BIOGRACE

Harmonised Calculations of Bioenergy Greenhouse Gas Emissions in Europe

September 2020

BioGrace II: Modifications in version 4 (draft) as compared to version 3

Modifications in "Version 4 – Draft" as compared to version 3

When preparing "Version 4 – Draft" of the BioGrace-II GHG calculation tool, the following modifications were made as compared to version 3. Supporting documents (the user manual, the calculation rules and the methodological background document) were updated accordingly.

Part of these modifications were made on request of stakeholders, after RVO performed a stakeholder consultation in 2019.

1.1 In line with RED-II

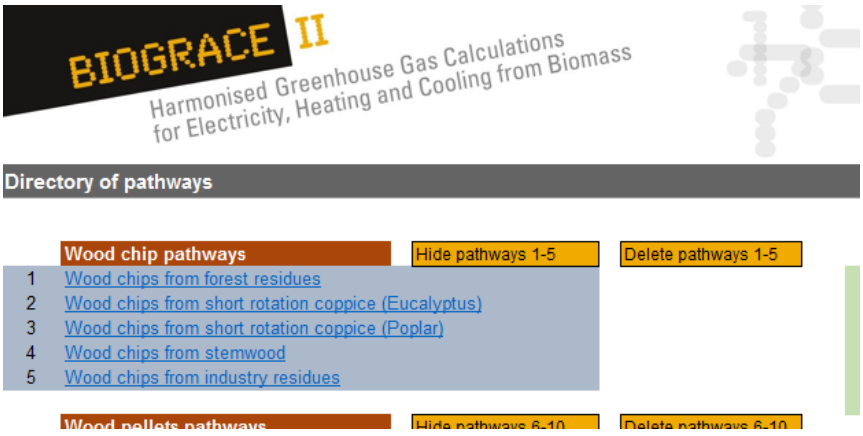
"Version 4 - Draft" is brought in line with the RED-II. This means that input values, standard calculation values and (disaggregated) default values have been updated. Version 4 replicates the calculations that lead to the RED-II disaggregated default values and default values.

1.2 New functional unit: ton of product instead of MJ of product

On the request of users, the calculations are now performed in the unit "per ton of biomass" instead of "per MJ of biomass" as to avoid unit conversions when making actual calculations. This modification required a complete update of the tool; all pathways have been completely rebuild.

1.3 Pathways can be hidden or deleted

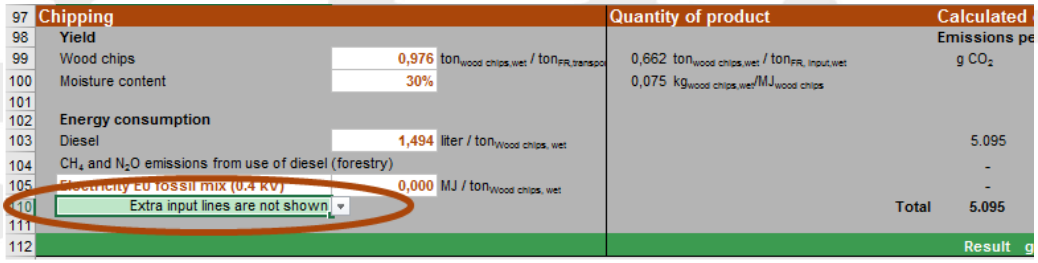
In the past, users have indicated that the tool is complex and contains many detailed sheets. In this version of the tool, pathways that are not relevant for the user can either be hidden or deleted, by clicking on one of the orange-coloured cells as shown in the screen copy below.



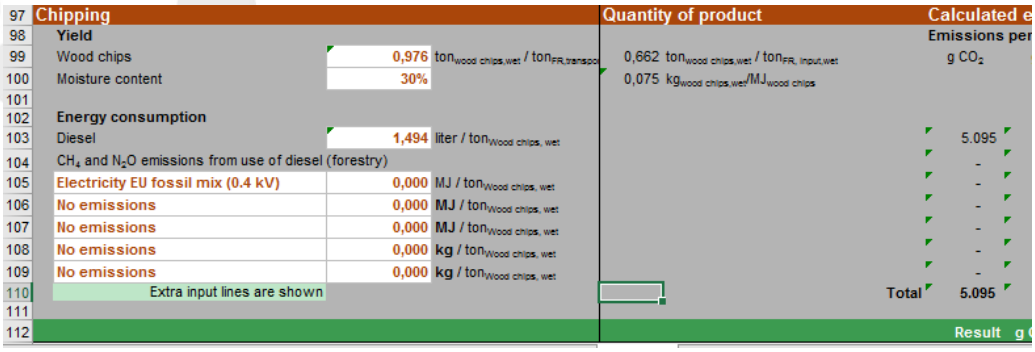
1.4 Extra lines for making actual calculations

In version 4 of the BioGrace-II GHG Excel tool, extra lines have been inserted for making actual calculations. Such lines can be used when there are additional inputs (energy, materials, transport types) in the process for which an actual calculation is made.

These extra lines are hidden when the tool is opened. The extra lines can be made visible by selecting "Extra input lines are shown" in the cell with the green background colour, as shown below:



	Chipping			Quantity of product	Calculated Emissions pe
97					
98	Yield				
99	Wood chips	0,976	$ton_{wood\ chips,wet}$ / $ton_{FR,transpo}$	0,662 $ton_{wood\ chips,wet}$ / $ton_{FR,\ input,wet}$	g CO_2
100	Moisture content	30%		0,075 $kg_{wood\ chips,wet}$/$MJ_{wood\ chips}$	
101					
102	Energy consumption				
103	Diesel	1,494	liter / $ton_{Wood\ chips,\ wet}$		5.095
104	CH_4 and N_2O emissions from use of diesel (forestry)				-
105	Electricity EU fossil mix (0.4 kV)	0,000	MJ / $ton_{Wood\ chips,\ wet}$		-
110	Extra input lines are not shown			Total	5.095
111					
112					Result g



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105	Electricity EU fossil mix (0.4 kV)	0,000	MJ / $ton_{Wood\ chips,\ wet}$		-
106	No emissions	0,000	MJ / $ton_{Wood\ chips,\ wet}$		-
107	No emissions	0,000	MJ / $ton_{Wood\ chips,\ wet}$		-
108	No emissions	0,000	kg / $ton_{Wood\ chips,\ wet}$		-
109	No emissions	0,000	kg / $ton_{Wood\ chips,\ wet}$		-
110	Extra input lines are shown			Total	5.095
111					
112					Result g

1.5 CHP on wood pellets no longer included

When making GHG calculations for a pellet mill, the heat (and in some cases the electricity) can be provided in different ways. The RED-II gives typical and default values for three "cases": a natural gas boiler (case 1), a wood chip boiler (case 2a) and a wood chip CHP which is dimensioned to the heat demand of the pellet mill (case 3a). The BioGrace-II Excel tool further allows to make an actual calculation using a wood chip CHP with another dimension (leading to a surplus of heat).

In the former version 3 of the BioGrace-II Excel tool, a fifth selection was possible: making an actual calculation for a wood pellet CHP. Introducing this option led to the introduction of two additional units for the amount of pellets produced in this step "pellet mill" of the calculation: $MJ_{pellets,\ gross}$ and $MJ_{pellets,\ net}$ as – in case of using pellets: the amount of pellets produced in the pelles mill is lower than the amount of pellets available for selling, as part of the pellets are internally used in the CHP.

This fifth selection "wood pellet CHP actual calculation" has not been included in version 4 of the BioGrace-II Excel tool as our current understanding is that it is a theoretical possibility, in practice all pellet mills that use wood for their heat/electricity supply use wood chips or bark, not pellets.

RVO will consider to reintroduce this fifth selection in case (a) there actually are pellets mills that use boilers or CHP's on wood pellets and (b) the owners of such mills want to make actual GHG calculations using the BioGrace-II Excel tool.

1.6 Sheet "Final conv. only (mult. heat)" no longer included

The sheet "Final conv. only (mult. heat)" has not been included in "Version 4 – draft" as this sheet has not been used by users, according to information that the BioGrace scheme managers received so far.

About the BioGrace GHG calculation tools

BioGrace-I

The BioGrace-I GHG calculation tool is managed by IFEU (Institut für Energie- und Umweltforschung).

The current version is version 4d from 2015.

BioGrace-II

The BioGrace-II GHG calculation tool is managed by The Netherlands Enterprise Agency (RVO).

The current version is "Version 4 – Draft" from 2020.

History

The two BioGrace GHG calculation tools were originally developed in two European projects funded under the Intelligent Energy for Europe (IEE) programme.

The BioGrace-I project lasted from 2010 to 2012 and the BioGrace-II project lasted from 2012 to 2015.

More information:

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