

Primerjalna analiza življenjskega cikla proizvodnje metanola iz zemeljskega plina in lesne biomase

PRIKAZ IZVEDBE S PROGRAMOM OpenLCA

Damjan Krajnc
MIITR

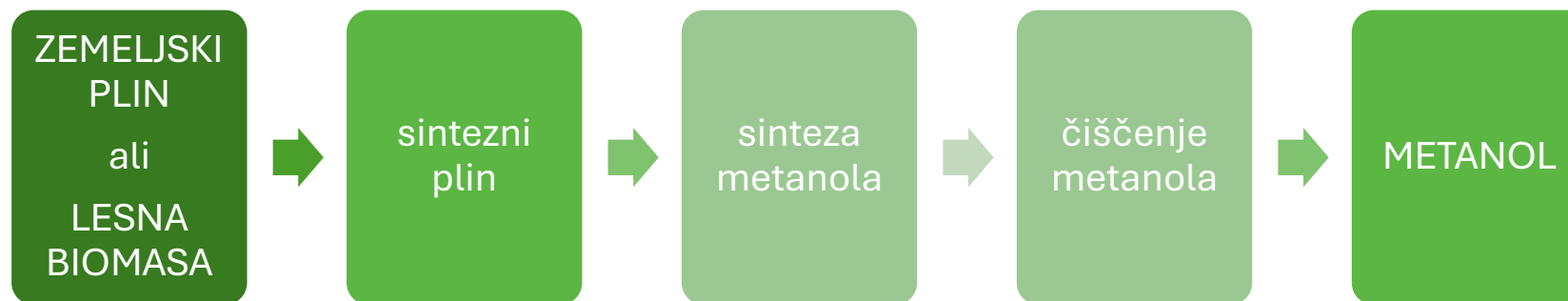
- Primerjalna analiza življenjskega cikla proizvodnje **METANOLA** dveh sinteznih poti:

Metanol iz **zemeljskega plina**

Metanol iz **lesne biomase**

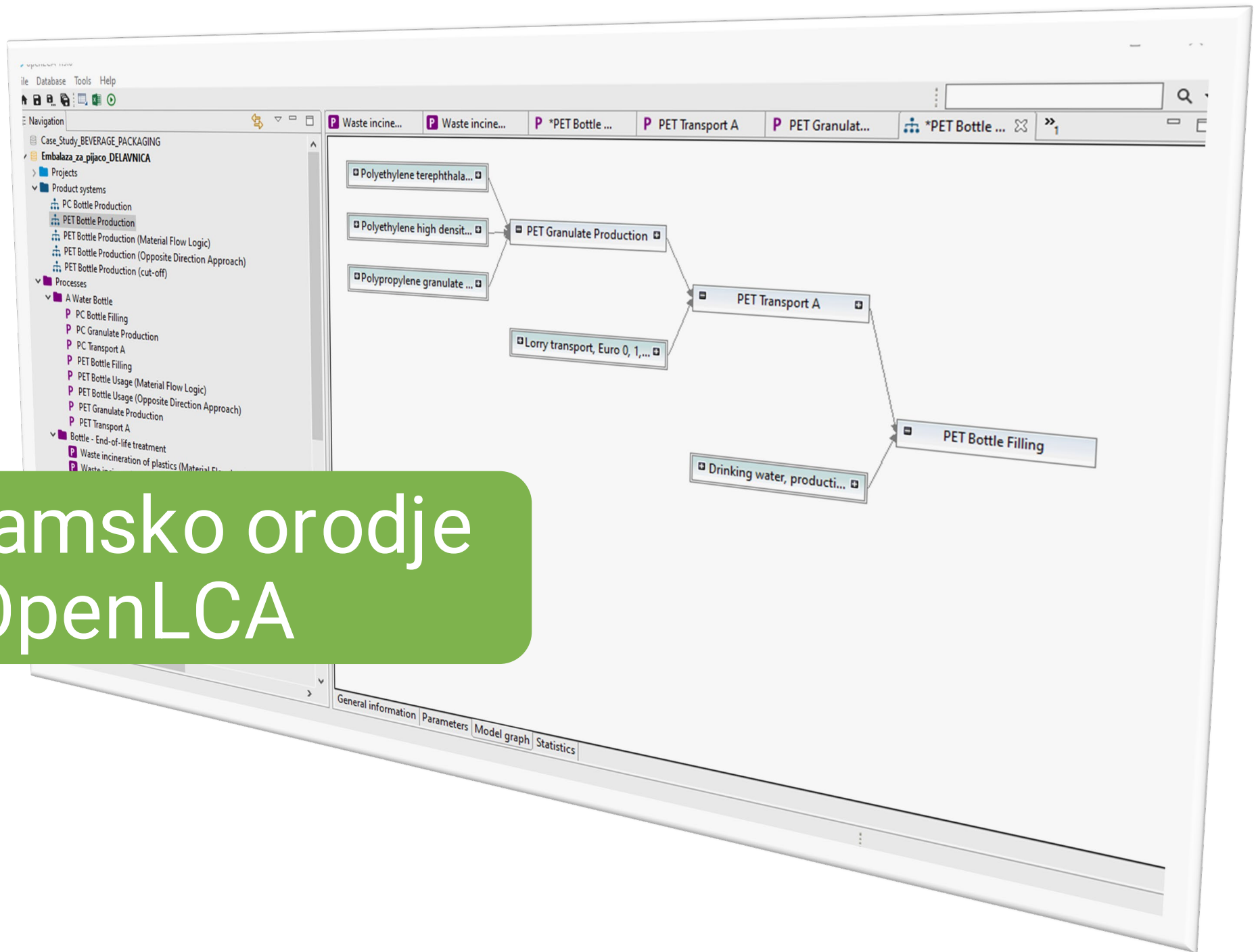
Proizvodnja 1 kg metanola iz sinteznega plina

1. Parno reformiranje sinteznega plina preko uporabe zemeljskega plina
2. Parno reformiranje sinteznega plina preko uplinjanja biomase



Ogljikov monoksid in vodik reagirata ob prisotnosti katalizatorja, da nastane metanol. *Katalizator:* zmes bakrovih in cinkovih oksidov, podprtih na glinici

Programsko orodje OpenLCA



- **profesionalno orodje** za oceno življenjskega cikla
- razvija ga GreenDelta od leta 2006 (zadnja verzija 1.10.1, november 2019)
- funkcionalen in tehnično **posodabljan**

Prenos in namestititev

Namestitvene datoteke na voljo na <https://www.openlca.org/download/>

Downloads



openLCA

After 4 months of beta testing, here is finally version 1.9 (release date: June 30, 2019). We recommend to use this version. Our tests have not shown any issues, but should you run into any, please let us know. Thanks in advance! For the windows version, we are not providing the installer any more – just unzip the archive, and start openLCA.exe.

Windows

Mac

Linux

Sources

Latest build

Just unzip the archive, and start openLCA.exe. To uninstall, just delete the created folder with subfolders. You can have several versions of openLCA in different folders on the same computer.

openLCA 1.9 Zip-Archive: [64 bit](#)

Downloads

[openLCA](#)

LCA Collaboration Server

Impact methods

Data quality systems

Format converter

Uvodno okno OpenLCA

The screenshot displays the OpenLCA 1.9.0 software interface. The window title is 'openLCA 1.9.0' and the menu bar includes 'File', 'Database', 'Tools', and 'Help'. The left sidebar shows a 'Navigation' pane with three items: 'Case_Study_BEVERAGE_PACKAGING', 'Embalaza_zaj_pijaco_DELAVNICA', and 'Full_Database_Ecoinvent'. The main content area is titled 'Welcome' and features a background image of a large tree. Four navigation links are visible, each with a corresponding text box explaining its function:

- What is new in openLCA >**: Novosti o izboljšavah in spremembah najnovejše različice.
- Getting started >**: Piročniki in študije primerov ter YouTube kanal openLCA.
- Manuals, case studies and data >**: Ustvarite novo bazo podatkov ali obnovite obstoječo bazo podatkov LCA iz datoteke *.zolca.
- Community >**: Aktivna openLCA skupnost z mednarodnimi partnerji v različnih državah in več deset tisoč uporabniki.

The 'Welcome' label is also present at the bottom left of the main content area.

Uvodno okno OpenLCA

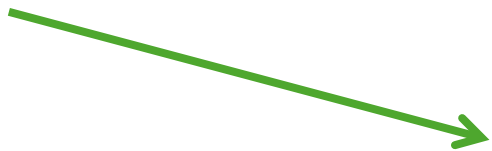
The screenshot displays the OpenLCA 1.9.0 application window. At the top, the menu bar includes 'File', 'Database', 'Tools', and 'Help'. Below it is a toolbar with various icons. On the left, a 'Navigation' pane shows a hierarchical tree structure of project folders and processes. The main area is titled 'General information: PET Bottle Filling' and contains several input fields: 'Name' (filled with 'PET Bottle Filling'), 'Description' (empty), 'Category' (set to 'A Water Bottle'), and 'Version' (set to '00.00.002'). Below these fields are two buttons: 'Create product system' and 'Export to Excel'. At the bottom, a 'Time' section includes 'Start date' and 'End date' (both set to '10/ 2/2019') and another 'Description' field. A tabbed interface at the very bottom shows 'General information' as the active tab, with other tabs like 'Inputs/Outputs', 'Administrative information', etc., visible.

glavni menu

navigacija

urejanje

iskanje



New database
Create a new database

Database name

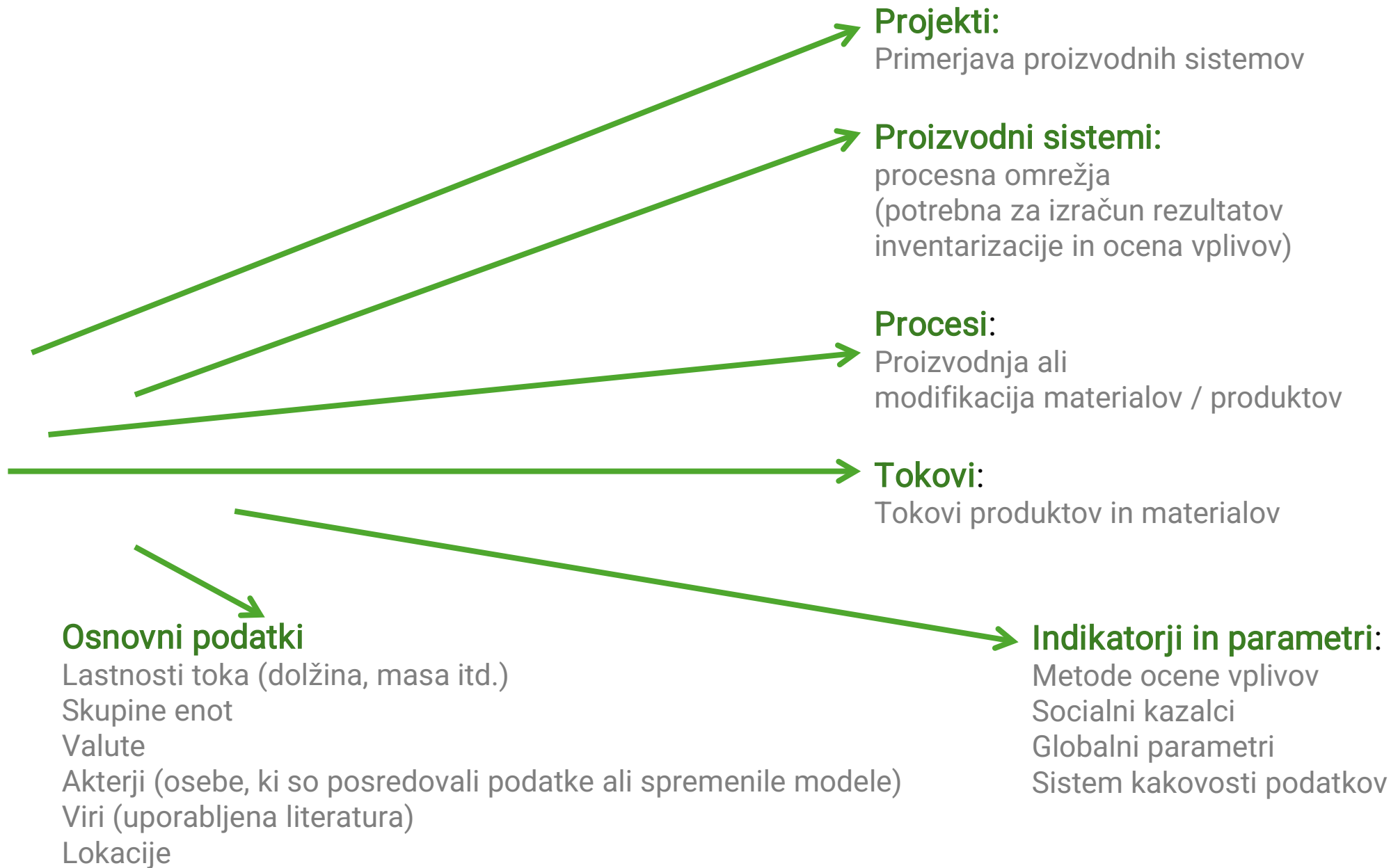
Database type Local Remote

Database content Empty database
 Units and flow properties
 Complete reference data

Vpišite ime nove podatkovne baze in kliknite Finish.

Lokalne ali oddaljene baze podatkov je mogoče ustvariti

Različne vsebine na voljo



OpenLCA Nexus

<https://nexus.openlca.org/>

Ključni vir za zbirke podatkov LCA

OpenLCA ne vključuje podatkov o procesnih tokovih, proizvodnem sistemu, transportnih načinih ipd.

Možen neposreden **nakup** oz. **prenos podatkov** za uporabo v OpenLCA

openLCA Nexus Databases Services LCA data search Map Documents FAQs About Register Login 0

openLCA nexus

openLCA Nexus
Your source for LCA data sets.

Search

Overall > 130,000 datasets.
New Swiss KBOB and ESU World Food database.
e.g. for Switzerland: 31138 data sets found.

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OpenLCA Nexus

<https://nexus.openlca.org/>

openLCA Nexus

Databases

Services

LCA data search

Map

Documents

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openLCA Nexus

Your source for LCA data sets.

Databases

- ecoinvent
- UVEK LCI Data
- The Evah Pigments Database
- Environmental Footprints
- idea
- GaBi
- Agri-footprint
- exiobase
- ARVI
- Agribalyse
- soca
- EuGeos' 15804-IA
- NEEDS
- PSILCA
- ESU World Food
- ELCD
- LC-Inventories.ch
- Social Hotspots
- ProBas

All

Free databases

For purchase databases



Brezplačne
baze

ecoinvent

A leading LCA database by the ecoinvent centre. Ecoinvent 3.5, the fifth update of ecoinvent version 3, includes over a thousand new and updated datasets. The new datasets covers: updates of the electricity markets for both attributional and consequential system models, partitioning of the electricity sector by state and grid in the country of India, new and updated data for the European supply chains for natural gas, new and updated data for chemical products, and lastly activities for the recycling of PE and PET. We offer a fully valid ecoinvent licence that will access to the ecoinvent website and with databases specifically available to openLCA.

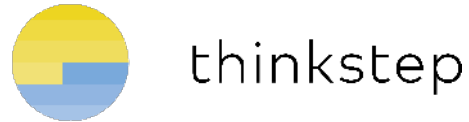
Plačljive
baze

Browse

new

OpenLCA Nexus

Skupno > 130.000 naborov podatkov



www.LC-Inventories.ch



BIOENERGIE DAT



OpenLCA Nexus

openLCA Nexus

Databases

Services

LCA data search

Map

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FAQs

About

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Login

0



openLCA Nexus

Your source for LCA data sets.

Search Options

ISKANJE
podatkov

Database more

ProBas 29369

ecoinvent 15477

EuGeos' 15804-IA 14889

PSILCA 14839

soca 14378

exiobase 11816

GaBi 11434

ESU World Food 6910

Agri-footprint 6342

UVEK LCI Data 5133

[more...](#)

Country more

Germany 47140

Switzerland 31138

142050 data sets in 74 ms

Polystyrene, incineration in MWI, including credits, production mix (region specific plants), at plant, End of Life, incineration, polystyrene incineration (Germany)

Databases: GaBi - XIV Construction materials

Category: End-of-life treatment

Version (internal): 00.00.001 Location: Germany

Gas condensing boiler < 20 kW (wall-mounted unit) (EN15804 C4), production mix (region specific plants), at plant, End of Life, 1 piece (Germany)

Databases: GaBi - XIV Construction materials

Category: End-of-life treatment

Version (internal): 00.00.001 Location: Germany

Ecoinvent 3.2



 Buy a Licence

 Login Databases

Database

Data Provider

Support

Partners

References

About



**ecoinvent - the world's most
consistent & transparent
life cycle inventory database**

Learn More

<https://www.ecoinvent.org/>

Ustvarjanje tokov

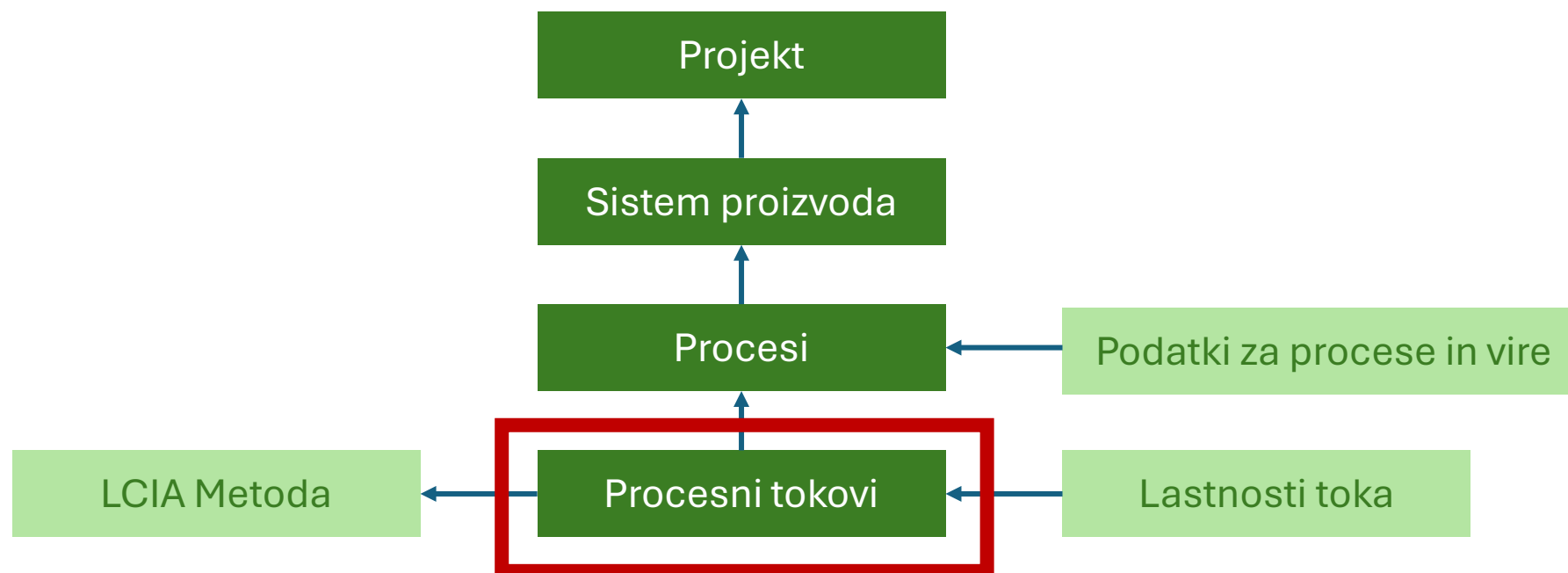
MODELIRANJE TOKOV ZA
PROIZVODNI SISTEM

openLCA 1.9.0

File Database Tools Help

The screenshot shows the openLCA 1.9.0 software interface. The main window displays a navigation tree for a project named 'Case_Study_BEVERAGE_PACKAGING'. The tree is organized into several categories: Projects, Product systems, Processes, and Flows. The 'Flows' category is currently expanded and highlighted with a green rectangular box. Under 'Flows', there is a list of sub-folders representing different stages and sectors of the beverage production process, including comparative LCA, basic models, packaging, and various economic sectors like agriculture, mining, manufacturing, and transportation.

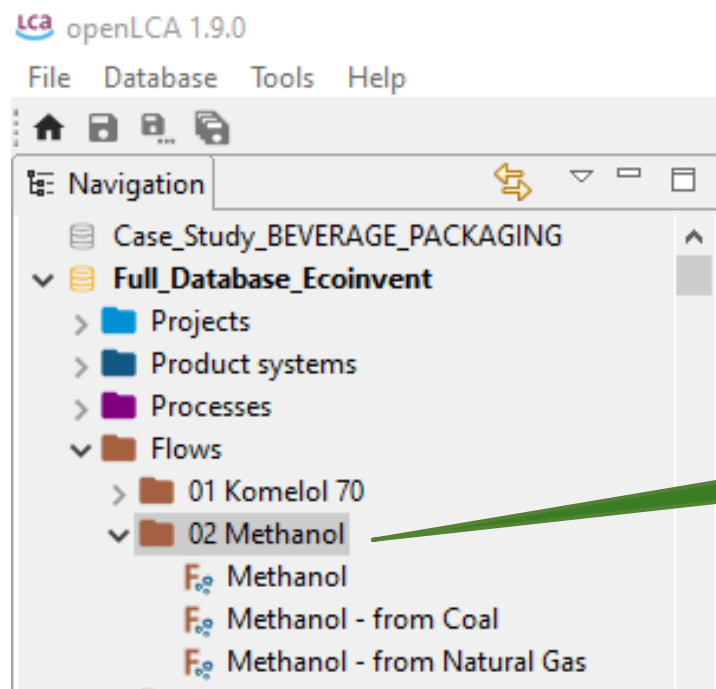
- Case_Study_BEVERAGE_PACKAGING
 - Projects
 - Product systems
 - Processes
 - Flows**
 - 001 Beverage Comparative LCA
 - 01 Beverage Basic Model
 - 01 Beverage Packaging
 - A:Agriculture, forestry and fishing
 - B:Mining and quarrying
 - C:Manufacturing
 - D:Electricity, gas, steam and air conditioning supply
 - Deposited goods
 - E:Water supply; sewerage, waste management and remediation activities
 - Elementary flows
 - Emissions
 - End-of-life treatment
 - Energy carriers and technologies
 - F:Construction
 - G:Wholesale and retail trade; repair of motor vehicles and motorcycles
 - H:Transportation and storage
 - J:Information and communication
 - L:Real estate activities



Smer puščice ponazarja smer toka informacij



Tokovi: ustvarjanje tokov



Ustvarjanje novega procesnega toka



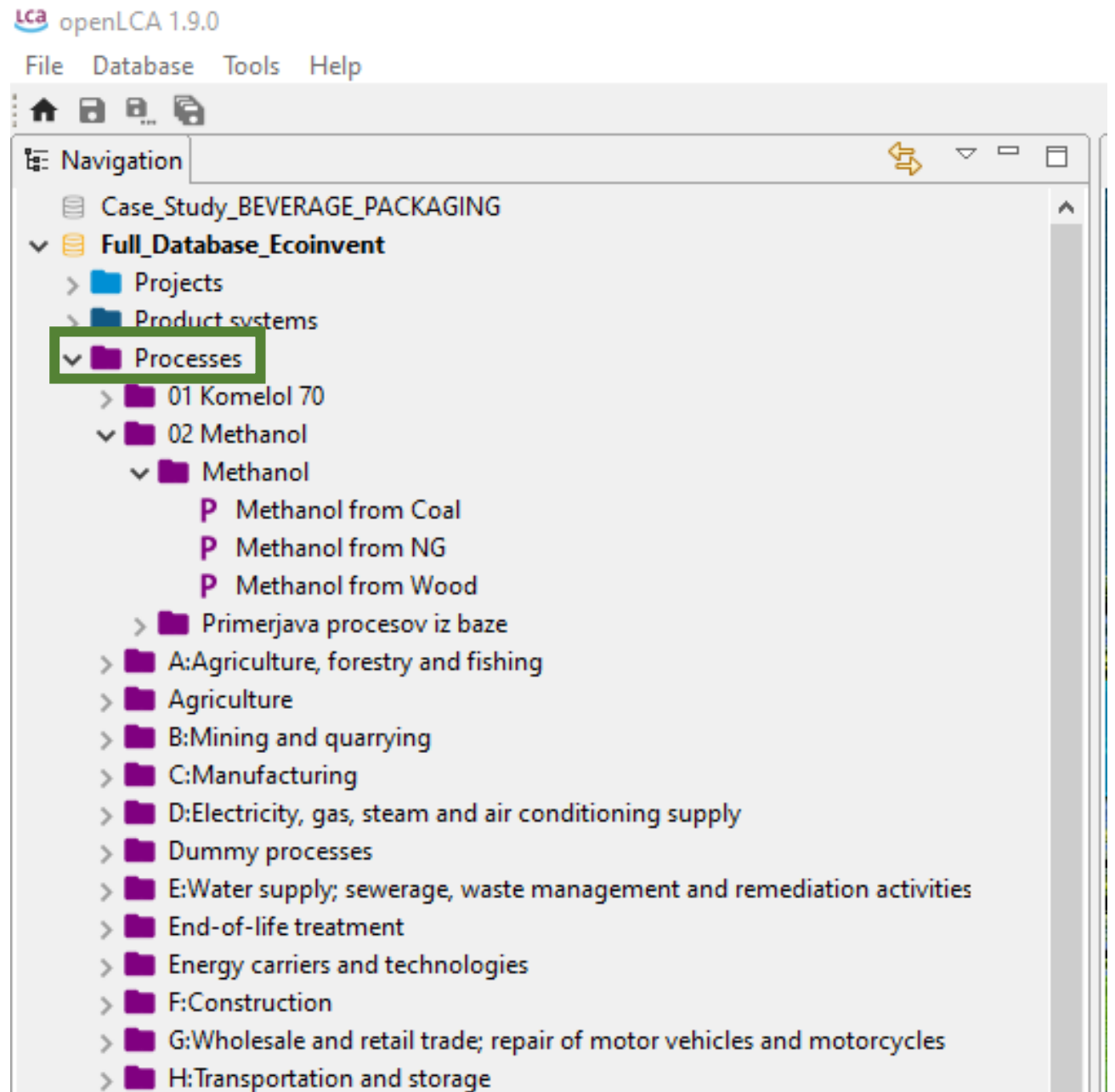
Tokovi: ustvarjanje tokov

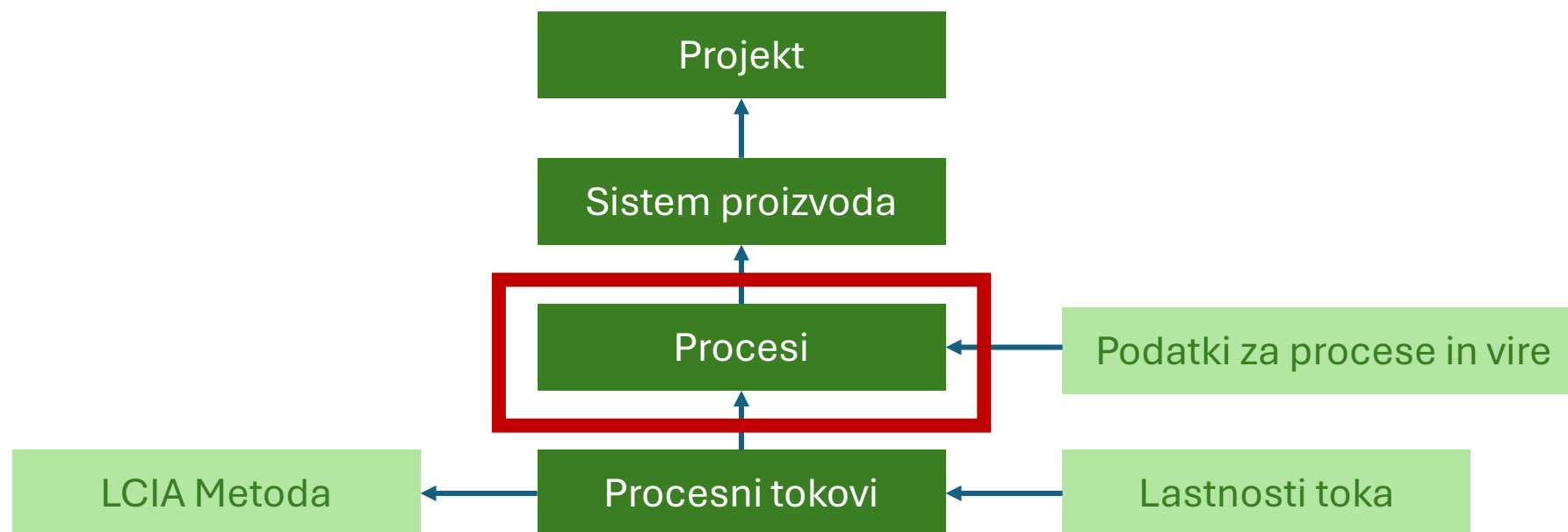
The screenshot displays the openLCA 1.9.0 interface. On the left, a navigation tree shows a project named 'Case_Study_BEVERAGE_PACKAGING' with a sub-project 'Full_Database_Ecoinvent'. Under 'Full_Database_Ecoinvent', there are folders for 'Projects', 'Product systems', 'Processes', and 'Flows'. The 'Flows' folder is expanded to show '02 Methanol', which is further expanded to show 'F: Methanol'. Below this, there are sub-items for 'Methanol - from Coal' and 'Methanol - from Natural Gas'. The main window shows the 'General information: Methanol' dialog box. The 'Name' field is filled with 'Methanol'. The 'Description' field is empty. The 'Category' is '02 Methanol'. The 'Version' is '00.00.001'. The 'UUID' is '85003122-eee0-4b93-abf4-5c29a77ab45f'. The 'Last change' is '2019-12-05T14:32:56+0100'. The 'Infrastructure flow' checkbox is unchecked. The 'Flow type' is 'Product'. There is a 'Create process' button. Below the 'General information' section, there are sections for 'Used in processes' and 'Additional information'. The 'Additional information' section has fields for 'CAS number' and 'Formula'. At the bottom, there are tabs for 'General information' and 'Flow properties'.

Opis in informacije o procesnem toku

Ustvarjanje procesov

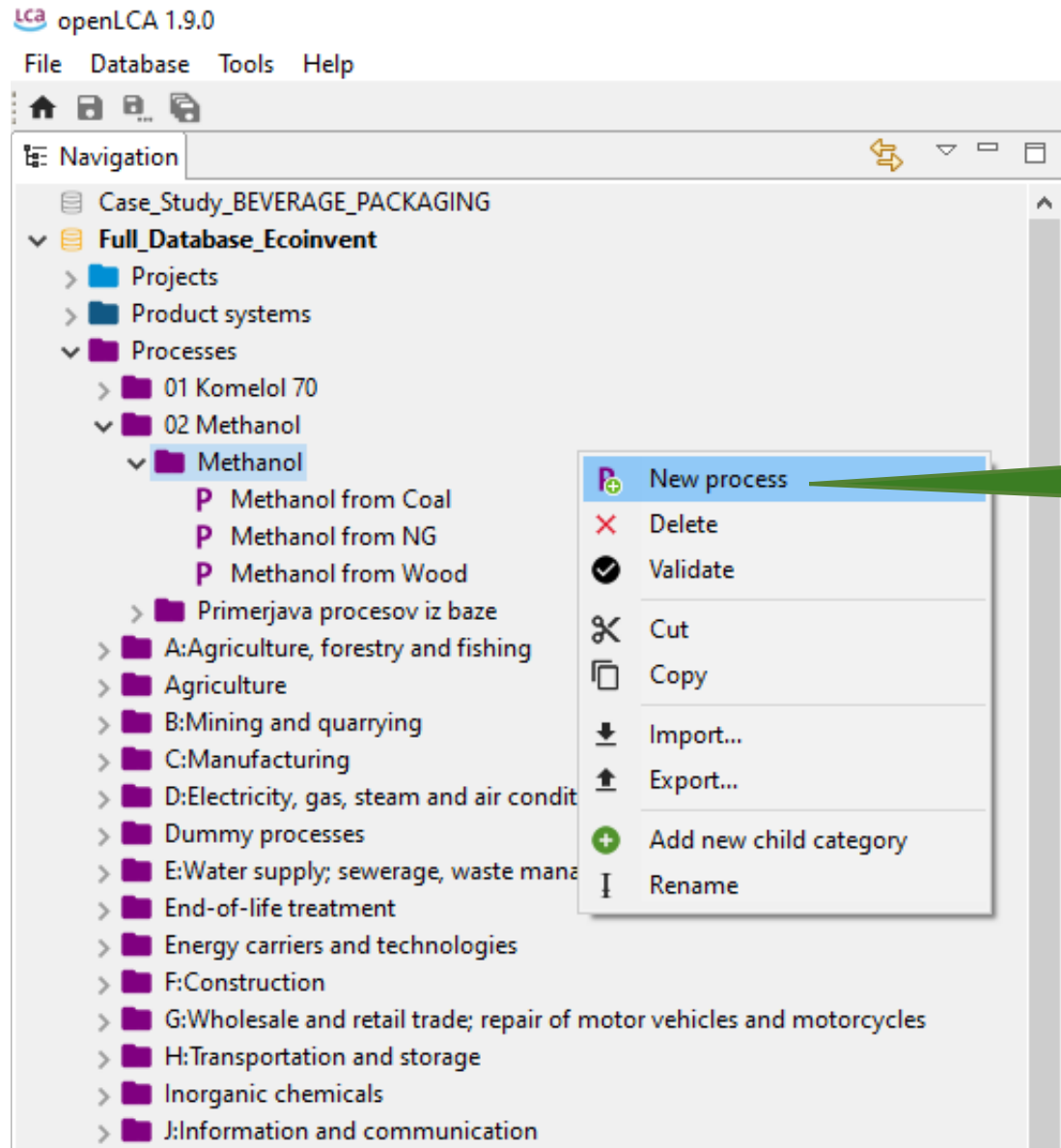
MODELIRANJE PROCESOV
ZA SISTEM PROIZVODNJE
METANOLA





Smer puščice ponazarja smer toka informacij

Procesi: ustvarjanje novega procesa

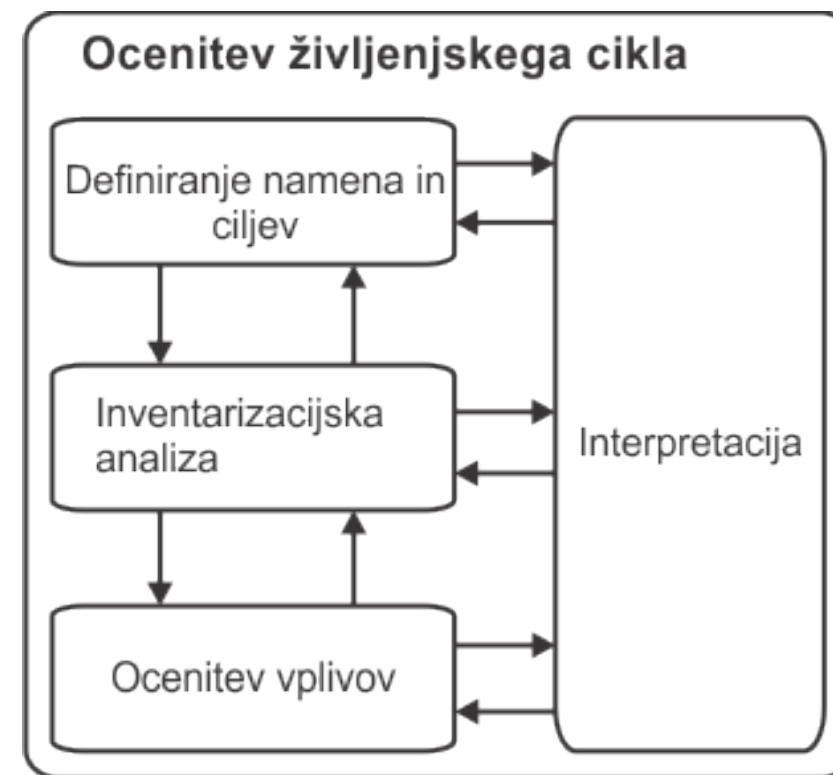


Ustvarjanje novega
procesa

Podatki za inventarizacijo

Inventarizacija =

popis življenjskega cikla tj. količinsko porabo virov (energije in materialov) in okoljskih emisij, povezani s specifičnim življenjskim ciklom proizvoda.



ISO 14040:2006

Procesi: ustvarjanje procesov

Ustvarjanje procesov glede na vtoke v skladu s tabelo:

1 kg of methanol from Natural Gas | methanol production (Ecoinvent 3.2)

Procesni tok	Količina	Enota	Provider (ponudnik)
heat, district or industrial, natural gas market group for heat, district or industrial, natural gas - GLO	6.930000	MJ	market group for heat, district or industrial, natural gas heat, district or industrial, natural gas APOS, U - GLO
water, deionised, from tap water, at user market for water, deionised, from tap water, at user - GLO	0.850000	kg	market for water, deionised, from tap water, at user water, deionised, from tap water, at user APOS, U - GLO
natural gas, high pressure market group for natural gas, high pressure - GLO	0.651795	m3	market group for natural gas, high pressure natural gas, high pressure APOS, U - GLO
electricity, medium voltage market group for electricity, medium voltage - GLO	0.074000	kWh	market group for electricity, medium voltage electricity, medium voltage APOS, U - GLO
Water, cooling, unspecified natural origin	0.008160	m3	
Aluminijev oksid market for aluminium oxide - GLO	0.000240	kg	market for aluminium oxide aluminium oxide APOS, U - GLO
Bakrov oksid market for copper oxide - GLO	0.000090	kg	market for copper oxide copper oxide APOS, U - GLO
cink market for zinc - GLO	0.000030	kg	market for zinc zinc APOS, U - GLO
nikelj, 99.5% market for nickel, 99.5% - GLO	0.000020	kg	market for nickel, 99.5% nickel, 99.5% APOS, U - GLO
molibden market for molybdenum - GLO	0.000010	kg	market for molybdenum molybdenum APOS, U - GLO

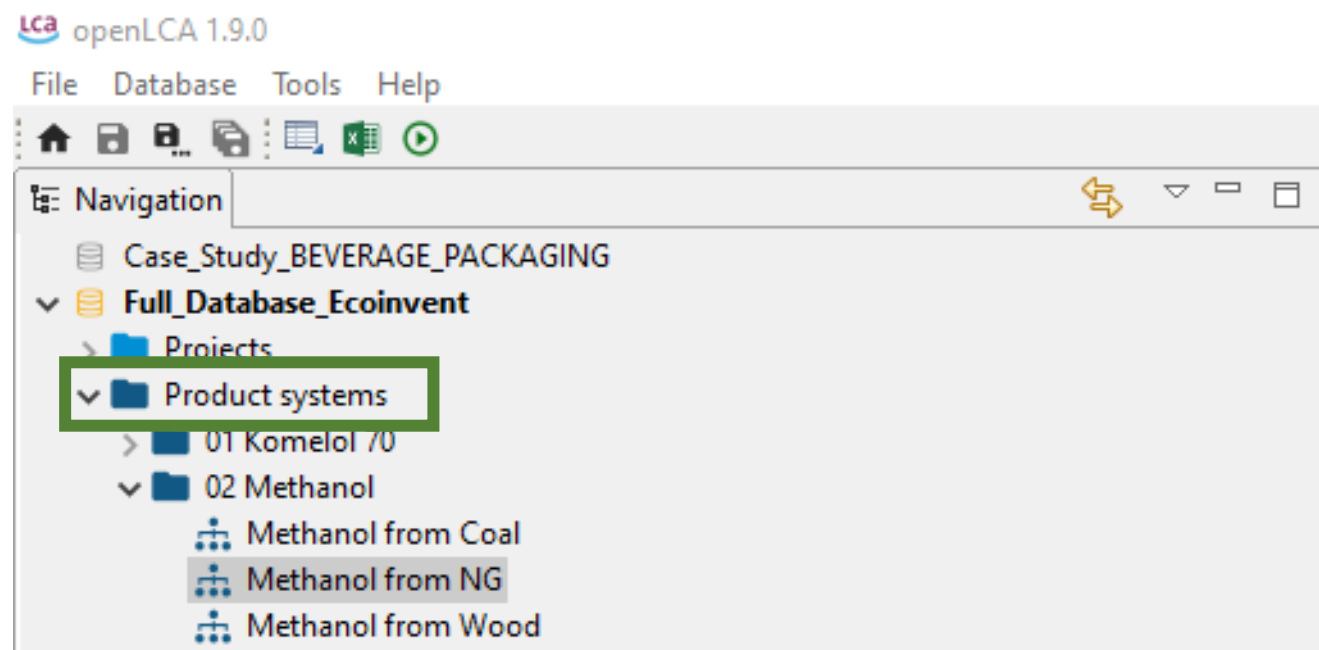
Procesi: ustvarjanje procesov

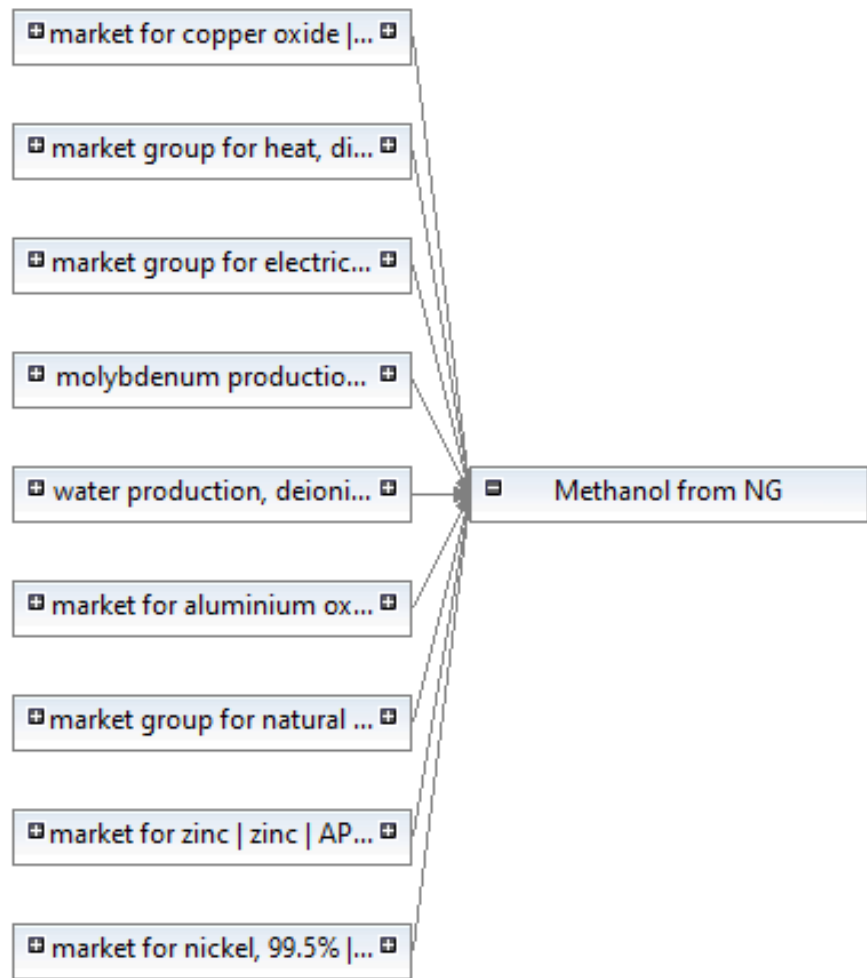
Ustvarjanje procesov glede na vtoke v skladu s tabelo:

1 kg methanol, from biomass | methanol production, from synthetic gas (Ecoinvent 3.2)

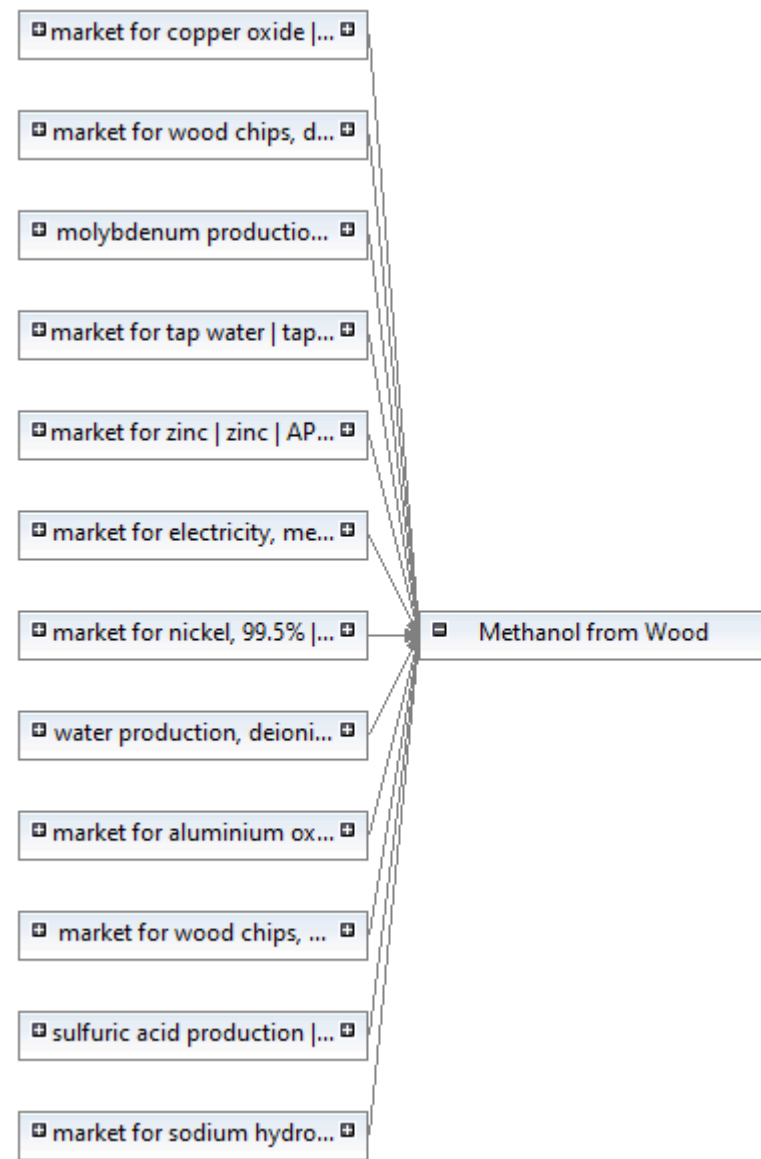
Procesni tok	Količina	Enota	Provider (ponudnik)
wood chips, wet, measured as dry mass market for wood chips, wet, measured as dry mass - CH	5.290897	kg	market for wood chips, wet, measured as dry mass wood chips, wet, measured as dry mass APOS, U - CH
tap water market for tap water - CH	10.268143	kg	market for tap water tap water APOS, U - CH
wood chips, dry, measured as dry mass market for wood chips, dry, measured as dry mass - RER	1.461855	kg	market for wood chips, dry, measured as dry mass wood chips, dry, measured as dry mass APOS, U - RER
water, deionised, from tap water, at user market for water, deionised, from tap water, at user - GLO	0.849971	kg	market for water, deionised, from tap water, at user water, deionised, from tap water, at user APOS, U - GLO
electricity, medium voltage market for electricity, medium voltage - CH	0.668501	kWh	market for electricity, medium voltage electricity, medium voltage APOS, U - CH
sulfuric acid market for sulfuric acid - GLO	0.047518	kg	market for sulfuric acid sulfuric acid APOS, U - GLO
Natrijev hidroksid, without water, in 50% solution state market for sodium hydroxide, without water, in 50% solution state - GLO	0.011960	kg	market for sodium hydroxide, without water, in 50% solution state sodium hydroxide, without water, in 50% solution state APOS, U - GLO
Aluminijev oksid market for aluminium oxide - GLO	0.000240	kg	market for aluminium oxide aluminium oxide APOS, U - GLO
Bakrov oksid market for copper oxide - GLO	0.000090	kg	market for copper oxide copper oxide APOS, U - GLO
cink market for zinc - GLO	0.000030	kg	market for zinc zinc APOS, U - GLO
nikelj, 99.5% market for nickel, 99.5% - GLO	0.000020	kg	market for nickel, 99.5% nickel, 99.5% APOS, U - GLO
molibden market for molybdenum - GLO	0.000010	kg	market for molybdenum molybdenum APOS, U - GLO

Sistem proizvoda analiza in rezultati





Metanol iz zemeljskega
plina



Metanol iz lesne biomase

Ocena okoljskih vplivov življenjskega cikla

pretvorba rezultatov inventarizacije (popisa) v različne vrste okoljskih vplivov.

Obravnavane kategorije vplivov:

zakisljevanje [kg SO₂ ekv.]

eutrofikacija [kg PO₄³⁻ ekv.]

podnebne spremembe [kg CO₂ ekv.]

človeško zastrupljanje [kg 1,4-DB ekv.]

tanjšanje ozonske plasti [kg CFC-11 ekv.]

Metoda ocenjevanja: CML 2001 (Institute of the Faculty of Science of Leiden University)

(Metode LCIA na voljo v razdelku http://www.openlca.org/download_page#LCIA_methods).



Kazalci, ki se običajno uporabljajo v analizi LCA

Methanol from NG

Impact analysis: CML-IA baseline

Subgroup by processes Don't show < 2 %

Name	Category	Impact result	Unit
> Photochemical oxidation - CML-IA baseline		0.00016	kg C...
> Terrestrial ecotoxicity - CML-IA baseline		0.00057	kg 1...
✓ Global warming (GWP100a) - CML-IA baseline		0.61078	kg C...
> P transport, pipeline, long distance, natural gas transport, pipeline, long distance, natur	493:Transport via pipeline / 4930...	0.07623	kg C...
> P heat and power co-generation, natural gas, conventional power plant, 100MW electric	351:Electric power generation, tr...	0.04620	kg C...
> P natural gas production natural gas, high pressure APOS, U - RU	062:Extraction of natural gas / 0...	0.02510	kg C...
> P heat and power co-generation, natural gas, conventional power plant, 100MW electric	351:Electric power generation, tr...	0.02226	kg C...
> P heat and power co-generation, hard coal electricity, high voltage APOS, U - RU	351:Electric power generation, tr...	0.01733	kg C...
> P transport, pipeline, long distance, natural gas transport, pipeline, long distance, natur	493:Transport via pipeline / 4930...	0.01659	kg C...
> P heat and power co-generation, natural gas, conventional power plant, 100MW electric	351:Electric power generation, tr...	0.01605	kg C...
> P natural gas, burned in gas motor, for storage natural gas, burned in gas motor, for sto	351:Electric power generation, tr...	0.01584	kg C...
> P sweet gas, burned in gas turbine sweet gas, burned in gas turbine APOS, U - RoW	351:Electric power generation, tr...	0.01485	kg C...
> P heat and power co-generation, lignite electricity, high voltage APOS, U - RU	351:Electric power generation, tr...	0.01384	kg C...
> P electricity production, hard coal electricity, high voltage APOS, U - ZA	351:Electric power generation, tr...	0.01290	kg C...
> Human toxicity - CML-IA baseline		0.09761	kg 1,...
> Eutrophication - CML-IA baseline		0.00048	kg P...
> Abiotic depletion - CML-IA baseline		2.17937E-7	kg Sb...
> Ozone layer depletion (ODP) - CML-IA baseline		3.04023E-7	kg C...
> Abiotic depletion (fossil fuels) - CML-IA baseline		31.27423	MJ
> Fresh water aquatic ecotox. - CML-IA baseline		0.09459	kg 1,...
> Marine aquatic ecotoxicity - CML-IA baseline		287.92629	kg 1,...
> Acidification - CML-IA baseline		0.00223	kg S...

METANOL IZ
ZEMELJSKEGA
PLINA

Methanol from Wood

Impact analysis: CML-IA baseline

Subgroup by processes Don't show < 2 %

Name	Category	Inventory res...	Impact factor	Impact result	Unit
> Photochemical oxidation - CML-IA baseline				0.00053	kg C...
> Terrestrial ecotoxicity - CML-IA baseline				0.00289	kg 1,...
✓ Global warming (GWP100a) - CML-IA baseline				0.78212	kg C...
> P heat and power co-generation, lignite electricity, h	351:Electric power generation, tr...			0.15634	kg C...
> P wood chipping, mobile chipper, at forest road wo	022:Logging / 0220:Logging			0.04522	kg C...
> P harvesting, forestry harvester harvesting, forestry h	022:Logging / 0220:Logging			0.03642	kg C...
> P ammonia production, steam reforming, liquid am	201:Manufacture of basic chemi...			0.02835	kg C...
> P forwarding, forwarder forwarding, forwarder APC	022:Logging / 0220:Logging			0.02426	kg C...
> P electricity production, lignite electricity, high volta	351:Electric power generation, tr...			0.01736	kg C...
> Human toxicity - CML-IA baseline				0.44698	kg 1,...
> Eutrophication - CML-IA baseline				0.00233	kg P...
> Abiotic depletion - CML-IA baseline				1.86635E-6	kg Sb...
> Ozone layer depletion (ODP) - CML-IA baseline				1.14263E-7	kg C...
> Abiotic depletion (fossil fuels) - CML-IA baseline				10.20340	MJ
> Fresh water aquatic ecotox. - CML-IA baseline				0.49791	kg 1,...
> Marine aquatic ecotoxicity - CML-IA baseline				1106.61975	kg 1,...
> Acidification - CML-IA baseline				0.00719	kg S...

METANOL IZ
LESNE BIOMASE

METANOL IZ ZEMELJSKEGA PLINA

Analysis result of Methanol from NG | Analysis result of Methanol from Wood

Methanol from NG

Flow | Impact category

Diflubenzuron - Emission to soil/agricultural

Global warming (GWP100a) - CML-IA baseline

PRISPEVKI POSAMEZNIH PROCESNIH FAZ K POTENCIALU GLOBALNEGA SEGREVANJA (GWP)

Contribution	Process	Amount	Unit
100.00%	Methanol from NG	0.61078	kg CO2 eq
> 56.25%	market group for natural gas, high pressure natural gas, high pressure ...	0.34354	kg CO2 eq
> 37.72%	market group for heat, district or industrial, natural gas heat, district or i...	0.23040	kg CO2 eq
> 05.77%	market group for electricity, medium voltage electricity, medium voltag...	0.03525	kg CO2 eq
> 00.21%	water production, deionised, from tap water, at user water, deionised, fr...	0.00128	kg CO2 eq
> 00.05%	market for aluminium oxide aluminium oxide APOS, U - GLO	0.00031	kg CO2 eq

General information | Inventory results | Impact analysis | Process results | Contribution tree | Grouping | Locations | Sankey diagram | LCIA Checks

METANOL IZ LESNE BIOMASE

Analysis result of Methanol from NG Analysis result of Methanol from Wood

Methanol from Wood

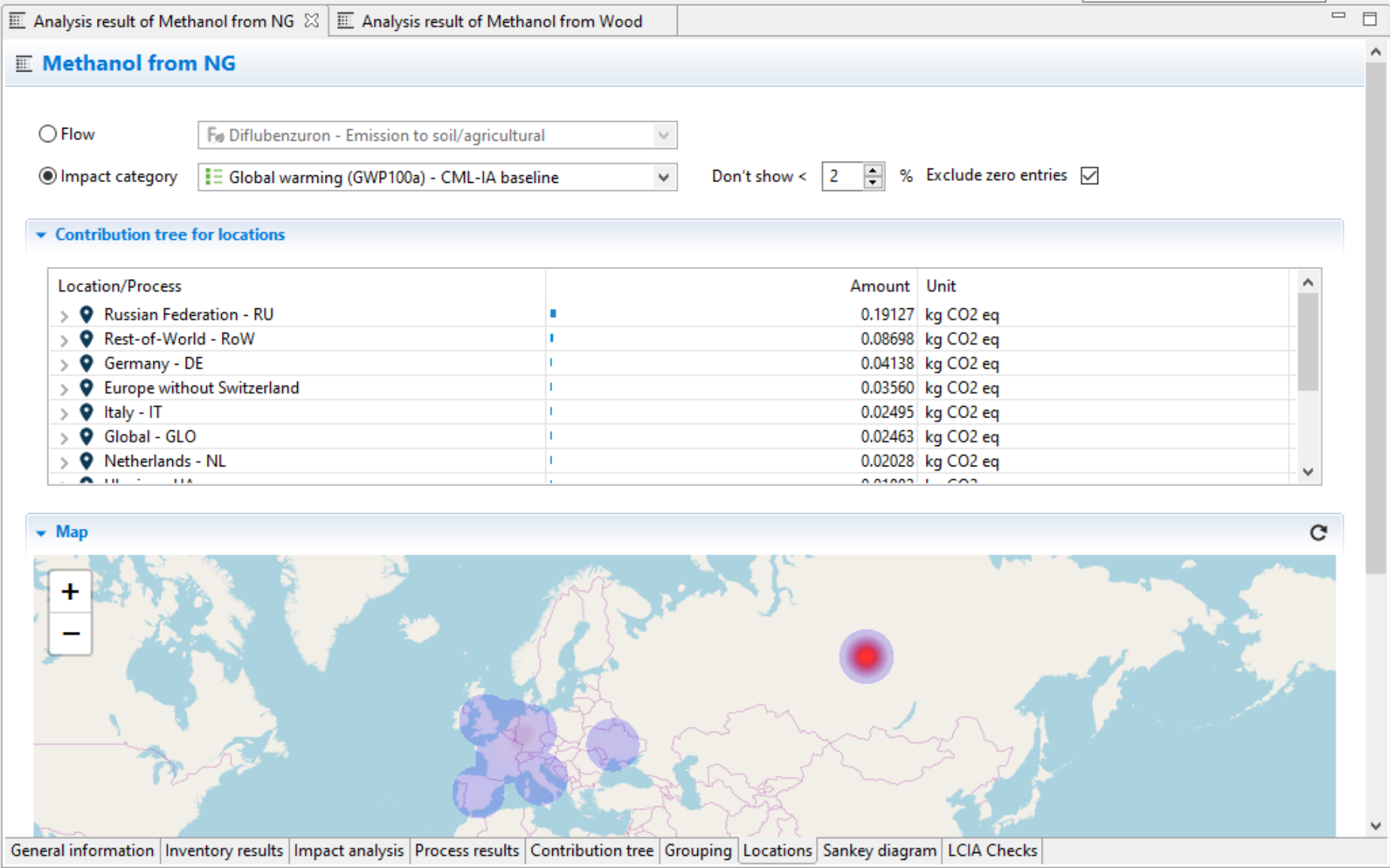
Flow Diflubenzuron - Emission to soil/agricultural

Impact category Global warming (GWP100a) - CML-IA baseline

PRISPEVKI POSAMEZNIH PROCESNIH FAZ K POTENCIALU GLOBALNEGA SEGREVANJA (GWP)

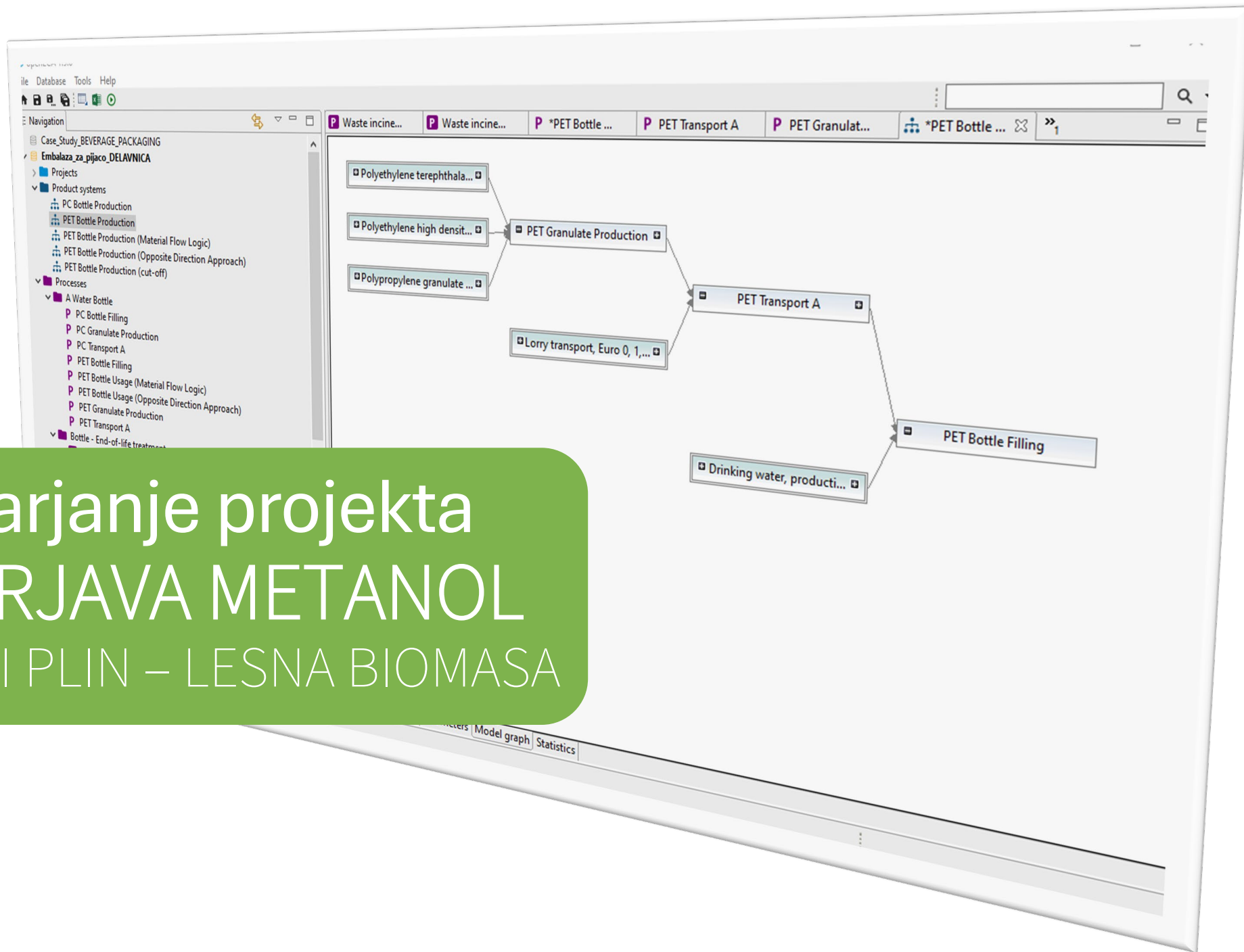
Contribution	Process	Amount	Unit
100.00%	P Methanol from Wood	0.78212	kg CO2 eq
> 37.09%	P market for electricity, medium voltage electricity, medium voltage APOS...	0.29012	kg CO2 eq
> 30.90%	P market for wood chips, wet, measured as dry mass wood chips, wet, meas...	0.24167	kg CO2 eq
> 28.72%	P market for wood chips, dry, measured as dry mass wood chips, dry, meas...	0.22459	kg CO2 eq
> 01.94%	P market for sodium hydroxide, without water, in 50% solution state sodiu...	0.01514	kg CO2 eq
> 00.64%	P sulfuric acid production sulfuric acid APOS, U - RER	0.00502	kg CO2 eq
> 00.51%	P market for tap water tap water APOS, U - Europe without Switzerland	0.00399	kg CO2 eq
> 00.16%	P water production, deionised, from tap water, at user water, deionised, fro...	0.00128	kg CO2 eq
> 00.04%	P market for aluminium oxide aluminium oxide APOS, U - GLO	0.00031	kg CO2 eq

General information Inventory results Impact analysis Process results Contribution tree Grouping Locations Sankey diagram LCIA Checks



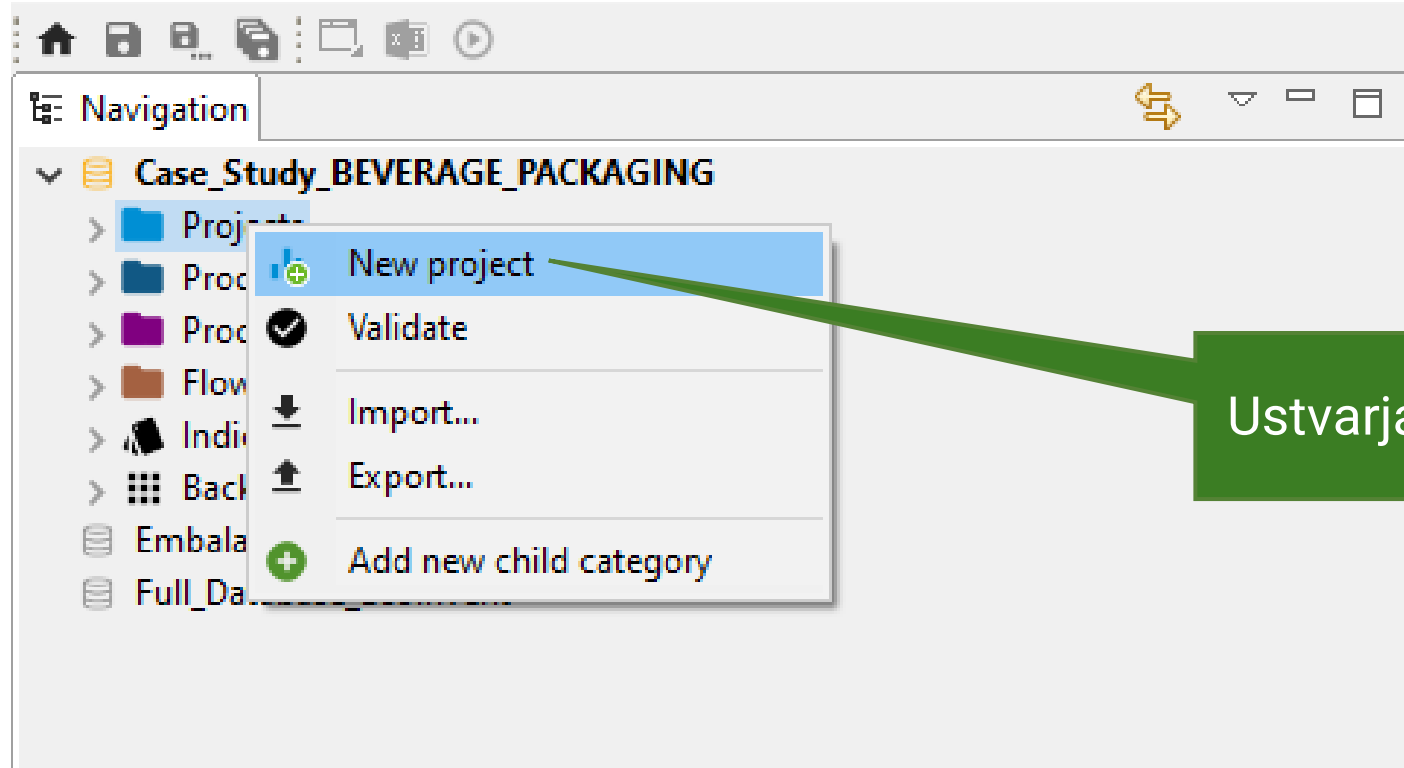
METANOL IZ
ZEMELJSKEGA PLINA

Ustvarjanje projekta PRIMERJAVA METANOL ZEMELJSKI PLIN – LESNA BIOMASA




openLCA 1.9.0


File Database Tools Help



Ustvarjanje novega projekta

 — □ ×

New project

Creates a new project 

Name

Description

Poimenovanje projekta


Dodaten opis

Project setup: Metanol - Zemeljski plin vs Lesna biomasa









General information

LCIA Method

LCIA Method







 CML-IA baseline

Normalization and weighting set

Impact category	Display	Label in report	Description
 Abiotic depletion (fossil fuels) - CML-IA baseline	<input checked="" type="checkbox"/>	Abiotic depletion (fossil fuels) - ...	
 Abiotic depletion - CML-IA baseline	<input checked="" type="checkbox"/>	Abiotic depletion - CML-IA bas...	
 Acidification - CML-IA baseline	<input checked="" type="checkbox"/>	Acidification - CML-IA baseline	
 Eutrophication - CML-IA baseline	<input checked="" type="checkbox"/>	Eutrophication - CML-IA baseline	
 Fresh water aquatic ecotox. - CML-IA baseline	<input checked="" type="checkbox"/>	Fresh water aquatic ecotox. - C...	
 Global warming (GWP100a) - CML-IA baseline	<input checked="" type="checkbox"/>	Global warming (GWP100a) - C...	
 Human toxicity - CML-IA baseline	<input checked="" type="checkbox"/>	Human toxicity - CML-IA baseli...	
 Marine aquatic ecotoxicity - CML-IA baseline	<input checked="" type="checkbox"/>	Marine aquatic ecotoxicity - C...	

Izbor metode LCIA in kategorij vplivov, ki nas zanimajo

Compared product systems

Name	Product system	Display	Allocation method	Flow	Amount	Unit	Description
Zemeljski plin	 Methanol fro...	<input checked="" type="checkbox"/>	None	 Methanol	1.0	 kg	
Lesna biomasa	 Methanol fro...	<input checked="" type="checkbox"/>	None	 Methanol	1.0	 kg	

Navigation

- Case_Study_BEVERAGE_PACKAGING
- Full_Database_Ecoinvent
 - Projects
 - 02 Methanol
 - Metanol - Zemeljski plin vs Lesna biomasa
 - Product systems
 - Processes
 - Flows
 - Indicators and parameters
 - Background data
- Komelol
- OpenLCA_Delavnica

Project setup: Metanol - Zemeljski plin vs Lesna biomasa

General information

Name Metanol - Zemeljski plin vs Lesna biomasa

Description

Category 02 Methanol

Version 00.00.003

UUID 54adbfa3-c1eb-413d-8ba8-900874c6800e

Last change 2019-12-09T10:20:39+0100

Report

Generiranje poročila projekta

LCIA Method

LCIA Method CML-IA baseline

Normalization and weighting set

Impact category	Display	Label in report	Description
Abiotic depletion (fossil fuels) - CML-IA baseline	<input checked="" type="checkbox"/>	Abiotic depletion (fossil fuels) - ...	

Projekt: Rezultati

Metanol - Zemeljski plin vs Lesna biomasa | Report viewer

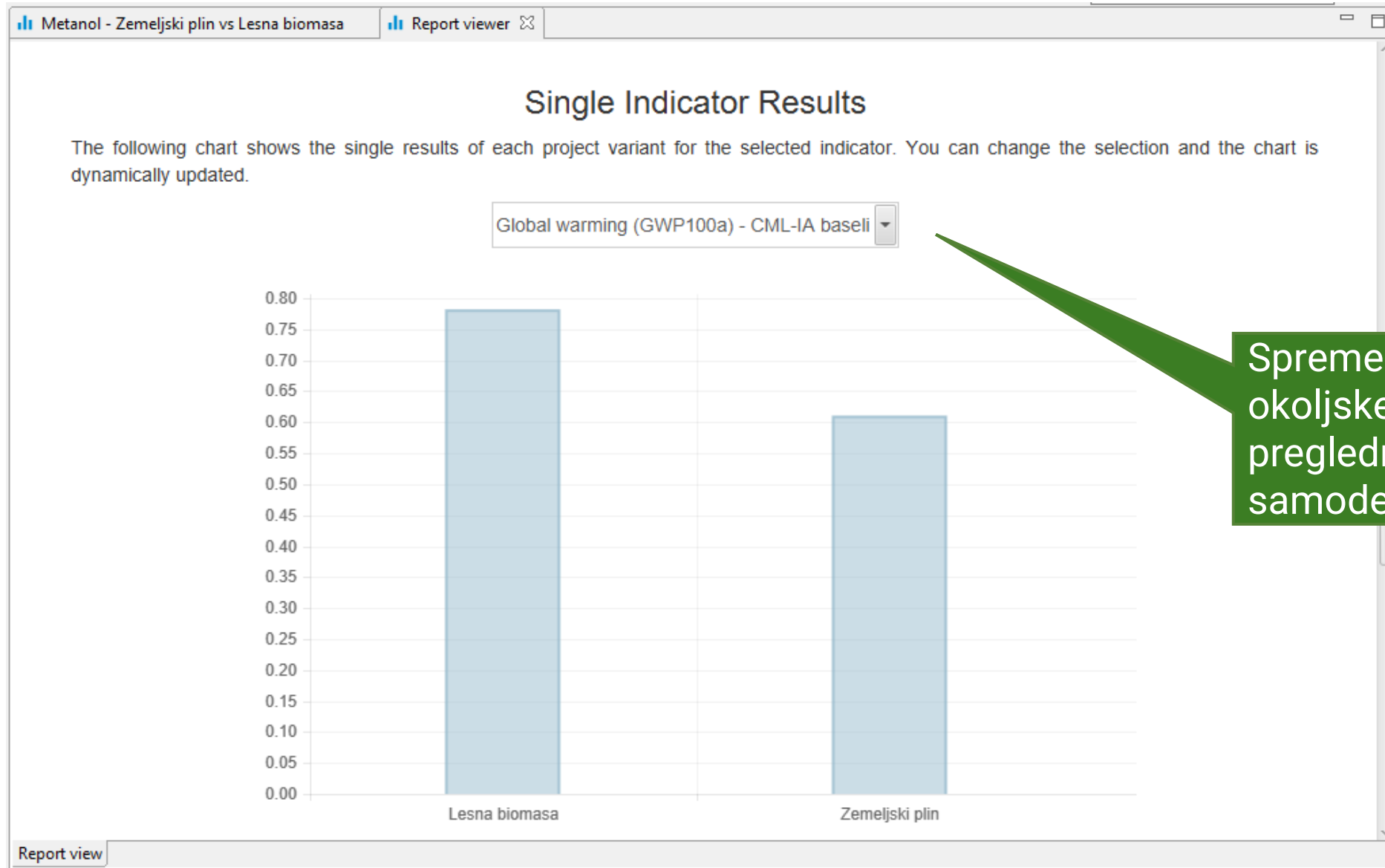
LCIA Results

This table shows the LCIA results of the project variants. Each selected LCIA category is displayed in the rows and the project variants in the columns. The unit is the unit of the LCIA category as defined in the LCIA method.

Impact category	Lesna biomasa	Zemeljski plin	Unit
Abiotic depletion - CML-IA baseline	1.86635e-6	2.17937e-7	kg Sb eq
Abiotic depletion (fossil fuels) - CML-IA baseline	1.02034e+1	3.12742e+1	MJ
Acidification - CML-IA baseline	7.19014e-3	2.23047e-3	kg SO2 eq
Eutrophication - CML-IA baseline	2.32781e-3	4.84583e-4	kg PO4--- eq
Fresh water aquatic ecotox. - CML-IA baseline	4.97915e-1	9.45897e-2	kg 1,4-DB eq
Global warming (GWP100a) - CML-IA baseline	7.82122e-1	6.10777e-1	kg CO2 eq
Human toxicity - CML-IA baseline	4.46975e-1	9.76099e-2	kg 1,4-DB eq
Marine aquatic ecotoxicity - CML-IA baseline	1.10662e+3	2.87926e+2	kg 1,4-DB eq
Ozone layer depletion (ODP) - CML-IA baseline	1.14263e-7	3.04023e-7	kg CFC-11 eq
Photochemical oxidation - CML-IA baseline	5.30163e-4	1.58186e-4	kg C2H4 eq
Terrestrial ecotoxicity - CML-IA baseline	2.89222e-3	5.71117e-4	kg 1,4-DB eq

Report view

Projekt: Rezultati (kazalec GWP)

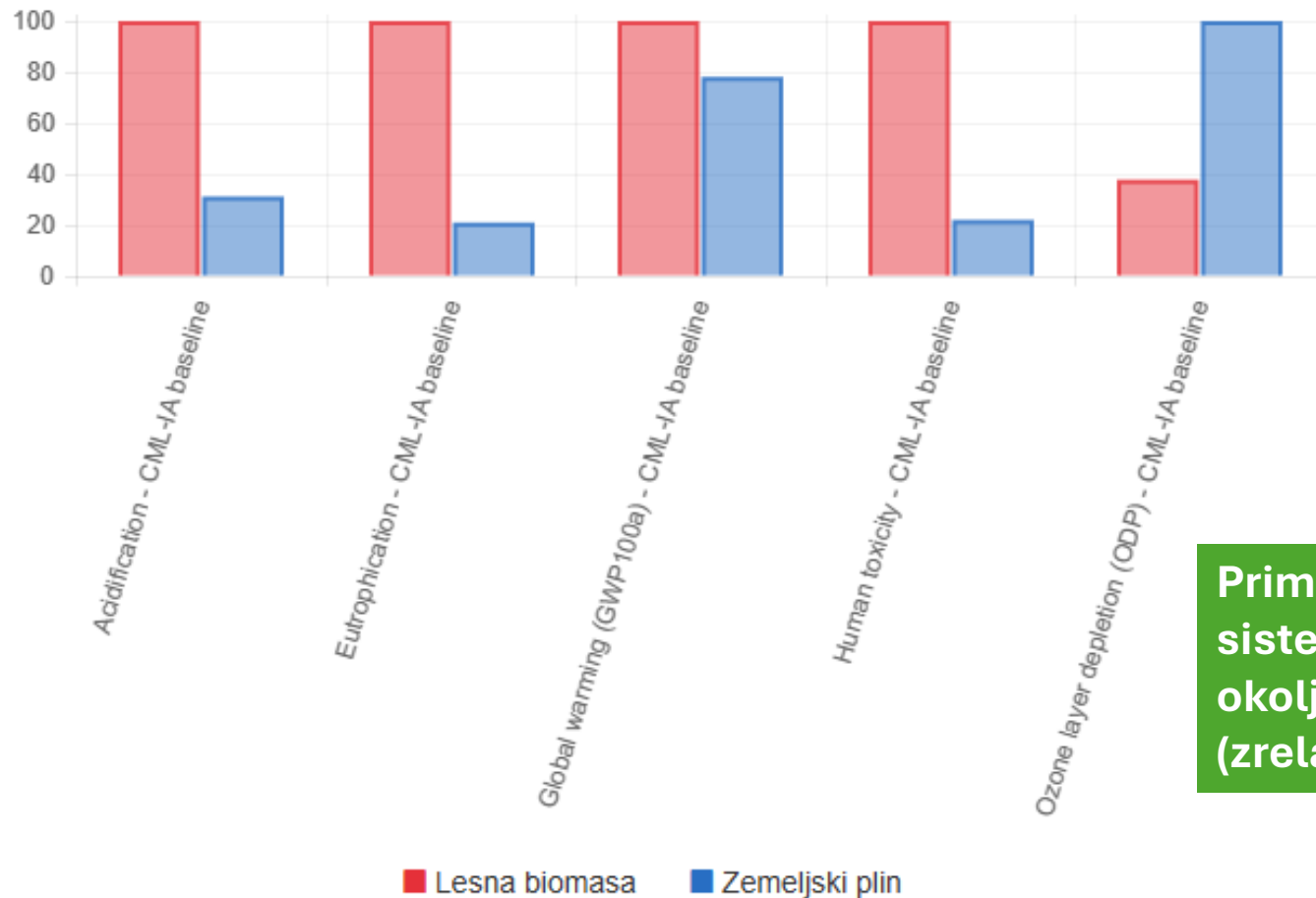


Spremenite kategorijo okoljskega vpliva in preglednica se samodejno posodobi

Projekt: Rezultati (zrelativizirani)

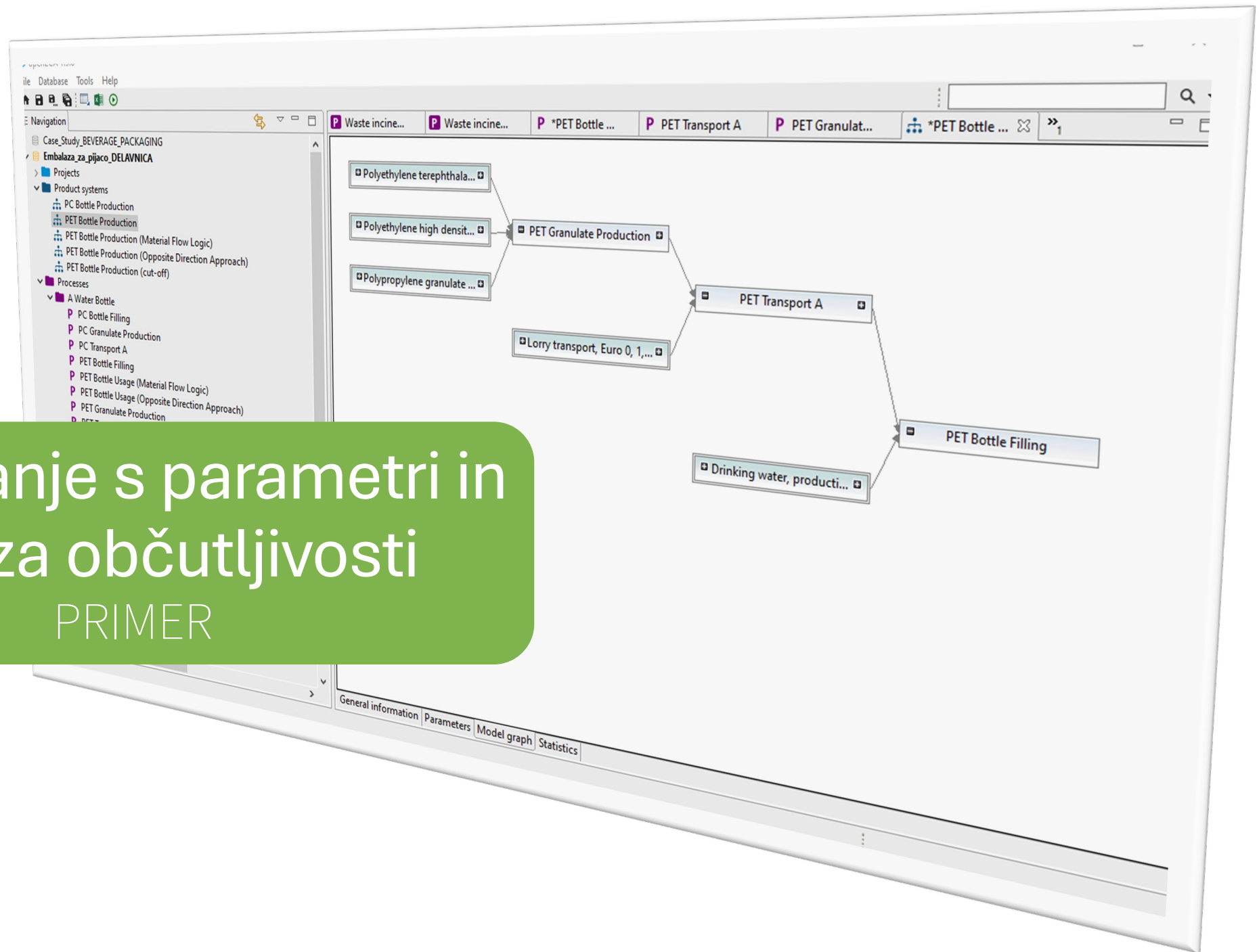
Relative Results

The following chart shows the relative indicator results of the respective project variants. For each indicator, the maximum result is set to 100% and the results of the other variants are displayed in relation to this result.



Primerjava analiziranih sistemov za posamezne okoljske kategorije (zrelativiziran rezultat)

Modeliranje s parametri in analiza občutljivosti PRIMER



- možnost ustvarjanja različic življenjskega cikla s spreminjanjem vhodnih vrednosti
- lokalni in globalni parametri
- parametri so lahko povezani z drugimi parametri (tj. odvisni parametri)
- koristno za preliminarne podatke: podatke lahko na koncu analize enostavno spremenimo
- zmanjšana verjetnost računskih napak

PRIMER:

„Kako delež suhih sekancev vpliva na celoten okoljski vpliv?“



Globalni parametri: nastavitve

openLCA 1.9.0

File Database Tools Help

The screenshot shows the openLCA software interface. The navigation tree on the left is expanded to 'Global parameters', which is highlighted with a green box. Under 'Global parameters', two sub-items are listed: '01 Komelol 70' and '02 Metanol'. Under '02 Metanol', two parameters are listed: 'm_lesni_sekanci_mokri' and 'm_lesni_sekanci_suhi'. A green arrow points from the 'm_lesni_sekanci_mokri' parameter in the tree to the 'General information' window on the right. A context menu is open over the 'Global parameters' folder, with 'New parameter' selected. A green arrow points from the 'New parameter' option to the 'Globalni' label below.

Odvisni globalni parameter

The screenshot shows the 'General information' window for the parameter 'm_lesni_sekanci_mokri'. The window title is 'm_lesni_sekanci_mokri'. The 'Additional information' section is expanded, showing a table with the following data:

Type	Dependent parameter
Formula	6.7526 - m_lesni_sekanci_suhi
Value	5.29075

The 'Formula' and 'Value' rows are highlighted with a green box. A green arrow points from the 'Globalni' label below to the 'Value' field.

Globalni

The screenshot shows the 'General information' window for the parameter 'm_lesni_sekanci_suhi'. The window title is 'm_lesni_sekanci_suhi'. The 'Additional information' section is expanded, showing a table with the following data:

Type	Input parameter
Value	1.46185
Uncertainty	none

The 'Value' row is highlighted with a green box. A green arrow points from the 'Globalni' label below to the 'Value' field.

Welcome | Obcutljivostna analiza - Sekanci | Report viewer

▼ Compared product systems

Name	Product system	Display	Flow	Am...	Unit	Description
Metanol_Suhi sekanci_m_1.5	Methanol from Wood	<input checked="" type="checkbox"/>	F _g Methanol	1.0	kg	
Metanol_Suhi sekanci_m_3.0	Methanol from Wood	<input checked="" type="checkbox"/>	F _g Methanol	1.0	kg	
Metanol_Suhi sekanci_m_4.5	Methanol from Wood	<input checked="" type="checkbox"/>	F _g Methanol	1.0	kg	
Metanol_Zemeljski plin	Methanol from NG	<input checked="" type="checkbox"/>	F _g Methanol	1.0	kg	

▼ Parameters

Parameter	Label in report	Metanol_Suhi sekanci_m_1.5	Metanol_Suhi sekanci_m_3.0	Metanol_Suhi sekanci_m_4.5	Metanol_Zemeljski plin
f_x m_lesni_sekanci_suhi	m_lesni_sekanci_suhi	1.5	3.0	4.5	0.0

▶ Process contributions

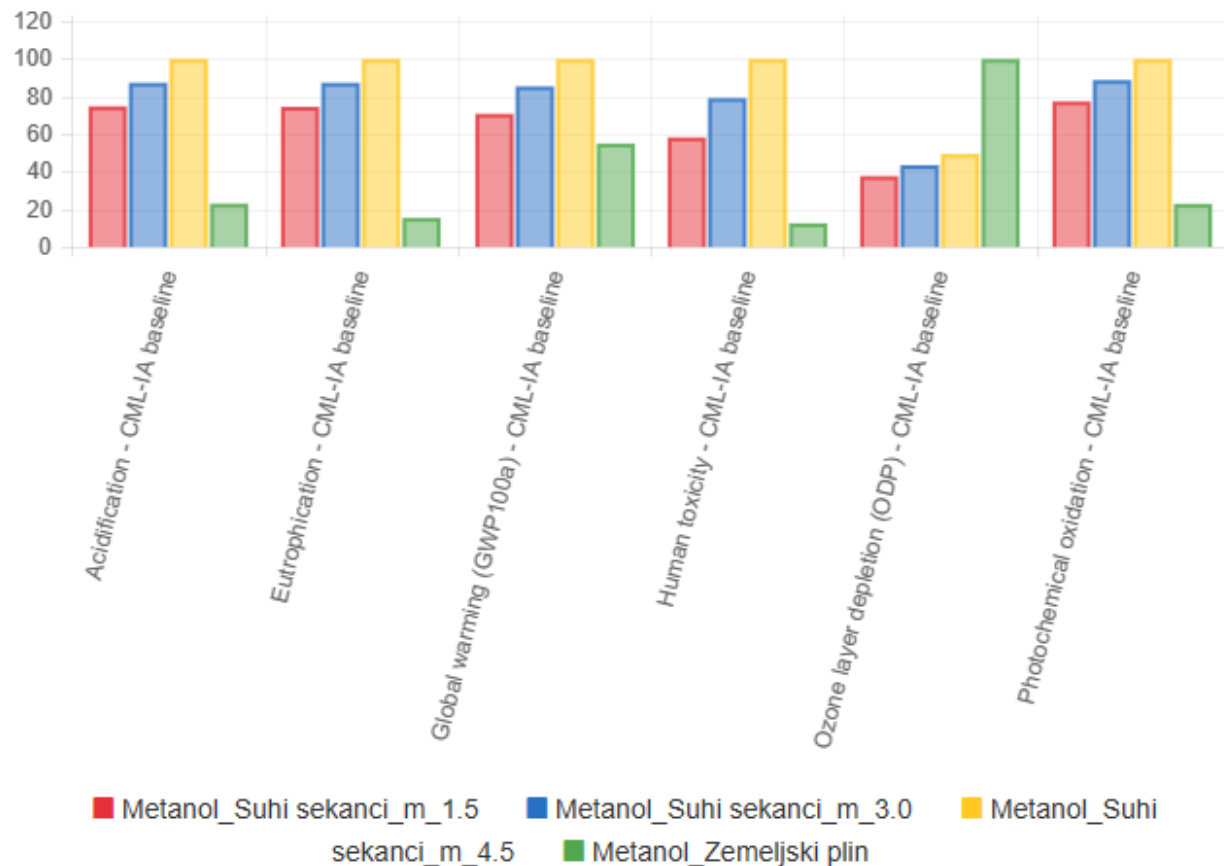
Project setup | Report sections



Kako delež suhih sekancev vpliva na celoten okoljski vpliv?

Relative Results

The following chart shows the relative indicator results of the respective project variants. For each indicator, the maximum result is set to 100% and the results of the other variants are displayed in relation to this result.



- Predstavljen **praktični primer izvedbe** okoljske analize dveh sinteznih poti za proizvodnjo metanola (iz zemeljskega plina in lesne biomase)
- Glede na nastavljene parametre proizvodnja metanola iz zemeljskega plina izkazuje nižje okoljske vplive
- OpenLCA je uporabno orodje za celostno ocenjevanje okoljskih vplivov pri razvoju proizvodov / procesov:
 - **nizki stroški** nabave opreme,
 - **enostavna namestitvev** in **uporaba**,
 - funkcije za **profesionalno modeliranje** in sodelovanje v **timu**,
 - obsežen **nabor podatkov**,
 - **preglednost**.
- Študija primera je namenjena za izobraževalne namene in je potrebna nadaljnje izpopolnitve.

THANK YOU

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