

Una manera de hacer Europa



BUENAS PRÁCTICAS

Actuaciones Cofinanciadas

Implementation of energy saving and efficiency measures in the Institute of Secondary Education Nuestra Señora de la Cueva Santa of Segorbe (Castellón)

Regional Ministry of Education, Culture and Sport

**Programa Operativo de la
Comunidad Valenciana**

Año 2022

Fondo Europeo de Desarrollo Regional

IMPLEMENTATION OF ENERGY SAVING AND EFFICIENCY MEASURES IN THE INSTITUTE OF SECONDARY EDUCATION NUESTRA SEÑORA DE LA CUEVA SANTA OF SEGORBE (CASTELLON)

The action presented as Good Practice aims to contribute to a low carbon economy and sustainable growth thanks to the improvement of energy efficiency in several Institutes of Secondary Education of the Valencian Community. The selection of the institutes in which this action was carried out has been made based on their greater energy consumption while ensuring adequate territorial representation.

This Good Practice presents the improvements made in the **IES Nuestra Señora de la Cueva Santa** of Segorbe (Castellon), whose object has been the **replacement of obsolete fluorescent and low efficiency luminaires**, with others with LED technology, more efficient, with the same or higher level of brightness and a much lower energy consumption. Likewise, systems of **utilisation of natural light** were implemented through sensors that regulate proportionally and automatically the level of illumination of LED lamps according to the contribution of natural light.

This action has been promoted by the Regional Ministry of Education, Culture and Sport of the Generalitat Valenciana within the **Program of saving and energy efficiency in public secondary schools**. Its **total cost** has been EUR 85.000, of which 50 % (EUR 42,500) have been co-financed by the **European Regional Development Fund (ERDF) of the Valencian Community 2014-2020**.

With the implementation of these improvements, savings in energy consumption and a decrease in CO2 emissions have been achieved. In particular, the impact in quantitative terms is, together with a **reduction** in annual primary energy consumption of 100.279 kW/year, an estimated annual greenhouse gas **reduction** of 16.97 tonnes CO2 equivalent.



The following are the arguments that make this operation considered as Good Practice according to the defined criteria:

1. The action has been properly disseminated to beneficiaries, potential beneficiaries and the general public

Placement of permanent plaque at the entrance of the institute informing of the action and its ERDF co-financing



Description of the operation and the Operational Programme in the ERDF section of the website of the Regional Ministry of Education, Culture and Sport

<https://ceice.gva.es/es/web/contratacion-educacion/programacio>

Estás en: Inicio > Educación y Formación profesional > Contratación de Infraestructuras > Fondo FEDER

ÁREAS

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FONDO FEDER

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Fondo Europeo de Desarrollo Regional - FEDER

¿Qué son los Fondos Estructurales de la Unión Europea?

Los Fondos Estructurales constituyen un instrumento de la política comunitaria para reforzar la cohesión económica y social de la Unión Europea, destinando un volumen significativo de recursos económicos a la reducción de las diferencias de las regiones comunitarias y el retraso de las menos favorecidas. La Comunitat Valenciana es beneficiaria de los Fondos Estructurales de la Unión Europea desde el año 1988.

El periodo 2014-2020 la Comunitat Valenciana es beneficiaria de los Fondos Estructurales en la categoría de región más desarrollada, al superar su PIB per cápita el 90 % del promedio del PIB de la UE-27, modificando así su estatus de periodos anteriores en los cuales fue considerada región objetivo n.º 1, y posteriormente región perteneciente al objetivo de competitividad regional y empleo.

¿Qué es el Fondo Europeo de Desarrollo Regional?

El Fondo Europeo de Desarrollo Regional (FEDER) es el principal instrumento de la Unión Europea para corregir los desequilibrios entre sus regiones a través del desarrollo sostenible y el ajuste estructural de las economías regionales, en el marco del objetivo básico de fortalecer la cohesión económica, social y territorial dentro de la Unión Europea.

Objetivos del FEDER:

Favorecer el paso a una economía de bajo nivel de emisión de carbono en todos los sectores (EJE PRIORITARIO 4)

Prioridades del FEDER:

Apoyo de la eficiencia energética, de la gestión inteligente de la energía y del uso de energías renovables en las infraestructuras públicas, incluidos los edificios públicos.

Eje prioritario 4: Favorecer el paso a una economía de bajo nivel de emisión de carbono en todos los sectores

Objetivo Temático: Apoyar la transición a una economía baja en carbono en todos los sectores

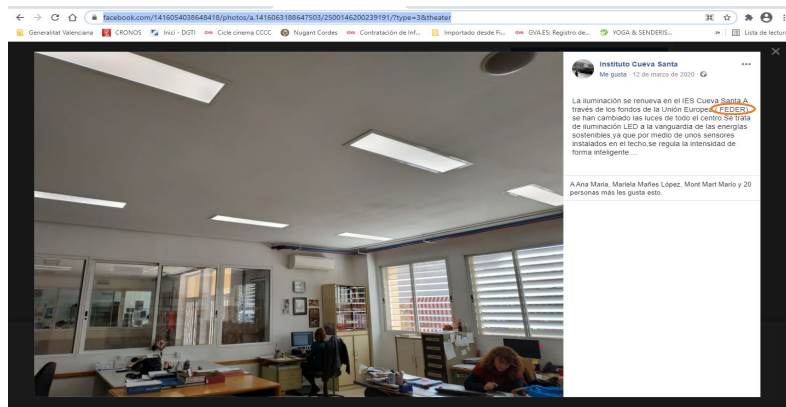
Prioridad de inversión: Apoyo de la eficiencia energética, de la gestión inteligente de la energía y del uso de energías renovables en las infraestructuras públicas, incluidos los edificios públicos, y en las viviendas.

Objetivo específico: Mejorar la eficiencia energética y reducción de emisiones de CO2 en la edificación y en las infraestructuras y servicios públicos.

Línea de actuación: Programa de ahorro y eficiencia energética en centros públicos de Enseñanza Secundaria

Dissemination on social networks

<https://www.facebook.com/1416054038648418/photos/a.1416063188647503/2500146200239191/?type=3&theater>



Digital, written and radio press

<https://www.elperiodicodeaqui.com/epda-noticias/el-ies-cueva-santa-de-segorbe-renovara-la-instalacion-luminica-del-centro/193290>

DE AQUÍ
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SEGORBE

EL IES Cueva Santa de Segorbe renovará la instalación lumínica del centro
El proyecto se financiará con fondos FEDER de la Unión Europea

f t g+ p in

REDACCION - 14/03/2020

En un escrito dirigido a los alumnos, profesores, madres y padres del IES Nuestra Señora de la Cueva Santa de Segorbe, la concejala de Educación, Cultura y Deportes de la Generalitat Valenciana comunica su intención de proceder a renovar la actual instalación lumínica del edificio sustituyéndola por una energéticamente más eficiente, consistente en lámparas de tecnología LED.

Busca en telegram
DipcBot y

https://www.elperiodicomediterraneo.com/noticias/castellon/seis-institutos-castellon-reducen-gasto-energetico_1264982.html

Mediterráneo

CASTELLÓN
CASTELLÓN DE LA PLANA | VILA-REAL | COMARCAS | CRÓNICA DE NUBES

Seis institutos de Castellón reducen el gasto energético

Instalación de luces LED y sustitución de calderas, las medidas para ser más eficientes

M. C. T.
17/12/2019

La **Consejería de Educación**, con la ayuda del Fondo Europeo de Desarrollo Regional (FEDER), promueve la eficiencia energética en seis institutos de la provincia de Castellón. Reducir la huella de carbono en un momento en el que el cambio climático constituye una amenaza real es uno de los objetivos de esta iniciativa.

Así, en total son 26 los institutos de la Comunitat donde se está desarrollando un proyecto piloto para reducir el consumo energético. De esta manera, para hacer un análisis y conocer la situación se llevó a cabo, en un primer momento, una auditoría energética para tratar de determinar las medidas que había que implantar.

En Castellón los centros en los que se está aplicando este innovador plan son Gilabert Cerdiales de Nules, **Cueva Santa de Segorbe**, B. de Penyaagosa de

Buscar tiempo en otra localidad
p.ej. Burriana

En la Fundación ONCE impulsamos la formación en nuevas tecnologías para que más personas con discapacidad sean lo que quieren ser.

<https://www.elperiodicomediterraneo.com/castello/2020/06/22/castellon-contara-5-institutos-secundaria-40791151.html>

Mediterráneo

Castellón contará con 5 institutos de Secundaria 100% sostenibles

El proyecto incluye calderas de condensación y aprovechar energía solar con placas fotovoltaicas. La primera fase consistirá en la instalación de tecnología led y sensores detectores de presencia

M.C.T. 22-06-2020 | 08:30

TERMINA LA OBRA DEL IES CUEVA SANTA DE SEGORBE

Castellón contará con 5 institutos de Secundaria 100% sostenibles

Los cinco centros públicos de secundaria de la provincia serán 100% sostenibles. Los cinco institutos se incluyen en las actuaciones para reducir el consumo energético que la consejería de Educación, a través del Programa Operativo de Sostenibilidad Valenciana 2014-2020, financiado con fondos FEDER de la Unión Europea, está ejecutando en 26 centros de todo el territorio valenciano.

Las obras consisten en la sustitución de las lámparas fluorescentes por otras con tecnología led, además de la instalación de sensores detectores de presencia y sensores que regulan el flujo de luz artificial en función de la apertura de las puertas.

La segunda fase de este plan, prevista para el mes de marzo de 2021, contempla actuar sobre el sistema de calefacción de estos mismos centros, sustituyendo las calderas de gas natural o gasóleo por otras de condensación, que consumen menos recursos. El presupuesto estimado es de 1.800.000 euros. Asimismo, se están redactando los pliegos de prescripciones técnicas para acometer la implantación de instalaciones de energía solar fotovoltaica de tipo autoconsumo.

En cuanto a los centros participantes, el IES Gilabert Cerdiales de Nules, ya cuenta con tecnología de iluminación led y sensores de presencia, actuaciones que **Cueva Santa de Segorbe** y **B. de Penyaagosa de Segorbe** ya están aplicando. En cuanto a **Cueva Santa de Segorbe**, la obra estaba prevista para el mes de marzo de 2020, pero se ha retrasado por el estado de alarma.

2. The action incorporates innovative elements

The action has covered, on the one hand, the replacement of obsolete bulbs and fluorescent tubes with high energy consumption by more efficient ones, and on the other hand, the incorporation of other measures that allow greater energy savings, such as the installation of presence sensors, with which the on and off of the lights is automated only when necessary (i.e. when someone is in the room). In addition, to take advantage of the entry of natural light in spaces that have windows or skylights, **photocells** (light intensity sensors) have been installed together with the LED luminaires, so it is possible to automatically regulate the level of intensity of the artificial lighting depending on the contribution of natural light, as well as depending on the presence of people, so that maximum performance and minimum energy consumption are obtained.

These sensors, through a control system, allow the operating guidelines of the luminaires to be configured by the user. The system allows to define the amount of natural light available to the classroom (in lux), and to configure the flow of artificial light necessary to reach an optimal level of lighting, so that it varies throughout the day depending on the criteria of use of the installation or the schedule of use. The presence detector can also be configured if necessary. The system includes pre-configured modes depending on an office, classroom, hallway or toilet. All this configuration is done by means of a remote control, so that anyone can modify the programming according to the needs at any time, without having to resort to a technician who manipulates the sensor, which gives autonomy to the system.



3. Alignment of the results obtained with the objectives set.

The objective of the action is to improve energy efficiency in public secondary schools in order to reduce the consumption of electricity, with the consequent savings in expenditure, as well as the reduction of CO₂ emissions. To measure the results of the action, **two indicators** were used: CO₃₂, which measures the decline in **annual primary energy consumption** in public buildings, and CO₃₄, which measures the estimated annual reduction **of greenhouse gases**. In the IES Nuestra Señora de la Cueva Santa, after having made the investment, a reduction of **100.279 kW/year** of primary energy consumption and **16.97 tons** of greenhouse gas equivalent per year has been achieved. This has helped to achieve the energy and environmental objectives set out in the Energy Strategy of the Valencian Community 2014-2020.



Classrooms with the new LED lighting

4. Contribution to the resolution of a problem or weakness identified in the territorial scope of implementation

The Valencian Community is located in a territory very vulnerable to climate change. Among the evidence of climate change and the effects it presents, we find a general increase in temperatures, a decrease in rainfall, the aridification of the territory, an increase in sea level, the appearance of new invasive species, pests and new diseases.

One of the tools to tackle climate change is the reduction of greenhouse gas emissions.

The Valencian Strategy for Climate Change 2013-2020 includes a study of the evolution of greenhouse gas (GHG) emissions in the Valencian Community in the period 1990-2010. With the data it provides, it is observed that GHG emissions have followed a growing profile, reaching their peak in 2008, in 2009 emissions decreased by 16 points compared to the previous year and in 2010 remained constant. The growth of emissions during the whole period in the Valencian Community has been higher than that of the Spanish State as a whole, so the contribution of the Valencian Community to total national emissions has increased from 6.1 % to 8.3 % in 2010. As for mitigation measures, the strategy foresees that “The studies carried out in public buildings of the Valencian Community show that there is an important energy saving potential, which can be achieved not only with an improvement of energy-consuming facilities, but also through an optimisation in the management of the facilities and through the introduction of new habits of more efficient behaviour of public employees.”

This action has sought to contribute to the reduction of these polluting emissions through the saving and energy improvement of the electrical installations of the educational center. At the same time, its users are given an example and awareness of how it is possible to reduce the impact on the environment.

5. High degree of coverage on the population to which it is targeted.

With the replacement of obsolete luminaires with new LED technology, **a better light quality** and comfort has been achieved for students, teachers, administrative and services staff of the IES Nuestra Señora de la Cueva Santa of Segorbe (Castellon) educational center. The new LED luminaires have benefited all these users as they have been installed both inside and outside the

building: classrooms, library, secretary, halls and toilets. It has only been ruled out to act in areas such as warehouses, technical rooms, etc., which, due to their low operating hours, are not economically feasible to replace them. In addition, it was intended that the action had a sensitisation effect with the aim that students, teachers, administrative and service staff of this educational center realised the need to save resources and could transfer it to their private sphere. The IES Cueva Santa has 560 students distributed in 21 groups. Approximately 40 % of the Institute's students are from Segorbe, while the other 60 % come from the rest of the towns in the Alto Palancia region.



6. Consideration of horizontal criteria of equality and environmental sustainability

From the point of view of **equal opportunities and non-discrimination**, the action does not make any distinction, and it is all the users of the centres who go to benefit from the improvements made.

In terms of **environmental sustainability**, the energy savings achieved are an estimated annual greenhouse gas **reduction** of 16.97 tonnes CO₂ equivalent and a **reduction** in annual primary energy consumption of 100.279 kW/year. The results of the indicators, it is evident that investment has had a beneficial impact on the environment, since with the reduction of consumption has also decreased the emission of greenhouse gases. Energy saving is one of the fundamental pillars of sustainable environmental development, which makes it possible to use energy in a better way. Through changing habits, using more efficient technologies or a combination of both, the same results are achieved using a lower amount of energy.

In the case of this Good Practice, with the replacement of bulbs and fluorescent tubes and with the incorporation of other measures such as presence sensors, it is possible to use less energy and more efficiently so the impact on the environment is considerably less.



7. Synergies with other policies or instruments of public intervention.

The interventions carried out at the IES Nuestra Señora de la Cueva Santa are integrated into the line of action of the **Savings and Energy Efficiency Programme in secondary schools** of the ERDF Operational Programme. In turn, it relates to the principles, criteria and objectives of other strategies and plans.

The **2030 Agenda**, which is part of Objective 7. Affordable and clean energy, point **3 Energy Efficiency**, sets a target for 2030 to double the global rate of improvement.

At the regional level, the **Valencian Strategy for Climate Change for 2030** sets out general objectives focused on three lines: reducing greenhouse emissions, increasing renewable energy and improving energy efficiency.

Finally, the **Energy Savings and Efficiency Plan, the promotion of renewable energies and self-consumption in buildings, infrastructures and equipment in the public sector of the Generalitat** (PAEEG) approved by the Consell Agreement (16-12-2016), and which has an impact on the need to make investments in energy savings and efficiency and the application of renewable energy in buildings, infrastructure and equipment of the Valencian public sector, all in accordance with Directive 2012/27/EU of the European Parliament on energy efficiency.

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