WHAT IS ETFE?

ETFE is a flexible, durable and sustainable material for Architectural Design

ETFE is a fluorinated plastic which is lightweight, transparent, recyclable and strong. It weighs only 1% of an equally-sized glass panel and reduces comparative energy savings of around 30%. Due to its light weight, ETFE can be used where large expanses of glass would be too heavy, to improve internal building conditions by providing light, thermal and acoustic insulation.

Further, the cushions can be installed with electronic equipment and LEDs, or printed on with different colours and designs for elaborate building façade decoration and illumination.

The integration of lighting function into ETFE is popular in architectural usage, but consumes large amounts of energy, with high costs of operation.

The ETFE-MFM project will address these issues by exploiting the advantages of Photovoltaics, LED lighting and energy storage concepts as parts of ETFE building structures.

THE ETFE-MFM PROJECT

ETFEMFM BRINGS TOGETHER A MULTI-DISCIPLINARY TEAM, WITH OUTSTANDING RESEARCH, TECHNOLOGICAL, MANUFACTURING AND BUSINESS EXPERTISE

ETFEMFM brings together a multidisciplinary team, with outstanding research, technological, manufacturing and business expertise.

ETFEMFM is a European project to develop and demonstrate a flexible multifunctional ETFE module for architectural façade lighting.

ETFEMFM combines the development and demonstration of flexible multifunctional ETFE modules with advanced lighting, energy storage concepts and photovoltaics.

ETFEMFM is an EU funded project under the 7th Framework Programme, managed by Acciona Infraestructura.

ETFEMFM is supported by a partner consortium of leading research and technology providers from Industry and Academics.

ETFEMFM VISIT THE PROJECT WEBSITE AT WWW.ETFEMFM.EU

ETFEMFM project partners include ITMA Materials Technology, Acciona Infraestructura, National Renewable Energy Centre, Greenovate! Europe, Solarion and Taiyo Europe.

ETFEMFM INNOVATION & COMMUNICATION TEAM

ITMA Materials Technology
Acciona Infraestructura
National Renewable Energy Centre
Greenovate! Europe
Solarion
Taiyo Europe

ETFEMFM Project Co-ordinator
David Gómez Plaza
ITMA Materials Technology
d.gomez@itma.es

Communication & Dissemination
Simon Hunkin
Greenovate! Europe
simon.hunkin@greenovate.eu

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ETFEMFM DEVELOPMENT AND DEMONSTRATION OF FLEXIBLE MULTIFUNCTIONAL ETFE MODULE FOR ARCHITECTURAL FAÇADE LIGHTING
**BIPV**

**BUILDING INTEGRATED PHOTOVOLTAICS PROVIDE DECENTRALISED ENERGY GENERATION FOR SELF-SUFFICIENT BUILDINGS**

Buildings are currently responsible for around 40% of total energy use in the European Union. Solutions such as ETFE can play a key role in improving energy efficiency in buildings, but energy efficiency needs to be coupled with renewable energy solutions for greatest impact.

Building Integrated Photovoltaics (BIPV) are PV products that are integrated into a building as construction elements, requiring specialised materials and integrated planning and design.

ETFETM has great potential for improving both the energy efficiency and design of buildings. If the cost of integrated façade lighting could be reduced, then take-up of ETFE as an eco-friendly building material could increase, in a variety of building types.

The ETFE-MFM project will develop a PV module with embedded additional functionalities designed to be integrated into ETFE façades for the Building Integrated Photovoltaics (BIPV) applications. Overall, the project will provide a sustainable building module suitable for harvesting energy, lighting and insulation.

<table>
<thead>
<tr>
<th>The ETFE Multifunctional Module</th>
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<tbody>
<tr>
<td>• Light-weight ETFE plastic</td>
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<tr>
<td>• PV module for electricity generation</td>
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<tr>
<td>• Illumination devices (LED or OLED)</td>
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<tr>
<td>• Flexible integrated circuits for control of the PV and LED</td>
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<tr>
<td>• External battery for electricity storage</td>
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The module hopes to bring ETFE architecture from a niche product, to a material with wide application. The ETFE-MFM project will demonstrate the developed module on a building in real conditions, so that the overall performance of the module will be monitored and evaluated.

**OUR PROJECT**

**DEVELOPMENT AND DEMONSTRATION OF A FLEXIBLE MULTIFUNCTIONAL ETFE-MFM MODULE FOR ARCHITECTURAL FAÇADE LIGHTING**

ETFETM has great potential for improving both the energy efficiency and design of buildings. If the cost of integrated façade lighting could be reduced, then take-up of ETFE as an eco-friendly building material could increase, in a variety of building types.

The ETFE-MFM project will develop a PV module with embedded additional functionalities designed to be integrated into ETFE façades for the Building Integrated Photovoltaics (BIPV) applications. Overall, the project will provide a sustainable building module suitable for harvesting energy, lighting and insulation.

The self-contained building module will consist of ETFE architecture, PV technology, illumination devices, battery storage and flexible integrated circuits. The project will therefore provide an attractive Multifunctional Module that will generate and store electricity, which can be used to power impressive visual displays, and thus boost uptake of an emerging sustainable construction material.

The ETFE-MFM project will bring ETFE architecture from a niche product, to a material with wide application. The project will also integrate a number of additional functionalities, including CO2 reductions, constructive cost savings, enhanced building quality and greater energy independence.

Buildings are currently responsible for around 40% of total energy use in the European Union. Solutions such as ETFE can play a key role in improving energy efficiency in buildings, but energy efficiency needs to be coupled with renewable energy solutions for greatest impact.

Increasingly, people are turning to decentralised and renewable energy generation for a wide variety of applications. With the recognition that PV systems are reliable producers of electricity that require minimum maintenance and have a proven life span of 20-30 years, BIPV is a fast-growing industry.

PV modules are usually installed on roofs as Building Added PV (BAPV), but can also be integrated into walls, facades and glazing as construction elements, and increasingly novel uses are emerging in the shape of BIPV.