

ES-SO Statement on the EU Renovation Wave Strategy

Introduction

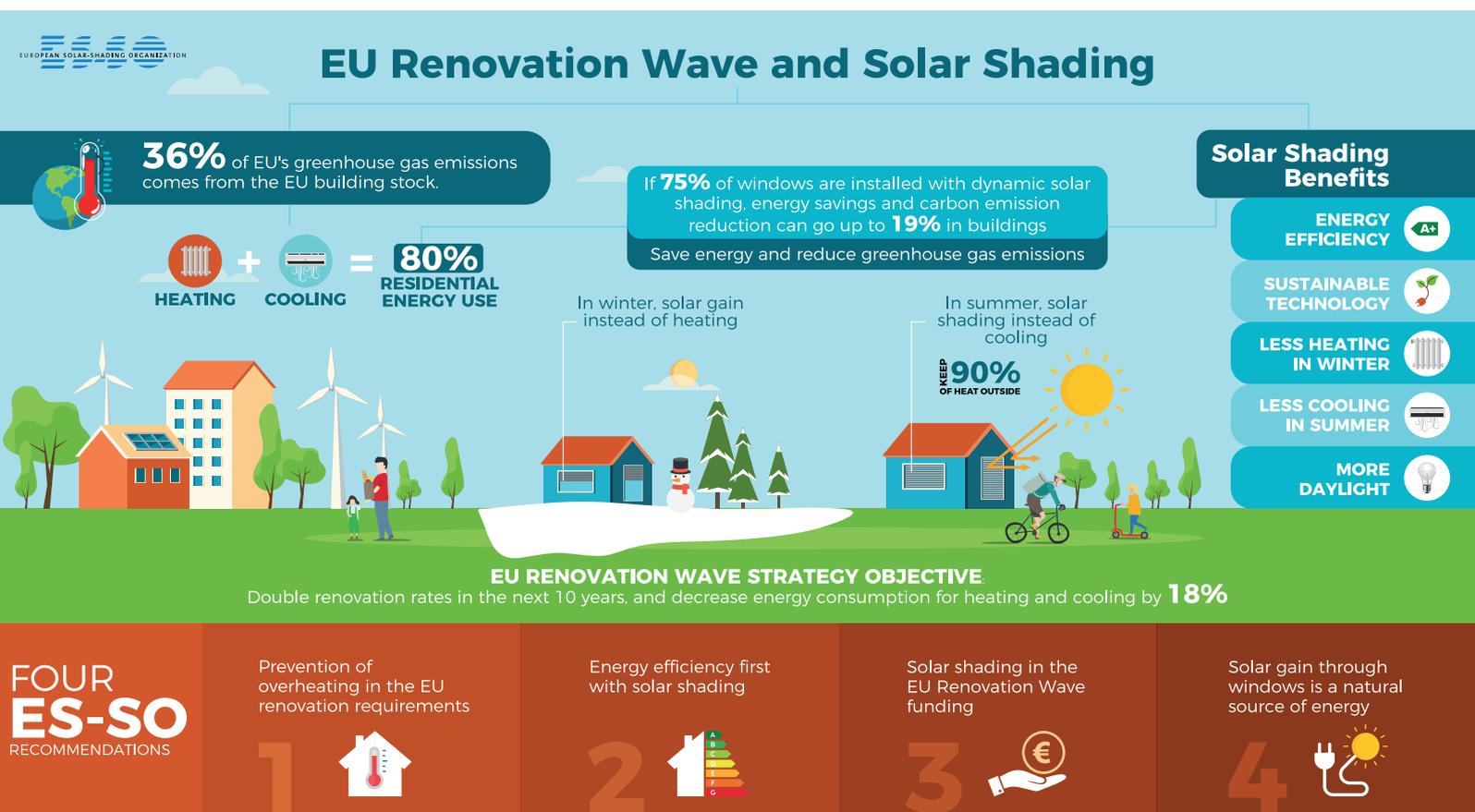
This position paper delivers the key messages of the European Solar Shading Organization (ES-SO) on the EU Renovation Wave Strategy.

ES-SO welcomes the EU ambition to at least double renovation rates in the next ten years and to make sure renovations lead to reduced energy consumption and better resource efficiency.

The EU Renovation Wave initiative aims to put in place one of the most ambitious ever programmes for our European building stock. The current European building stock needs a big game changer since it is inefficient in energy use and results in around 36% of Europe's greenhouse gas emissions. Tackling the building sector greenhouse gas emissions is essential to reach the EU 2030 targets. Moreover, the EU aims to become climate-neutral by 2050.

The EU Renovation Wave will not only decrease Europe's greenhouse gas emissions, but will also raise buildings' resilience to climate change, and making them smarter with the use of digitization will enhance Europeans' health and comfort.

ES-SO is a key contributor to the EU objectives of a low-carbon, energy efficient economy.



Key messages

Facts & figures

Energy savings and greenhouse gas emission reduction

Heating and cooling are responsible for 80% of residential building energy consumption. The EU Commission strives to cut greenhouse gas emissions by at least 55% by 2030. The EU renovation strategy aims to decrease its energy consumption for heating and cooling by 18%.



If 75% of windows are installed with dynamic solar shading the potential energy savings can accrue up to 19% saving in heating and cooling energy use (or 49.3 Mtoe/yr) and a carbon emissions reduction of 19% (equivalent to a saving of 117 MtCO₂/yr). If cooling would become equally important to heating the savings can add up to 22% in buildings.¹

Dynamic solar shading is a highly cost efficient and sustainable technology with solutions generating much less carbon emissions during their production process and with energy savings reaching of about 60 times its CO₂ footprint over its 20-year lifespan.²

(1) *Dynamic shading solutions for energy efficient buildings, Sonnergy Study, 2015*

(2) *Dynamic solar shading and its footprint, Würzburg Schweinfurt Institute Germany, page 8 "A new vision on solar shading"*

The benefits of solar shading

In Summer: overheating control, reducing the cooling demand

85-95% of European existing buildings are expected to still be standing by 2050 and by then extreme climate events will occur more frequently. Heat waves are predicted to reach higher temperatures during longer periods. Heat waves alone have caused tens of thousands of premature deaths in Europe since 2000.³ Presently, overheating and poor indoor climate management is not high enough on the EU agenda when it comes to renovation strategies. With climate change and better insulated buildings, overheating will become a harsh common reality in many buildings, if not tackled from the start. Already, 100 million people in Europe are unable to keep their dwelling cool in summer, which is twice as much as people unable to keep their dwelling warm in winter (EU-SILC). Solving the problem with active cooling such as air-conditioning (A/C) will raise greenhouse gas emissions, which we need to prevent in every possible way.

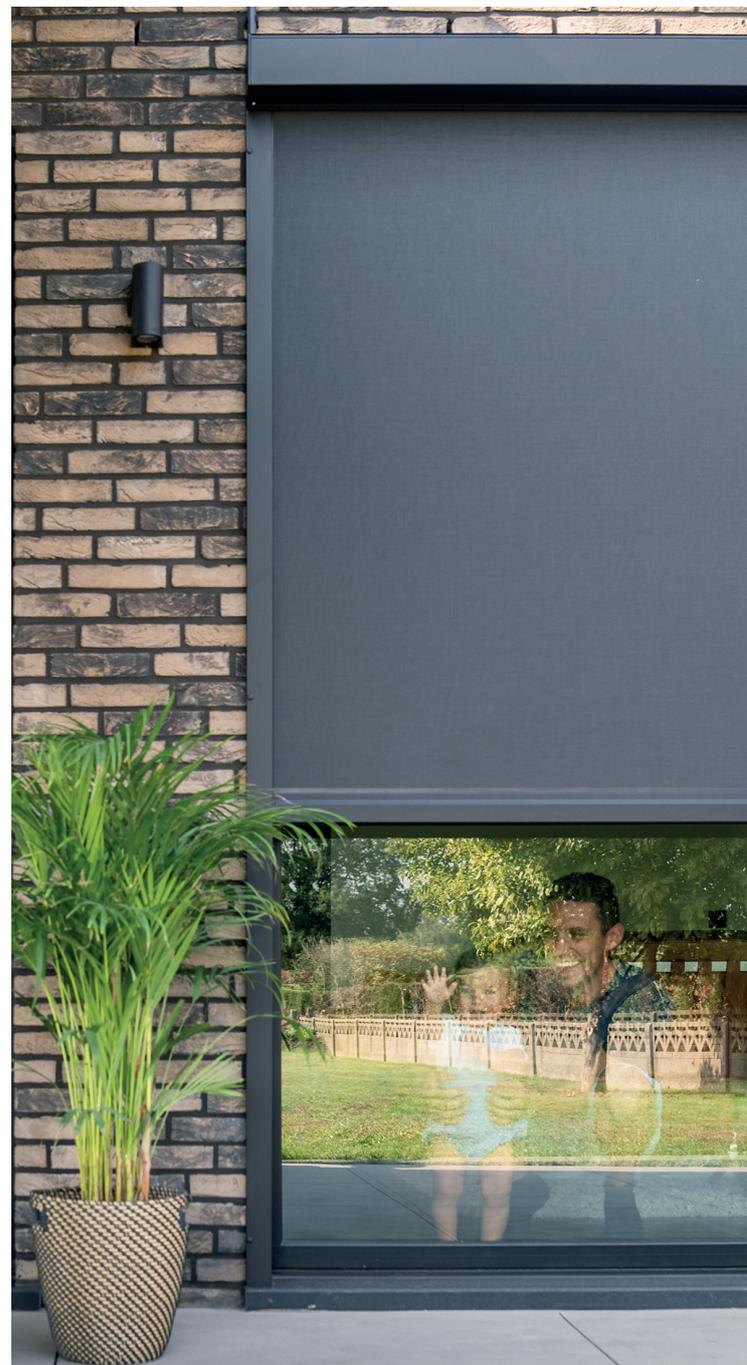
The International Energy Agency (IEA) report 2018 on “The future of Cooling” recommends that it should become a priority for legislators to adapt buildings to global warming and heat-waves. To cool a building is to prevent in the first place that the solar radiation becomes heat when entering the building. This is the most natural defense and should always be the first choice before applying air conditioning, which needs energy production investments, as the second step.

The IEA report shows the exponential rise of A/C sales globally and how A/C reinforces the heat island phenomenon in cities by consuming energy and by releasing the hot air retracted from inside the building to the outside environment. In other words, the instant cooling sensation for the user will accelerate the problem of global warming and more heat-waves.

Dynamic solar shading on windows can keep more than 90% of the heat outside.⁴ As a result, the use of solar shading dramatically reduces the consumption of active cooling (A/C).

(3) European Environment Agency, CLIM 036
Published 20 Dec 2016

(4) EPBD ES-SO Position Paper November 2018



In Winter: solar gains reducing the heat demand

Dynamic solar shading in retracted position lets in the solar gains in winter during daytime. During the night it gives an additional insulation layer to the window. It reduces the cold radiation coming from the window while improving its thermal resistance.

Dynamic solar shading helps therefore to reduce at least 14% of the heating cost and can be applied externally or internally on the windows with smartly controlled systems such as blinds, roller shutters and venetian blinds.



Sun and daylight: Management control

Solar gains and diffuse daylight through windows are necessary for multiple reasons: they produce heat in winter and the right quantity of sun and daylight gives a positive effect on health, learning capacity and productivity at work.

Dynamic solar shading makes it possible to manage irradiation in the best possible way. Dynamic solar shading does not affect the window space but reduces the possible negative effects from solar gains.

When there is too much solar gain creating thermal discomfort named overheating, we need to stop the solar energy entering. When there is too much glare leading to visual discomfort, the excessive amount of daylight entrance needs to be optimised. On the other hand, when all solar gain and daylight benefits are needed, they can be available.

Conclusion

Dynamic solar shading which is a highly cost efficient and sustainable green technology makes the priority objective set by the EU Renovation Wave fully achievable as it perfectly responds to the **“Energy Efficiency first principle”** driven by the EU Renovation Wave Strategy. Furthermore, solar shading meets another key principle of the Renovation Wave, that of **“high health and environmental standards”**. Finally, dynamic solar shading embodies the **“green and digital transition”** principle as it can be automated and is therefore included in section DE-dynamic building envelope of the smart readiness indicator catalogue for smart buildings⁵.

(5) Final report to the technical support of a Smart Readiness Indicator for buildings, 2020

ES-SO Recommendations for the next legislative steps for building renovation in the EU

1 Preventing buildings from overheating has to be part of the renovation requirements next to insulation and ventilation.

Global warming due to climate change and well insulated buildings affects the health and well-being of their occupants spending more than 90 % indoors.

2 Minimum energy performance standards for existing buildings based on the energy efficiency first principle has to include solar shading.

Dynamic solar shading should become mandatory as part of the minimum requirements for the energy performance of the building stock. Based on the key principle of energy efficiency first- to make sure we only produce the energy we really need – air conditioning equipment driven on high energy use should only be installed as a last resort and only when activated by devices producing renewable energy.

The energy performance certificate (EPC) should include the “energy efficiency first” principle. Dynamic shading should be included in the renovation priorities and packages of member states.

3 Investment and well targeted funding for renovation has to include solar shading.

Dynamic solar shading, as an important measure of the energy efficiency first principle, must be included in the financial schemes of national recovery and renovation plans to help reducing the greenhouse gas emissions of the building stock. But equally important to help medium and lower-income households, as well as vulnerable people making their dwellings more resilient and adaptive to global warming.

4 Widening the scope of RES Directive - Solar gain through windows is a natural source of energy.

The solar energy entering through the windows is a free available natural source of energy. It is also a source of daylight which affects people’s health and well-being using their homes more than ever as a living and working place. These “useful free gains” reduce the need to produce energy and should therefore be recognised as useful gains from the building envelope (as a renewable energy source) in the RES Directive. Dynamic solar shading makes it possible to let in the free solar gains and diffuse daylight through the glazing to save on energy for heating and lighting in the most natural and useful way.

ES-SO is a not-for-profit organization to Belgian Law (ES-SO vzw) established in Brussels. It is the umbrella organization of the professional solar shading associations in the European member states. Dynamic solar shading is a low carbon emission technology designed and manufactured in Europe. The industry consists of thousands of small to medium-sized companies, employing more than 450,000 people across the Member States and generating annual sales of over € 22 billion.