

# Carbon Accounting

Title



## Direct Land Use Change (DLUC)

DLUC are the emissions that come from changes in direct land use, such as emissions from converting a forest into agricultural land.

## Indirect Land Use Change (ILUC)

ILUC are indirect emissions caused by market mechanisms. If a farmer previously was growing food on his land and now uses the land to grow fuel instead, we can ask how the demand for food is now met. This demand can either be met by growing the food somewhere else or food prices have increased so much that people will eat less and hence the demand for food “disappears”.

*See this explained in the 'Peter and Jane' video across on the right-hand side of this page.*

The way to calculate ILUC emissions is through **modelling**, as you have to estimate the emissions. We use models often in policy making, for example to calculate employment figures or inflation, so it is a normal procedure. The outcome of the models (so-called ILUC factors) are currently not taken into account in EU legislation and we continue to produce biofuels that are cheap but are not necessarily saving emissions.

Based on the **precautionary** principle, however, Europe should include ILUC emissions in its sustainability criteria. Otherwise it is ignoring a massive loophole in its climate policy and damaging people and the environment worldwide. The

European Commission has proposed not to include the ILUC emissions, but instead to just report on the emissions and to cap the amount of biofuels that can count towards the target. This is with the intention of trying to limit the amount of first generation biofuels that are stimulated by the Member States. This was a very important signal to the rest of the world that Europe no longer sees first generation (so called food-based) biofuels as the future. However, it will also be important to further tighten the safeguards around biofuels after 2020.

Read the [briefing NGOs wrote about the outcome of the ILUC legislation](#).

## Carbon debt

Bioenergy is often presented to be carbon neutral, relying on the assumption that the carbon released when burning wood or other types of biomass is soon recaptured by trees, vegetation and soils. In reality it takes time (from years to decades, depending on the kind of biomass) for the carbon released to be recaptured again by plant and tree growth and by the soil.

It is also possible that all the carbon released will never be fully recaptured, for example in the case when an old growth forest is replaced by a forest with shorter rotation and smaller carbon stock. The concept of carbon debt refers to the delay in time for the carbon to be recaptured or the amount of carbon that actually never will be recaptured by regrowth. Currently, under EU climate targets carbon debt is ignored and all biomass is assumed to be fully carbon neutral.

Read about [where we are in the adoption of the carbon debt principle into the current EU bioenergy policy](#).

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### Publications

- [Accounting for uncertainty: Precautionary principle and Indirect land Use Change](#) (April 2013)
- [Bioenergy: carbon accounting time bomb](#) (2010)

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### Peter and Jane: a short film about biofuels