the seabed and / or land bed as well as the promotion, provision and marketing of services and / or products of electronic communications, telecommunications, information society services, multimedia and added value.

Furthermore, among its objectives there is the promotion of free competition in the market for telecommunications networks and services on the island of Tenerife, Canary Islands and West Africa.

Reconocimientos otorgados al Grupo ITER

Through many years of experience, the Group ITER has received numerous awards. These recognitions have contributed to the consolidation and expansion of the group and state the usefulness of the social labor carried out.

Appointed Center of Excellence for the Development and Dissemination of the Renewable Energies by UNESCO.

Award " TEIDE DE ORO " 2001 of Radio Club Tenerife.

Award SOL y PAZ to the managerial labor 2005 within the frame of the Solar Meeting celebrated in the same year.

Award FECITEN 2009 of the Centres of Initiatives and Tourism´s Federation of Tenerife.

Data Center Leaders Award in the category of “Innovation in an Outsourced Environment " in the International Contest Datacenter Dynamic Awards 2010.

.2.

INFRASTRUCTURES

Bioclimatic Houses ITER

Visitors Centre

Generation Control Centre

ITER Headquarters

DATA CENTRE of the ALIX Initiative

Wind Tunnel

Photovoltaic Module Factory

Chemistry, Gas Isotope and Groundwater Lab

Electronics Lab

Electric Subestation

Engineering Warehouse

Ecocar: Environmental Mobile Unit

Technological Walkway

70 m^3/day Sea Waeter Desalination Plant

175 m^3/day Sea Water Desalination Plant

2 INFRASTRUCTURES

ITER is located in the Industrial Estate of Granadilla, in the southern coast of the island of Tenerife, covering a total of 400.000m^2. ITER was thought as an experimental and dissemination area, where the Institute has carried out several projects that will be described below.

ITER is in continuous growth to support and encourage the R & D activities it develops. The results of the demonstrative projects executed have added new facilities to the infrastructures of the Institute.

Bioclimatic Houses ITER

This urban development was carried out using bioclimatc architecture criteria where the adaptation to the environment and to the climate reduces their effects and the energy consumption used in the conditioning.

The 24 houses that make up the development are energetically self-sufficient due to the use of PV and solar thermal panels. It is, therefore, an autonomous, not pollutant complex provided with open spaces and inspired by ecological principles.

The houses are under constant research. Both the everyday monitoring and the different implementation of systems and materials used in each house are observed regularly.

The development is organized in 3 blocks separated by four streets which branch from the main that comes down from the Visitors Centre. The development also has small squares and open spaces where the visitors can relax.

The averaged built surface of each house is between 110-120 m^2, with a kitchen, a lounge, 1 or 2 bathrooms and 3 or 4 bedrooms, distributed in one or two floors. All of the designs are different and count with contrasting aesthetic concepts. This makes the development a perfect place for the dissemination of the bioclimatic principles and to raise awareness about the importance of making this principles part of the actual buildings.

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 Technological Walkway, part of ITER's dissemination's facilities.

The architect was entrusted to design this bioclimatic building to welcome the visitors to the complex and host some of the projects of the International Contest of the 25 Bioclimatic Dwellings for the Island of Tenerife, along with their monitored results.

The Visitor's Centre expects to draw the visitor's attention to energy matters; the sun as an energy source, traditional energy sources, consequences in the environment, their limited nature, the alternatives existing such as the renewable energies.

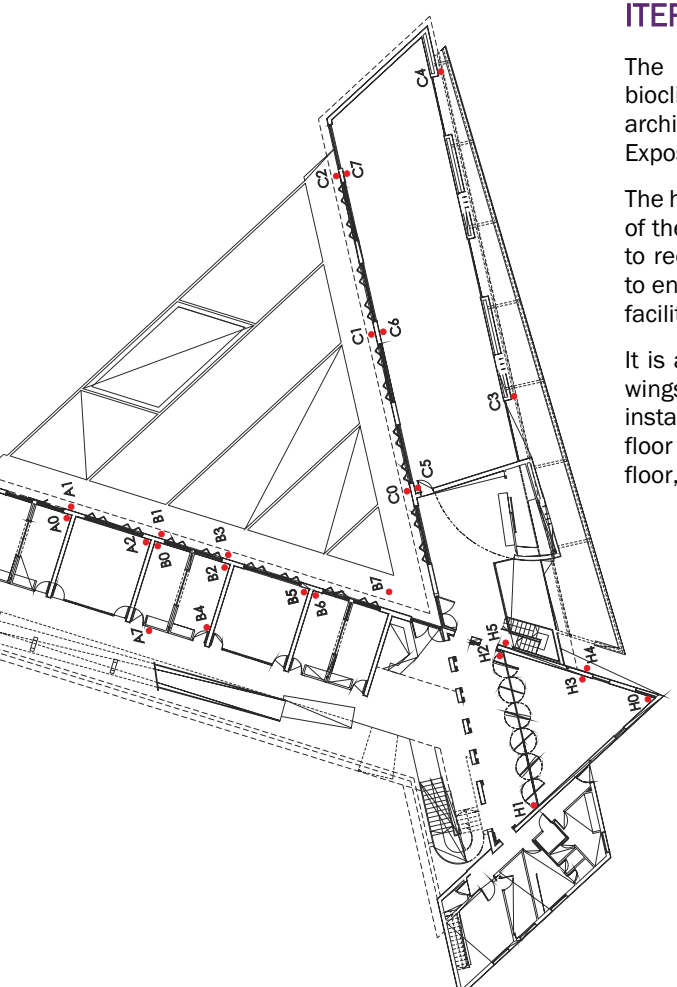
The centre has a conference room with 200 seats, two multipurpose rooms, a small gift shop and a cafeteria.

Generation Control Centre

The Generation Control Centre is connected to the system operator, Red Eléctrica de España, and controls installations of special regime energy generation. According to the current legislation, the special regime energy production installations of 1 MW or more located in the insular systems and outside the mainland must be assigned to a Generation Control Centre, provided with a suitable connection with the control centre of Red Eléctrica de España. The above mentioned centres must guarantee a secure live dialogue with Red Eléctrica and a continuos operation of 24 hours a day, 365 days a year.

ITER is developing its own associated control centre that will connect the wind and photovoltaic installations that it now manages and the future ones. The measurement equipments of the wind parks had to be changed in order to carry out the transference to this new centre. This change allows the parks to join the control centre and fulfill the rules established by the regulations. Apart from ITER´s own installations, the Control Centre will be also offered for the adscription of third party installations.

ITER´s Generation Control Centre is located in one of the rooms of the Data Centre of ALiX project.



ITER Headquarters

The Central Office of the Institute is a bioclimatic building designed by the team of architects constituted by Ana Maria Zurita Exposito and Jose Fco Arnau Diaz-Llanos.

The headquarters were planned on the basis of the latest bioclimatic design criteria so as to reduce the energy consumption required to ensure the habitability and comfort of the facilities of the company.

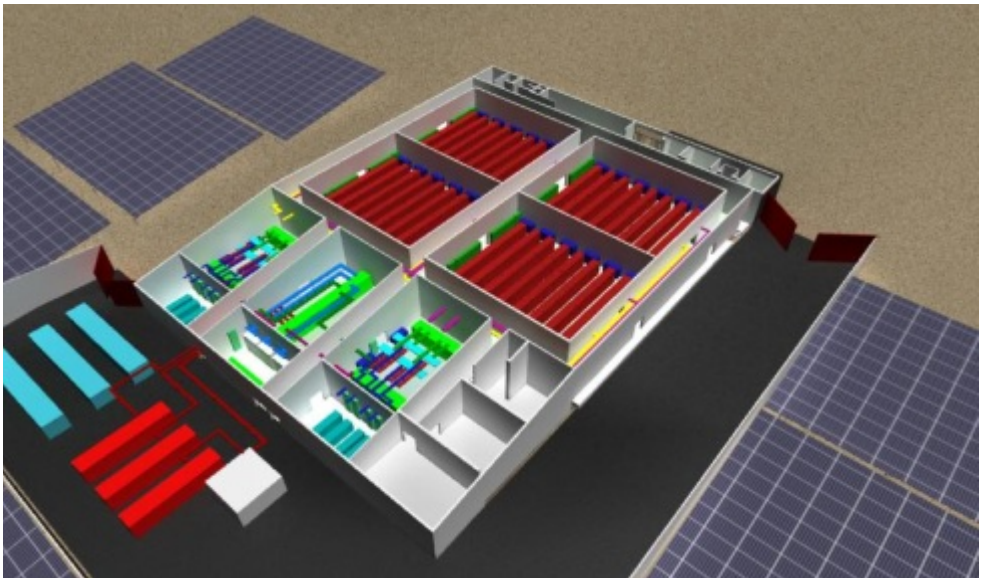
It is a triangular construction based on two wings that contain the various offices and installations. The director's office on the 1st floor and the meeting room at the bottom floor, are situated in the vertex.

DATA CENTRE of ALIX Initiative

This high availability datacenter, framed within the ALiX initiative and instigated by the Cabildo Insular of Tenerife, is the infrastructure that stands as a site for ICT equipment. This equipments is required so that Tenerife can host technological enterprises that offer services both within the archipelago and Europe, Africa and America.

The building of the datacenter is a simple and modular structure that will allow its construction to take place in 4 phases replicating the initial model. At present, work in the first phase is being undertaken. Phase one has a constructed surface of 4,498.87m^2, from which 1,500m^2 correspond to space assigned to technical floor where the ICT equipment will be located, and the rest for auxiliary facilities.

This infrastructure will provide levels of services comparable to the ones established in a TIER IV categorized facility. The TIER classification, established by the TIA (Telecommunications Industry Association), is based in the high availability infrastructure of the datacenter, due to its N+1 and 2N+1 redundancy levels in its electrical supply and climatization infrastructures, and in the access to communication with the outside. Furthermore, and in line with the environmental awareness of the ITER, the datacenter's roof implements 400 kW of photovoltaic plants.



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 Wind Tunnel's test section, real objects and scaled models are located to observe the real effect of 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 to 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 tunnel has recently been modified and has been laminarized to carry out aeronautical tests.

With the aim of carrying out the tests of the aerodynamic profiles and of the model of the solar plane prototype, the quality of the flow in the aerodynamic tunnel has been improved with the installation of grids in the settling chamber. Also for the solar plane prototype, ITER has designed, manufactured and calibrated a Pitot tube in order to measure the fluid flow reference velocity of the tunnel.

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

Photovoltaic module Factory

The creation project of a PV module factory in ITER installations was originated by the need of covering all the PV module requirements of the Institute and to continue and extend the investigations that have been going on in this area through the past years.

The Project included a 125 meters long and 20 meters wide warehouse divided in three sections, one assigned to the storage of raw material, the second one assigned to module manufacturing and the third one assigned to the storage of PV modules. It covers a total area of 2500 square meters in which 1000 are dedicated to the manufacturing zone with two assembly lines.

Each line consists of two cell soldering machines (Stringer machines), one cell positioning robot, layout glasses tables, module checking tables and one laminator to shape the modules. Both lines converge in a module testing and classifying machine. After that, modules go trough the frame assembly tables and packing zone.

In 2008, this PV module factory was brought into operation in ITER facilities. The operator's experience and the familiarization with the machines have allowed an increase in the production to 200 kW each month.

In 2009, ITER officially certified its modules after being tested in Italian laboratories. In these tests, not only did the modules pass every exam they were subjected to, but also passed with excellent results the demanding tests of power output capability against thermal cycles tests, temporal tests and aggressive atmospherical tests.

Nowadays, ITER has the capability to produce 30 MW of PV modules with full quality warranties not only in its production lines, but also in the final product.

Futhermore, ITER has also evolved in the area of photovoltaic integration. ITER has been able to produce a high quality double glass PV module prepared to be installed in future constructions. This prototype will be installed in one of the bioclimatic houses in order to analyze and collect information about its power output and its behaviour against atmospherical agents.

Chemistry, Gas Isotope and Groundwater Lab

This lab carries out the chemical and isotopic characterization of gases and water underground along with other environmental matrixes, the lab is provided with:

- atomic absorption spectrophotometer (AAS)
- induced-coupled plasma atomic emission spectrophotometer (ICP-AES)
- gas chromatograph (GC)
- gas microchromatograph
- mass / gas chromatograph (GC/MS)
- quadruple mass spectrometrer (QMS)
- ionic and liquid chromatograph (IC and LC)

Electronics Laboratory

It's located inside one of the new warehouses above which the photovoltaic platform of 2 MW has been installed.

Equipped for the design and development of prototypes and electronic systems, it relies on a clean area, equipped with:

Industrial machinery for the development of small and medium scaled prototypes in series (pick and place machine, convection drying oven).

Machinery for the fast development of prototypes of double side and high frequency.

Likewise, it has an area destined for checks and testing during the design phase, both for the analogical and the digital part, equipped with instruments such as logic analyser, oscilloscopes, wave generators, frequency meters, power supply, etc.

Finally, the lab has also an area for the integration of large-scale equipments, as in the case of the inverters TEIDE 100 manufactured by the Department of Electronics.

Electric Substation

ITER is finishing the transformer substation of 20/66KV of access to the transport grid. Its construction has been necessary to overcome the limitations in the available capacity of the electric company's distribution lines and enable the evacuation of the energy generated, not only by ITER's photovoltaic plants, but also by the new wind parks to be installed in the area. This electric substation will be used by future projects that will develop in the territory as well as by some previous ones.

The transformer substation of 66/20kV, initially of 50 MVA, will be enlarged with a second transformer until reaching a power of 100 MVA. This transformer substation will be connected by a underground line of 66 kV to the future substation of Abona, as planned by Red Electrica de España, although nowadays it is still in process to be connected temporarily to the substation in the Industrial Estate of Granadilla.

Engineering Warehouse

Its a new building of 800 m^2 that houses ITER's engineering division. It consists of a diaphanous area with capacity for 80 workstations, along with a manager's office and a meeting room. A a photovoltaic plant has been installed on the of the building, which belongs to part of the 2 MW installation of SOLTEN II project.

This building is also headquarter of the companies Instituto Tecnológico y de Telecomunicaciones de Tenerife, NAP of Western Africa and Canary Islands and Canalink's local office.

Ecocar: Environmental Mobile Unit

Ecocar is a mobile unit that measures environmental pollution periodically in several points of the island, such as urban and industrial areas.

It is equipped with a meteorological station, and continuous sensors of ozone, sulphur dioxide, nitrogen oxides, carbon monoxide and carbon dioxide.

Technological Walkway

This installation is an initiative designed, promoted and executed by ITER and the Cabildo of Tenerife which was inaugurated in 1998. The Walkway is an outdoor equipment integrated in a small valley that crosses the Industrial Estate of Granadilla, next to the headquarters.

The Walkway aims to inform the visitors a little more about renewable energies and concepts related to them, such as energy saving, and the rational use of the resources all this framed within ITER´s installations and being an example of real application of this type of energies. Th walkway is surrounded by vegetation that shelters the visitors from the sun and an artificial stream that cools it.

The path is a one way tour that runs along the stream allowing everyone to see the different units that compound the walkway without the need of a guide, although guided visits are also available.

The Technological Walkway is organized in separate thematic areas or units. The reason for this distribution is only didactic starting the visit with a general introduction to the energetic problem and the consequences of consuming determined energy resources. The visit continues through specific displays on each renewable energy source and ends with a display aimed at how everyone can participate and get involved in order to contribute to solve the problem.

70 m^3/day Sea Water Desalination Plant

ITER has a desalination seawater plant that supplies water to the internal network. The fresh water produced is exclusively used for self-consumption, both in the buildings as for irrigation of the green spaces and for the cleaning of the photovoltaic plants.

The desalination plant takes the water from a seawater-well located in the surroundings of the plant and has a capacity of production of 70m^3/day. The desalination system used is the reverse osmosis . After the filtration method and the chemical dosing of the seawater at the entrance of the plant, a high pressure bomb stimulates the untreated water towards the pressure pipe, which lodges the membranes inside, in a way that the reverse osmosis process takes place.

After this process, the resultant brine is re-circulated towards the recovery energy system ERI, so that the high pressured brine exchanges pressure with the low pressured seawater that has still not entered the system, reducing the overall energy consumption of the installation. Finally the low pressured brine is transferred to a brine well found close to the desalination plant, keeping plenty of space between both wells to prevent any kind of influence between them and the land around and the possible salt exchange.

New 175 m^3/day Sea Water Desalination Plant

The number of water consumption points has increased considerably due to the increase of staff, buildings and photovoltaic plants in ITER's facilities during the past years. Consequently, there is a project proposal for the construction of a new seawater desalination plant with greater capacity, which will complement the other one already installed.

The aims of this new installation are:

- to meet the current consumption water demands of the internal water supply network in ITER's facilities.

- to keep the design, plan and building of this desalination plant within ITER, in order to know closely each of the elements that make up the plant along with its operation.

- to acquire the knowledge needed in matter of water treatment to manage and run the operation and maintenance of both desalination plants.

The entire construction of the new seawater desalination plant with reverse osmosis technology, recovery energy system ERI and production of 175 m^3/day, has been carried out during the year 2010.

Both desalination plants are located in neighbouring buildings, in the southern part of ITER's limits, approximately 120 metres from the sea. The plants take the feed water of the same seawater well, located and appraised during the year 2010 in the surroundings of the plant.

3.

PHOTOVOLTAIC INSTALLATIONS

ITER´s INSTALLATIONS

Finca Verde 9MW

Finca Roja 3.6 MW

SOLTEN I (13 MW)

SOLTEN II (11 MW)

Mercatenerife 100kW

THIRD PARTIES INSTALLATIONS

Loro Parque 1 MW

Planta Fotovoltaica en Valle Guerra de 80 kW

Proyecto Casa del Ganadero 17,67 kW

Metropolitano de Tenerife 880 kW

Mercasa 100 kW

FUTURE INSTALLATIONS

Instalación Solar Fotovoltaica TITSA 900 kW Instalación

Fotovoltaica Bodega Comarcal de Tacoronte 200 kW

Finca Roja 1,4 MW

Instalación Fotovoltaica Bodega Comarcal de Icod 100 kW

Instalación Fotovoltaica del DATACENTRE del proyecto ALIX 400 kW

Instalación Fotovoltaica Finca Punta Gorda 100 kW

Instalación Fotovoltaica Helechos de Cuero Tenerife 20 kW

Instalación Fotovoltaica en vvda unifamiliar en Radazul 4,6 kW

Instalación Fotovoltaica en Los Realejos 9 kW

3 PHOTOVOLTAIC INSTALLATIONS

Fulfilling its foundational aims and taking advantage of the opportunity afforded within the frame of the existing energy policies, ITER has accomplished an important effort to promote the development of renewable energies in the island during the past years. In this line, and particularly dealing with photovoltaic energy, ITER has contributed to the installation of 40MW throughout the island since 2005. This is a great engineering and resource management achievement which has redounded on two very important benefits for the island. On the one hand, it has helped to increase the weight of renewables in the energy balance of the island, helping to reduce its external dependence. And on the other hand, a new economic engine capable of generating wealth and employment in crisis time has been created .

in order to guarantee the optimum operation of the installations and, as consequence, to assure the continuity of this type of initiatives in the future, ITER has compromised an important part of its resources in the exploitation and maintenance tasks of the installations mentioned above.

Finca Verde 9MW

During the year 2008 this 9MW photovoltaic plant with connexion to medium voltage grid has been installed in Finca Verde, in the location known as "Las Esquinas", in the Municipal Term of Arico. This installation is owned by a unique holder, EVM 2 Energías Renovables SL, a trading company shared by ITER among others.

This PV plant consists in ninety 100kW units. These plants have been installed with a 10º inclination and S-SW orientation. Each 100kW unit consists of 648 modules with a geometry of 23 panels connected in parallel and 28 panels connected in series. The solar module used for this project is the model ST162P, manufactured by the Japanese company Sharp for ITER.

The inverter used for the connexion to the grid is TEIDE 100 model, designed and manufactured by ITER, that has already been used in previous projects. Generated energy is evacuated to grid through four transformation centres of 2 MVA and one of 1MVA.

The power plant includes a complete control and monitoring system, also designed and implemented by ITER. Monitoring is done remotely from ITER's facilities in Granadilla.

The power plant was finished in August 2008, and finally obtained in September the definitive inclusion in Administrative Register of Installations in Special Regimen.

Finca Roja 3.6 MW

The power plant is the first stage of a project of 5 MW. This first stage was installed in the second half of 2008. The 1,4 MW remaining is still to be installed to complete the total power. It is a mid voltage installation with connection to the grid located in the 204 plot of the area 7 of the Municipal Term of Arico in a place known as "Las Esquinas".

This installation belongs to one unique holder, EVM 1, Energía Verde de la Macaronesia SL, shared by ITER, a japanese company named Sumitomo, and other local members.

The installation is made up of 36 photovoltaic plants of 100kW, with a southern orientation, above a 10º inclined aluminium structure.

The technology used is the same as in Finca Verde, which is located in the plot next to it and was described before. The TEIDE 100 inverter, designed and manufactured by ITER, is used for the conversion of energy, and the evacuation of energy to the grid is carried out through two 2 MVA transformation centres.

The installation of the first stage of the plant ended at the beginning of September 2008, and the final registration in the Administrative Register of Installations in Special Regime was obtained during that same month.

SOLTEN I 13 MW

SOLTEN I is a photovoltaic solar platform installed in the terrains of Granadillas Industrial Estate. The platform consists of 130 PV modules of 100kW connected independently to the low voltage electric grid. Each 100kW PV plant is owned by different holders and ITER acts as executor and manager of the entire installation.

The 100kW PV plants of SOLTEN I are south-oriented, have an inclination of 10º and are connected to one transformation centre in groups of twenty.

In this installation there has been used PV panels of two different providers, which give rise to varied plants geometry and different installed peak powers.

The 100kW inverters used in the installation are the model TEIDE 100 and are designed and manufactured by ITER.

The aluminium structure has been designed and installed by ITER and is very light, totally modular and can be dismantled. It is composed of pillars, girders and straps, by means of aluminium sections, concrete foundations and galvanized steel strap. The unions are done with screws and stainless steel accessories.

The structures were installed adapting the pillars to the topography of the terrain, so that very little clearing works were needed. Furthermore, the installations were done with the minimum height required, observing the measures for the landscape integration.

SOLTEN II 11 MW

SOLTEN II is made up by three installations which make a total of 11MW nominal power. This photovoltaic platform, located in Granadilla´s Industrial Estate, is constituted by one PV plant of 7MW and two of 2MW.

The 7 MW installation is organized in units of 100kW, each connected to the medium voltage grid and located in the same plot of SOLTEN I in Granadilla Industrial Estate (at 1.5 kilometres away from ITER). Each 100kW unit occupies 800 m^2 and is composed by PV panels assembled on a light aluminium modular structure. The 70 units that make up this project are connected to the medium voltage connection point of the electricity distribution company, UNELCO-Endesa, being the plant only connected to one medium voltage metre.

The 4MW installation is divided in two areas: 2MW above ITER´s warehouses, and 2MW ground-mounted, made up of twenty 100kW units each, and connected to the medium voltage electric grid.

Mercatenerife 100kW

The ITER has carried out the installation of a photovoltaic plant of 100kW in Mercatenerife. The power plant is placed on the cover of the warehouse 1 of Mercatenerife, in the Industrial estate of the Mayorazgo, in the municipality of Santa Cruz de Tenerife.

The PV plant is constituted of 616 KYOCERA panels of the model KC-175-GHT-2 of polycrystalline silicon with an efficiency of 13,7 %, with 1,29 m x 0,99 m and with a nominal power of 175 W (±5 %), being the installed power of 107,8 kW.

The distribution of the photovoltaic plant is designed on the cover of this ship, in 2 rows of 22 groups each one separated by a central skylight. Each of these groups contains 14 panels, for what this installation occupies approximately 786,69 m^2 of surface of cover.

The technology used is the same as in other projects developed by the Institute, with a southwest orientation and modular structures of aluminium that can be dismantled and give a 10º inclination. The inverter used is the TEIDE 100 iverter, designed and manufactured by ITER. The installation is connected to the mid voltage grid.

Third Party PV Installations

ITER not only implements projects in which he is the promoter but also carries out such projects for other entities.

Loro Parque 1 MW

The installation of this photovoltaic plant of 1MW took place during the year 2010. The power plant is connected to the medium voltage grid in Arico, in the place known as " Lomo de Abole-Ico".

This installation belongs to one single owner, the Loro Parque SA Society. The PV plant is made up of 10 units of 100kW each, arranged with an inclination of 10 º and a South orientation. Two of the ten units of 100 kW are made up of 529 panels arranged with 23 panels connected in series and 23 connected in parallel. The other eight remaining are made up of 506 panels arranged with 23 panels connected in series and 22 connected in parallel. The panels used are 210W and 215W POWER PLUS model, made by the German company CONERGY. The inverter used for the grid-connection is the TEIDE 100 model, designed and manufactured by ITER. The energy generated is evacuated to the grid through a transformation centre of 1 MVA.

The plant includes a complete system of monitoring and control, both designed and implemented by the ITER. The monitoring is done remotely, from ITER´s facilities in Granadilla.

80 kW PV Installation in Valle Guerra

Photovoltaic installation in the roof of a building with agricultural use for the production of ornamental plants located in the Biromba Road in Valle Guerra, in the Municipality of San Cristóbal de la Laguna.

ITER has drafted the project and has installed this plant that belongs to the Orchid Lycaste company.

The distribution of the PV plant was designed on the cover of a warehouse bound for storage and installations, in 28 rows of 18 panels. Therefore this installation will occupy a surface of 940 m^2 approximately.

This 80 kW powered plant connected to low tension grid, is made up of 504 monocrystaline silicon panels of the model CS170 manufactured by ITER, with an efficiency of 13% , dimensions of 1306 x 991 x 40 mm and a nominal power of 170 W (±5 %), being the total installed power of the plant, 85,680 kW. The panels are mounted on an aluminum support structure which is very light, modular and can be dismountable. It is 0.59m high or 0,76 m in its highest point, with a 10 % inclination and its lowest point is 0,25 m above the floor. The inverter used is the three-phase TEIDE 80 model. Both the structure and the inverter have been designed and made by ITER.

17,67 kW Casa del Ganadero project

Photovoltaic plant installed on the roof of Casa del Ganadero which belongs to the Cabildo Insular of Tenerife, in the Municipal Term of San Cristobal de La Laguna.

The Casa del Ganadero has signed an agreement with the ITER for the construction and exploitation of the photovoltaic installation.

The plant is distributed in 6 groups of 19 panels. The panels used are of the model SW155 ST made of polycrystalline silicon, manufactured by the German company SolarWorld, with efficiencies of 12 %, dimensions of 1,61m x 0,81 m and power around 155 W (±5 %). Therefore, the total number of panels is of 114 that covers a surface of 148 m^2. The panels have been mounted on a light structure of aluminium designed by ITER, totally modular and dismountable and with an inclination of 10 º.

The inverter installed is the TEIDE model of 17 kW, designed and manufactured by ITER, and the connection to the low voltage grid.

Metropolitano de Tenerife 880 kW

Photovoltaic installation placed on the roof of the Workshops and Bus depots of the Metropolitano, in El Cardonal. ITER has written the project and executed the installation, owned by Sociedad Metropolitano de Tenerfie SA.

The system covers an area of 4.700 m^2 and has a peak power of 644 kilowatts. The plant is constituted by 3.680 panels of 175W of the "Shangai Chaori" brand , distributed on the cover in 20 rows and 6 groups of 100 kW of nominal power. The panels are mounted on a light aluminum structure designed by ITER.

Six Teide 100 three-phased inverters of 100kW have been used in this project. The photovoltaic plant is connected in mid voltage to the electrical grid. In order to inject this energy to the grid, several modifications were necesary in the Distribution Centre of the Electrical Company, UNELCO-Endesa.

This installation concluded in September, 2008. The installation of 280 additional kW took place during the year 2009 and increased the total installed power up to 880kW. This second phase is located in the top cover of the building, and in this case the panels used in the installation are the model Cs170 of ITER's brand. The electrical connection in this second phase is to the low voltage grid.

Mercasa 100 kW

The 100kW plant is placed on the cover of Mercatenerife's warehouse number 2, in the Industrial Estate of El Mayorazgo, in the municipal area of Santa Cruz de Tenerife. ITER has carried out the installation of the plant owned by the entity called Mercasa.

The photovoltaic plant is made up of 616 KYOCERA panels of the model KC-175-GHT-2 made of polycrystalline silicon with an efficiency of 13,7 %. The panels have a dimmension of 1290 x 990 mm and a nominal power of 175 W (±5 %). The total installed power is of 107,800 kW.

The photovoltaic plant is distributed in 2 rows of 22 groups separated by a central skylight. Each of these groups contains 14 panels, for what this installation will occupy approximately 786,69 m^2 of the surface.

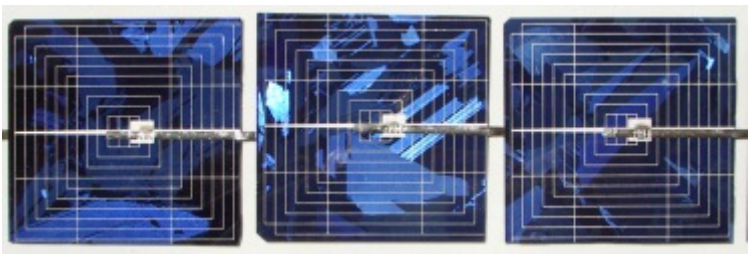
The technology used is the same as in other projects developed by the Institute, with light demountable and modular structures of aluminium, with a 10º inclination and a Southwest orientation. The TEIDE100 inverter, developed and manufactured by ITER was used and the installation is connected to the low voltage grid.

900 kW Photovoltaic Installation TITSA

This installation will be located on the roof of the building of the depot TITSA SA, occupying about 5,706.36 m^2 of the 9,909 m^2 surface available. The installation will consist of 5544 modules and each unit of the plant is made up of 616 modules manufactured by ITER. The installation is divided into 9 units of 100 kW, and the technology used is the same as in previous projects of the Institute.

Regarding the administrative handling of this installation, the grid connexion point has been designated, and the Administrative Authorization and the inclusion in the Special Regime, obtained, while waiting for the Classified Activities License and the Minor Works License. Once these documents are obtained, the pre-inscription in the power allocation register will be requested.

In turn, the necessary modification works have been handled with the electric company, to change the distribution centre which will host the subsequent connection of the PV system.



200 kW PV Installation in Bodega Comarcal de Tacoronte

This facility will be located on the building of the Regional Winery of Tacoronte, occupying approximately 1,583.4 m^2 of the 2,477 m^2 of available surface. The installation will consist of 1,218 modules and each unit of the plant is formed by 609 modules manufactured by ITER. The installation is divided into 2 units of 100 kW and the technology used is the same as in previous projects of the Institute.

The procedures for this installation are already underway, at the moment waiting for a grid connection point from the Unelco-Endesa electricity company and for the pre-registration in the power allocation register.

Finca Roja 1,4 MW

The installation of 1.4MW second phase of the Finca Roja project is planned to be executed soon and complete the 5 MW that will be located in the plot number 204 of area 7 of the Municipal Term of Arico, in a place known as “Las Esquinas”. The PV plant is registered in the pre-assignation register of payments.

This installation is owned by a unique holder, Energía Verde de la Macaronesia SL, company shared by ITER.

100 kW Photovoltaic Installation in Bodega Comarcal de Icod

This installation will be located on the building of the Regional Winery of Icod, occupying approximately 846,67 m^2 of the 1342,58 m^2 available. The installation will consist of 609 modules in one unit of 100kW and the technology used is the same as in previous projects of the Institute.

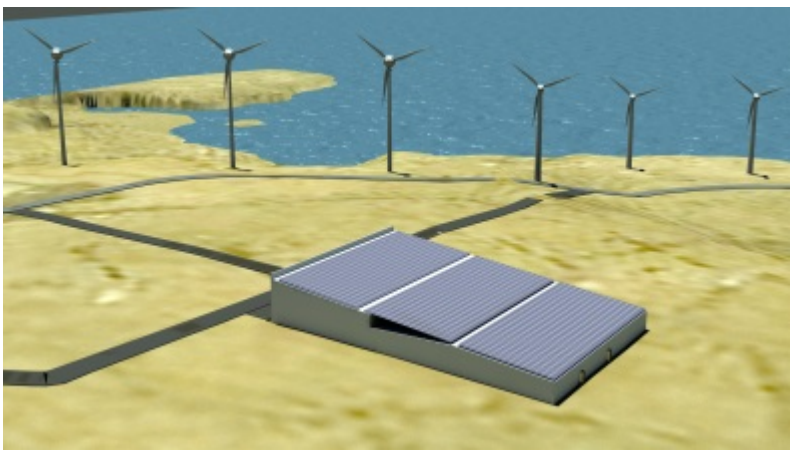
During this year the procedures have begun for the installation of this plant on the cover of the building of Icod's Regional Winery.

The connection point has been already been obtained waiting only for the building permit and the resolution of the Administrative Authorization. Once these documents are obtained, the pre-registration will be requested in the power assignment register.

400 kW PV Installation in the DATA CENTRE of the ALIX project

This installation will be placed on the cover of the building of the Datacentre del ALIX project, located within ITER's boundaries, and occupying approximately 3859,68 m^2. The installation will be made up of 2.320 modules distributed in four units of 100 kW and the technology used is the same as in previous projects of the Institute.

The administrative processing of this installation has begun this year, the connection point has been obtained, waiting only for the building permit and the resolution of the Administrative Authorization. Once these documents are obtained the pre-registration will be requested in the power assignment register.



100 kW Photovoltaic Installation in Finca Punta Gorda

This installation will be placed on the cover of a warehouse of the company Finca Punta Gorda SL, located in Candelaria, and occupying approximately 846,67 m^2 of the 1322 m^2 available. The installation will be made up of 609 modules distributed in one unit of 100 kW and the technology used is the same as in previous projects of the Institute.

The administrative processing of this installation has begun this year, the connection point has been obtained along with the resolution of the Administrative Authorization, waiting only for the building permit. Once these documents are obtained the pre-registration will be requested in the power assignment register.

20 kW PV Installation in Helechos de Cuero Tenerife

This installation will be placed on the cover of warehouse of the Helechos de Cuero Tenerife SL located in Tejina, and occupying approximately 185,76 m^2 of the 200 m^2 available. The installation will be made up of 144 modules distributed in one unit of 20 kW and the technology used is the same as in previous projects of the Institute.

The administrative processing of this installation has begun this year, the connection point has been obtained along with the constituted bank guarantee and registered in the Register of Pre-assignment of Tariff.

PV Installation in Radazul 4,6 kW

This installation will be placed on the cover of a private household in El Rosario, occupying approximately 38,6 m^2. The installation will be made up of 30 modules distributed in a single unit of 4,6 kW and the technology used is the same as in previous projects of the Institute.

The administrative processing of this installation has begun this year, the connection point has been obtained along with the constituted bank guarantee and registered in the Register of Pre-assignment of Tariff.

9 kW PV Installation in Los Realejos

This installation will be placed on the cover of a private household in Los Realejos, occupying approximately 69,66 m^2. The installation will be made up of 54 modules distributed in a single unit of 9 kW and the technology used is the same as in previous projects of the Institute.

The administrative processing of this installation has begun this year, the connection point has been obtained along with the constituted bank guarantee and registered in the Register of Pre-assignment of Tariff.

4

WIND ENERGY INSTALLATIONS

2,83 MW Experimental Plataform

4,8 MW Wind Park

5,5 MW Wind Park

New Parks

18,4 MW Wind Park La Roca 16,8 MW and Areté

18,4 MW Wind Park of the Environmental Complex of Arico

4 WIND ENERGY INSTALLATIONS

At present, ITER has three active wind parks: the Experimental Platform of 2,86 MW, the Made Park of 4,8 MW, and that of Enercon of 5,5 MW. All of them are to be repowered and three new wind parks that obtained power in the last contest summoned by the Government of the Canary Islands will be installed shortly.

A new management system for the maintenance of our wind parks started working in the year 2010. The control measures were carried out mainly in the storage and replacement of pieces, implementing a system of continuous inventory. Another new support mechanism carried out is the incident record, which will allow the identification of components and pieces with greater risk of breakdown.

This new system will allow to compound a very important database for the immediate future of our parks and will turn into a reference system for future parks.

Likewise, the energy consumption predictions of the three wind parks has finally been automated during this year, as it is required by the current legislation and following the conditions of the market representative of ITER's wind farms.

The wind predictions allow in turn, the optimized management of the park operation and the maintenance planning. The stops for preventive and corrective maintenance operations are made to match the days of less wind, and therefore less production, reducing the losses.

2,83 MW Experimental Plataform

The experimental Platform was financed with the cooperation of several organizations (Cabildo de Tenerife, the Canary Islands Government, UNELCO and the European Union).

It was installed with the aim of testing the performance of different wind turbines, regarding their origin, manufacture and technology. In total the Platform has 2.83MW of nominal power.

The park consists of 9 wind turbines, installed between 1990 and 1993, with powers that go from 150 - 500 kW . Each wind turbine uses different technologies: horizontal and vertical axis turbines, fixed and variable pitches, synchronous and asynchronous generators. They show outstanding differences in diameter and height as well: diameters between 25 and 40 metres and heights between 25 and 42 metres. Nowadays, the rated power of the platform is of 1,8MW.

As provided in the Order of October 6th ,2004 of the Industry, Commerce and New Technologies regional ministy of the Canarian Government, which establishes the technical and administrative conditions for the repowering of the current parks, ITER and ECYR have signed a cooperation agreement for the repowering of the above mentioned wind turbines. The repowering will allow the maximization of the wind's potential in the area by substituting the obsolete technology for new one, installing one single Enercon wind turbine of 200 kW, type E-70.

4,8 MW Wind Park

The 4.8 MW wind park was installed in 1996 by the association of Economic Interest "EÓLICAS DE TENERIFE", a partnership shared by ITER (50%), MADE and UNELCO and subsidized by MINER.

At the beginning, the park consisted of sixteen MADE AE-30 wind turbines, each one with 300 kW nominal power, that were replaced in 1999 by eight wind turbines MADE AE-46 of 600kW each.

As provided in the Order of November 15th, 2006 of the Industry, Commerce and New Technologies regional ministry of the Canarian Government, which establishes the technical and administrative conditions for the repowering of the current parks, Eólicas de Tenerife has requested the administrative authorization and approval of the project for the repowering of the Granadilla III Wind Park, by means of replacing the existing wind turbines by four wind Enercon turbines type E-82.

5,5 MW Wind Park

This 5,5MW park was an ITER's self-financed project that was installed in 1998. It consists of eleven ENERCON E-40 turbines with 500 kW of nominal power. The estimated annual energy production is of 16, 5 Gwh.

The Art. 7 of the Decree 53/2003 of 30 April, which regulates the installation and operation of wind parks in the area of the Canary Islands, allows the unit capacity increase of wind turbines by replacing them by new ones, This increase is allowed up to a limit of 50% of the total power of the wind turbines replaced.

Within this frame, the current park will be repowered and substituted by a 9,75 MW (5 ENERCON E-70 of 2 MW each) in the Granadilla industrial estate.

New Wind Parks

The Order of April 27th of the General Directorate of Industry published in the BOC Nr. 89, announced on May 4th 2007, a public contest to assign power in the category of new wind park installations appointed to inject all their energy in the insular electric systems.

ITER presented three wind parks to this contest:

- Wind Park of the Environmental Complex of Arico, with a power of 18.4 MW, to de installed in the Municipal Term of Arico and promoted by ITER.

-La Roca Wind Park with 18,4 MW, to be installed in the Municipal Term of Granadilla, promoted by the Economic Interest Group "Parques Eólicos de Granadilla", of which ITER is part.

-Areté Wind Park, with 18,4MW, to be installed in the Municipal Term of Granadilla, also promoted by the Economic Interest Group "Parques Eólicos de Granadilla".

The assignment of wind energy power for the island of Tenerife was resolved with the Order of June 15th 2009, where the Environmental Complex wind park of Arico and the wind park La Roca obtained power. This publication opened a deadline for the replacement reports. Due to the fact that the score of the three parks submitted by ITER was reduced by the Ministry, several appeals were lodged concerning the three parks. Those appeals were resolved by the Order 960/09, dated December 14th, 2009.

The final power allocation for the island of Tenerife was published on January 14th, 2010, where the following parks were obtained by ITER:

- Wind Park of the Environmental Complex of Arico of 18,4 MW.

- Wind Park La Roca, of 16,8 MW.

- Wind Park Areté, of 18,4 MW.

16,8 MW La Roca and 18,4 MW Areté Wind Parks

ITER will represent the wind parks of La Roca, Areté and Central de Granadilla when dealing with Red Electrica de España. The wind park of Central de Granadilla is promoted by ENEL Green Power.

These three parks will be connected to the future substation of Granadilla (planned to be operating by 2014 by Red Electrica de España). Previously ITER´s substation will increase its voltage from 20 to 66 kW.

The wind turbines of both parks have been partially relocated based on the distribution of the plots in the industrial estate. Likewise, the aeronautical easements proceedings has been carried out. The request to determine the scope of the environmental impact study regarding both wind parks has been presented with the environmental document.

The procedures to request the access to the transport grid of the Industrial estate of Granadilla´s node started at the end of 2010.

Parque Eólico del Complejo Medioambiental de Arico de 18,4 MW

The Wind park of Arico's Environmental Complex will connect to a position of line in Abona together with the parks of Las Aulagas of 3,8 MW and Chimiche II of 18,4 MW (both promoted by Ecological Energies of Tenerife) and the Wind Park El Rincón of 18,4 MW (promoted by ENEL Green Power).

The parks will be connected to the future substation of Abona (planned to be operating by 2014 by Electrical Network of Spain) in a position of line L2. Previously, a new substation, still not built and owned by all the promoters, will increase its voltage from 20 to 66 kW. At present, the suitable future emplacement is still to be determined.

The wind generators of both parks have been partially relocated based on several requirements of the Environmental Complex, as well as on the easements generated by the future train of the south. Likewise, the aeronautical easements proceedings has been carried out. The request to determine the scope of the environmental impact study regarding both wind parks has been presented with the environmental document.

The procedures to request the access to the transport grid of the Industrial estate of Granadilla´s node started at the end of 2010.

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RENEWABLES

HYRESS Project

Pilot installation of Rural Photovoltaic Electrification in Senegal

ORECCA Project

Project Writing for Renewable Energy Installations

ITER´s PV Modules

Photovoltaic Test Platform

Wind Energy Test Platform

EVAS Project

Solar Plane´s wing profile Tests

Solar Plane Scale model Tests

Wind Tunnel Tests of the Neolo System

PROAVISOL Project

Pumped-Storage Hydroelectricity Project

Weather Forecast

Meteorological Stations

Euro-Solar Project

MACSEN-PV Project

175 m^3/day Sea Water Desalination Plant Project

Island 100 Concept

5 RENEWABLES

One of the main activities of the group ITER is the development of R&D projects in the area of Renewable Energies.

Great part of these projects aims the improvement of the technologies and the processes to obtain energy from the main renewable energy resources.

HYRESS Project

The HYRESS project (Hybrid Renewable Energy Systems for the Supply of Services in Rural Settlements of Mediterranean Partner Countries), is a project financed by the programme for international scientific cooperation (INCO) under the 6th Framework Programme (FP) of the European Commission. This project, which started in the year 2006, aims to design, install and monitor mini-grids based on renewable energies that will supply energy to isolated rural populations in countries of Tunisia, Morocco and Egypt.

The works have been carried out in Ksar Ghilène's villages, in Tunisia; in Lkaria's village, in Morocco, where a "mini-network" that will combine the generation of electricity and the generation of drinkable water has been installed; and that of Wadi El-Natroon, in Egypt, where the installation of a mini-grid fed by a photovoltaic-wind hybrid system has been carried out. The hybrid renewable energy systems installed in these villages supply electricity, water pumping for irrigation and a desalination system for providing potable water.

ITER carried out the installation of the system in Ksar Guiléne. This system combines wind and photovoltaic power for the centralized electricity production in this rural settlement, home of approximately 50 families. In addition, the common facilities (school, mosque, public baths and health centre) have also been connected to the mini-grid. Later, the monitoring of the system has been carried out and new surveys have been carried out among the villagers to analyze the evolution of the adopted solution. The project finished in the year 2010.

Rural Photovoltaic Electrification Pilot Plant in Senegal

This project is framed within the strategy of decentralized cooperation “Tenerife Con Senegal”, of the Cabildo Insular de Tenerife, and its execution has been entrusted to ITER by virtue of an agreement of collaboration between both entities.

The project, based on ITER´s previous experience on the EURO-SOLAR Program of the DG Europe-Aid of the European Commission, aims to contribute to the development of Fordou's village (Ranerou), located in the north of Senegal, guaranteeing the access to electricity based on photovoltaic solar power for the school and the health centre of the village. This PV system will also feed a communication system and the community lighting system.

The installation of this system finished during October of 2010. This installation is composed by 10 photovoltaic modules of 130 W designed and made by ITER specifically to answer to the specific characteristics of this installation.

ORECCA Project

The ORECCA Project is a project financed by the 7th Framework Programme (FP) of the European Commission coordinated by the Fraunhofer IWES Institute. It counts with 28 different members form Germany, Spain, Italy, Norway, Portugal, United Kingdom, Holland, Ireland, Denmark, Belgium, Canada and the United States.

The main goals of the ORECCA Project, which started during the first trimester of the year 2010, are to create a to create a framework for knowledge sharing and to develop a roadmap for research activities in the context of offshore renewable energy. In particular, the project will stimulate collaboration in research activities leading towards innovative, cost efficient and environmentally benign offshore renewable energy conversion platforms for wind, wave and other ocean energy resources, for their combined use as well as for the complementary use such as aquiculture.

The project's activities will favour the transfer of knowledge, focussing in three groups: industrial investors and technology suppliers, research organizations and technology developers, and the responsibles for energy policies, including the E uropean Community.

The project, which will last 18 moths, aims to develope the ocean's energy sector in a sustainable and non damaging manner for the marine environment. The project aspires to overcome the technical knowledge fragmentation in Europe and promote its transference between the different research organizations, in the industrial sector and politicians.

Project elaboration for Renewable Energy Installations

The experience in renewable energy facilities acquired in the past two decades makes ITER an expert in project drafting and subsequent implementation.

ITER elaborates projects both for PV installations, as for wind farms, counting with three executed wind farms, the approval of several projects to repower the parks and more recently the approval of three projects submitted to the last contest of power allocation of the Canary Islands Government.

In the area of photovoltaic energy, ITER has been responsible for the installation of over 45 MW in the last five years.

Enhance renewable energy installations on the islands, and therefore increase the increase the share of electricity generated from renewable energies, is one of the main objectives of ITER.

ITER Photovoltaic Module

ITER manufactures photovoltaic modules both for its own uses and on request. The technology designed by the Institute makes possible the production of multicrystalline solar cell modules with an energy conversion efficiency of more than 16%. To offer the maximum protection in the severest environmental operation conditions, the cells are encapsuled between a tempered glass and ethylene-vinyl acetate cover plate, and a poly-vinyl-flouride (PVF) back sheet.

The laminated end product is fitted into an anodized aluminium structure to provide structural resistance and to ease its installation.

The characteristics of this module give great versatility, being the ideal candidate for grid-connected photovoltaic applications, as well as isolated photovoltaic installations.

These photovoltaic modules are designed and certified according to rules IEC61215, IEC61730-1, IEC61730-2, CE.

Photovoltaic Test Platform

ITER lends its lands to carry out PV platform tests, as for example the installation and monitoring of a Sharp Photovoltaic Concentrator.

Fulfilling with an agreement signed between the SHARP Company and ITER S.A. at the beginning of the year 2008, a prototype of a photovoltaic Concentrato, which was developed by the Japanese company, was installed in the tryout camp for renewable energy mechanisms .

The prototype consisted of 27 modules, each articulated in 10 high efficiency cells of triple union, with a concentration optics type Fresnel and a passive system of heat evacuation.

The set goes mounted on a two axis supporter, which allows a maximum exposure to solar radiation during the whole year.

The concentrator's power is of 2,922 kW and to have a reference system, a photovoltaic plant was installed on a fix structure oriented 21º south, made up of 19 conventional photovoltaic modules, achieving a 2.916 kW power.

Both mechanisms, the concentrator and the conventional plant, were provided with the same type of inverter, a Sunplug model SPO 3000, along with a monitoring system developed ex profeso by ITER that automatically connects to ITER meteorological plant and to a ftp server entitled specially for this.

This monitoring system allows the working parameters of the mechanisms involved to be stored and sent in real time to Japan with the meteorological conditions of the moment.

Wind Test Platform

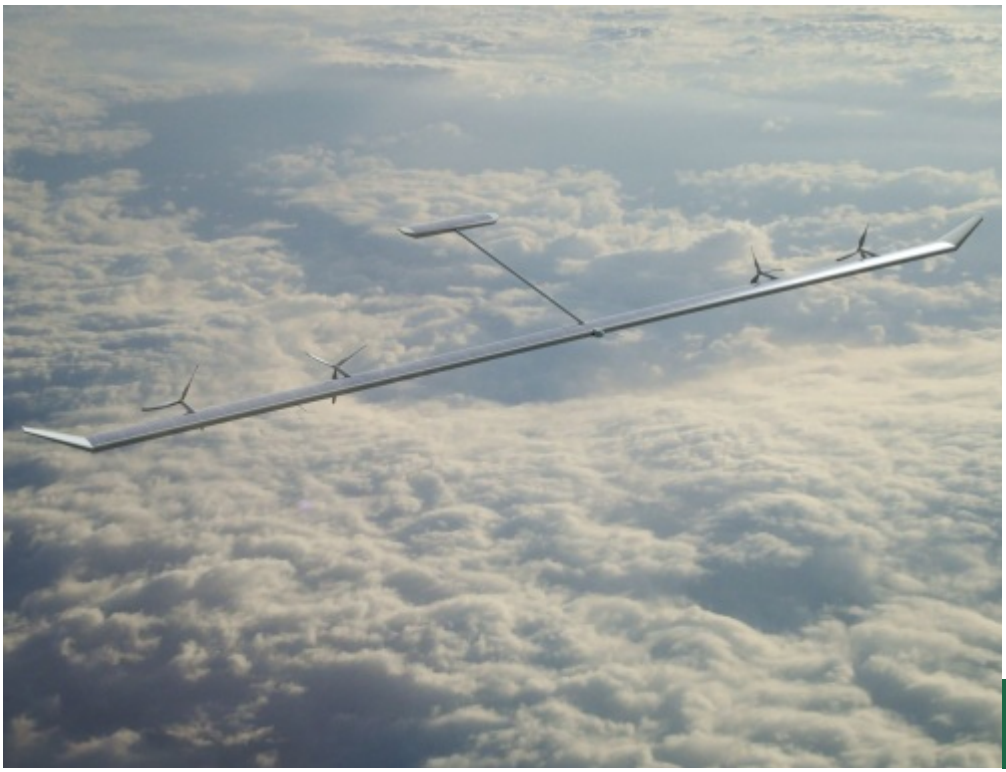
This platform, which is designed mainly for wind generators of low power, was initiated during the year 2010. The projects carried out up to the moment are:

Pumping System fed by Wind Power

The installation has been carried out in the field identically as the system that was tested in the Wind Tunnel. This installation is made up by a wind generator of 600W that supplies an autonomous extraction equipment and water pumping. Though the curve of power and the pumping capacity of the set have already been certified in the aerodynamic tunnel, the field-tests will allow to verify the permanence of the system, as well as to evaluate functional aspects and of safety of the equipment.

Wind Generator MISTRAL 10K Test

The agreement for the installation and testing of a wind generator of 10 kW and 9.9 metres of diameter in one of the 30 metre high towers that ITER has in its Platform of Wind Tests has been made official.



EVAS Project

This study has been financed by the Aerospace Subprogram within the frame of the National Plan of Scientific Research, Development and Technological Innovation.

The aim of this project is to carry out a viability study for the development of a solar plane with possible applications in telecommunications, atmospheric surveillance and Earth observation, which not only will give the green light to the applied research project of the plane's development, but will afford results that will be directly applicable in the following stage of the project. Among these results are the plane's and the wings profile's design, as well as the results obtained in the the tests of the energy generation and accumulation system.

Achieving the final dimensioning of the plane can be highlighted among the tasks that have been carried out during the past year. These dimensioning has culminated in the plane's table of technical specifications and a test bank of photovoltaic cells and batteries. This test bank is adapted to the special circumstances of the solar plane, which guarantees that the plane will be provided with enough energy for its almost indefinite and autonomous flight, only limited by the degradation of the components, concluding the system´s useful life.

Finally, the investment and financing needed to develop the solar plane as a market product has been analysed. A final document of the Study of Viability, has been elaborated with all the information obtained and analysed along the project.

Solar Plane´s wing profile tests

Continuing with the EVAS project, a model of a rectangular wing, unswept, without taper nor twist was made and tested in the wind tunnel.

The wingspan of the model is 2.000mm (measured from wall to wall of the tunnel to simulate two-dimensional flow) and a chord of 666 mm. The model was mounted on a pair of fairing supports on the active part of the scale which were previously tested to see their aerodynamic loads, and to be subtracted later from the total load measured once the profile was installed. This support system only allows movement around an axis according to the wingspan, and a rod allows the variation of the angle of attack of the model with no need of going inside the tunnel.

The aim of these tests is to study the behaviour of the profile at different Reynolds numbers (speeds). The procedure used during the test consisted in establishing a fixed angle from which to confront the model and then vary the speed, generally between 9m/s and 40 m/s measuring both when increasing it as when reducing it. This determines possible hysteresis phenomenons and even identifies errors in the measurement system. The drag coefficient, the lift coefficient, the pitching moment, the aerodynamic efficiency and the polar curve were specifically studied in the profile.

Solar Plane scale model test

In order to imitate the air flow around the model, and therefore its aerodynamic behaviour along with managing to reproduce the geometric characteristics in the model as accurately as possible, the Reynolds number has been selected as the main parameter, now that for low speed flights this is the most important parameter.

As to test the wing with the largest wingspan possible, and therefore, with the highest Reynolds number available, the model chosen had to be a half-wing model resting on the wall in the testing chamber. This way the same conditions will be reproduced when doubling the wingspan of the model.

The model used for three-dimensional tests is a half wing with a chord of 110 mm and a semi wingspan of 1.500 mm, the scale being 3:20. In this case, it's a model with a solid structure, with a wooden web covered with fibreglass.

The supports used in this case were the same ones as in the two-dimensional case, even though when introducing the correction factors, the new chord length to determine the Reynolds number and the new surface to calculate the new dimensionless coefficients have been taken into consideration. The parameters analysed in these tests were
The drag coefficient, the lift coefficient, the pitching moment, the aerodynamic efficiency and the polar curve.

Wind Tunnel test of the Neolo system

Neolo pumping is an autonomous equipment of extraction and pumping supplied by wind power, its autonomy, ease of installation and little maintenance are its main advantages.

The equipment has a water extraction system capable of pumping water from 80 m of depth. The innovation of this equipment is that it works without batteries, which saves costs and maintenance, beside of being environmentally sustainable. The electronic set is capable of carrying out the control of the wind generator and adapting the ranges of work to the submerged bomb. This way the energy produced is optimized, and the pumping capacity obtained is exceptional for its size and cost.

The mini wind generator of 600W was installed inside the test chamber, whereas the pumping system and the electronics needed for the control of the set was placed outside the tunnel.

The tests carried out consisted in measuring the volume of water supplied by the bomb at certain wind speeds and for different pressures, which simulated different extraction depths of a well. For each of the speeds tested, there is a register of the volume of water pumped at different pressures; these different pressure were obtained by means of a regulator of water flow associated with the flow metre. The verification of the correct automatic disconnection of the machine when the wind speed reaches certain points and its resistance to wind speeds up to 18 m/s (65 km/h) could also be confirmed.

PROAVISOL Project

This project has been financed by the Canary Agency of Investigation, Innovation and Information Society.

The aim of this project is to obtain the final design and therefore, construction of the Solar Plane prototype, smaller that the one obtained in the Viability Study and with possible applications in observation and vigilance of the Earth.

Several test flights were carried out during the year 2010. These flights enabled important improvements needed in the prototype, specifically in the autonomous navigation system and in the generation and energy accumulation system.

This time, lighter panels were laminated using high efficiency monocrystalline cells (more than 22 %), which is 50 % more than the conventional cells used previously and with 35% less weight. Due to the fact that the thickness is less, the panel´s malleability increases, being easier to adapt them on the curved sections of the wings.

Regarding the autopilot, the MPP follow-up system was completed along with the electronics needed for the energy supply and management. In addition, the communications via radio between Earth and plane have been developed and the code to make the communications between the different subsystems has been improved.

Likewise, the obtainment of the Special Experimental Airworthiness Certificate is in process and the documents requested by the Air Security State Agency have already been sent in order to obtain the permissions needed to carry out flights under visual flight rules (VFR) in two specific locations of the island of Tenerife.

On the other hand, special permission has been requested to the Organization of the Teide National Park in order to carry out flights in Llano de Ucanca, which according to its Governing Plan grants this type of special permissions within research projects

Pumped storage hydroelectricity project

The project "Inventory of possible locations for pumped - storage hydroelectric systems in Tenerife" was developed during the year 2010. This investigation project was accomplished as a result of a collaboration agreement between ITER and Red Electrica de España (REE).

The aim of this project was the elaboration of a catalogue of possible locations for pumped-storage hydraulic systems within the island electric system of Tenerife.

The first phase of the project consisted in searching and identifying both the already existing dams, orographic opportunities and possible new locations. After the catalogue with the possible locations was arranged, those that did not fulfill certain minimal requirements, such as a minimum power to be installed, interference with protected areas, etc were discarded for the evaluation. Finally, a methodology and a series of criteria of evaluation indicated by REE were applied, culminating in a planning with the possible locations studied complemented with its technical, economic, environmental and social characteristics.

As final result of the evaluation, a list of the best pumped-storage hydroelectric systems capable of fulfilling the aim reflected in the Planning of Electricity and Gas Sectors 2008-2016, which in the SEI of Tenerife contemplates 90 MW of hydraulic power in reversible plants, was accomplished.

Weather Forecast

Weather forecasting is a very inportant tool when dealing with renewables, therefore, ITER has continued working to improve the Institute's weather forecasting system. Changes were made so that now the forecasting is done with the WRF model ("Weather Research and Forecasting Model") that has updated applications with more efficient tools for the selection of domains, wind prediction, graphical outputs, etc.

Nowadays, the insitute is in process of programming the model to make local and regional forecasts and to develop an online service of weather information. The first data on wind predictions and solar radiation is being collected and compared with the real data from ITER weather station, to verify its accuracy and correct the possible deviations.

Meteorological Stations

A new meteorological station will be set up on an already existing lattice tower located within ITER´s facilities and which previously served for similar purposes. This new meteorological station will be equipped with speed and wind direction sensors, as well as a thermo-hygrometer. The new station will be specifically used to gather wind information at two different heights, necessary to study the wind resource of the area with an eye on the new wind parks that will be installed in the surroundings.

ITER has developed an acquisition system in order to manage, gather and store the data obtained. This system is made up by a programmable plate with different modules used to read and gather information from the different sensors, as well as a MicroSD card to record and store the information every minute using a clock and calendar module which makes the readings at real time. The MicroSD card is connected to a computer by means of an Interface of communication Modbus RTU that will save and store all the information registered by the meteorological station.

The maintenance of the meteorological station Euclides has continued to guarantee its correct functioning, acquisition and storage of information.

Euro-Solar Project

This project involves the installation of 600 generating kits using 100% renewable energy sources in eight countries of Latin America: Bolivia, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Paraguay and Peru.

The aim of the Programme is to contribute to the sustainable development of isolated communities by making use of renewable energies. ITER has taken part in the activities of the project from the beginning.

During the year 2010 the following activities have taken place:

Different options have been added to the Web application for the management of the facilities by request of the different actors involved in the reception procedure .

ITER has participated directly in the inspection procedure of 76 installations (13 % of the total), distributed in the eight countries benefited by the program. Hereby it fulfilled the aim of taking part in at least 10 % of the installations.

The aim of this last action, according to what is established in the grant's contract, is to check, once the supplier companies have installed the systems, that the these work correctly and that the installation has been carried out following the standards demanded in the technical conditions. This way, the EU can proceed to a provisional recognition of the installation.

ITER must present a technical testimony to the EU regarding the system´s operation. In order to establish the above mentioned testimony, it´s necessary to guarantee that the subsystems that make up the installation work correctly.

MACSEN-PV Project

The MACSEN-PV project, launched within the frame of the PCT-MAC 2007-2013 European Programme, is a platform for technical cooperation between the Canary Islands and Senegal in the field of the integration of renewable energies in the power supply.

It´s main objective is to improve the capacity of public authorities and local technicians to support the implementation of renewable energies as part of the power supply in these regions.

The main foreseen result will be the establishment of new legislative measures and of energy planning that would contribute to the socioeconomic development of the participating regions, reducing their dependence on foreign energy supply and fossil fuels, and strengthening their corresponding power grids. Likewise, the project will contribute to the preparation and training of local human resources to supply, design, install and support this type of installation; being an example for other regions.

The project, which began in October 2010 and will last 24 months, is led by ITER and in collaboration with the Tenerife Energy Agency; the Rural Electrification Agency of Senegal and the Studies and Research Centre in Renewable Energies of the University of Dakar.

The First Transnational Coordination Meeting of the project took place in Dakar during the year 2010. During this meeting, the first dissemination materials of the project were designed along with the research tasks for the accomplishment of the first technical reports.

175m^3/day sea water desalination plant project

This project implies the construction of a new sea water desalination plant, with more capacity than the one already installed and used to complement it. The aims of this new installation are:

To cover the water demanded by the internal network of water supply of ITER´s facilities.

To design, plan and build internally this desalination plant at ITER to know exactly each of the elements that constitutes it, as well as its functioning.

To acquire enough knowledge about water treatment facilities to be able to carry out the operation and maintenance of both desalination plants.

Most part of the construction of this new sea water desalination plant has been executed during the year 2010. This plant has an inverse osmosis technology, a energetic recovery system and has a capacity of production of 175 m^3/day.

Both desalination plants are located in adjoining buildings, in the southern part of ITER's lands, approximately 120 metres away from the sea. They feed of the same well of water of sea, which has been gauged and located in the surroundings of the plants during this year.

Island 100 concept

The Island 100 computer model developed by ITER some years ago has continued with gradual modifications to include other renewable supply sources as well as storage. Furthermore the model has been standardized allowing the addition of any energetically isolated scene for its analysis.

In the year 2010, and immediately after the advising that ITER made to the Cabildo within the frame of the evaluation of the Partial Plan of Energy Infrastructures for the island of Tenerife, several improvements were added to the model, which include:

-storage addition in head pumping stations (storage capacity and turbine power)

- storage loads with surpluses of wind and / or photovoltaic

- adjustment of the evolution in the curve of demand, affected drastically by the recent crisis

- evaluation of the scenes reflected in the plan and analysis of the supply variation of Tenerife with renewable energies depending on the increases or declines of different variables.

SUSTAINABLE BUILDING

6

Renewable Energy Integration in Buildings

Monitorng System and Data gathering for Thermal Comfort Research

Design Patterns Project

6 SUSTAINABLE BUILDING

Based on the needs identified by the Institute in the recent years and following the existing research fields, ITER started a new line of work called Sustainable Building. This line is focussed on the research and development of architectural techniques to design and construct buildings according to climate, geomorphology, vegetation and water in order to reduce energy consumption and increase thermal comfort.

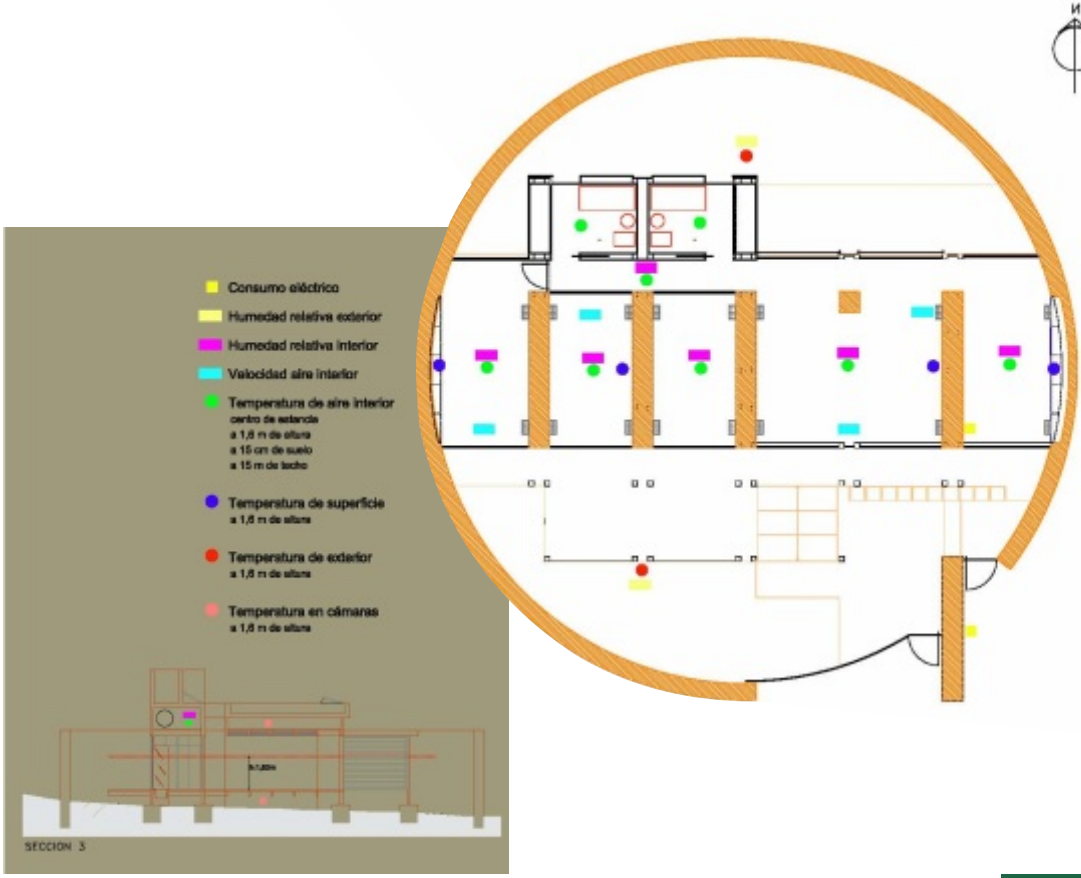
Another of its functions is to provide technical advice for other projects and activities, which are being carried out by the Institute.

Renewable Energy Integration in Buildings

Following this line, ITER works mainly in two fields: the evaluation of buildings energy performance and the design of renewable energy installations.

The evaluations of buildings energy performance 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. This being, 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.



Monitoring System and Data gathering for the Thermal Confort Study

Design and development of a control system governed by micro-controller which allows to capture information from several sensors which measure dampness, temperature and air speed and then transmit them through the communication protocol MODBUS RTU for serial port RS485.

The Electronics department has carried out the installation of the above mentioned system in the housings of the Bioclimatic Dwellings located within ITER´s boundaries. The data will be used to develop a study about thermal comfort within single-family bioclimatic housings of different typology under real conditions. Finally, the aim is to develop a comparative study among the different housings, which will conclude in the development of design and integration guidelines of active solar systems and home automation systems from real data on energy efficiency.

Design Patterns

The project "Design Patterns to optimize energy consumption and sustainable energy generation in sinlge-family housings in warm climates" is developed with the cofinancing of the Department of Science and Innovation within the National Program of Projects of Applied Research.

This project aims to create exportable design pattern, which could be used in other regions with similar climate, using as benchmark unit ITER´s Bioclimatic Dwellings. The design guidelines are determined by real experiences measured when living in the houses and gathered information about the different active and passive systems of bioclimatic architecture used in each house. In order to achieve this, each house is monitored so the comfort conditions are controlled. This information is gathered in a control system and can be checked in real-time at each house or in ITER's Visitors Centre. This data will help to establish which particular efficiency solution works best and to compare them.

The phase of data gathering and analysis is already finished and now the design guidelines are being developed to prepare a solutions catalogue that will be published in 2011.

ENVIRONMENTAL AREA

.7.

CO_2 diffuse emissions in Decepcion, Antártida

Teide 2010 Project

Tenair Project

Geothermal Exploraion in Rwanda

TRANSREG Project

Iberoamerican Vulcanology Net

Geothermal Exploration in Ganarhagua

Live Monitoring of Izu Oshima volcano

Timely Warning Systems for volcanic phenomena in Nicaragua, Philippines and Cabo Verde

7 ENVIRONMENTAL AREA

The scientific works developed within this field are basically related with the reduction of the volcanic risk, the research of underground water resources in volcanic islands, analysis and evaluation of atmospheric pollutants using optical remote sensors, exploration of geothermal resources using and applying geochemical methods, and the prediction of earthquakes by means of geochemical and hydrological methods.

Co_2 diffuse emisions from Decepcion Volcano, Antártida

This project has been financed by the National Subprogram of Polar Research of the Ministry of Science and Innovation and has been carried out by ITER´s researchers and the universities of Düsseldorf, Toyama and Tokyo.

The aim of this study is to estimate the CO2 emissions from the Deception volcano bay and to measure the spatial distribution of the carbon dioxide diffuse efflux in this volcanic system. Decepcion Volcano is in Decepcion island, where the “Gabriel de Castilla” Antartic Base is located. The Operations Division of the Spanish Army is in charge of this base that is hardly 100 km away in the North of the Antartica continent, in the Bransfield Strait . Decepcion Island forms the emergent part of a young active shield volcano, which is still active and last erupted in 1967, 1969 and 1970.

Teide 2010

Since 1997, ITER has been working to optimize and improve the volcanic surveillance in the island of Tenerife providing a multidisciplinary approach to the monitoring of the volcanic phenomena.

Nine geochemical stations and nine more geodesic 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 ITER in the surveillance activities.

Beside these geochemical and geodesic surveillance in continuous mode, other discrete geodesic surveillance work is done in discreet mode with the aim of optimizing the volcanic surveillance in the island of Tenerife.

Tenair

The environmental quality of air and the improvement of our knowledge about 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 equipped with sensors, that includes sensors to measure in continuous mode atmospheric polluting agents (particles, SO_2, NO_x, O_3, CO and CO_2), as well as a canister and an electrovalve system to take air samples and periodic analysis of volatile organic compounds (VOCs) in the ambient air of Tenerife. ITER also has remote optical sensors (COSPEC y OPFTIR) that allow the evaluation of pollutants from fixed sources and form the ambient air.

Geothermal exploration in Rwanda

This project is based on the application of geochemical methods for the geothermal exploration of Rwanda, Africa. The project, developed by ITER, was financed by the Federal German Institute of Geosciences and Natural Resources (BGR) to carry out studies of applied geochemistry to the exploration of geothermal resources in this African country. At present, the Government of Rwanda through the Department of Infrastructures and the Department of Natural Resources in collaboration with BGR are carrying out an evaluation of the geothermal potential in the northwest region of Rwanda. The geothermal exploration activities developed by ITER consisted in accomplishing a geochemical exploration of gases and volatiles, as well as a geophysical exploration of temperature gradient of an area of approximately of 140 Km^2 located in the northwest of Rwanda and of the surroundings of the volcano Karimbishi.

According to a preliminary report elaborated in 1999 by the Association of Geothermal Energy of the USA, the geothermal resources of Rwanda can be enough to provide 100 % of the country with electricity. At present less than 10 % of the population of this African country has access to electricity and the supply only has a 40% efficiency.

TRANSREG Project

This Project leaded by CEAM Foundation (Valencia) and in which the ITER´s Environmental Area research personal also takes part, is devoted to, firstly, seasonal description (spring versus summer) of meteorological processes which regulate the dispersion and transport of toxic fumes and aerosols, as well as their feedbacks and synergies associated with the occidental Mediterranean basin. Secondly, this is an applied research project with direct implications on the activities that the city councillor for Territory and Housing of Valencia maintain in relation with surveillance, control and air quality in the Valencian Autonomus Region.

Its foreseen that the results of this study will be useful to complement surveillance and air quality prediction works all over the Mediterranean slope as a consequence of increasing the knowledge of the relationship between mesoscale meteorology of the Mediterranean basin and the atmospheric pollutant concentration. TRANSGREG has been co-financed by the Science and Innovation Ministry.

Iberoamerican Vulcanology Net

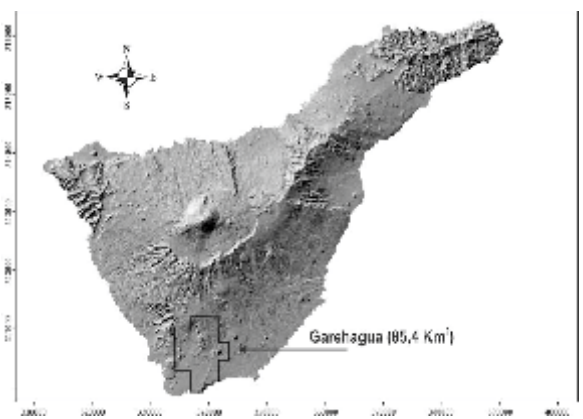
This net, promoted and started by ITER, is a new technical-scientific association. The founder partners of this new non profit organization, constituted by the will of iberoamerican institutions and foundations interested in the development of vulcanology and in the management of volcanic risk in the iberoamerican community are: Instituto Tecnológico y de Energías Renovables (ITER), Instituto Nicargüense de Estudios Territoriales (INETER), University of Buenos Aires (Argentina), University of Colima (México), Observatório Vulcanológico e Geotérmico dos Açores (OVGA), the City Council of Garachico, Menéndez Pelayo International University (UIMP), University of La Laguna (ULL), Univervisity of Castilla La Mancha (UCLM), University of Granada (UGR), Telesforo Bravo y Juan Coello Foundation, Laboratorio de Engenharia de Civil (LEC) of Cape Verde, and the Philippine Institute of Volcanology and Seismology (PHIVOLCS).

Geothermal Exploration in Garehagua

This project includes the geochemical exploration of gases and volatiles in the ambient surface of the Garehagua quadrant for the geothermal exploration and is framed within the line of geochemical works applied to the exploration of geothermal resources in Tenerife .

The works consist in accomplishing a geochemical exploration of gases and volatiles as well as a heat flow geophysical exploration of the environment of one of the four mining domains registered by Petratherm Hispania SL in Tenerife.

The works were carried out in the mining domain known as Garehagua which has an extension of 85,4 km^2 and is located in Arona's municipal terms: San Miguel, Granadilla and Vilaflor. The geochemical and geophysical exploration in Garehagua has allowed the accomplishment of hundreds of in-situ measurements of several gases and volatiles (mercury steam, Radon, hydrogen sulfate and the flow of carbon dioxide), as well as the heat flow in the superficial environment of the area of study. Parallelly, gas samples were taken in each of the 600 points of observation related to this study for its later chemical and isotopic analysis in the Geochemical Laboratory at ITER.

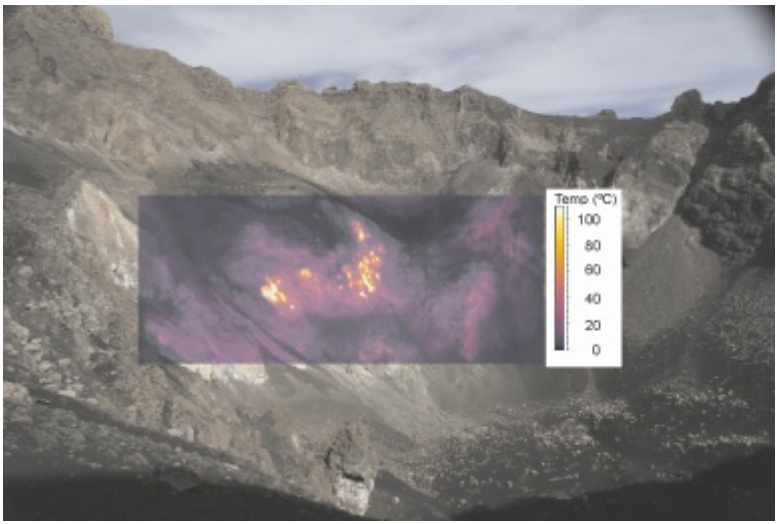


Izu Oshima Volcano Monitoring

Since 2007, ITER and the Chemical Laboratory of Earthquakes of Tokyo University (Japan), have been developing a live monitoring project of CO_2 emissions in Izu-Oshima volcano with the purpose of strengthening the geochemical programme for the volcanic surveillance.

In Izu-Oshima volcano, located 110 km southwest from Tokyo, 39 volcanic eruptions have been registered in the last 100 years, the last one in 1990. Volcanic eruptions with a higher explosive index have occurred in this volcanic building in a gap of 50 and 135 years along the last 1500 years. The first research efforts about diffuse emissions of carbon dioxide in Japanese active volcanoes (Myiyake-jima, Usu, Tarumae, Hakkoda, etc.) where made by ITER´s researchers in collaboration with Tokio University scientists.

One of the most important results was published in the prestigious scientific magazine Science and was related with the high increment of CO_2 diffuse emissions observed in the volcano Usu (Hokkaido, Japan) 6 months before it erupted in year 2000.



Timely warning system facing the volcanic phenomena in Nicaragua, Philippines and Cape Verde

These three projects aim to strengthen the warning system facing the volcanic phenomena.

The main goal of these three international cooperation projects financed by AECID is to provide the bodies responsible for the seismic and volcanic surveillance in Nicaragua, Filipinas y Cape Verde with the capabilities and technical resources needed to strengthen the volcanic surveillance in Nicaragua, Philippines and Cape Verde by incorporating the works on diffuse carbon dioxide (CO_2) measurements as a scientific-technical tool to enhance the detection of early warning signs of volcanic adverse events (seismic-volcanic crisis and volcanic eruptions) in these three countries.

The bodies in charge of the seismic and volcanic surveillance in these countries are the Instituto Nicaragüense de Estudios Territoriales, the Philippine Institute of Volcanology and Seismology, the Laboratório de Engenharia Civil de Cabo Verde, the University of Cape Verde and the National protecção Civil Service of the Government of Cape Verde.

The research activities, which have been carried out within the frame of these projects, have been mainly focused in Cerro Negro and Masaya volcanoes in Nicaragua, in São Vicente and Fogo volcanic island's systems in Cape Verde, and in Pinatubo and Taal in Philippines.

ENGINEERING AND NEW TECHNOLOGIES

8

Design and development of an Inverter for Energy storage in New Generation Batteries

Design and Development of 3kW power single-phased Inverters

New design for the 100kW power inverters (TEIDE 100)

Verdino Project

Development of a 1MW continuous electirc feed system

TICa Project

Development of the Tenerife Local website and webpages for the municipalities

Cooperation Agreement with public administrations for the development of the Information Society

Cooperation with the Agriculture Technical Service of the Cabildo de Tenerife

Connectivity Project for AMPAS (Parrent-student associations), youth associations and women associations in Tenerife

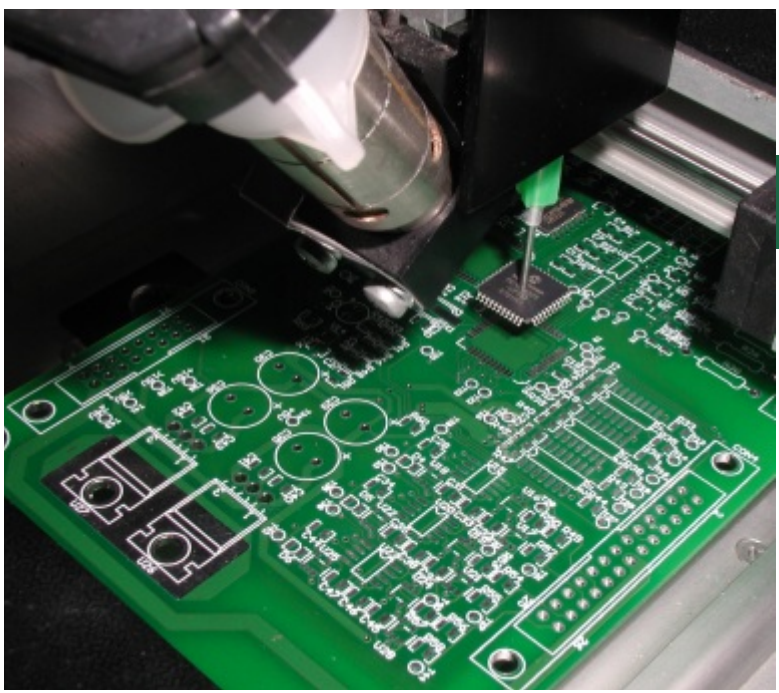
Cooperation agreements with the Insular Institute of Computing and Communications (IIIC)

Development of monitoring and management systems for energy production installations

8 ENGINEERING AND NEW TECHNOLOGIES

ITER works in IT development offering services related to New Technologies and focussed in the improvement of Web communications. ITER participates in several projects and agreements to help in the network approach.

On the other hand, ITER designs and develops electronic systems that allow the integration of technological systems which feed on renewable energies.



Design and development of an Inverter for energy storage in New Generation Batteries

This project has been carried out during the years 2008-2010 counting with a subsidy of the Department of Industry Tourism and Trade, and aims to help renewable energies penetrate in the electrical system, which implies a very high capacity accumulation system that can eliminate hereby the impact these renewable energies have in the electrical network.

This project constitutes the first step to evaluate the capacities and costs of this type of storage systems for its later large-scale implementation.

On the one hand, the infrastructure needed to shelter the storage system has been adapted with its respective inverter/loader system which is located in one of ITER's warehouses. Throughout the year 2010, the development of the inverter's prototype of 1MW has continued, as well as the power system needed to adapt the storage system to the inverter, together with all the tests required. In this inverter, the stage of control commands the energy extraction of the batteries under instructions, depending on the energetic demand at every moment. On the other hand, project dissemination tasks have been carried out, informing about its evolution and about different storage technologies in different conferences and congresses.

Design and development of 3kW power single-phased inverters

Design and development of 3kW inverters for domestic photovoltaic installations, whose immediate application would be the PV installation of the 25 bioclimatic dwellings located in the terrains of ITER.

These single-phase inverters for small PV roof plants have the development objectives of reducing the size and weight while increasing its efficiency.

The first prototype is nowadays still being tested for its optimization, being the maximum efficiency registered up to the moment of 97 %. The loss of 3 % includes the losses of the interconnection cable, yet to be determined more accurately but estimated in about 0.5 %. The inverter might have reached therefore up to 97.5 %. Though it is a good result for an inverter of this power, its a matter of optimizing the power stage to reach an efficiency of 98%, which is theoretically possible.

New design for the 100kW power inverters (TEIDE 100)

ITER manufactures and sells the TEIDE 100 inverters under request. TEIDE 100 is a three-phase photovoltaic inverter with a nominal power of 100 kW designed for grid connection. This inverter has all the electrical safety devices demanded by the article 11 of the RD 1663/2000, of September 29th, on the connection of photovoltaic facilities to the low voltage grid. An efficiency of up to 98,5 % has been measured for a power 30 % higher than the nominal one.

The TEIDE 100 is able to communicate with a control computer using the MODBUS protocol across an serial interface RS-485. Its functioning and commands could be monitored using a control software if necessary.

The inverter TEIDE 100 has a CE labelling and has passed successfully the tests proposed by the UNE-EN 50178 procedure of electrical safety and the UNE-EN 61000 of electromagnetic compatibility. Several modification have been carried out in the inverter during the year 2010. These modifications mainly concerned the redesign of the control system in order to add certain functional qualities to the current system.

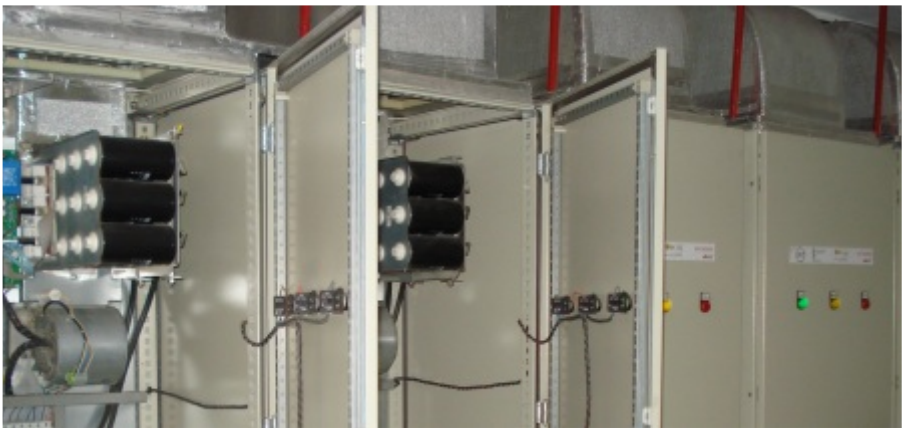
Verdino Project

This project aims to develop an self-guided vehicle to transport people within the bioclimatic dwellings of ITER.

The vehicle Verdino has been designed in cooperation with the Group of Robotics of the Department of Engineering, Systems and Automatic and Architecture and Technology of Computers of the University of La Laguna (GRULL).

Verdino is an ecological low cost electric vehicle such as the ones used in golf courses, but adapted both mechanically and electronically in order to make its direction, brakes and traction systems able to receive orders from a computer as well as being able to be led normally.

Verdino receives information from a set of detectors provided to supply vital information from its environment for the autonomous navigation. At the current point of play, works are being carried out to provide Verdino with new features, actually this vehicle is able to circulate with a remote control through a wireless connection. Also it is capable of carrying out the detection and the follow-up of a road that lacks all type of road signposting using exclusively information from one of its cameras. Finally, Verdino is able to repeat a pre-established tour only using the information provided by its positioning system.



Development of a 1MW continuous electric feed system

The SAI system is made up of an inverter, batteries, a charger for these batteries and the control system required.

An inverter is designed as a voltage generator for Uninterruptible power supply (SAI) applications of up to 1MW of power.

The batteries will be adapted to the requirements only limited by the inverter's maximun power.

The system will preferably operate on-line to decrease the use of mechanical components and to improve the time of reaction. Normally, the energy would come from the network, then it would be redirected towards the batteries and returned back to the inverter. In case there is absence of voltage in the grid, the inverter will extracts the energy from the batteries, guaranteeing the energy supply for the equipments connected at all times. A well designed inverter will improve the quality of the electric power, keeping it free from transient voltage surges.

The battery charger has the same power that the inverter, 1MW, and therefore should work with a unitary power factor, otherwise it would produce distortions for grid over-currents.

TICa Project

This project of ICT's application for people with functional diversity has allowed to continue with the collaboration relationship established since 1995 with SINPROMI for the execution of joint projects financed within the European programme HORIZON II.

In the year 2009 the INTERREG Programme PCT-MAC 2007-2013 approved this project.

In this project, ITER carries out the development of several technical supports that aim to improve the quality of life and personal independence of disabled people. In particular, ITER will analyze and prepare a series of adaptations for existing devices on the market, in a way which will answer the needs identified in the different support products . As for the activity of tutorials and software design, ITER will develop in the development an adaptive text processor.

Development of the Tenerife Local website and web pages for the municipalities

ITER has reached an agreement with the Cabildo de Tenerife to develop and coordinate the Tenerife Local website, focussed in providing more web presence to the municipalities of the island, as well as to increase their electronic administration abilities.

This project lies within the framework of the PMC, a Plan for the Modernization of the Municipalities of the island. Within the agreement with the Cabildo de Tenerife, a selection of portal's development tool based on open source applications has been carried out.

Up till now, the development or technical support for the following municipal websites has been performed: Santiago del Teide, Buenavista del Norte, San Miguel de Abona, Los Silos, Garachico, El Sauzal and Arafo. During the year 2010, Vilaflor and Icod de los Vinos have been inlcuded in this list.

Cooperation Agreement with public administrations for the development of the Information Society

ITER continues cooperating with different public organizations to develop numerous projects with the same objective: to improve the access conditions to the Information and Communication Technologies (TIC). Improving the availability of Internet services in general and the Electronic Administration services in particularly.

Cooperation with the Agriculture Technical Service of the Cabildo de Tenerife

This collaboration started with the development of the web sites www.agrocabildo.com and www.casadelamiel.com. From then on, that cooperation has continued both in the hosting maintenance and in the improvement of the web sites as in the development of a management and analysis application of the information collected by the data bases of the automatic stations distributed all over the island with the purpose of providing the farmers of Tenerife with information about meteorological advises and water recommendations. During the year 2010, the domain has still been hosted and the maintenance works have continued.

Connectivity Project for AMPAS (Parrent-student associations), youth associations and women associations in Tenerife

The aim of this project is to cooperate with the Youth, Education and Women Area, in the development of a concession of internet broadband connection program for associations of youth, women and AMPAS of Tenerife. ITER has been providing assistance for years to these associations in Tenerife. After defining a connectivity model which did not depend of its physical location, a connection system through mobile telephone 3G HSDPA technologies was chosen. This project ended in February of 2010.

Cooperation agreements with the Insular Institute of Computing and Communications (IIIC)

These agreements aimed the development of different joint activities, ranging from the improvement of quality application models in engineering software, to technical support in the development of web sites for the Cabildo de Tenerife. Studies have also been conducted for the possible application of certain solutions based on free software, support in drafting specifications and evaluation, and the study for the implementation of a Data Centre for the support of ITER's installations. The canalization projects of the Data Centre have taken place during the year 2010.

Development of monitoring and management systems for energy production installations

Each of the energy production installations is connected via a corporate network, using different technologies and communication protocols.

Among the interconnection technologies we have: optical fibre, for Ethernet data transmission between installations; twisted pair cable, used both for data transmission through Ethernet and for serial communication of the equipment; wireless communication, for data transmission both for short and long distance. This network allows the data of energy production and operation of plants to be gathered in a SCADA central server located in ITER´s facilities.

At the same time, data can be real-time displayed from anywhere in the world using a web browser. To complement this system, the installation of a video surveillance system with modern IP video cameras has been carried out allowing the connection through the same Ethernet communication's systems used for the interconnection of the rest of installations.

Furthermore, the infrastructure that allows to obtain real-time information from the inverters, energy metres, security systems and meteorological data acquisition stations has been developed in the different energy production units, both wind parks and photovoltaic plants.

TELECOMUNICATIONS

.9.

ALIX Initiative

Insular Ring of Telecomunications

CanaLink

D-ALiX Datacenter

Telecomunication System for the Bioclimatic Houses

9 TELECOMMUNICATIONS

ALIX Iniciative

ITER is involved in the ALiX project, an initiative consisting of submarine and terrestrial connectivity. This participation is undertaken directly through the use of ITER's own resources for the coordination of the ALiX's different activities, and indirectly through IT^3 (Instituto Tecnológico y de Telecomunicaciones de Tenerife S.L.).

The deployment of the Telecommunications Insular Ring and the Canalink submarine system are also framed within this initiative, as well as the construction and start-up of the datacenter that will be located at ITER's premises in Granadilla.

Telecommunications Insular Ring

With the aim of promoting and developing Tenerife's interior and exterior connectivity, ITER has created the Instituto Tecnológico y de Telecomunicaciones de Tenerife (IT^3), which will serve as a neutral telecom. IT^3 is responsible in the deployment of a dark fiber ring, the Telecommunications Insular Ring, taking advantage of the islands' road and rail network. This ring will be open access for all telecoms, intended to promote competitiveness.

In its initial phase, this ring will connect the metropolitan areas of Santa Cruz de Tenerife and La Laguna with the NAP, the telecommunications submarine cables connection point.

In the following phases, the ring will be completed being closed around Tenerife and extended towards the interior of the island with the purpose of offering connectivity and broadband to all towns.

The electronic communications service network that IT^3 develops and exploits consists of a passive fibre optic network, designated towards its rent as dark fibre optics.

IT[3]'s network passes through underground conduits in both road and rail infrastructures. It consists of an estimated 200 kilometres ring network with a maximum capacity of 504 fibre optics (all segments fully redundant).

All fibre optics that compose this network comply with the technical requirements for signal transmission:

General, core and access segments: ITU-T G.652d.

Special segments of the submarine cable endings: ITU-T G.655c.

During 2010, activities have focussed on:

- The writing-up of the projects for the deployment of the ring.

- Undertaking terrestrial conduits.

- Council's technical advice regarding the deployment of the Telecommunications Insular Ring core network.

- Coordination of the different institutions and firms involved in the Telecommunications Insular Ring core network.

- Coordination of other institutions (Insular and Municipal councils, etc) to secure licenses.

CanaLink

CanaLink is a submarine cable consortium between the Instituto Tecnológico de Telecomunicaciones de Tenerife and the firm Islalink, whose mission consists in developing the alternative telecommunications core network between the Canary Islands and mainland Spain.

The CanaLink cable system will connect Tenerife with mainland Spain, Gran Canaria and La Palma. This infrastructure has been deployed following the highest quality procedures and a solid network design due to the technical and service needs demanded by international telecoms, required to break down the digital barrier that currently exists between the Canaries and the rest of European regions.

The liberalization of the submarine core network market, introduced through CanaLink, will reduce the entry barriers to alternative telecoms, allowing these to deploy or even increase their own networks and with a major impact in the islands connected through CanaLink (Tenerife, Gran Canaria and La Palma), but also a huge impact in the rest of the islands due to the fact that CanaLink introduces liberalization conditions.

In Tenerife, the reduction of these entry barriers and therefore its appeal for ICT enterprises (telecoms and others) will be even more significant, due to the NAP as connectivity hub, and the deployment of terrestrial core network to all of the island's towns, which has been developed by the Council.

The increase of telecom competitiveness at the same time they develop their networks in Tenerife, supported by the ALiX project, the following effects will presumably take place:

-Increase in competitiveness between telecoms.

-Increase in telecommunications enterprises investing in alternative core and capillary networks.

-Improvement in broadband service quality in terms of capacity.

-Increase in the broadband service catalogue and its extension to further houses and enterprises, including the deployment of fiber (FTTH) to the subscribed client through several competing telecoms.

-Further development and deployment of mobile broadband, where competitive broadband services will be extended to populated areas.

-Competitiveness increase of ICT enterprises in the Canaries, particularly those which will compete in the international market.

-Percentage increase in ICT enterprises that represent the Gross Domestic Product of Tenerife (and the Canary Islands), consequently meaning in an increase in employment.

-Extending greater awareness to the society regarding the importance of the production in the Canary Islands.

-The linking of Canary investigation centres to the RedIRIS-NOVA and Research and Development international networks, allowing the development of new ways of supercomputing and the feasibility of important R&D infrastructure projects.

D-ALiX Datacentre

D-ALiX is a world class datacenter (TIER III+) and framed within the ALiX initiative. This infrastructure consists of 4,500m^2 space, including more than 2000m^2 dedicated for IT hosting.

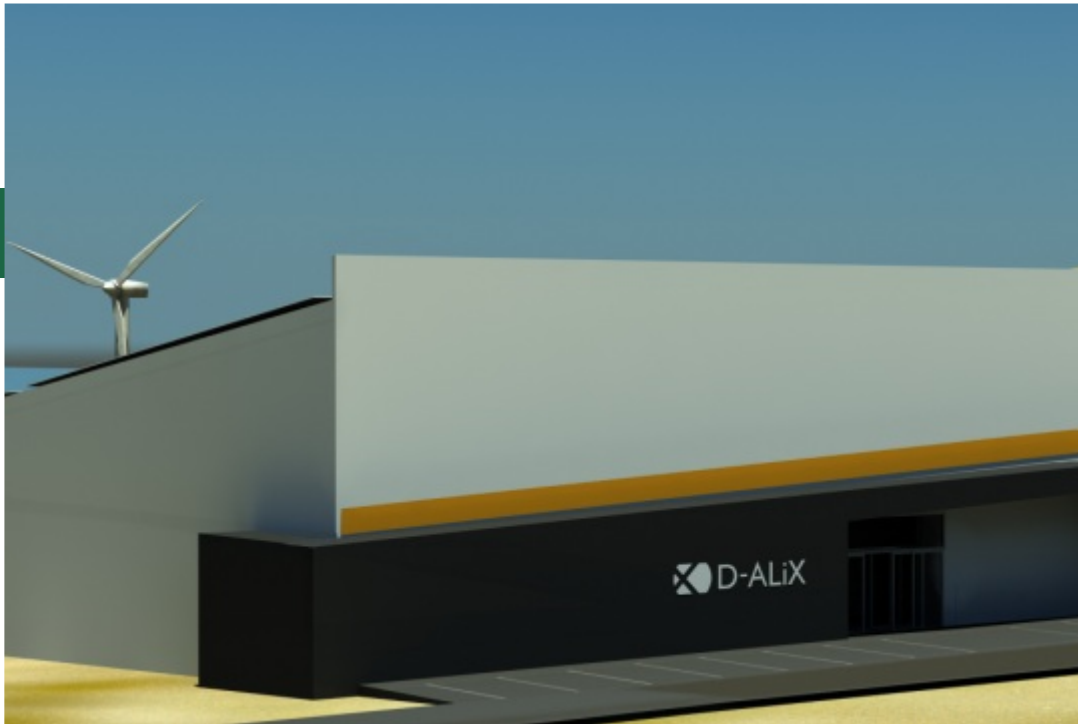
The business philosophy of our D-ALiX datacenter (NAP of Western Africa and Canary Islands S.A.) is to serve as a base infrastructure allowing our clients to develop their business model without the need of large investments, taking advantage of a model of rent that will allow a flexible growth while they benefit from the economies of scale conveyed by the infrastructure promoter - the Institute of Technology and Renewable Energies.

Our aim objective is to offer our clients high availability hosting services and a competitive environment of high-end communications with the outside world, prevailing the following three concepts as the main characteristics to be offered to the information and communications technology (ICT) market:

-Highest levels of security, cooling and electrical availability.

-Resistancy to inclemencies and autonomy in case of environmental disasters.

-To provide high levels of connectivity and quality of communications based upon neutrality in the choice of the carrier.



Telecommunication System for Bioclimatic Houses

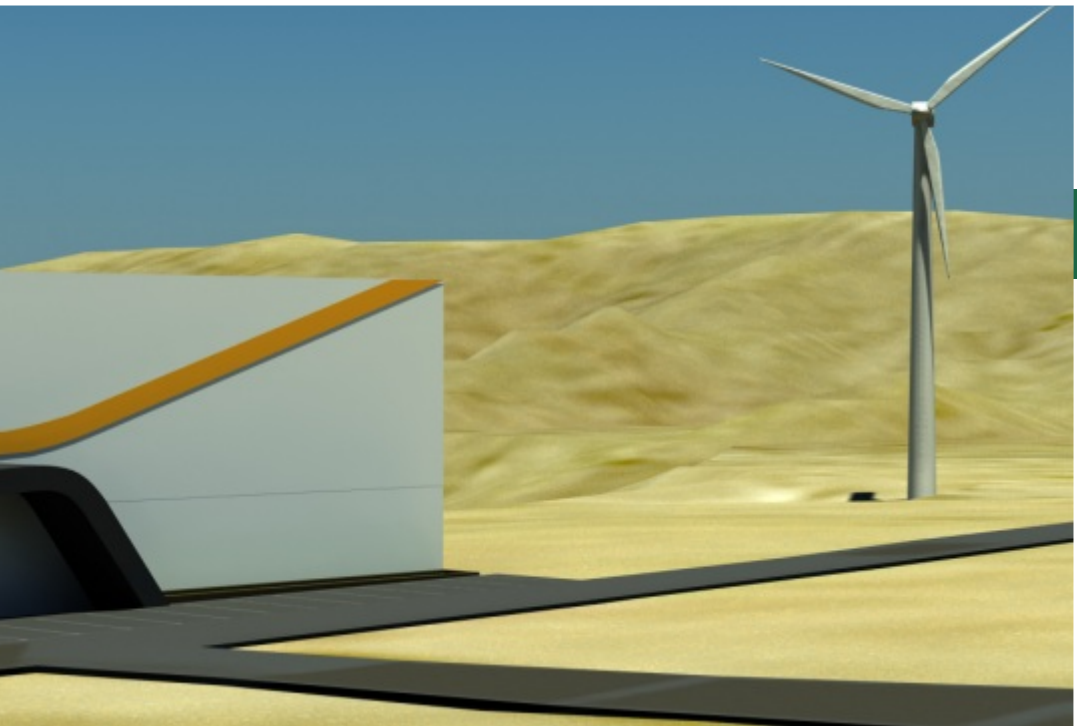
The development and design of the bioclimatic houses communications network which comprised of the following activities during the year 2010:

- Design, installation and configuration of the TV signal coverage through its conversion to IP signalling.

- Deployment of the telecommunications network leading to the houses and inside them.

- Establishment of a monitoring communications system for the houses.

- Development of a web monitoring data display application and the houses TV decoders.



DISSEMINATION AND TRAINING

.10.

Web page www.iter.es

Master´s Degree in Renewable Energies

Open Doors Day

Visibility Plan for ITER´s Houses

Management of Dissemination and Educational Facilities

General Dissemination Activities

Planeta Vivo Radio

TELEPLANETA

Aires de Tenerife

Canarias: Una Ventana Volcánica en el Atlántico

Conferencia Internacional "Cities on Volcanoes 6 - Tenerife 2010"

Communications and Conferences

25th European Photovoltaic Solar Energy Conference and Exhibition. September 6th - 10th ,2010. Valencia. España

Foro Regional ECOWAS sobre "Energías Renovables en el oeste de África". Ocober 18th - 21st,2010. Dakar (Senegal).

International Conference "El Cambio Climático y la Cooperación al Desarrollo: soluciones regionales y locales innovadoras para la mitigación y la adaptación". May 26th 2010 (Huelva).

PV-Hybrid and Mini-Grid Conference. April 29th and 30th ,2010. Tarragona, España.

10 DISSEMINATION AND TRAINING

ITER strives to make a good dissemination of its projects and investigation tasks and accordingly the Institute has a specific department designated to carry out these tasks. All the dissemination, education and social awareness tasks carried out about energy matters are aimed to inform the local population along with ITER´s visitors about the researches carried out to promote renewable energy technologies and systems.

The department specially emphasizes in the need of awareness and training activities. Since 1998, ITER has one of the leading installations in Spain dedicated to alternative and renewable energy sources in Spain managed nowadays by the Dissemination department. Moreover, the personnel of the other departments also participate in several training activities, such as the master's degree in renewable energies, courses and conferences.

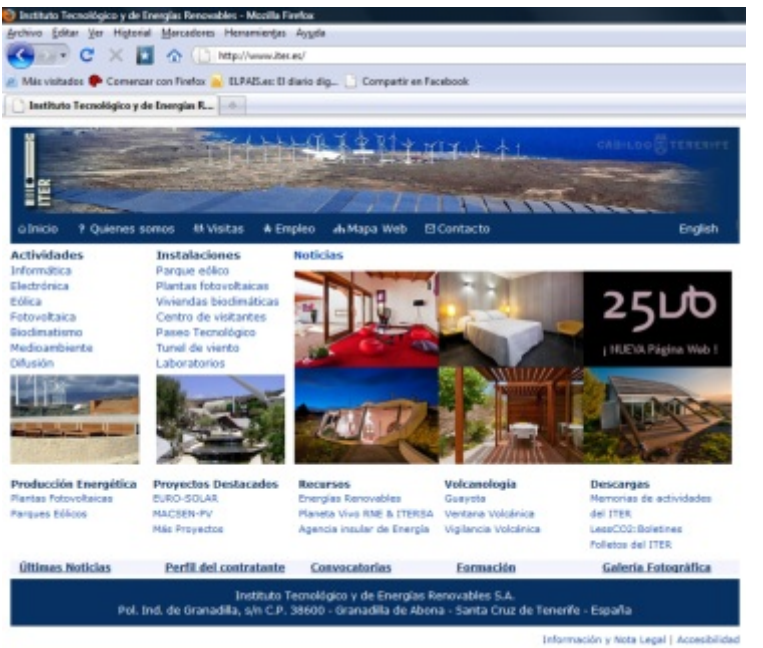
Other tasks carried out by ITER in this field are the management and updating of the Web page, the development of dissemination and educational publications such as the quarterly bulletin Less CO_2, the celebration of open door days, the collaboration with the media, etc.

Web page www.iter.es

ITER works to develop and update the web page content, improving navigation and accessibility. Work is still underway to get a more dynamic and easier site. The page, available in both English and Spanish, offers a tour explaining the main tasks and projects carried out by the individual departments as well as offering news updates of activities conducted at the Institute and the possibility of downloading different ITER´s media publications and legislation concerning the sector.

ITER´s website has received a total of 37,500 visits from 106 different countries during the year 2010.

Furthermore, ITER develops and updates other Web pages related to the different projects in which the institute is involved.



Master's Degree in Renewable Energies of the University of La Laguna

The Master's Degree in Renewable Energies, which has been included as an official degree of the University of La Laguna (ULL), is focussed on training professionals in the field of renewable energies with the following profiles:

- Professionals capable of designing and implementing systems with technologies in pre-commercial or commercial state.

- Economists and business men expert in commercial or pre-commercial technologies, capable of designing strategic plans for the public administration and socioeconomic fabric to promote the development of the sector, and able to promote an appropriate business and financial framework.

- Researchers with scientific and technical profile capable of undertaking research and development projects within the university and business sphere.

Professionals from the University of La Laguna, Instituto Tecnológico de Canarias and Instituto Tecnológico y de Energías Renovables taught this master degree that has achieved a recognized prestigious and a successful penetration of graduates in the labor market associated with renewable energy.

ITER collaborates in the master's degree with the presence of several technicians and researches form the departments of Wind Energy, Photovoltaics, Bioclimatism, Electronics and Environment. Besides, the solar energy speciality is given entirely at ITER facilities, as well as half of the wind energy speciality. The Institute also receives some of the students to do internships.

The first Edition of this master's degree as an official degree of the ULL (academic course 2010-2012) and has 20 students enrolled.

Open Door Days

ITER knows the importance of promoting the scientific culture among the population and therefore periodically celebrates “ITER´s Dissemination Days”. During these days the visitors can go into facilities that are normally closed to the public and learn and participate in activities and projects that are being carried out.

The Open Door Day of ITER´s 25 Bioclimatic Houses stands out during the year 2010. This activity was organized together with the Tenerife Energy Agency within the European Sustainable Energy Week - EUSEW 2010. This event was ran parallel to the official inauguration of the village with the aim of promoting and disseminating the main bioclimatic techniques an of renewable energy integration in architecture. The activities planned included guided visits to the houses, dissemination talks and the premiere in Canaries of the movie "Last call for Planet Earth", with two cinemas–forum meetings. The guided visits planned at the beginning had to be tripled in order to satisfy the final demand.

For the third year in a row, ITER participated in the European Solar Days in May 2010 celebrating several Open Days to different installations related to the solar power, such as the EURO-SOLAR Program prototypes, which describe the wide range of possibilities renewable energies can afford for the development in rural areas.

In November 2010, ITER also celebrates Open Door Days within the frame of the “Science and Innovation Week in the Canary Islands 2010”organized by the Government of the Canary Islands. This event included guided visits to the main installations and projects related to scientific and innovation activities developed at ITER.

Visibility Plan for ITER´s Bioclimatic Houses

ITER inaugurated the project "25 Bioclimatic Houses for the island of Tenerife" in 2010. From this moment, the efforts are focussed in the development of new action lines that allow the attainment of its principal aim, the dissemination of bioclimatic skills and of the integration of renewable energies together with its possible applications.

The dissemination of the project an d the bioclimatic skills developed in the houses have been brought to the general public by numerous publications about these matters along with the organization of guided visits, both technical or aimed to the general public, always with previous appointment. The dissemination of this project has also been strongly aimed at the sector directly dealing with construction and urban development planning. In total, the housings have received 4.000 visits along the year 2010.

Another action line is based on the dissemination of this bioclimatic installation, collaborating with both national and international mass media; presenting the project in Congresses dealing with energy efficiency in building, sustainable architecture, integration of renewable and vacation sustainable housings. This action line started with the presentation of the project in the "XV Climate Change International Conference", celebrated in Copenhagen (Denmark) in 2009.

The webpage of the Bioclimatic houses has been designed and launched during the year 2010. The above mentioned page, http://casas.iter.es/ is available in three languages (Spanish, English and German) and contains all the information about the project "ITER´s Bioclimatic Houses, as well as the particular characteristics of each and every house. This web page also allows the booking of the houses, and explains the accommodation conditions and the services available in this energetically self-sufficient village with Zero CO_2 emissions.

On the other hand, the phase of technical stays in the housings has started. These stays are aimed at technical groups which are being trained in architecture and solar utilization, as well as to other groups that could be interested in knowing first hand the functioning of a bioclimatic housing.

Management of educational-dissemination facilities

The educational-dissemination facilities of ITER are part of a very ambitious, large-scale and complex project that can be divided into: Visitors Centre, Technological Walkway and the Bioclimatic Dwellings. The Technological Walkway, in operation since 1998, was complemented in 2004 with the opening of the visitors centre and the project has been culminated with the inauguration of the 25 Bioclimatic Dwellings.

The Management of these facilities is conducted by the dissemination department which is responsible for informing the public about these facilities and the offered services. It carries out and coordinates visits, and works continuously to improve and update the content and development of extra materials, brochures, guides and videos on energy issues, energy saving and the use of some energy sources. ITER also coordinates requests for visits to other installations, which do not have exclusively dissemination aims, such as the photovoltaic platform SOLTEN.

The first dissemination equipment developed for this purpose, the technological walkway, receives about 8.500 visitors per year, including students and other guided visits. Nonetheless, the walkway can be visited without the guide service so this number can be enlarged with many other people who decide to visit the technological walkway on their own.

The Visitors Centre is the starting point from where to part to the different equipments. The visitors are welcomed here and organized depending on the type of audience, the time they have and their interests. Moreover, the building itself is part of the visit now that it includes and exhibition route about energy.

Various events are organized and hosted in the conference room of the visitor's centre, some of these events that took place during 2010 are:

- Foundation Stone ceremony of the NAP Datacenter.

- Opening ceremony of the 25 bioclimatic dwellings complex of ITER.

- Sessions of the workshop of Water and Energy of the ACP - EU Joint Parliamentary Assembly..

- Conference on the 25 Bioclimatic Dwellings Complex.

- Seminar on Climate Change and Renewable Energies “Más allá de Copenhague: Cambio Climático y Energías Renovables en Asia y África”, organized by Casa África and Casa Asia.

- Conference on European policy and Climate Change during the Spanish presidency organized by the Tenerife Energy Agency.

- Training sessions on bioclimatic architecture, organized by the Italian company CasaSoleil.

General dissemination activities

ITER continuously carries out tasks for the dissemination of its respective projects, and produces different dissemination and educational publications.

An example of these publications is the edition and publication of the quarterly newsletter "LessCO_2", which is distributed by post to over 400 regional and national organizations, as well as to European institutions. The bulletin is also available for download on the webpage of the Institute and is distributed directly in ITER's facilities and events.

In addition, ITER releases its annual activity report, both in English and Spanish, available for download on the website and other publications such as posters or leaflets.

ITER also publishes periodic Press Releases, which are channelled through the Press Office of the Cabildo Insular de Tenerife. The institute frequently collaborates with the media through interviews, by preparing reports, submitting written or graphic material and managing the shootings in ITER facilities, among other collaborations.

On the one hand ITER, in most cases through the Dissemination Department, participates in fairs, courses and conferences related to their field of action, through lectures and conducting workshops on Renewable Energy and about its projects. Many of these actions are undertaken in collaboration with the Tenerife Energy Agency. During the year 2010 ITER attended to the following events, conferences and workshops, among others:

- Meeting on Energy in the Canary Islands (Nautical School of Tenerife - January).

- Conferences of the Canarian Cultural Foundation of Engineering and Architecture e Betancourt and Molina (Tenerife - March).

- VII Seminar of the work group of the Spanish Ministry of Environment, Rural and Marine areas *Answers from Communication,to Education and Participation vs. Climate Change* (Segovia - April).

- XII Program of Young Hispanic Leaders (Tenerife - April).

- "TF Innovación" Forum (Tenerife - April).

- Conference "PV-Hybrid and Mini-Grid". (Tarragona -April).

- International on Renewable Energies and Building in Africa (Dakar - May).

- Conference on sustainability in the Canary Islands (Ateneo of La Laguna - May).

- Conference on Sustainability "Compromiso con la Sostenibilidad" (Tenerife - May).

- International Conference on Climate Change and Cooperation “El Cambio Climático y la Cooperación al Desarrollo: soluciones regionales y locales innovadoras para la mitigación y la adaptación (Huelva - May).

- Seminar on Climate Change and Renewable Energies in Asia and Africa “Más allá de Copenhague: Cambio Climático y Energías Renovables en Asia y África”, organized by Casa África and Casa Asia (Tenerife - May).

- Fair on Tourism and cultural industry (Dakar - May).

- Conference on European policy and Climate Change during the Spanish presidency.

- Fair PISE 2010 - International Fair of Energy (Dakar - June).

- Activities of the Day without smoke (Puerto de la Cruz - September).

-ICAP training course about the environmental impact of renewable energy installations (Tenerife - June).

- Knowledge fair of El Médano (Tenerife- August).

- 25th European Photovoltaic Solar Energy Conference and Exhibition. (Valencia - September).

- ECREEE Regional Forum on Renewable energies in West Africa (Dakar - October).

- Mini-fairs of Sciencie (La Laguna - November);

- Fair of science (La Orotava - November).

On the other hand, ITER, as a leading institution in its field, the Institute receives official visits all the year round of different relevant delegations. During the year 2010, the following visits can be highlighted:

Member of the European Parliament, Joaquim Peller, Delegation of Bulgarian Mayors, Management Committee of the ACE Association "Africa Coast to Europe - submarine cable consortium", Assembly of Members of the European Parliament ACP-UE, Senegal Government Delegation, Delegation of Young Hispanic Leaders; Cape Verde Government Delegation, SPEIC10 "International Conference on Sustainable Fuels" Congress Attendees, Delegation of Environmental Advisors from different European Countries, Gambia Government Delegation, Delegation of the American Association "The Corporate Council on Africa", General Secretary of the Innovation from the Ministry of Science and Innovation, Delegation of businessmen from Israel, La Laguna University Forum "Industrial Estates, Technological Parks and Spatial Planning in Tenerife", Members of ITER´s the Scientific Committee.

Planeta Vivo Radio

Planeta Vivo Radio is a scientific dissemination programme of both, ITER and RNE in the Canary Islands, that is coordinated by the Division of Environment of ITER. This radio programme is 50 minutes long and is broadcasted weekly on Radio 5 for the Canary Islands and Radio Exterior de España (REE) for the rest of the world. This initiative promoted by ITER and RNE was born in a very special year (2008), the International Year of Planet Earth, and intends to contribute in the dissemination and accomplishment of the purposes of this important international statement proclaimed by the General Assembly of the United Nations in the session of December 22nd, 2005. The main objective of this statement is to make the society aware of the relationship between the Humankind and Planet Earth, and to stand out the importance that Sciences of the Earth has in the consecution of a sustainable and balanced future in order to increase the quality of life and safeguard the planetary dynamic.

TELEPLANETA

TELEPLANETA is a new television microspace shared by both, TVE in the Canary Islands and ITER, and coordinated by the Division of Environment, which seeks to raise awareness about the impact that natural risks cause in our society with the aim of promoting the scientific culture and innovation, in order to contribute to the reduction of natural risks.

TELEPLANETA is a new programme completely developed in the Canary islands for the whole world by its broadcast in the Channel 24 Hours of TVE. This programme, which is also broadcasted weekly in Channel 2 of TVE for the Canary Islands, is directed by the geologists David Calvo. The programme is being co-financed by the Spanish Foundation for Science and Technology (FECYT), which is an organism dependent on the Science and Innovation Miistry (MICINN).

Aires de Tenerife

This programme of technical-cientific dissemination is aimed to contribute to rise the awareness of citizens about the emission of pollutants into the atmosphere, the quality of air and the Climate Change.

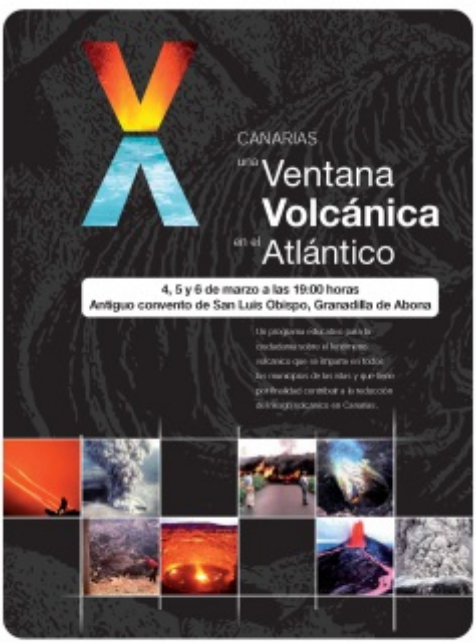
The programme, which has a duration of a week in each municipality of Tenerife, consists of four main activities:

- Installation of a mobile unit for the monitoring and measurements of air pollutants (SO_2, CO, O_3, CO_2, NO_x and Pm10 particles).

- Exhibition "Climate Change: impacts, explanations and solutions" of the Environmental Ministry that consists of 17 posters on air pollution, reasonable energy saving and global climate change. The exhibition is completed with 4 posters about air quality, the atmospheric surveillaince programme in the Canary islands and the tasks carried out by ITER in this field.

- Guided visits into the above mentioned mobile unit, as well as to a second mobile unit that is equipped with COSPEC optical sensor, which ITER has for the evaluation of emission and immission of air pollutants in the island of Tenerife.

- Conference addressed to schools on the emission of pollutants into the atmosphere, air quality and Climate Change.



Canarias: Una Ventana Volcánica en el Atlántico

It is a dissemination programme that ITER´s environmental division carries out in all the municipalities of teh Canary Islands, including the Island of la Graciosa. The aim of this programme is to inform an train the population of the islands about the volcanic phenomenon and the management of the volcanic risk.

This programme has the support of the Instituto Español de Oceanografía, Instituto Geológico y Minero de España, the Academia Canaria de Seguridad, the Agencia Canaria de Investigación, Innovación y Sociedad de la Información, the Federación Canaria de Municipios and the Fundación Telesforo Bravo-Juan Coello.

Internacional Conference “Cities on Volcanoes 6 - Tenerife 2010"

The Conference, celebrated from May 31st to June 4th, was proposed by the Commission of Cities and Volcanoes of the IAVCEI, International Association of Volcanology and Chemistry of the Earth's Interior and organized by the Canary Foundation ITER and the Cabildo Insular of Tenerife. This event counted with the support of the Town hall of el Puerto de la Cruz as well as the International Society for Rock Mechanics, Volcanology Spanish Society, the Spanish Society of Rock Mechanics and the Volcanology Association of the Canary Islands.

The CoV6-Tenerife 2010 was designed to be an international forum of debate on the management of the volcanic risk in which to exchange experiences and knowledge with the purpose of evaluating and improving the actions aimed to manage the volcanic risk in volcanically active regions.

The participation in the CoV6-Tenerife 2010 was very satisfactory, counting with 863 participants proceeding from 53 countries representing all the continents. A total of 653 communications were presented, of which 17 were plenary conferences, 238 oral presentations and 398 poster type presentations. In addition the student community of the island took part very actively, presenting more than 500 drawings and figures of volcanoes.

The activities open for the general public, such as the movies and documentaries on the volcanic phenomenon "Movie Volcanoes" celebrated in the Cinema Chimisay of el Puerto de la Cruz, were also very well received, registering 1703 attendees.

Another result of this Conference, is the start of the World Organization of Cities on Volcanoes, WOVOCI, at the suggestion of the Cabildo Insular of Tenerife, which will allow to improve the strategies raise awareness about the volcanic phenomenon among the communities and to improve the management of the volcanic risk across the transnational cooperation among cities and communities with the Commission of Cities and Volcanoes of the IAVCEI.

25th European Photovoltaic Solar Energy Conference and Exhibition. 6 - 10 September 2010. Valencia. Spain

This International conference is the benchmark for the global scientific community about solar photovoltaic energy. ITER presented the following communications:

Poster Effects of the Saharan Dust in the performance of Multi-MW PV Grid- Connected Facilities in the Canary Islands.

Authors: C. Montes, B. González-Díaz, A. Linares, E. Llarena, O. González, D. Molina, A. Pío, M. Friend, M. Cendagorta, J.P. Díaz, F.J. Expósito

Poster Evaluation of the Chemical and Thermal Passivation of Silicon to Produce Solar Cells.

Authors: E. Jiménez-Rodríguez, V.M. Sánchez-Fajardo, B. González-Díaz, A. Montesdeoca-Santana, B. Díaz, M. Torres, R. Guerrero, D. Borchert, A. Linares, E. Llarena, C. Montes, O. González, D. Molina, A. Pío, M. Friend, M. Cendagorta.

Poster Evolution of the Spanish Photovoltaic Market with the Regulatory Framework: First Conclusions of the New PV Royal Decree 1578/2008

Authors: M. Friend, C. Montes, B. González-Díaz, A. Linares, E. Llarena, O. González, D. Molina, A. Pío, M. Cendagorta.

Poster Advantages, Disadvantages and Impact of Legislative Changes in Spain in the Field of Solar Photovoltaic

Authors: M. Friend, C. Montes, B. González-Díaz, A. Linares, E. Llarena, O. González, D. Molina, A. Pío, M. Cendagorta.

Oral presentation and poster EURO-SOLAR Programme: Renewable Energy for Development

Authors: L. López-Manzanares, J. Rodríguez, A. Linares, M. Cendagorta

Regional Forum ECOWAS on renewable energies in West Africa. October 18 - 21, 2010. Dakar (Senegal).

The initiative ECOWAS was launched in this interactional forum of experts in photovoltaic energy and development cooperation.

This initiative is aimed to lead and coordinate the installation of solra photovoltaic plants in the countries of West Africa.

Oral presentation ITER PV projects in Senegal: Rural electrification project in Ranerou and MACSEN-PV project, for the implementation of RES for electricity supply in Tenerife and Senegal.

ITER / AIET

Authors: J. Rodríguez; M. Alonso; M. Friend

International conference on climate change and development cooperation “El Cambio Climático y la Cooperación al Desarrollo: soluciones regionales y locales innovadoras para la mitigación y la adaptación. May 26, 2010 (Huelva).

The assembly of the European Regions has organized this conference in which ITER´s cooperation project with Senegal for the Cabildo de Tenerife was selected as “an innovative expirience and good practice” after having been selected among more than 400 cooperation projects of regional or local entities.

Oral presentation Pilot Project of Rural Electrification in Senegal.

ITER / AIET / Serv. Cooperación Internacional. Cabildo Insular de Tenerife

Authors: M. Alonso; J. Rodríguez; M. Torralbo.

PV-Hybrid and Mini-Grid Conference. April 29-30, 2010. Tarragona, Spain.

Conference organized by the Institute of Technology Transfer associated to the University of Applied Sciences of Ulm. The conference was developed with the presence of 185 attendees from 30 different countries.

Communication and oral presentation Hyress Project: Study case of Tunisia. Installation, set-up and first results.
ITER / Agence Nationale pour la Maîtrise de l'Energie (Tunisia)
Authors: M. Cendagorta, M. Friend, A. Linares,L. López-Manzanares, A. El Khazen.

Communication and oral presentation Provisional acceptance methodology of installations and online data submission of PV & Hybrid kits in remote areas of Latin-America under the EC's EURO-SOLAR Programme.
Authors: O. López-Manzanares, J. Rodríguez Álamo; M. Cendagorta.

ENERGY PRODUCTION

11

PV Installations

Solten I

Solten II

Finca Verde

Finca Roja

Mercatenerife 1

Pilot Plant

Wind Park Installations

Experimental Platform

4,8MW Wind Park

5,5MW Wind Park

11 ENERGY PRODUCTION

Gupo ITER executes projects both of photovoltaic plants and of wind parks.

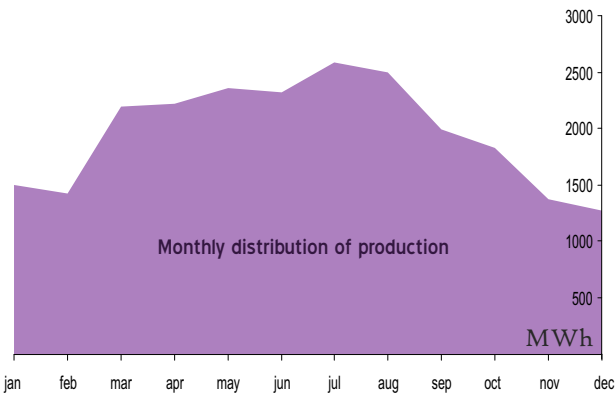
In the photovoltaic field, the Group has carried out the installation of 39MW, which corresponds to 46 % of the total photovoltaic power installed in the island.

As for the wind power, the Group owns 13,16MW distributed in three wind parks and, after the power appointment in the last wind energy contest, ITER will install three new wind parks that will add up to a total of 53,6MW of wind power installed in Tenerife.

Shown below, the energetic production information corresponding to the year 2010, of the facilities owned by the Group ITER.

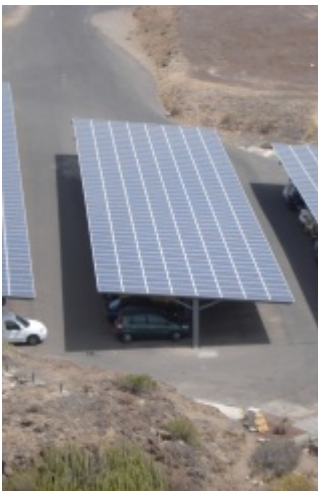
Photovoltaic Installations

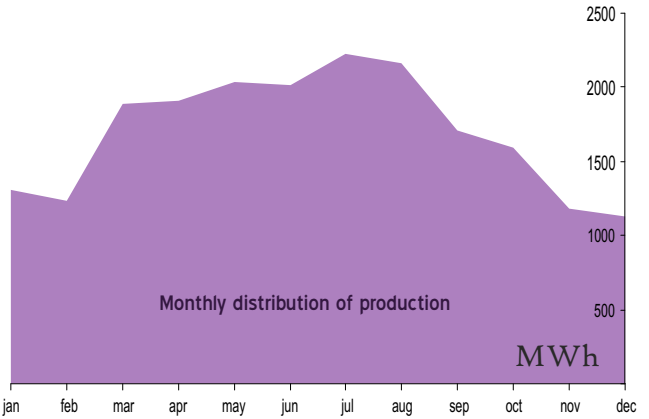
Solten I



Installed power 13.000 kW
Generated Energy 23.640 MWh
ITER participation 400 kW
Equivalent consumption 27.984 persons
Tons of CO_2 emissions avoided 13.128 tons

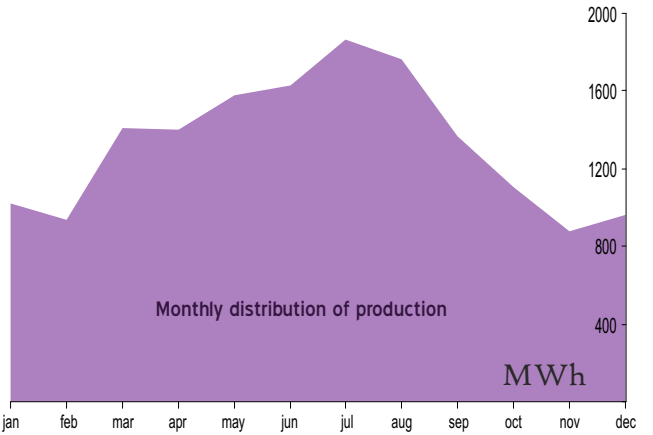
Solten II





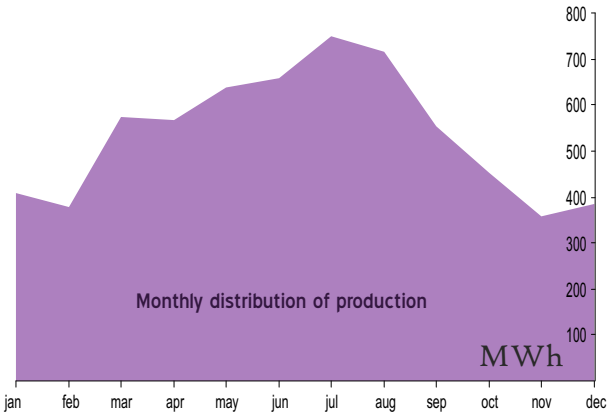
Installed power 11.000 kW
Generated Energy 20.407 Mwh
ITER participation 21,55 %
Equivalent consumption 24.157 persons
Tons of CO_2 emissions avoided 11.333 tons

Finca Verde



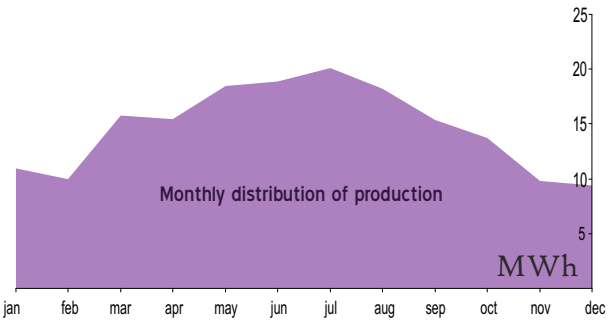
Installed power 9.000 kW
Generated Energy 15.933 Mwh
ITER participation 30 %
Equivalent consumption 18.861 persons
Tons of CO_2 emissions avoided 8.848 tons

Finca Roja



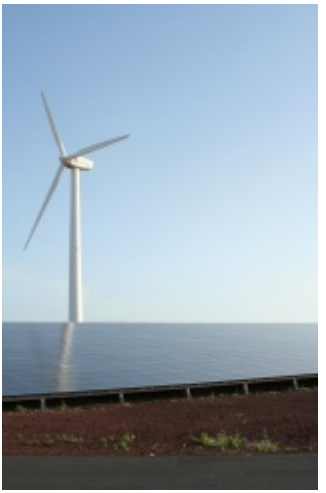
Installed power 3.600 kW
Generated Energy 6.441 Mwh
ITER participation 39,94 %
Equivalent consumption 7.625 persons
Tons of CO_2 emissions avoided 3.577 tons

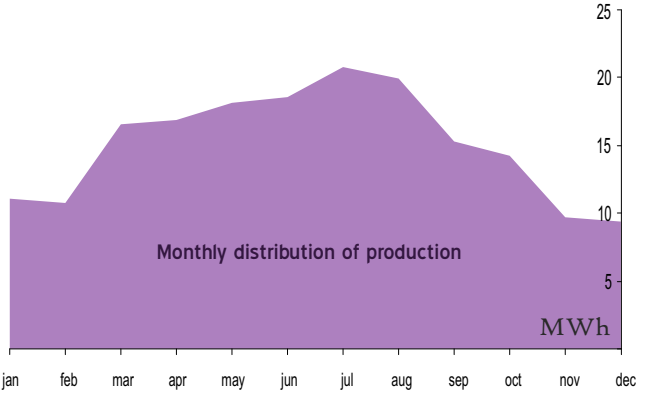
Mercatenerife 1



Installed power 100 kW
Generated Energy 176 Mwh
ITER participation 100 %
Equivalent consumption 208 persons
Tons of CO_2 emissions avoided 98 tons

Piloto Plant

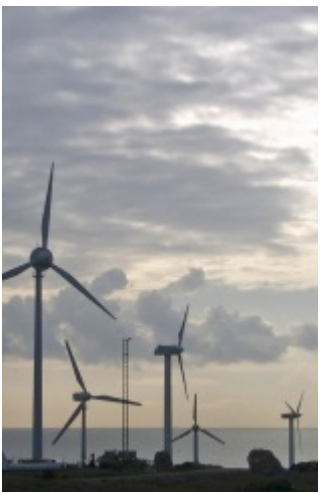


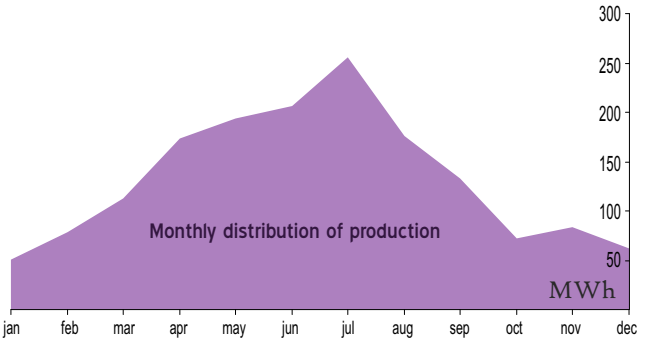


Installed power 100 kW
Generated Energy in the year 181 Mwh
ITER participation 100 %
Equivalent consumption 214 persons
Tons of CO_2 emissions avoided 101 tons

Wind Energy Installations

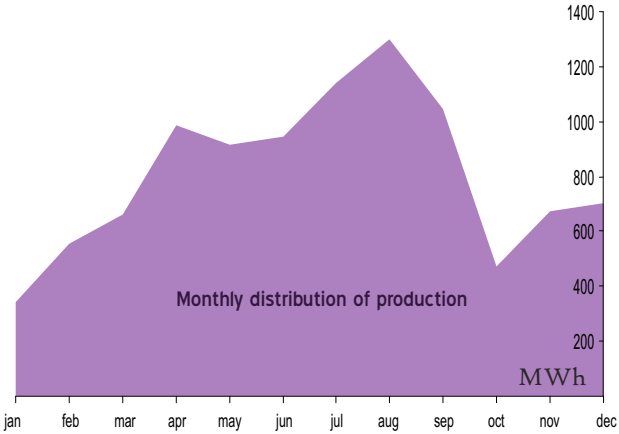
Experimental Platform





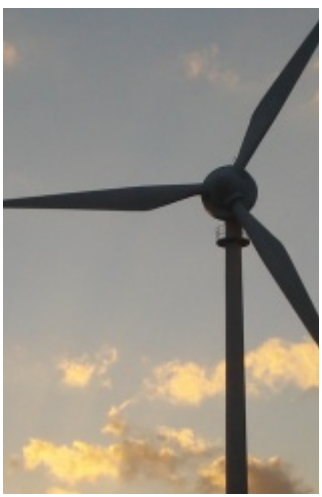
Installed power 2.830 kW
Generated Energy 1.596,7 Mwh
ITER participation 75,26 %
Equivalent consumption 1.890 persons
Tons of CO_2 emissions avoided 886 tons

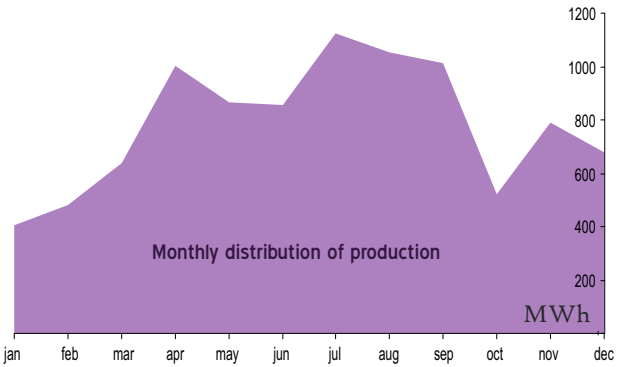
4,8MW Wind Park



Installed power 4.800 kW
Generated Energy 9.750 Mwh
ITER participation 50 %
Equivalent consumption 11.541 persons
Tons of CO_2 emissions avoided 5.414 tons

5,5MW Wind Park





Installed power 5.500 kW
Generated Energy 9.431 Mwh
ITER participation 100 %
Equivalent consumption 11.164 persons
Tons of CO_2 emissions avoided 5.273 tons

ECONOMIC INFORMATION

.12.

Consolidated statement of profit and loss

Consolidated balance sheet

12 ECONOMIC INFORMATION

CONSOLIDATED STATEMENT OF PROFIT AND LOSS

ASSET	2010	2009
NONCURRENT ASSETS	**125.312.394**	**120.251.504**
Intangible assets	**43.978**	**77.647**
Tangible fixed assets	**107.544.560**	**101.239.696**
Land and constructions	18.442.618	16.774.367
Technical installations and other tangible assetsial	70.017.527	73.588.208
Fixed assets under construction and advances	19.084.415	10.877.120
Long-term investments in group companies and associates	**9.055.240**	**9.449.949**
Holdings in equity method	9.315.113	9.095.107
Other financial assets	-259.873	354.842
Long term financial investments	**3.734.697**	**3.843.848**
Assets by deferred tax	**4.933.919**	**5.640.365**
CURRENT ASSETS	**71.009.814**	**32.336.993**
Stock	**5.071.948**	**5.153.268**
Trade and other accounts receivable	**6.588.423**	**6.782.757**
Clients from sales and provision of services	3.505.640	2.832.954
Equity-Accounted Companies	220.786	991.794
Aassets through ordinary tax	24.070	24.070
Other debtors	2.837.927	2.933.938
Short term investments in group and associated companies	**656.621**	**394.925**
Credit for Equity-Accounted Companies	463.545	0
Other financial assets	193.076	394.925
Short-term financial investment	**30.701.776**	**17.323.809**
Cash and other equivalent liquid assets acquired	**27.991.047**	**2.682.234**
TOTAL ASSETS	**196.322.208**	**152.588.498**

NET WORTH AND LIABILITIES	2010	2009
NET WORTH	**148.673.908**	**143.390.795**
Own capital	**91.247.139**	**84.708.192**
Capital	**12.816.325**	**11.816.381**
Share premium	**1.608.058**	**1.608.058**
Reserves and results from previous years	**64.149.257**	**59.616.555**
Distributable reserves	61.785.981	57.253.279
Non-distributable reserves	2.363.276	2.363.276
Reserves in consolidated companies	**1.946.498**	**1.870.529**
Reserves in equity accounted companies	**1.404.765**	**416.415**
Results from the year attributed to the Parent Company	**9.322.236**	**9.380.255**
Consolidated losses and gains	6.254.897	6.268.617
(External partners losses and gains)	3.067.339	3.111.637
Received Subventions, donations and legacies.	**1.274.737**	**1.302.213**
In consolidated companies	**1.274.737**	**1.302.213**
External Partners	**56.152.033**	**57.380.390**
NON CURRENT LIABILITY	**41.041.530**	**5.104.964**
Long-term provisions	**276.126**	**227.004**
Long-term debt	**40.155.549**	**4.251.600**
Debts with credit institutions	39.229.150	3.250.372
Other financial liability	926.399	1.001.228
Liabilities by deferred tax	**609.855**	**626.360**
CURRENT LIABILITY	**6.606.769**	**4.092.739**
Short term debts	**248.873**	**144.360**
Debts with financial institutions	-27.669	2.433
Other financial liability	276.542	141.928
Short- term debt of the group and associated companies	**11.632**	**0**
Debts with equity accounted companies	11.632	0
Suppliers and other creditors	**6.346.264**	**3.861.428**
Trade Creditors	1.137.608	1.125.762
Liabilities by ordinary tax	75.374	3.007
Other creditors	5.133.282	2.732.659
Short-term accruals	**0**	**86.951**
TOTAL NET WORTH AND LIABILITIES	**196.322.208**	**152.588.498**

CONSOLIDATED BALANCE SHEET

CONTINUED OPERATIONS	2010	2009
Net sales figure	**19.558.234**	**17.547.866**
Sales	13.639.148	11.982.104
Provision of services	5.919.085	5.565.762
Changes in inventories of finished goods and work in progress	**376.819**	**2.708.902**
In-house work for its assets	**1.874.336**	**1.522.818**
Supplies	**-2.627.863**	**-4.248.913**
Consumption of merchandise.	-1.601.142	-233.813
Raw materials and other consumables	-661.648	-3.563.359
Work carried out by other companies	-365.072	-451.741
Other operating income	**916.422**	**1.276.095**
Accessory and current operating income	153.060	244.115
Grant income brought to the fiscal year profit	763.361	1.031.980
Personnel expenses	**-4.885.766**	**-5.102.386**
Wages, salaries and similar expenses	-3.591.708	-3.679.998
Social contributions	-1.294.058	-1.422.387
Other operating costs	**-2.196.561**	**-2.028.500**
Other current operating expenses	-2.196.561	-2.028.500
Amortization of fixed assets	**-4.477.282**	**-4.448.756**
Allocation to profit or loss of grants related to non-financial non-current assets and other	**104.168**	**131.426**
Deterioration and result from disposals of fixed assets	**0**	**147.524**
Result from disposals of fixed assets and others	0	147.524
OPERATING INCOME	**8.642.506**	**7.506.078**
Financial Income	**905.917**	**776.110**
Of equity instrument shares	95.018	169.604
Of marketable securities and other financial instruments	810.899	606.507
Financial expenses	**-33.710**	**-175.035**
Variation in fair value of financial instruments	**-155.032**	
Exchange rate differences	**-1.302**	**51.056**
Impairment losses and income from disposal of financial instruments	**-7.868**	**-4.205**
Damages and losses	-7.868	-4.205
FINANCIAL RESULT	**708.006**	**647.926**
Share in Income of equity accounted companies	**1.027.469**	**2.411.528**
PRE-TAX PROFIT OR LOSS	**10.377.981**	**10.565.532**
Taxation of corporate profits	**-1.055.745**	**-1.185.278**
RESULT FOR THE YEAR FROM CONTINUED OPERATIONS	**9.322.236**	**9.380.255**
CONSOLIDATED INCOME FOR THE PERIOD	**9.322.236**	**9.380.255**
Income attributed to the parent company	**6.254.897**	**6.268.617**
Income Attributed to Minority Interests	**3.067.339**	**3.111.637**

INSTITUTO TECNOLOGICO
Y DE ENERGIAS RENOVABLES S.A.
Polígono Industrial de Granadilla
38600 Granadilla de Abona
Santa Cruz de Tenerife
Canary Islands (Spain)
Tel +34 922 747 700
Fax +34 922 747 701
email iter@iter.es
web www.iter.es