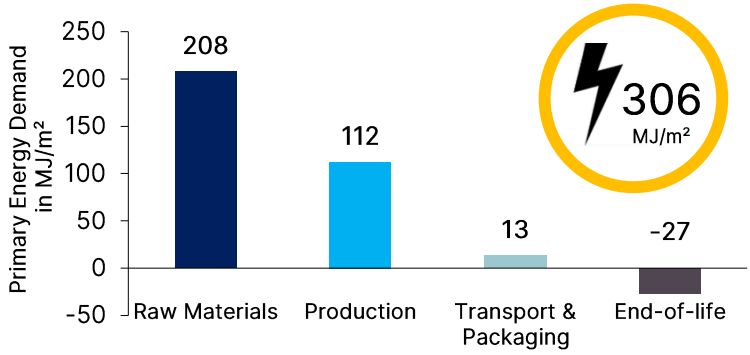
Heliatek
INDEPENDENT. GREEN. FUTURE.

Organic Photovoltaics – Truly Green Energy "Energy Payback Time"

What is Energy Payback Time?

The Energy Payback Time (EPBT) is the time that a solar module requires to pay back its **primary energy demand** over the entire life-cycle by electricity generation. If the **Energy Payback Time** is less than the lifetime of a solar module, an Energy Return on Invest (EROI) can be achieved by producing a multiple of the invested energy. The shorter the EPBT and the higher the EROI, the higher is the **positive energy impact.**

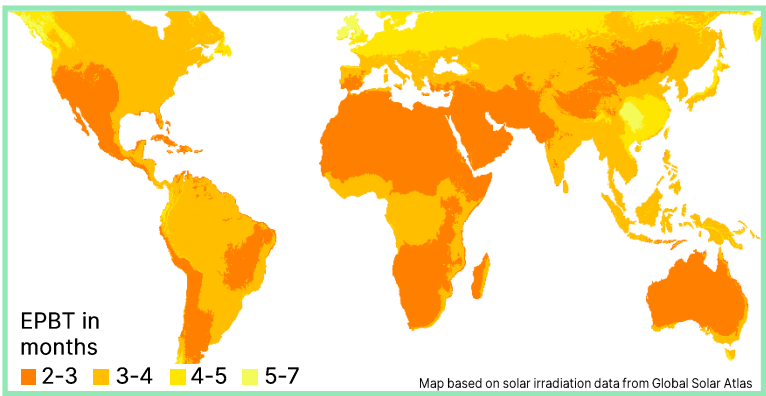


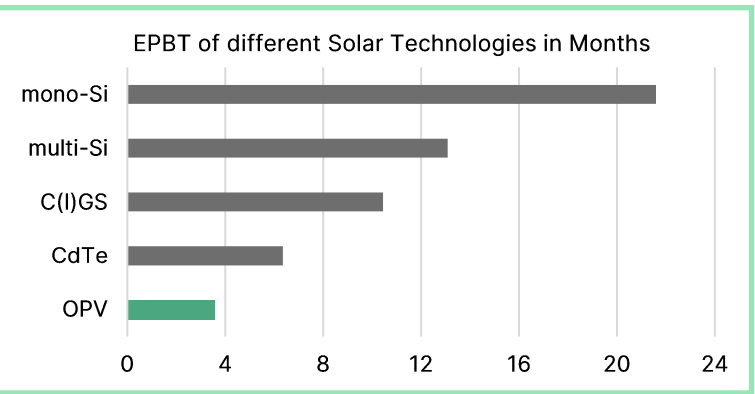
Primary Energy Demand

TÜV Rheinland has evaluated the primary energy demand of Heliatek´s organic solar film HeliaSol to be 306 MJ/m² through a Life Cycle Assessment (LCA). All life cycle stages from acquisition of raw materials over the production up to end-of-life[1] including all transportation effects were assessed.

Energy Payback Time

The use phase is the longest of all the life cycle stages, in which the invested primary energy will be paid back by electricity generation. The map shows an EPBT ranging between 7 up to 2 months depending on the solar irradiation of the location. So HeliaSol can produce up to 100 times of the original energy investment within the lifetime of 20 years (EROI).





Positive Energy Impact

Heliatek manufactures its OPV films in an energy efficient Roll-to-Roll process with few material input. The comparison indicates that Heliatek`s OPV delivers energy with the lowest EPBT of all solar technologies. Since OPV is still a young technology with potential to increase efficiency and lifetime the positive energy impact can even be improved in the future.

[1] The credit at the end-of-life results from the energy generation through the assumed energy recovery of the main part of the solar module (without cable).

Click here to learn more about our truly green solar films.