

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 shows the OpenLCA 1.9.0 application window. The title bar reads "openLCA 1.9.0" and the menu bar includes "File", "Database", "Tools", and "Help". A navigation pane on the left lists three items: "Case_Study_BEVERAGE_PACKAGING", "Embalaza_zaj_pijaco_DELAVNICA", and "Full_Database_Ecoinvent". The main content area features a "Welcome" tab and a background image of trees. Four callout boxes point to menu items: "What is new in openLCA" (Novosti o izboljšavah in spremembah najnovejse različice), "Getting started" (Priročniki 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), and "Community" (Aktivna openLCA skupnost z mednarodnimi partnerji v različnih državah in več deset tisoč uporabniki).

openLCA 1.9.0

File Database Tools Help

Navigation

- Case_Study_BEVERAGE_PACKAGING
- Embalaza_zaj_pijaco_DELAVNICA
- Full_Database_Ecoinvent

Welcome

What is new in openLCA > Novosti o izboljšavah in spremembah najnovejse različice.

Getting started > Priročniki 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.

Welcome

Uvodno okno OpenLCA

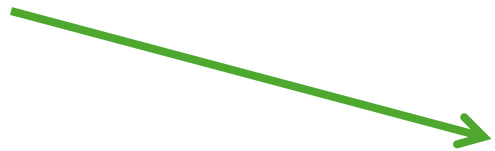
The screenshot displays the OpenLCA 1.9.0 application window. The title bar shows 'LCA openLCA 1.9.0' and standard window controls. The menu bar includes 'File', 'Database', 'Tools', and 'Help'. A search bar is located in the top right corner. The left sidebar contains a 'Navigation' tree with categories like 'Projects', 'Product systems', 'Processes', and 'Flows'. The main area shows the 'General information: PET Bottle Filling' window with fields for Name, Description, Category, and Version. A 'Time' section at the bottom includes 'Start date' and 'End date' fields. A bottom tab bar lists various analysis options.

glavni menu

iskanje


urejanje

navigacija



LCA New database

New database

Create a new database 

Database name

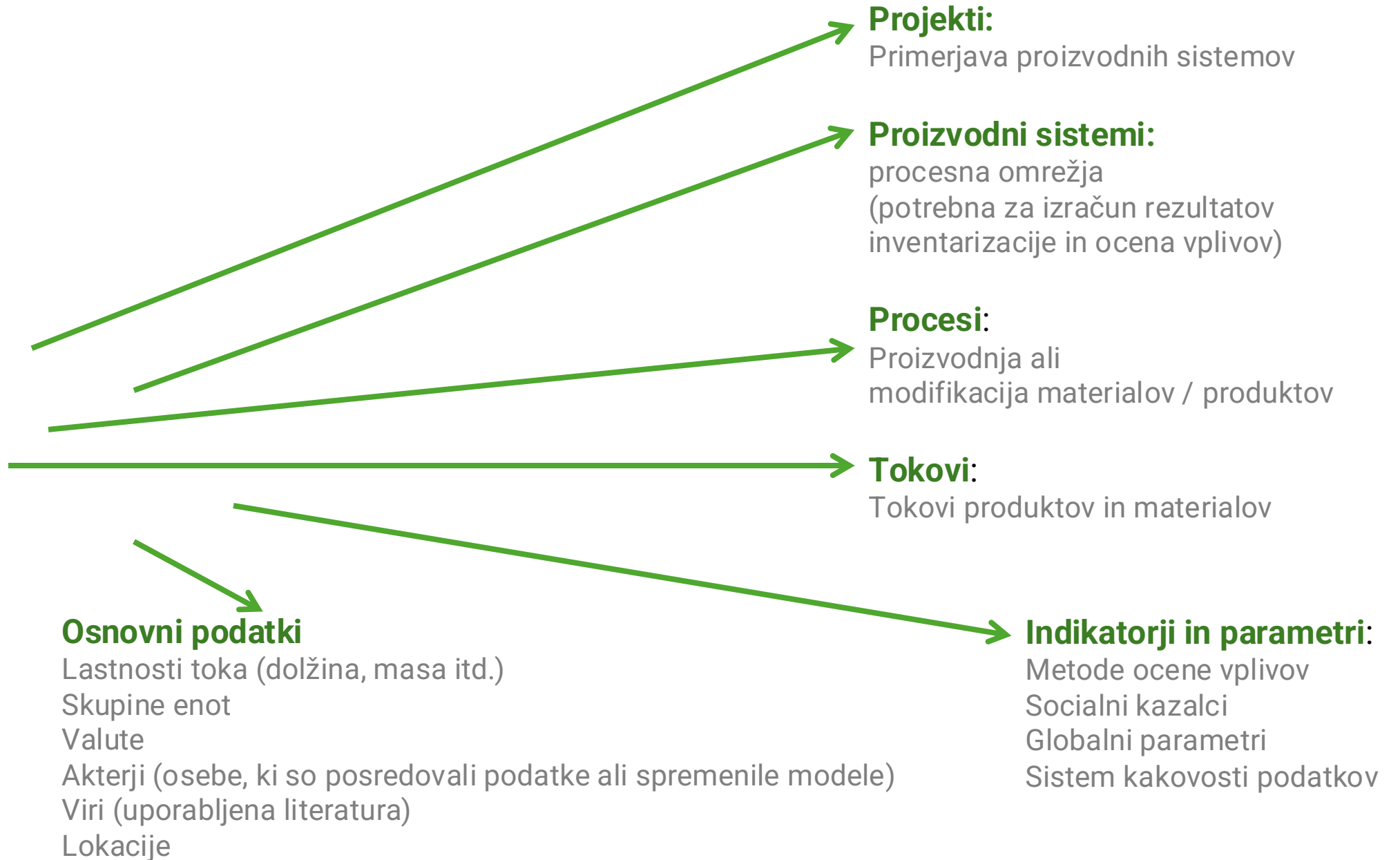
Database type Local Remote

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

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About

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0



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 chain 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 adapted to openLCA.

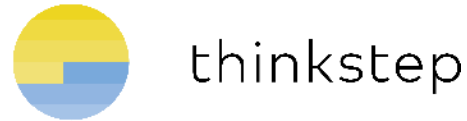
Plačljive
baze

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

Documents

FAQs

About

Register

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

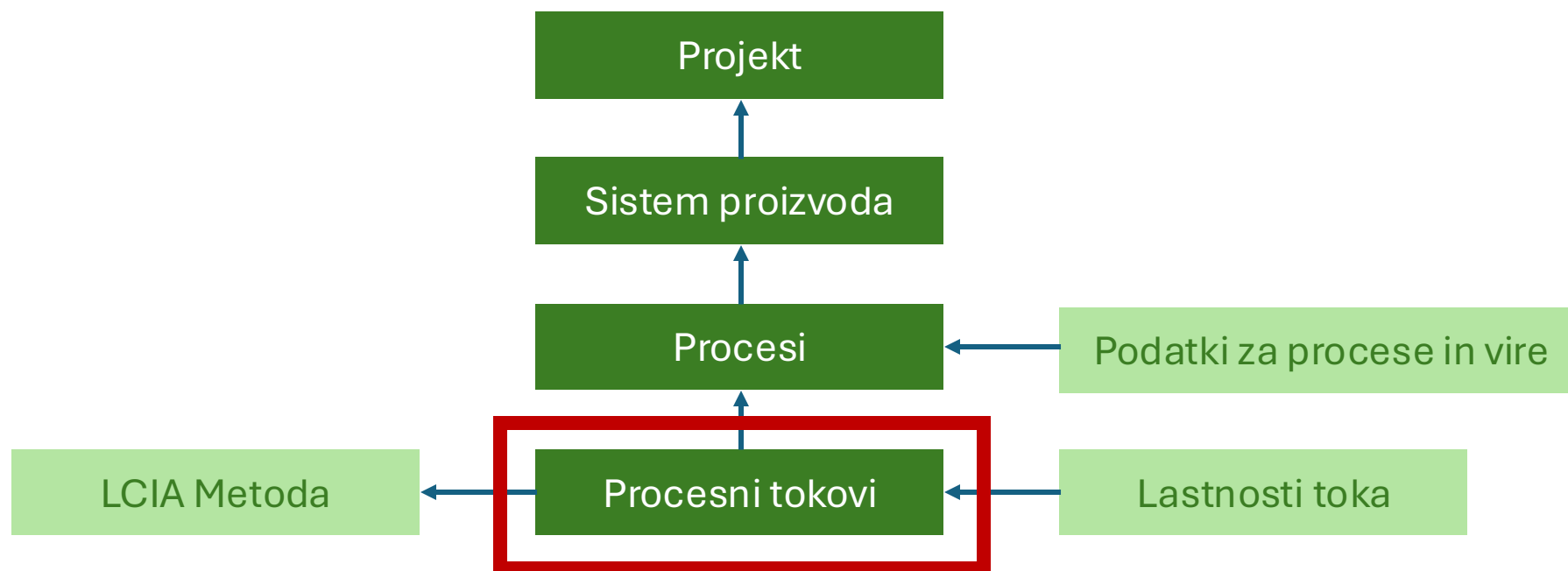
MODELIRANJE TOKOV ZA
PROIZVODNI SISTEM

openLCA 1.9.0

File Database Tools Help

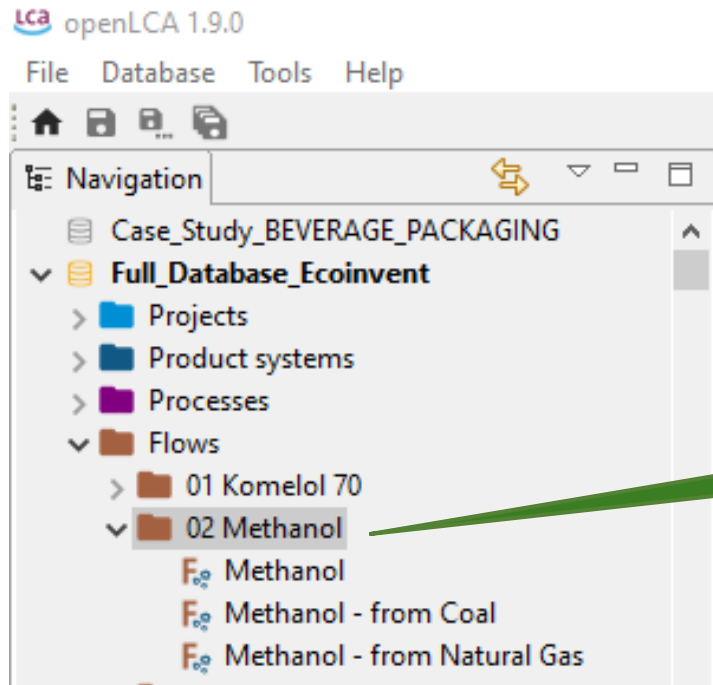
The screenshot displays the openLCA 1.9.0 software interface. The main window shows a navigation tree for a project named 'Case_Study_BEVERAGE_PACKAGING'. The tree is organized into several levels: 'Projects', 'Product systems', 'Processes', and 'Flows'. The 'Flows' folder is currently selected and highlighted with a green box. Below 'Flows', a list of various flow categories is visible, including '001 Beverage Comparative LCA', '01 Beverage Basic Model', '01 Beverage Packaging', and several sector-specific flows (A through L) such as 'A:Agriculture, forestry and fishing', 'B:Mining and quarrying', 'C:Manufacturing', 'D:Electricity, gas, steam and air conditioning supply', 'E:Water supply; sewerage, waste management and remediation activities', 'F:Construction', 'G:Wholesale and retail trade; repair of motor vehicles and motorcycles', 'H:Transportation and storage', 'J:Information and communication', and 'L:Real estate activities'. The interface also includes a menu bar at the top with 'File', 'Database', 'Tools', and 'Help', and a toolbar with icons for home, save, and other functions.

- Navigation
- 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

openLCA 1.9.0

File Database Tools Help

Navigation

- Case_Study_BEVERAGE_PACKAGING
 - Full_Database_Ecoinvent
 - Projects
 - Product systems
 - Processes
 - Flows
 - 01 Komelol 70
 - 02 Methanol
 - Methanol
 - Methanol - from Coal
 - Methanol - from Natural Gas
 - A:Agriculture, forestry and fishing
 - B:Mining and quarrying
 - C:Manufacturing
 - D:Electricity, gas, steam and air condition
 - Deposited goods
 - E:Water supply; sewerage, waste manag
 - Elementary flows
 - Emissions
 - End-of-life treatment
 - Energy carriers and technologies
 - F:Construction
 - G:Wholesale and retail trade; repair of r
 - H:Transportation and storage
 - ILCD
 - J:Information and communication
 - L:Real estate activities
 - Land use
 - M:Professional, scientific and technical
 - Materials production
 - N:Administrative and support service a
 - Product flows
 - Production residues in life cycle

Welcome Methanol

General information: Methanol

General information

Name: Methanol

Description:

Category: 02 Methanol

Version: 00.00.001

UUID: 85003122-eee0-4b93-abf4-5c29a77ab45f

Last change: 2019-12-05T14:32:56+0100

Infrastructure flow:

Flow type: Product

Create process

Used in processes

Additional information

CAS number:

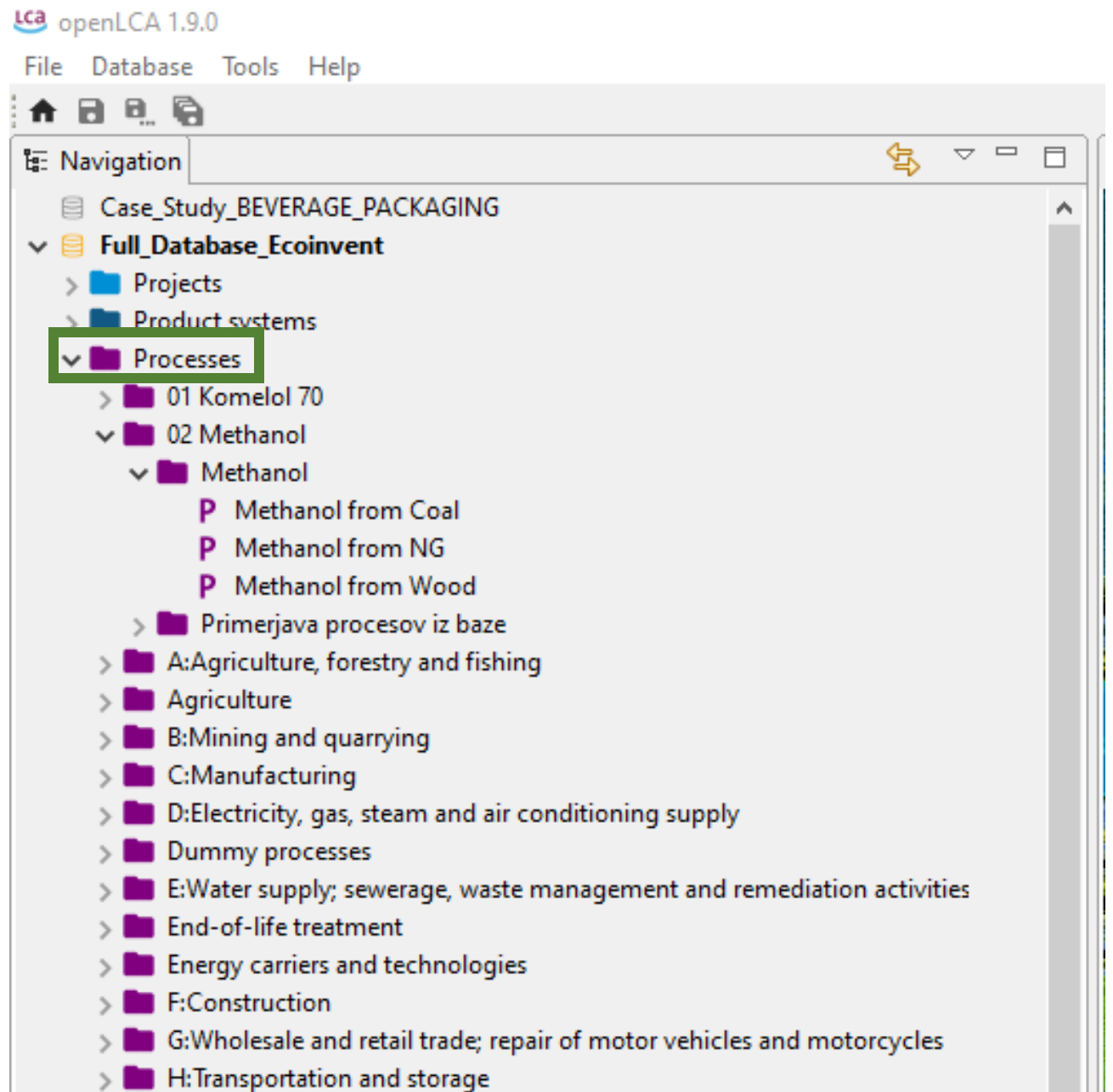
Formula:

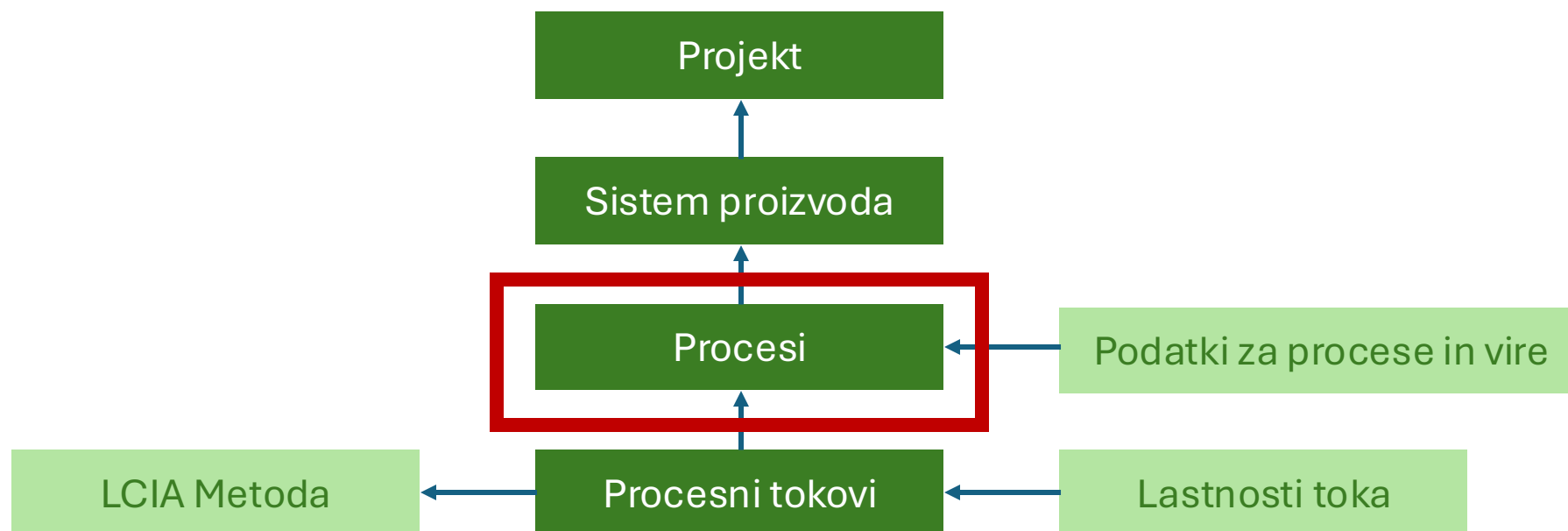
General information | Flow properties

Opis in informacije o procesnem toku

Ustvarjanje procesov

MODELIRANJE PROCESOV
ZA SISTEM PROIZVODNJE
METANOLA





Smer puščice ponazarja smer toka informacij

Procesi: ustvarjanje novega procesa

openLCA 1.9.0

File Database Tools Help

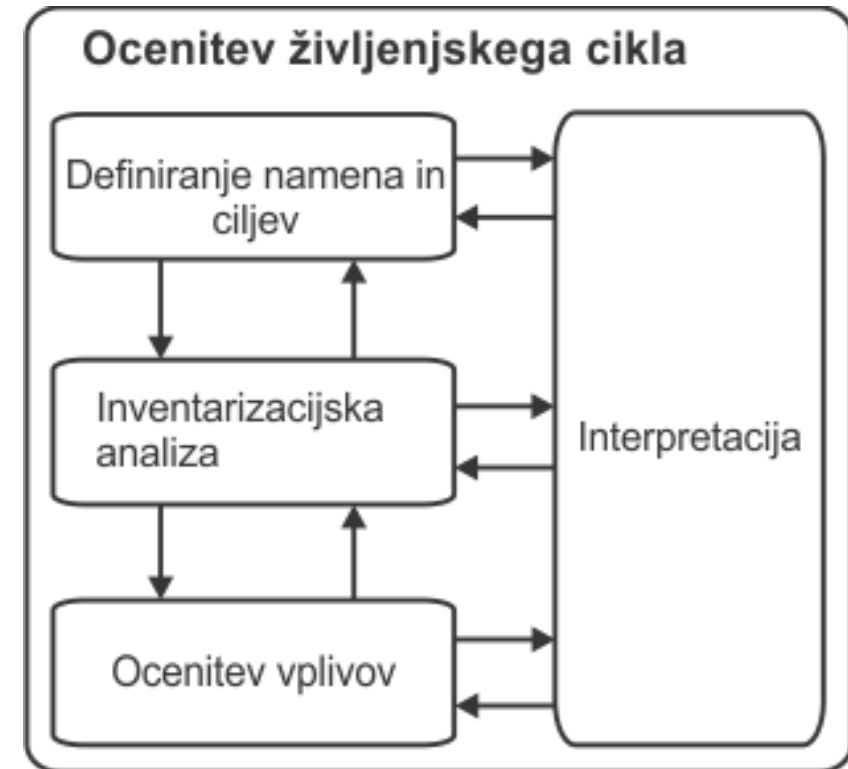
The screenshot shows the 'Navigation' pane of the openLCA 1.9.0 software. The tree view is expanded to show the 'Methanol' folder under '02 Methanol'. A context menu is open over the 'Methanol' folder, with the 'New process' option highlighted. The menu items are: 'New process', 'Delete', 'Validate', 'Cut', 'Copy', 'Import...', 'Export...', 'Add new child category', and 'Rename'. The 'New process' option is the first item in the menu, indicated by a green callout box.

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 |

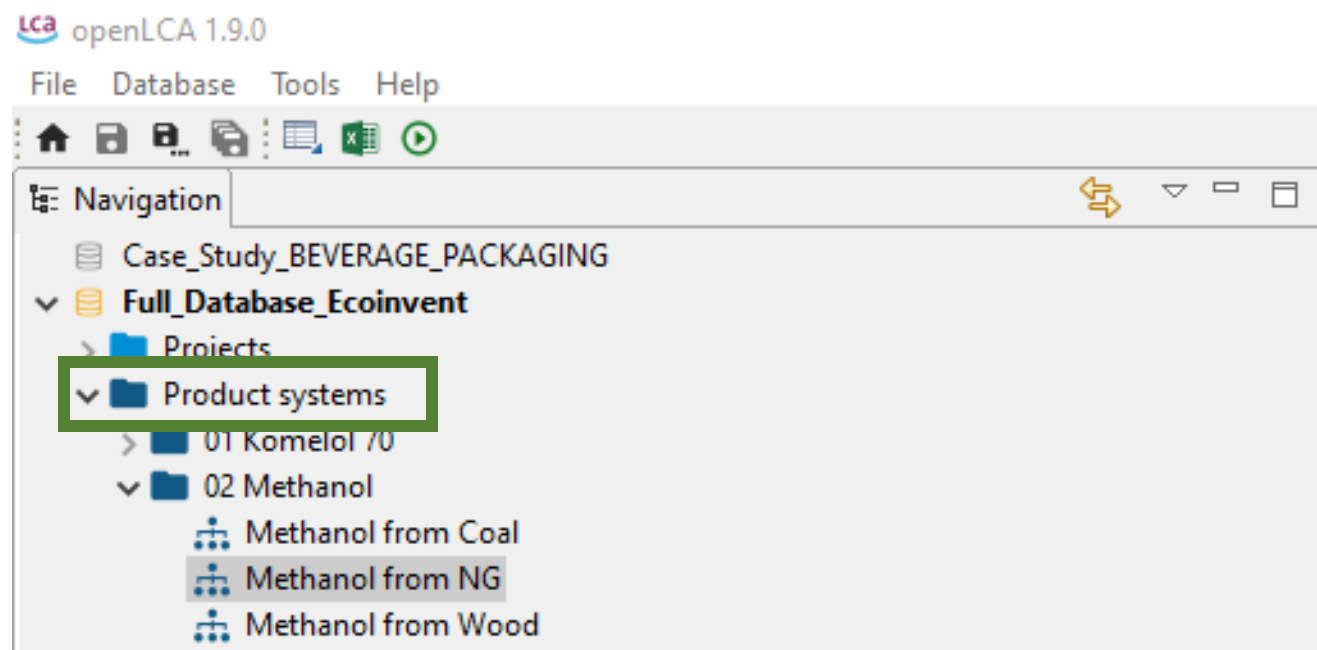
Procesi: ustvarjanje procesov

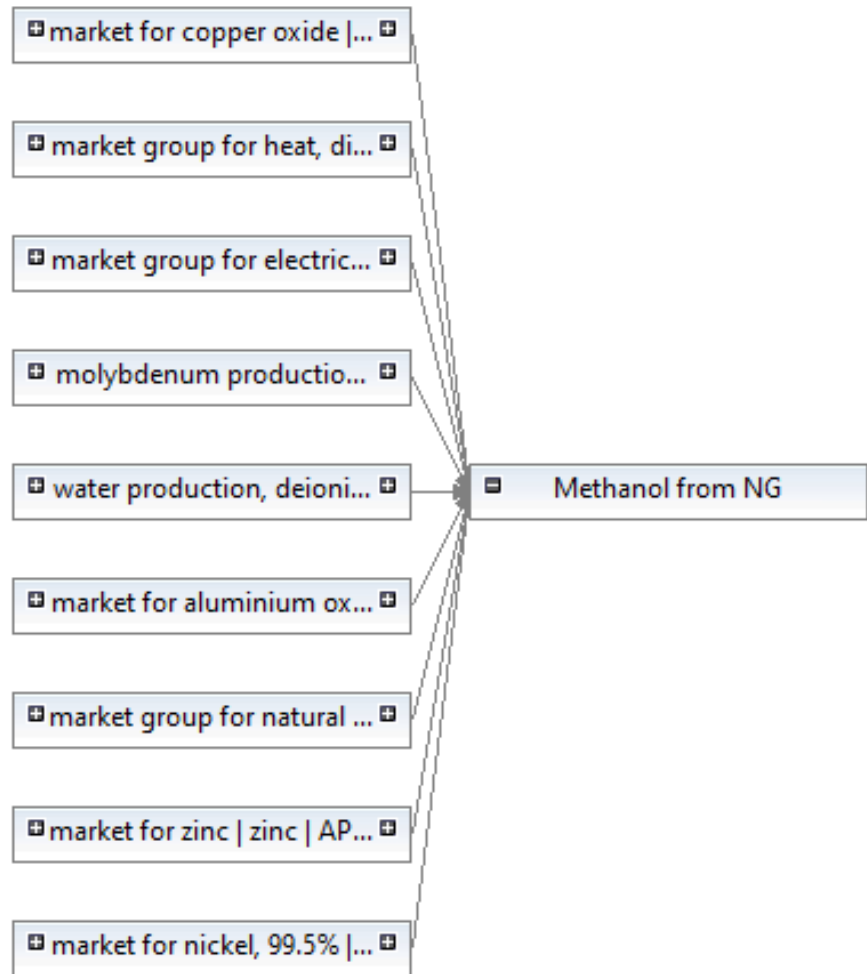
Ustvarjanje procesov glede na vtoke v skladu s tabelo:

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

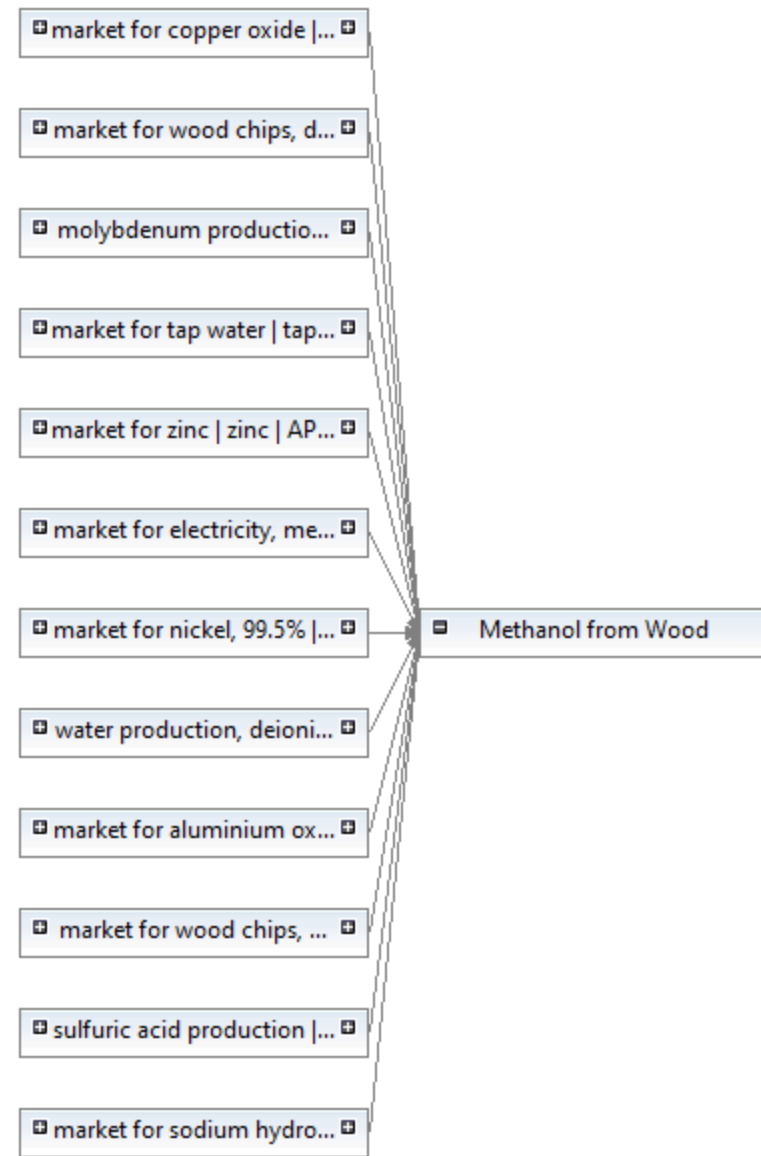
| Procesni tok | Količina | Enota | Provider (ponudnik) |
|--|-----------|-------|--|
| wood chips, wet, measured as dry mass market for wood chips, wet, measured as dry mass - CH | 5.290897 | kg | market for wood chips, wet, measured as dry mass wood chips, wet, measured as dry mass APOS, U - CH |
| 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



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... |
| <ul style="list-style-type: none"> <ul style="list-style-type: none"> > P transport, pipeline, long distance, natural gas transport, pipeline, long distance, natur: 493:Transport via pipeline / 4930... > P heat and power co-generation, natural gas, conventional power plant, 100MW electric: 351:Electric power generation, tr... > P natural gas production natural gas, high pressure APOS, U - RU 062:Extraction of natural gas / 0... > P heat and power co-generation, natural gas, conventional power plant, 100MW electric: 351:Electric power generation, tr... > P heat and power co-generation, hard coal electricity, high voltage APOS, U - RU 351:Electric power generation, tr... > P transport, pipeline, long distance, natural gas transport, pipeline, long distance, natur: 493:Transport via pipeline / 4930... > P heat and power co-generation, natural gas, conventional power plant, 100MW electric: 351:Electric power generation, tr... > P natural gas, burned in gas motor, for storage natural gas, burned in gas motor, for sto 351:Electric power generation, tr... > P sweet gas, burned in gas turbine sweet gas, burned in gas turbine APOS, U - RoW 351:Electric power generation, tr... > P heat and power co-generation, lignite electricity, high voltage APOS, U - RU 351:Electric power generation, tr... > P electricity production, hard coal electricity, high voltage APOS, U - ZA 351:Electric power generation, tr... | | 0.61078 | 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

PRISPEVKI POSAMEZNIH PROCESNIH FAZ K POTENCIALU GLOBALNEGA SEGREVANJA (GWP)

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

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

Methanol from Wood

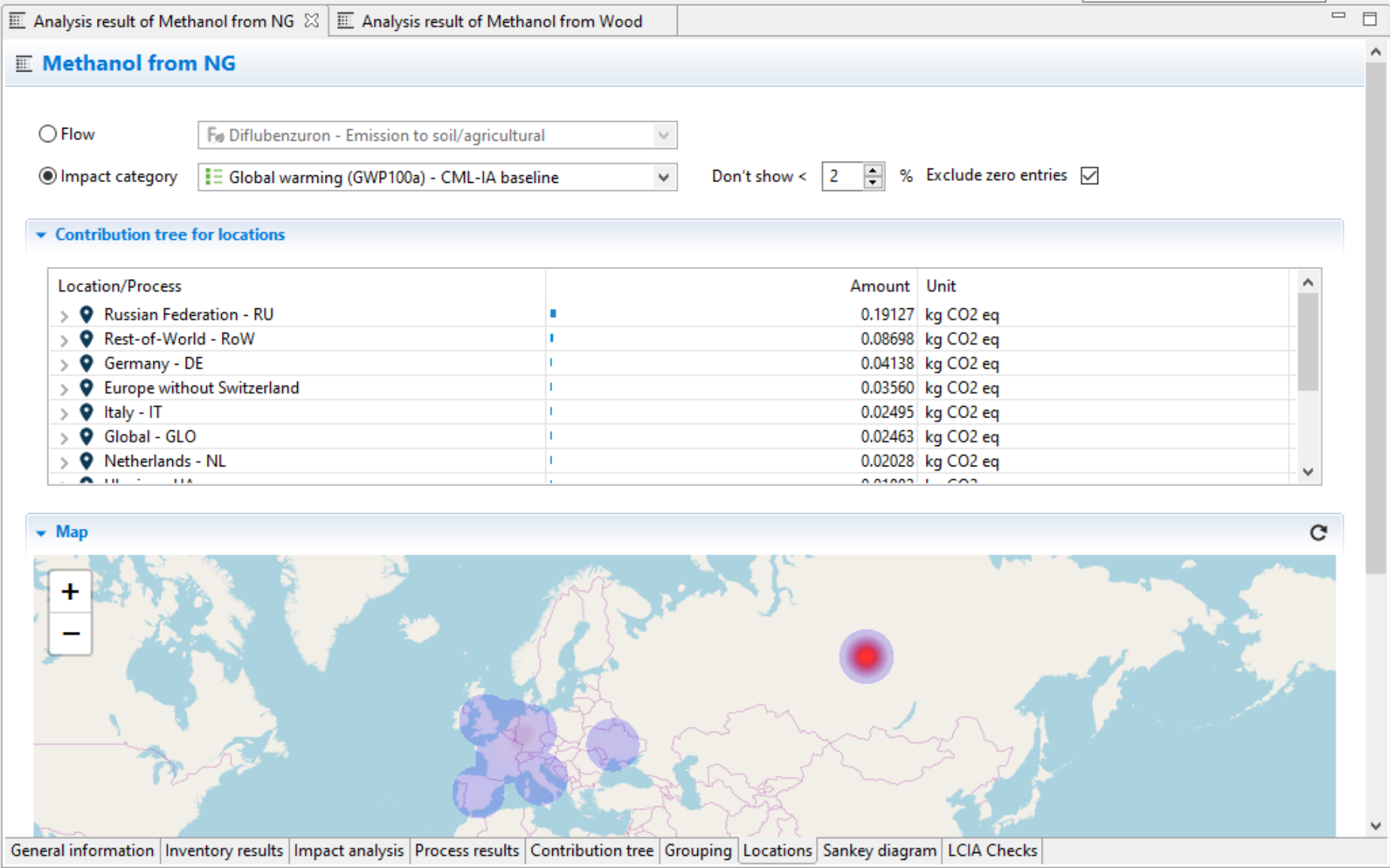
Flow | Diflubenzuron - Emission to soil/agricultural

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



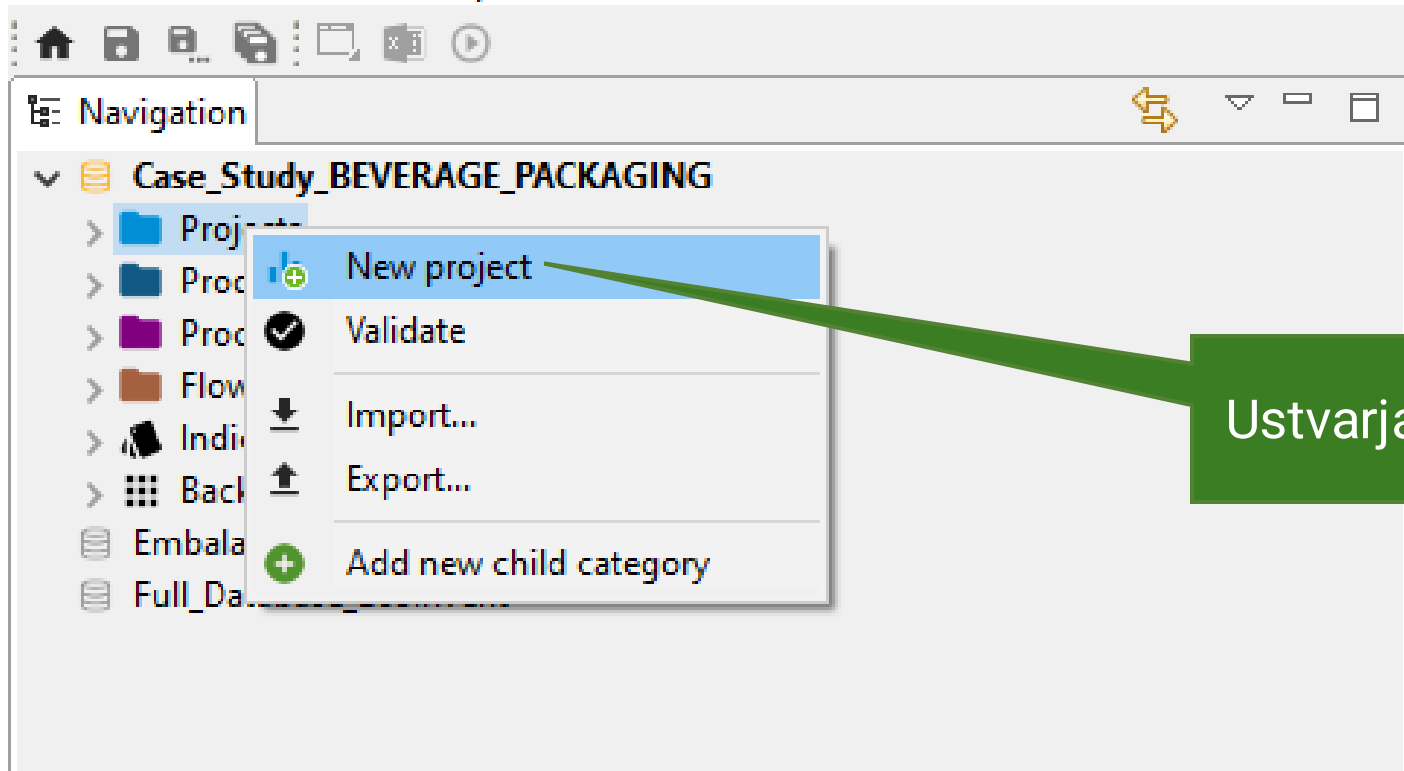
METANOL IZ
ZEMELJSKEGA PLINA

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

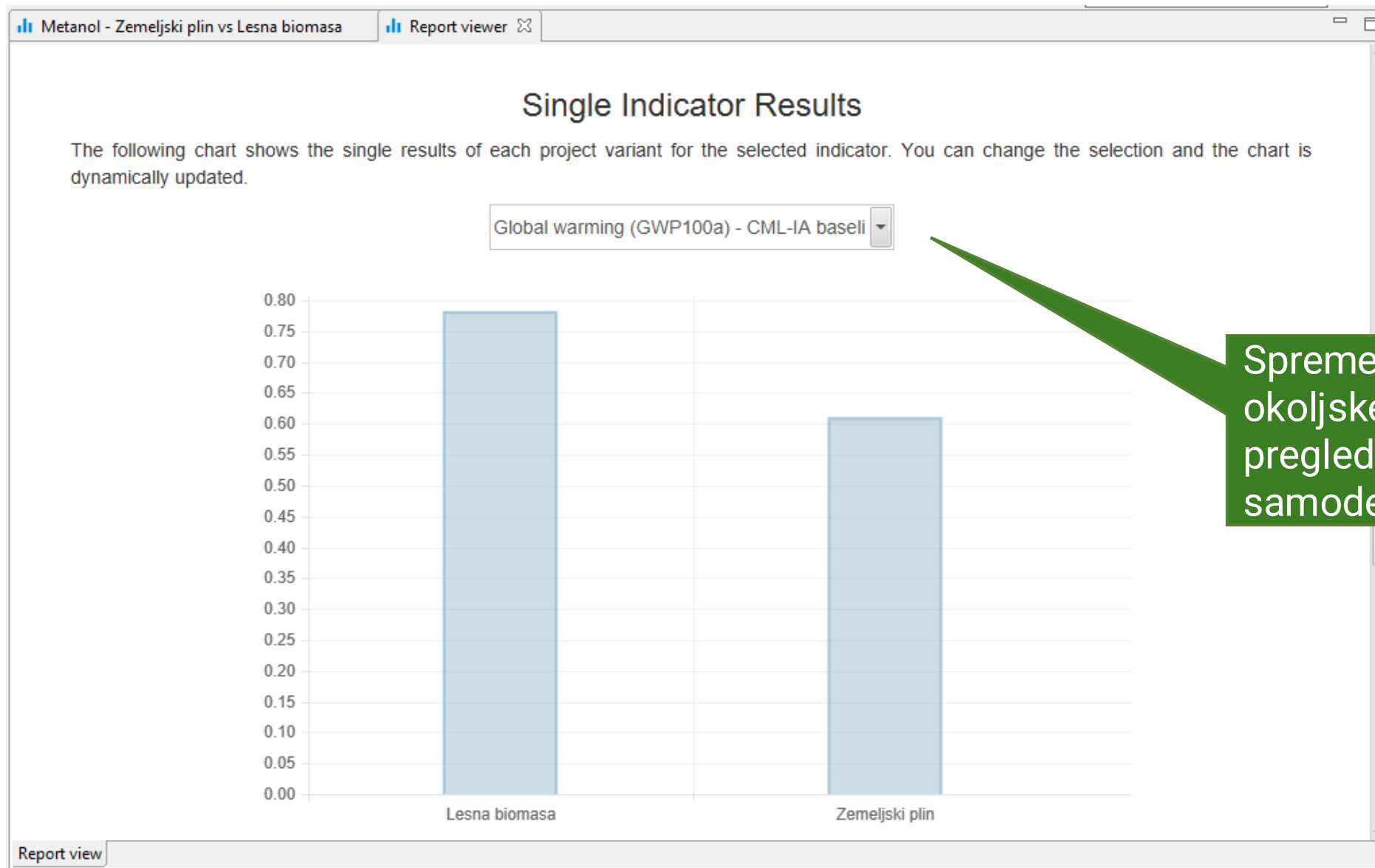
LCIA Results

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)

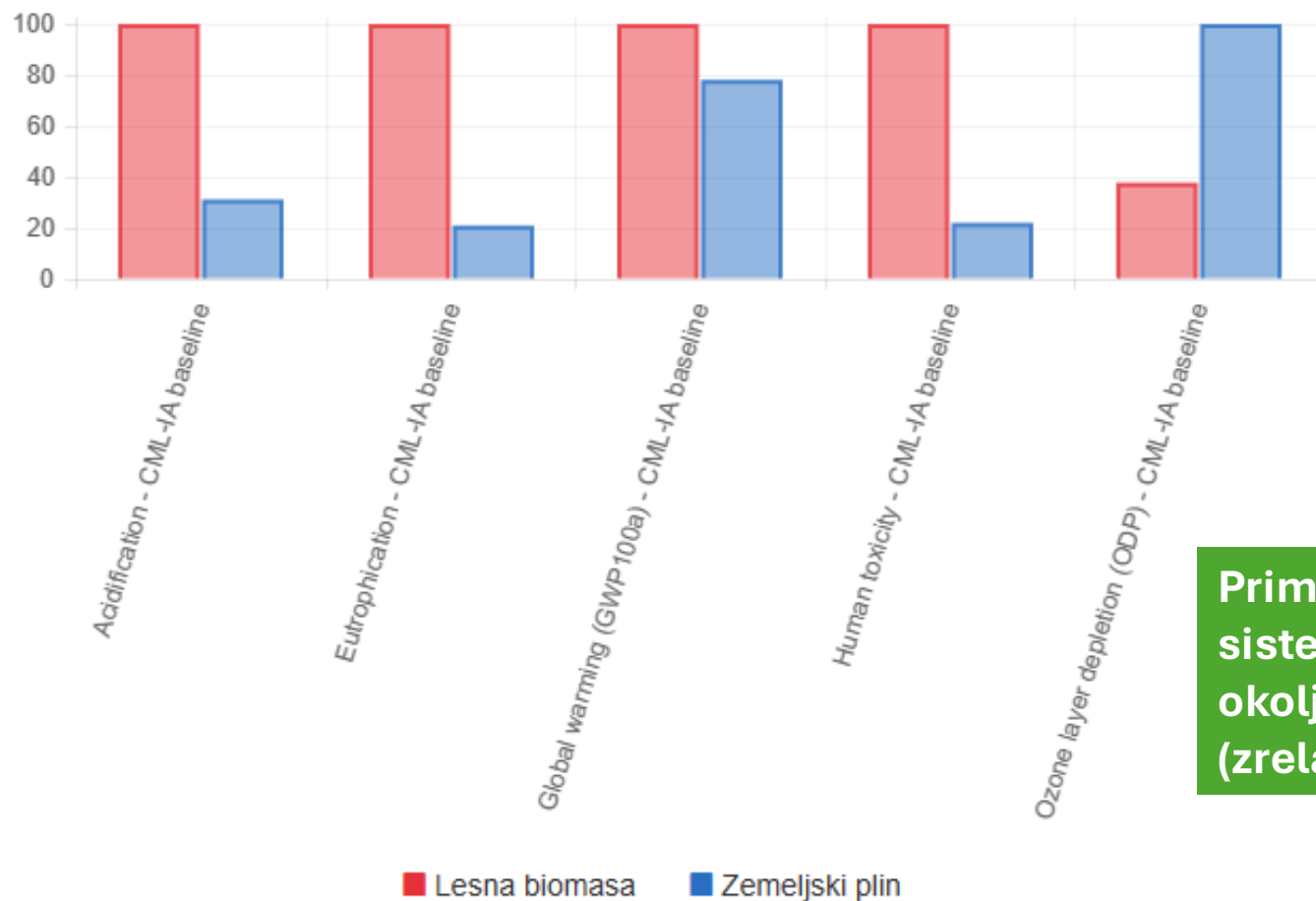


Spremenite kategorijo okoljskega vpliva in preglednica se samodejno posodobi

Projekt: Rezultati (zrelativizirani)

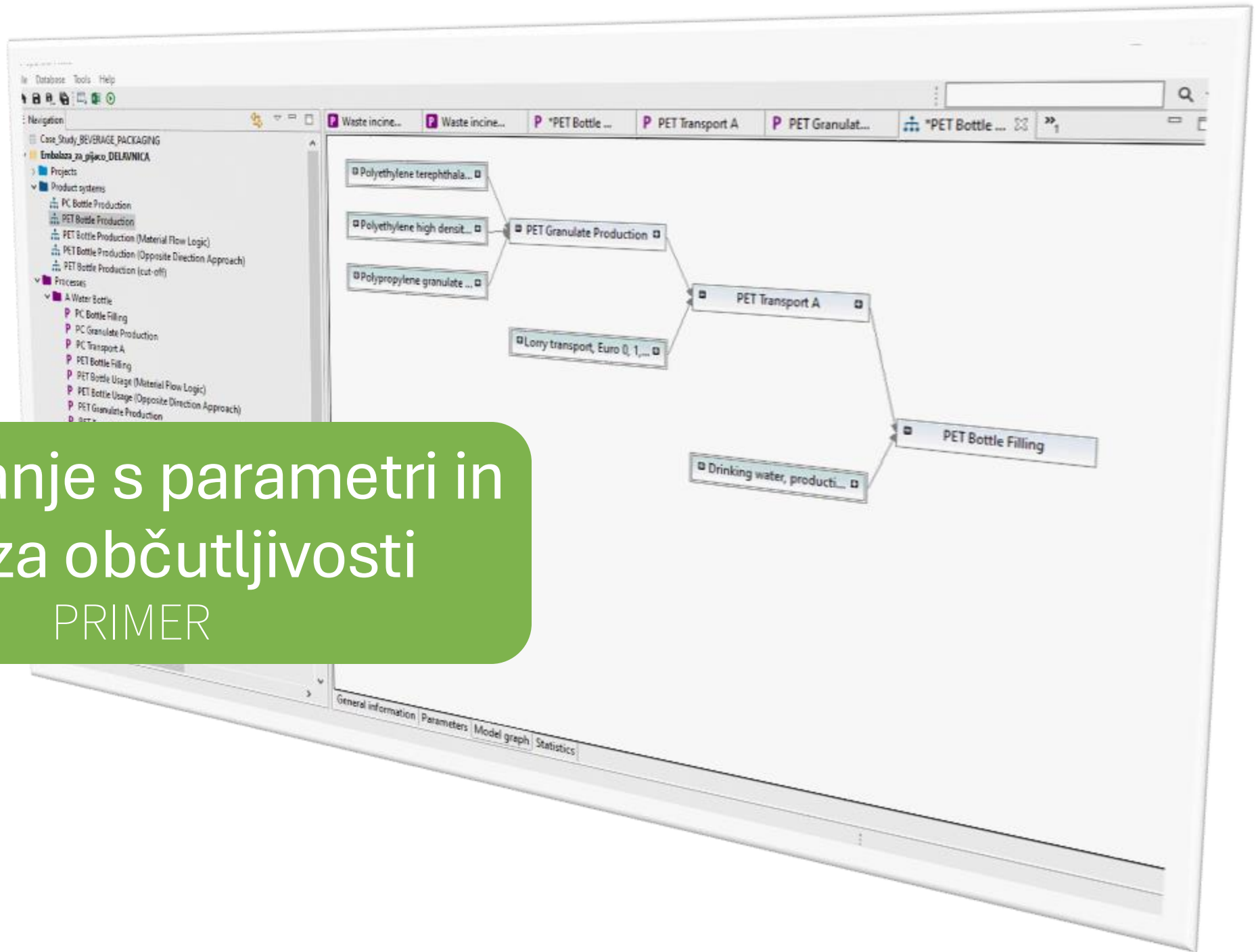
Relative Results

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' under 'Indicators and parameters'. A context menu is open over the 'Global parameters' folder, showing options like 'New parameter', 'Delete', 'Validate', 'Cut', 'Copy', 'Import...', 'Export...', 'Add new child category', and 'Rename'. A green box highlights the 'Global parameters' folder in the tree, and a green arrow points from it to the 'Odvisni globalni parameter' window.

Odvisni globalni parameter

The screenshot shows the configuration window for the parameter 'm_lesni_sekanci_mokri'. The window title is 'm_lesni_sekanci_mokri'. The main content area is titled 'General information: m_lesni_sekanci_mokri'. Under 'Additional information', the 'Type' is 'Dependent parameter'. The 'Formula' field is highlighted with a green box and contains the text '6.7526 - m_lesni_sekanci_suhi'. The 'Value' field contains '5.29075'. A green arrow points from the 'Odvisni globalni parameter' text to the 'Formula' field.

Globalni

The screenshot shows the configuration window for the parameter 'm_lesni_sekanci_suhi'. The window title is 'm_lesni_sekanci_suhi'. The main content area is titled 'General information: m_lesni_sekanci_suhi'. Under 'Additional information', the 'Type' is 'Input parameter'. The 'Value' field is highlighted with a green box and contains the text '1.46185'. The 'Uncertainty' is set to 'none'. A green arrow points from the 'Globalni' text 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

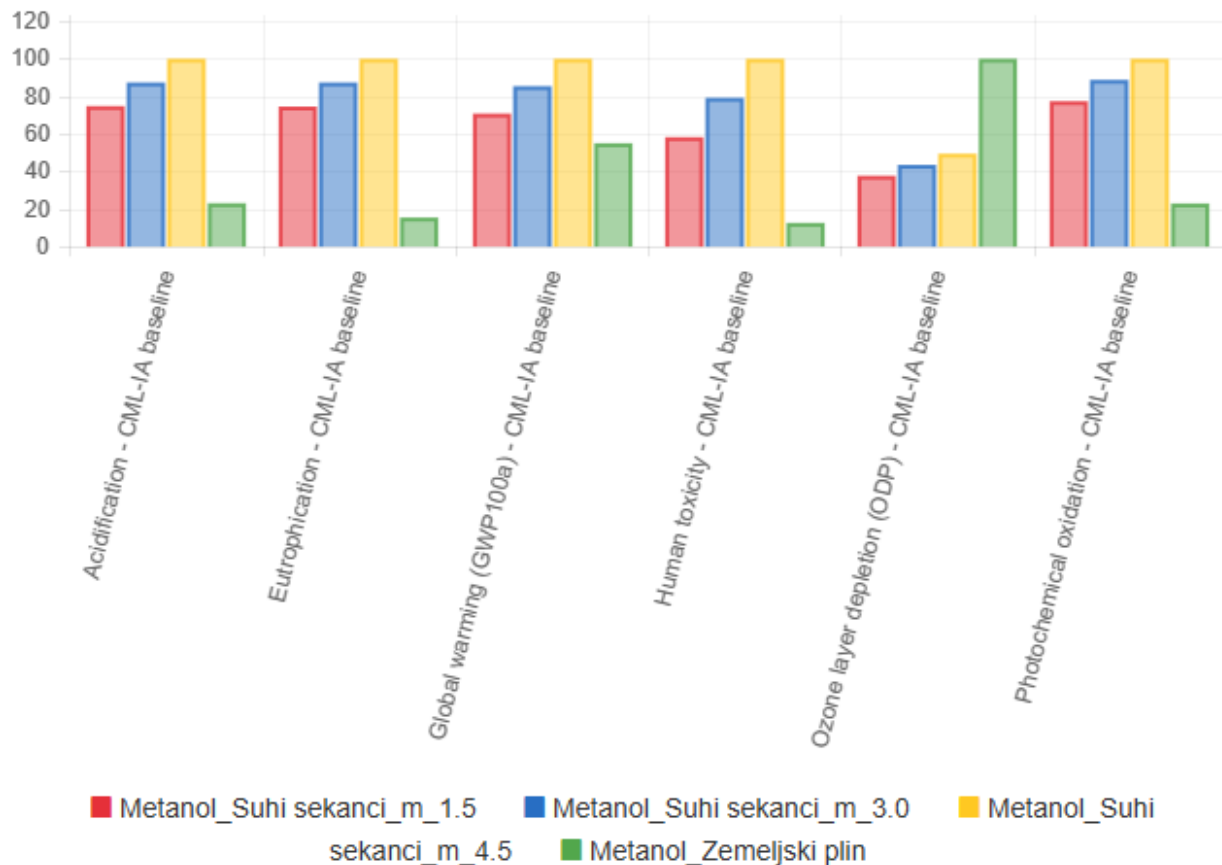
Project setup | Report sections



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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