

## Spain - Renewable present

<b>Title of inspiring practice</b>	Renewable present ( <i>"Presente renovable"</i> )
<b>Geographical area</b>	At regional level in Spain, Castilla-La Mancha, Aguas Nuevas (Albacete).
<b>Period of implementation</b>	The project started in September 2020 and does not have an end date.
<b>Rationale</b>	<p>Through the application of ISO 14001 Environmental Management, the practice promotes a culture of sustainability in all areas of Vocational Education and Training at the school towards a clean, green and renewable future.</p> <p>This practice might be useful to others because several sustainable development goals of the 2030 Agenda are respected (ODS 3, 4, 7, 8, 9, 11 y 13).</p>
<b>Scope of the practice</b>	<p>Intermediate Vocational Training and Higher Vocational Training.</p> <p>At all educational levels of the centre.</p> <p>Development of multi-departmental green experiences: agriculture (Agro-ecological Production IVT), energy and water (RREE HVT) and TMV (Turbine Engine Aircraft Maintenance and maintenance of electronic and avionics systems in aircraft).</p>
<b>Educational level</b>	Intermediate Vocational Training and Higher Vocational Training.
<b>Introduction and context</b>	<p>The inspiring practice involves the Civil society, companies in the AGR, AERO and RREE sectors as key stakeholders.</p> <p>This initiative was introduced in a context that focused on promoting energy savings of up to 70 % of the centre's electricity bill and on stimulating the development of integrated systems between RREE and sustainable and green agriculture. Another main driver of this practice was the development of air navigation systems powered by clean, green and sustainable energies was another main driver of this practice.</p> <p>The practice aims at ensuring inclusive, equitable and quality education and promoting lifelong learning opportunities for all. Consistent with the UN Sustainable Development Goal (SDG) 7 and 13, the initiative has the objective of ensuring access to affordable, secure, sustainable and modern energy for all and of targeting urgent action to combat climate change and its impacts.</p> <p>The budget allocated to the installation of 20Kw, 36.5 Kw and 40 Kw photovoltaic plants is of EUR 60 000.</p> <p>The innovation projects <i>"Design of drones propelled by H batteries"</i>, <i>"Innovations in the design and management of fruit tree plantations and knowledge transfer in vocational training"</i>, <i>"Virtual reality for renewable energy training"</i> and <i>"Development of IoT (Internet of Things) technology in RES and Agriculture to control agro-ecological facilities"</i> were respectively allocated EUR 160 000, EUR 122 700, EUR 220 000 and EUR 25 000.</p>
<b>Key activities and outcomes</b>	<p>The "Renewable present" practice promotes four main innovative projects. The first innovative project focuses on the development of ISO 14001 Environmental Management implementation at all levels in Vocational Training Module Programmes.</p> <p>To increase the involvement of students in the Environmental Management of the centre, tools such as the programming of modules more in tune with environmental management will be used.</p> <p>The success of the project is based on the high employability of the students enrolled in these vocational training cycles.</p>

	<p>The second project aims at developing the design of H-powered Drones. This initiative involves the realisation of supporting material and content which was developed on H-battery-powered drones (UAVs) for surveillance and various aerial control. These materials are then applied in classrooms promotion after promotion.</p> <p>The expected results are the development and testing of hydrogen battery-powered drone prototypes as part of the development of the innovation project.</p> <p>The implementation of this project is based on the development work of the project itself as well as the implementation and development of the Drones Specialisation Course.</p> <p>The success of the project is based on the high motivation of the participating students as well as the financing of the MEFP.</p> <p>The third project concerns the development of IoT technology in EERR and Agriculture to control agro-ecological facilities. The project set up a software for the control of EERR-FV installations and developed IoT content applied to RES-E and agro-ecological production.</p> <p>The Agro-ecological Production students, together with the renewable energy students, are expected to design IoT applications to automate agricultural irrigation using probes and photovoltaic energy.</p> <p>The project will be delivered through the development of the DUALIZA IoT project and monitoring in renewable energy installations.</p> <p>The factors contributing to the success of the project are the involvement of the students as well as the request for this training from agricultural study centres with precision agriculture courses.</p> <p>The final innovative project promoted by this practice concerned the installation of 20Kw, 36.5 Kw and 40 Kw photovoltaic solar energy fields through practices of the RREE HVT.</p> <p>The expected result is to achieve 75% of the centre's electricity self-consumption from renewable sources and, therefore, a 75% saving in the cost of the energy consumed by the centre.</p> <p>The tools used are the three installations of photovoltaic panels.</p> <p>The main factor contributing to the success of the project is that these installations have been carried out by students of the centre's renewable energy CFGS with their Dual Training internship tutors.</p> <p>These four innovation projects generated more than EUR 1 million and contributed to ranking Top three centre in Spain in this indicator (Source Convocat. Proy. Innovac MEFP 2021).</p> <p>Following the call for innovation projects from the Spanish Ministry of Education and Vocational Training in 2021, the following conclusions have been drawn:</p> <ol style="list-style-type: none"><li>1. CIFP "AGUAS NUEVAS" is the third centre with the most resources generated in Project Innovation of this call.</li><li>2. CIFP "AGUAS NUEVAS" is the Vocational Training centre that leads the most Innovation projects in Spain in this call.</li></ol> <p>Furthermore, the innovation projects contributed to the dissemination of its advanced content among companies and other vocational training centres in the country, while implementing the G.A. culture among students.</p> <p>The main obstacle encountered by this initiative was the lack of availability in the teaching staff's timetable to develop innovation projects at the centre. As a solution, teachers were encouraged at taking some time away from their families to develop the innovation projects.</p> <p>Another obstacle was the compliance among students regarding Environmental Management (EM). The solution adopted was the implementation of EM content in module programming.</p>
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	<p>Part of the Vocational Training students may not have respect for the environment. To involve students, the centre's management has implemented environmental management content in the programming of Vocational Training modules more related to the environment.</p> <p>This practice improves the quality of the innovation and development policy of the centre. Furthermore, it stimulates a culture of sustainability and environmental management among the teaching staff and students.</p> <p>The headmaster (director) of the VET centre promotes and drives the generation of new content through the development of innovation projects.</p> <p>He sets innovation among the strategic objectives of each course, including this issue in the Integrated Annual Programme of each course.</p> <p>On the other hand, the management of the centre, to support the arrival of new teachers in-service commissions, requires them to apply in all calls for innovation projects that are convened by the European Union, the Spanish Ministry of Education and Vocational Training, the Ministry of Education, Culture and Sports of Castilla-La Mancha or DUALIZA calls by the CAIXABANK Foundation and the Association of FPEMPRESA centres.</p> <p>The initiative was awarded the ISO14001 certification by AENOR since 2011.</p>
<b>Other information</b>	<p>The project has been carried out at the Integrated Centre Vocational Education Training "Aguas Nuevas" (Albacete, Spain), which is a Centre where vocational training is taught in the professional sectors of "Aeronautics", "Renewable Energies", "Agricultural and Livestock", and also "Wood and Furniture". This school is a pioneering centre in the development of innovation projects linked to the vocational training courses that it offers.</p>
<b>Contacts and sources</b>	<p>Integrated Centre Vocational Education Training "Aguas Nuevas", Aguas Nuevas (Albacete, Spain)</p> <p>Academic Vocational Education Training Service</p> <p>Ministry of Education, Culture and Sports of Castilla-La Mancha</p> <p>Additional information: <a href="http://cifpaguasnuevas.es/">http://cifpaguasnuevas.es/</a></p>
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