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Willmott Dixon and Elementa Consulting release whole life carbon of solar PV installations research

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Willmott Dixon and Elementa Consulting have launched a new study investigating the embodied and operational carbon impact of roof mounted solar photovoltaic (PV) installations.

PV technology will play a significant role in decarbonising the electrical grid to meet the UK's climate targets. The renewable energy generation method is also a core offering in Willmott Dixon's suite of solutions to deliver buildings that are net zero carbon in operation by 2030.

Whilst solar PV is an important pathway to net zero, like any other product, its installation comes with an embodied carbon impact: the greenhouse gas emissions associated with production, construction, in-use and end of life stages of the panels, alongside any supporting equipment.

To understand the carbon cost and benefit, the new research examines the whole life carbon associated with roof mounted solar PV installations, using two Willmott Dixon projects as case studies.

Doug Drewniak, Building Performance Manager at Willmott Dixon said: "Our paper explores the interplay between the embodied carbon impact and operational carbon savings over time, which is really interesting as it shifts the focus from PV being a carbon offset mechanism to building additional renewable capacity in the grid.

"While all tested scenarios found a net benefit over the systems' lifetime, project specific design and specification decisions can have a big impact. This report provides the guidance to optimise PV installations, whilst measuring the effectiveness of the technology from a whole life carbon standpoint."

Louise Hamot, Global Lead of Sustainable Innovation, Elementa Consulting said: “Rooftop solar PVs are needed to decarbonise our grid, therefore we need to understand the associated embodied carbon implications and identify any opportunities to improve the technology’s impact.

“Most existing studies looking at the embodied carbon impact of PV typically only include the modules themselves, but we have covered the entire installation process across different design scenarios.”

The research is a collaboration between Willmott Dixon and Elementa Consulting, which includes members of the London Energy Transformation Initiative (LETI). It is the first study to examine the whole life carbon associated with PV panels.

You can download the research here.

Photo credit: Willmott Dixon