Kongres Container

Solar module solar panel carbonization

Overview

How important is the embodied carbon of solar PV?

In the context of the UK, it is clear that the embodied carbon of solar PV is now an important parameter, but a big opportunity. As the UK grid decarbonises the embodied carbon of solar panels will only become even more prominent and the large opportunity of reducing the embodied carbon of solar PV is now important.

Do solar panels have embodied carbon data?

Perhaps we can, but there is a chronic lack of embodied carbon data published by the manufacturers. In fact, we did not find manufacturer specific data, such as an EN 15804 Environmental Product Declaration (EPD) for solar panels. It is important to highlight that these results are specific to mono-crystalline PV in the UK.

Are solar panels decarbonising the electricity grid?

Which gives rise to the decarbonising electricity grid. Well yes, they are. Currently solar PV is not a particularly large contributor on a national scale. Between 2015 and 2019 the UK reduced the carbon intensity of electricity by 45% per kWh. This was predominantly driven by wind and biomass, combined with a reduction in reliance on coal.

Will solar PV be a net zero carbon building?

But that the embodied carbon is more likely to achieve net zero carbon through voluntary carbon offsets. It therefore presents the case that solar PV is likely to be on the radar of a lot of net zero carbon buildings. It’s a strong technology, has minimal maintenance, low planning condition requirements and a long lifetime.

How much embodied carbon does a solar system produce?

Taking an embodied carbon of 2,560 kg CO2e per kWp, this system could

have an embodied carbon around 2,920 t CO2e. The embodied carbon of the office (cradle to constructed), assuming 0.6 tCO2e per m2 and 10,000 m2, could be around 6,000 tCO2e. Combined with the embodied carbon of the PV system this is 8,920 kg CO2e.

How many gCO2 kWh is solar PV?

Based on such data, the IPCC claims solar PV is 48 gCO2/kWh. But, as we'll see below, a new investigation started by Italian researcher, Enrico Mariutti, suggests that the number is closer to between 170 and 250 gCO2/kWh, depending on the energy mix used to power PV production.

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