


onlineLCA: a bridge between expert LCA models and non-expert users

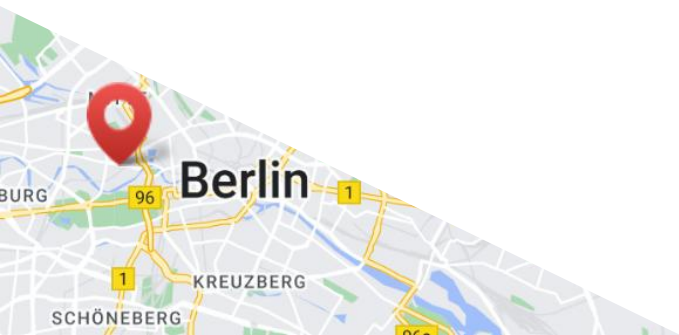
LCM, Palermo, Sept. 10th, 2025

Julia Cilleruelo Palomero,
GreenDelta GmbH

About us: GreenDelta GmbH



- Founded by Dr. Andreas Citroth in 2004
- Developers of openLCA 
- Independent sustainability consulting, software & data development company
- Global partners worldwide (11 countries)
- Worldwide projects and clients



Contents



- How do we see market evolving?
- Proposed solution
- Summary

I am an LCA consultant



... I make LCA studies

- Minimum 3-4 months
- Follow ISO 14040/44 or specific standard
- Iterative data collection (meetings, sheets, site visit)
- Output: 1 report, 1 presentation, feedback and recommendations

But, how is the LCA market evolving?



Demand is changing / has changed

- More sustainability assessments demanded (legislation / company goals)
- Similar products, many products per company
- Less time spent per assessment
- Less budget per LCA
- Standard compliant

More people involved, less qualified

**A new way to do
LCAs/environmental assessments
is needed
is coming**

How did we approach this?

Expert layer

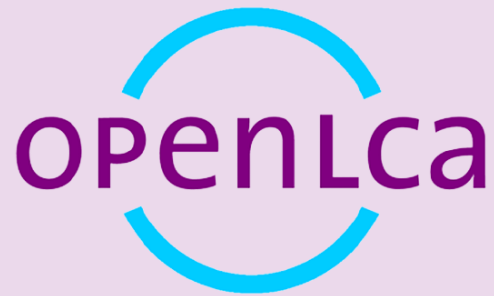


- Established technology since 2007
- Thousands of users worldwide
- Wide availability of databases & methods

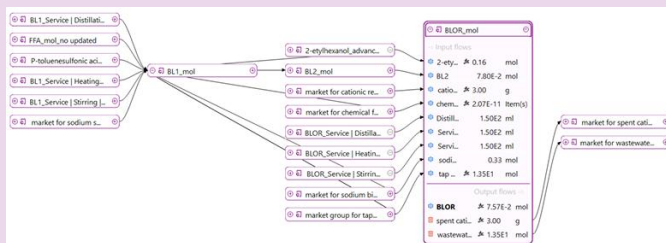


How did we approach this?

Expert layer



Expert LCA tool

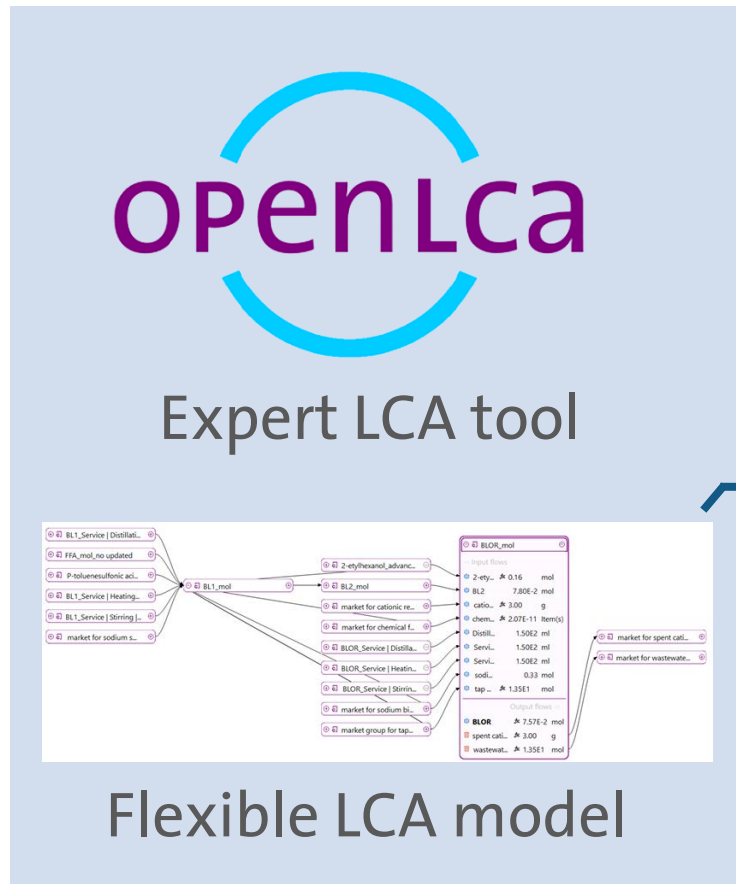


Flexible LCA model

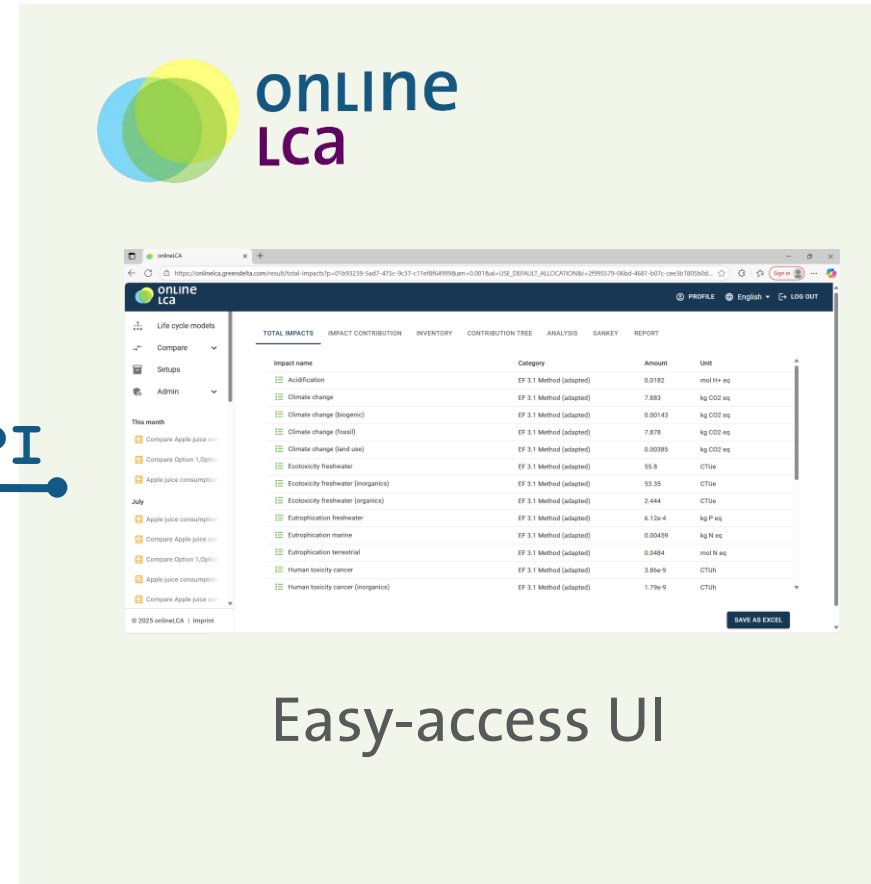
- Flexible LCA model (parametrised)
- Change quantities, providers, locations, etc.
- Standard compliant
- Specific to the client

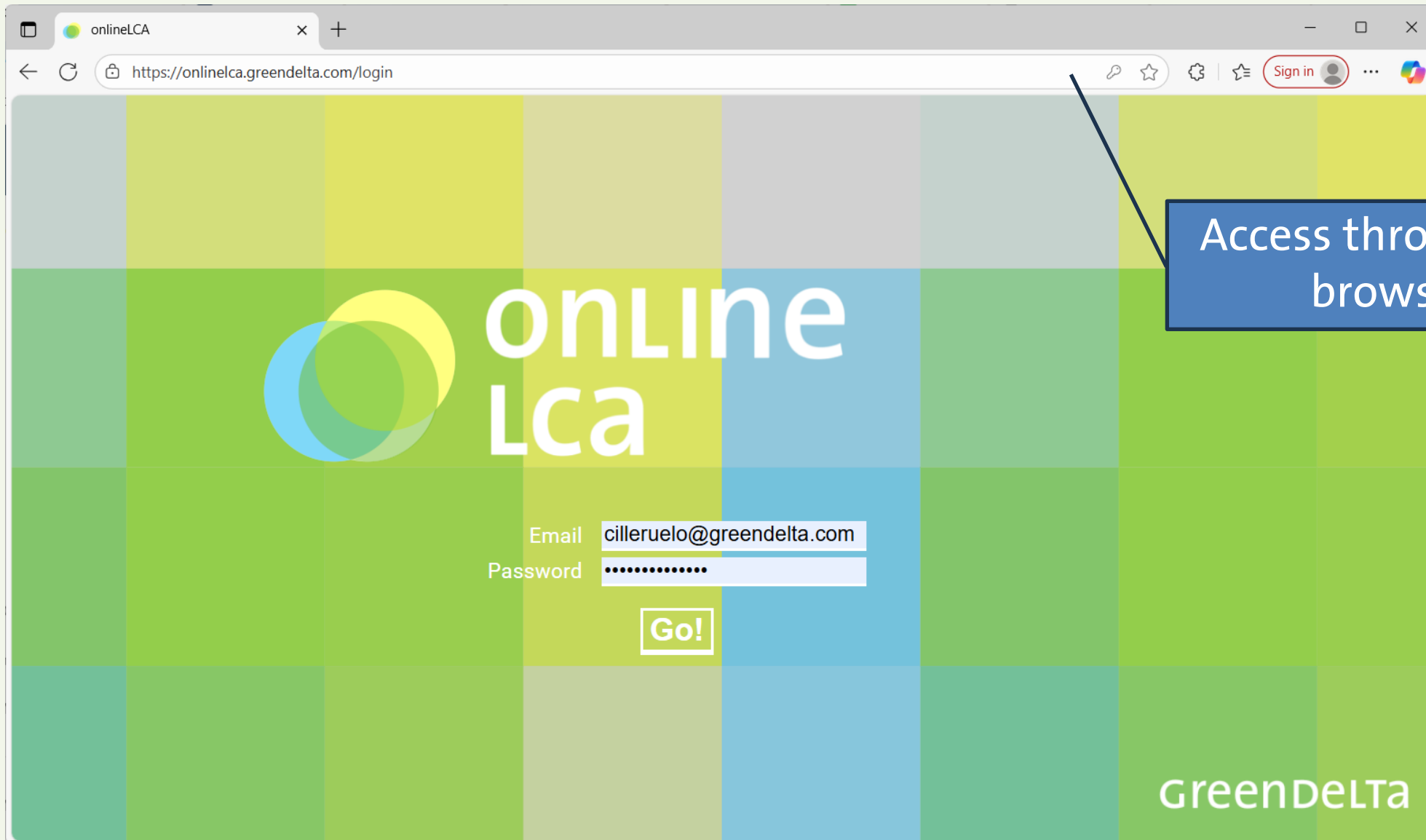
How did we approach this?

Expert layer



User layer





onlineLCA

https://oninelca.greendelta.com/login

Sign in

online
Lca

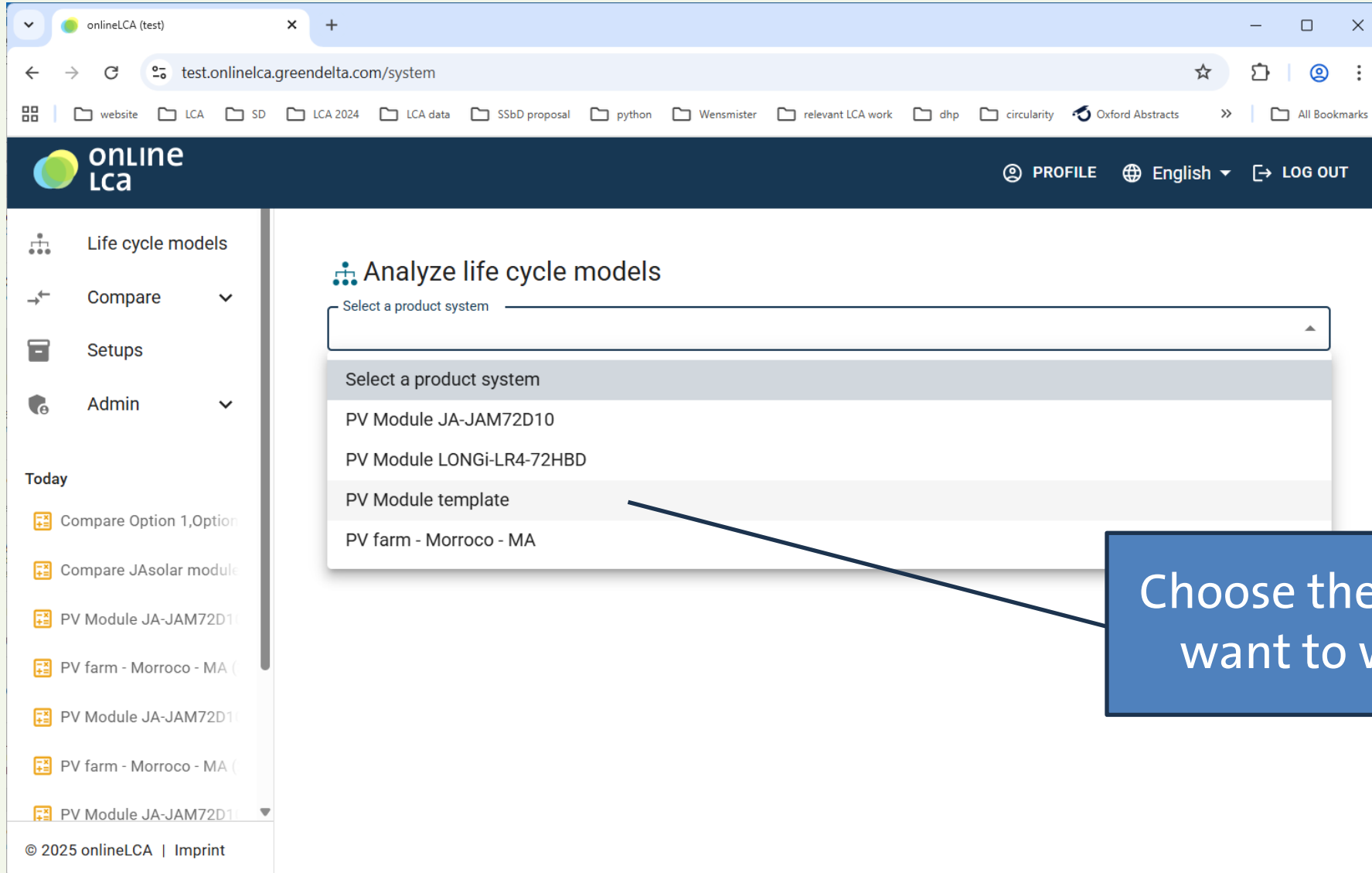
Email cilleruelo@greendelta.com

Password

Go!

GreenDeLta

Access through the browser



The screenshot shows the onlineLCA web application interface. The browser address bar displays `test.onlineLCA.greendelta.com/system`. The top navigation bar includes the onlineLCA logo, a user profile icon, the text "PROFILE", a language selector set to "English", and a "LOG OUT" button. A left sidebar contains a menu with "Life cycle models", "Compare", "Setups", and "Admin". Below this, a "Today" section lists recent activities, including "Compare Option 1, Option 2" and "Compare JAsolar module". The main content area is titled "Analyze life cycle models" and features a dropdown menu labeled "Select a product system". The dropdown list includes the following options: "Select a product system", "PV Module JA-JAM72D10", "PV Module LONGi-LR4-72HBD", "PV Module template", and "PV farm - Morroco - MA". A blue callout box with the text "Choose the model you want to work with" has an arrow pointing to the "PV Module template" option in the dropdown.

onlineLCA (test) x +

test.onlineLCA.greendelta.com/system

website LCA SD LCA 2024 LCA data SSbD proposal python Wensmister relevant LCA work dhp circularity Oxford Abstracts All Bookmarks

onlineLCA

PROFILE English LOG OUT

Life cycle models

Compare

Setups

Admin

Today

Compare Option 1, Option 2

Compare JAsolar module

PV Module JA-JAM72D10

PV farm - Morroco - MA

PV Module JA-JAM72D10

PV farm - Morroco - MA

PV Module JA-JAM72D10

PV farm - Morroco - MA

PV Module JA-JAM72D10

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Analyze life cycle models

Select a product system

Select a product system

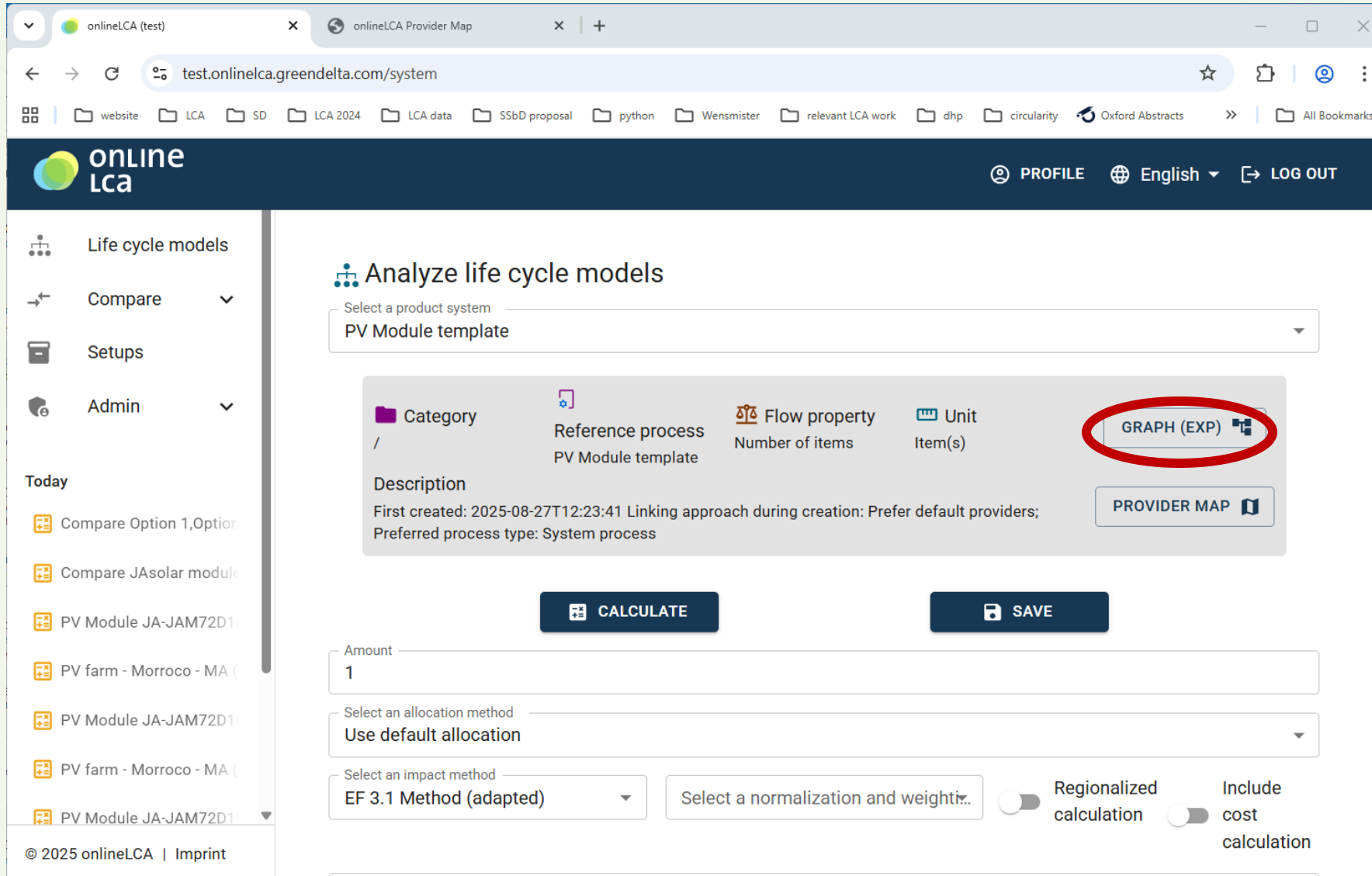
PV Module JA-JAM72D10

PV Module LONGi-LR4-72HBD

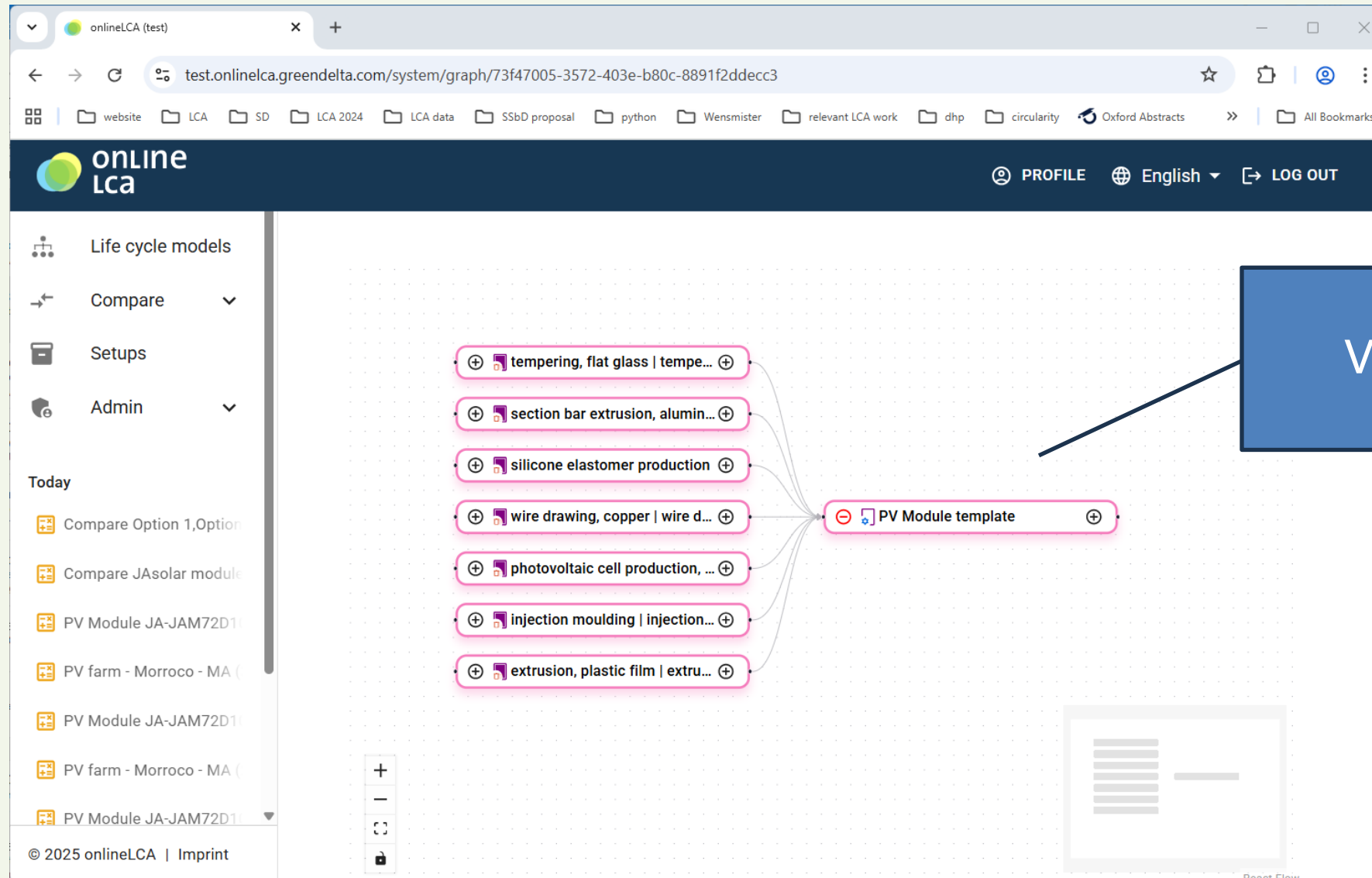
PV Module template

PV farm - Morroco - MA

Choose the model you want to work with



The screenshot shows the onlineLCA web application interface. The browser address bar displays `test.onlineLCA.greendelta.com/system`. The application header includes the onlineLCA logo, a user profile icon, the text "PROFILE", a language dropdown set to "English", and a "LOG OUT" button. A sidebar on the left contains navigation links: "Life cycle models", "Compare", "Setups", and "Admin". Below these, a "Today" section lists recent activities. The main content area is titled "Analyze life cycle models" and features a dropdown menu for "Select a product system" with "PV Module template" selected. Below this, a metadata section displays: "Category: /", "Reference process: PV Module template", "Flow property: Number of items", and "Unit: Item(s)". The "GRAPH (EXP)" button in this section is circled in red. A "PROVIDER MAP" button is also present. The "Description" field contains the text: "First created: 2025-08-27T12:23:41 Linking approach during creation: Prefer default providers; Preferred process type: System process". Below the description are "CALCULATE" and "SAVE" buttons. Further down, there are input fields for "Amount" (set to 1), "Select an allocation method" (set to "Use default allocation"), and "Select an impact method" (set to "EF 3.1 Method (adapted)"). At the bottom, there are toggle switches for "Regionalized calculation" and "Include cost calculation". The footer shows the copyright notice "© 2025 onlineLCA | Imprint".



Visualise model

onlineLCA (test) test.onlinelca.greendelta.com/system

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onlineLCA PROFILE English LOG OUT

Life cycle models Compare Setups Admin

Today

- Compare Option 1, Option 2
- Compare JA solar module
- PV Module JA-JAM72D1
- PV farm - Morocco - MA
- PV Module JA-JAM72D1
- PV farm - Morocco - MA
- PV Module JA-JAM72D1

Select an allocation method
Use default allocation

Select an impact method
EF 3.1 Method (adapted)

Select a normalization and weighti...

Regionalized calculation

Include cost calculation

Parameters

Search parameter name or context

Show global parameters

RESET

Name	Value	Context
EVA_encapsulant_amount	1.84	PV Module template
al_frame_amount	2.2	PV Module template
cell_area	2	PV Module template
glass_amount	21.97	PV Module template
junction_box_amount	0.22	PV Module template
		silicone elastomer

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Change model variables manually (or with script)

onlineLCA (test)

https://test.oninelca.greendelta.com/result/total-impacts?p=73f47005-3572-403e-b80c-8891f2ddecc3&am=1&al=USE_DEFAULT_ALLOCATION&i=b4571628-4...

Sign in

onlineLCA

PROFILE

English

LOG OUT

Life cycle models

Compare

Setups

Admin

Today

PV Module template (1)

PV Module template

Compare Option 1,Option

Compare JAsolar module

PV Module JA-JAM72D1

PV farm - Morroco - MA

PV Module JA-JAM72D1

TOTAL IMPACTS

IMPACT CONTRIBUTION

INVENTORY

CONTRIBUTION TREE

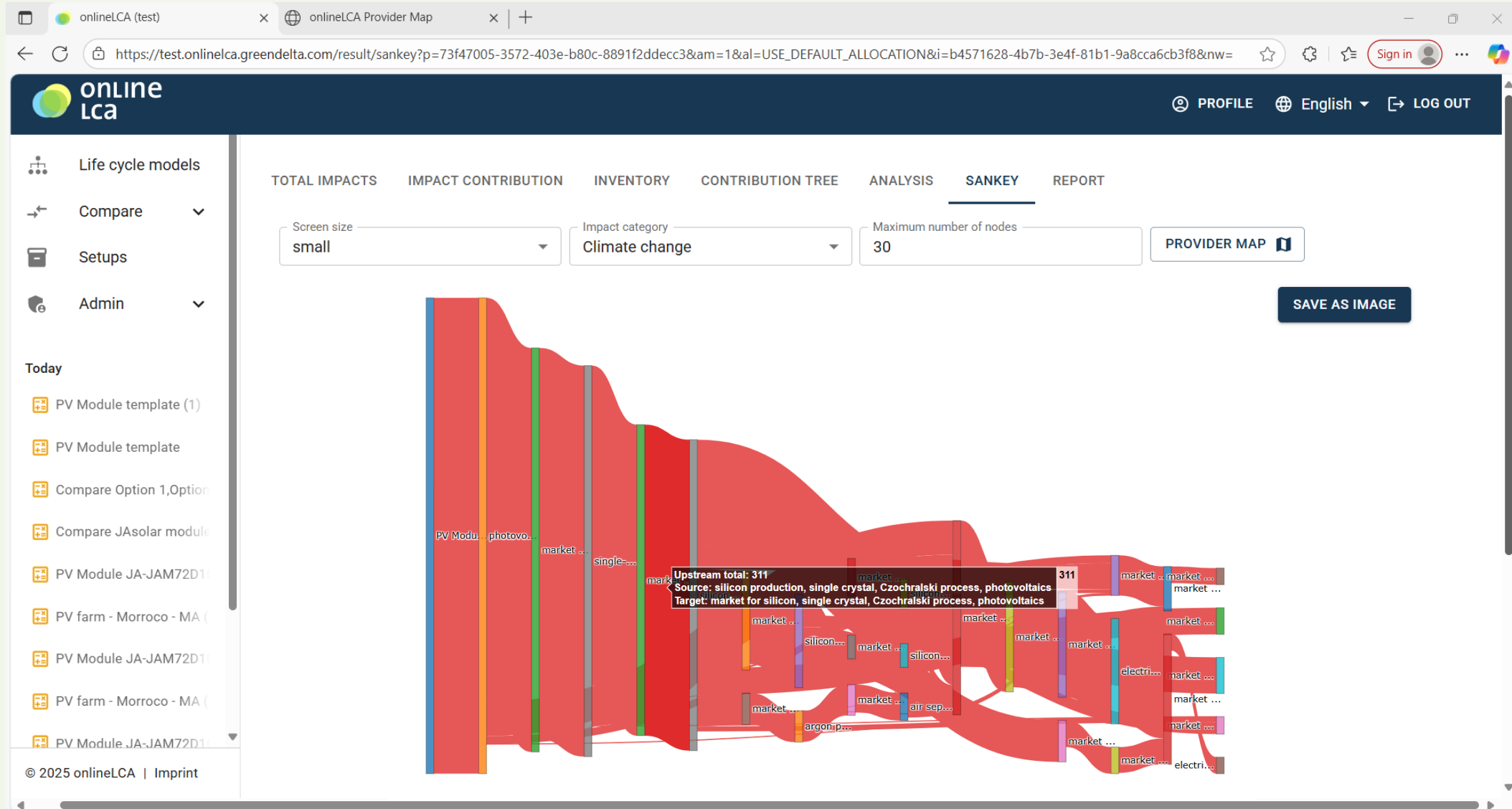
ANALYSIS

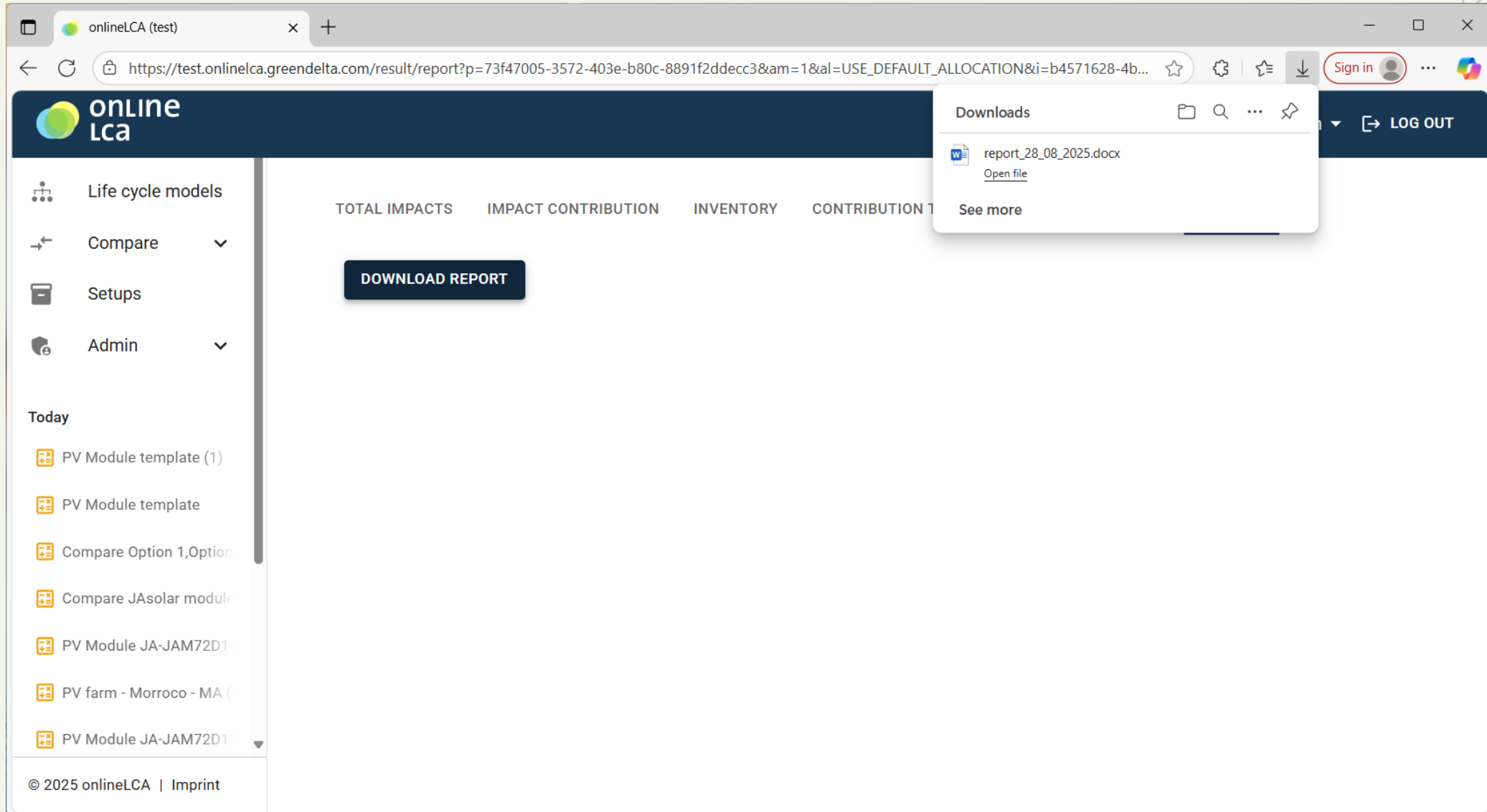
SANKEY

REPORT

Impact name	Category	Amount	Unit
Acidification	openLCA LCIA Categories 2.7.5/EF 3.0 Method (adapted)	2.383	mol H+ eq
Climate change	openLCA LCIA Categories 2.7.5/EF 3.0 Method (adapted)	484.9	kg CO2 eq
Climate change - biogenic	openLCA LCIA Categories 2.7.5/EF 3.0 Method (adapted)	1.682	kg CO2 eq
Climate change - fossil	openLCA LCIA Categories 2.7.5/EF 3.0 Method (adapted)	482.5	kg CO2 eq
Climate change - land use and lu change	openLCA LCIA Categories 2.7.5/EF 3.0 Method (adapted)	0.7386	kg CO2 eq
Ecotoxicity, freshwater	openLCA LCIA Categories 2.7.5/EF 3.0 Method (adapted)	1.25e+4	CTUe
Ecotoxicity, freshwater - inorganics	openLCA LCIA Categories 2.7.5/EF 3.0 Method (adapted)	1 214	CTUe
Ecotoxicity, freshwater - metals	openLCA LCIA Categories 2.7.5/EF 3.0 Method (adapted)	1.11e+4	CTUe
Ecotoxicity, freshwater - organics	openLCA LCIA Categories 2.7.5/EF 3.0 Method (adapted)	291.1	CTUe
Eutrophication, freshwater	openLCA LCIA Categories 2.7.5/EF 3.0 Method (adapted)	0.2274	kg P eq
Eutrophication, marine	openLCA LCIA Categories 2.7.5/EF 3.0 Method (adapted)	0.5176	kg N eq
Eutrophication, terrestrial	openLCA LCIA Categories 2.7.5/EF 3.0 Method (adapted)	4.771	mol N eq
Human toxicity, cancer	openLCA LCIA Categories 2.7.5/EF 3.0 Method (adapted)	2.48e-7	CTUh

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onlineLCA (test)

https://test.onlinelca.greendelta.com/result/report?p=73f47005-3572-403e-b80c-8891f2ddecc3&am=1&al=USE_DEFAULT_ALLOCATION&i=b4571628-4b...

Sign in

LOG OUT

onlineLCA

Life cycle models

Compare

Setups

Admin

Today

- PV Module template (1)
- PV Module template
- Compare Option 1,Option
- Compare JAsolar module
- PV Module JA-JAM72D1
- PV farm - Morroco - MA
- PV Module JA-JAM72D1

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TOTAL IMPACTS IMPACT CONTRIBUTION INVENTORY CONTRIBUTION

DOWNLOAD REPORT

Downloads

- report_28_08_2025.docx
Open file

See more

onlineLCA (test)

+

←

↺

https://test.onlineLCA.greendelta.com/compare/systems

☆

⚙

☆

Sign in

...

🌐

onlineLCA

PROFILE

English

LOG OUT

Life cycle models

Compare

Systems

Categories

Setups

Admin

Today

Compare PV module pro

PV Module template (1)

PV Module template

Compare Option 1,Option

Compare JAsolar module

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Compare life cycle models

Comparison setup name

Option 1

Select an allocation method

Use default allocation

Select a product system

Target amount

0

Comparison setup name

Option 2

Select an allocation method

Use default allocation

Select a product system

PV Module JA-JAM72D10

Target amount (Item(s))

1

Parameters

Search parameter name or context

Show global parameters

RESET

Select an impact method

Select a normalization and weighting set

Regionalized calculation

Include cost calculation

COMPARE

SAVE

onlineLCA (test)

https://test.onlinelca.greendelta.com/admin/users

Sign in

onlineLCA

PROFILE

English

LOG OUT

Setups

Admin

Users

Teams

Maintenance

Today

Compare PV module pro

PV Module template (1)

PV Module template

Compare Option 1,Option

Compare JAsolar module

PV Module JA-JAM72D1

Users

ADD USER

User's email *

Search

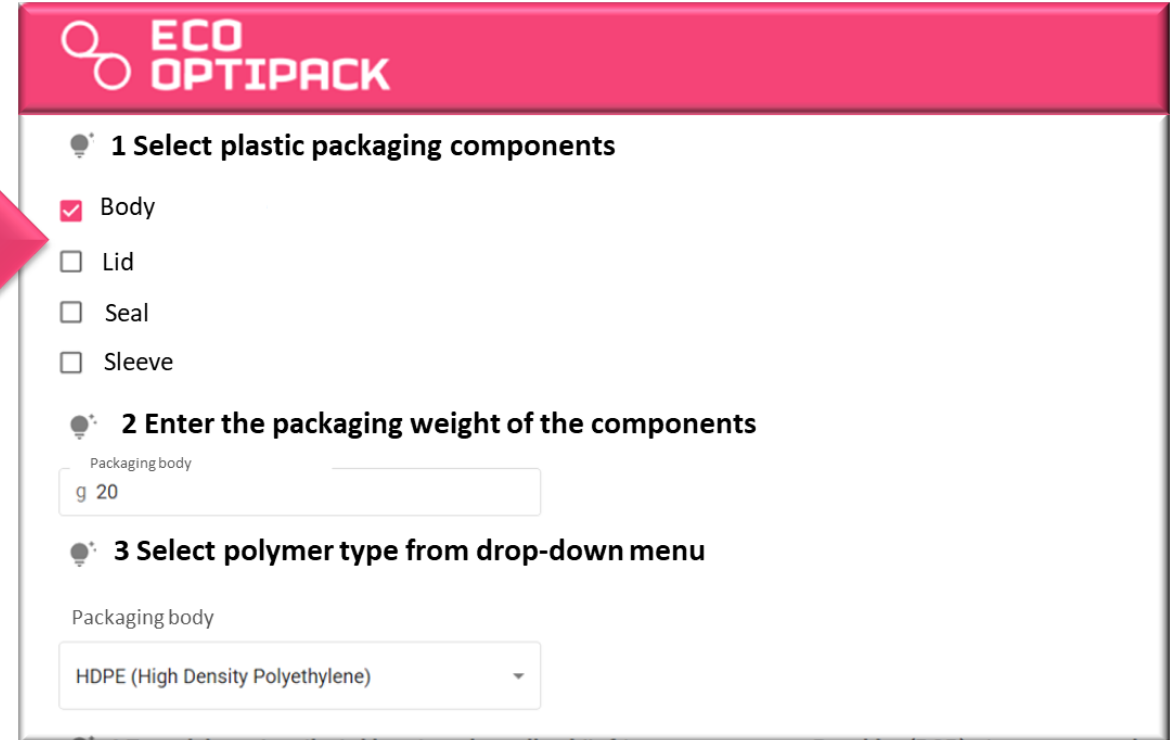
	Name	Email	Team	Created	
<input type="checkbox"/>	admin	admin@greendelta.com	Administrator	07/11/2024	DELETE
<input type="checkbox"/>	ashrakat	ashrakat@greendelta.com	Suppliers	12/11/2024	DELETE
<input type="checkbox"/>	cilleruelo	cilleruelo@greendelta.com	Administrator	27/08/2025	DELETE
<input type="checkbox"/>	ciroth	ciroth@greendelta.com	Administrator	25/02/2025	DELETE

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onlineLCA already in use

- ENGINE EU project
- SITOLUB EU project
- KIOptiPack German project
- Private clients

Simple user interface



The screenshot shows the 'ECO OPTIPACK' web interface. It has a pink header with the logo and title. Below the header, there are three main steps:

- 1 Select plastic packaging components**
 - ☒ Body
 - ☐ Lid
 - ☐ Seal
 - ☐ Sleeve
- 2 Enter the packaging weight of the components**

Packaging body

g 20
- 3 Select polymer type from drop-down menu**

Packaging body

HDPE (High Density Polyethylene)

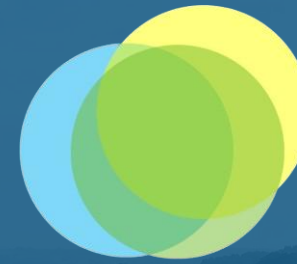
- Licenced product
- Closed source

Summary and Conclusions



- New ways for performing environmental assessments are needed.
- onlineLCA was presented as a new user interface to facilitate LCA work.
 - For non LCA experts
 - For quicker assessments
 - For cheaper assessments

From here, happy to talk!



online
Lca

**Thank you for your time,
lets speak!**

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GreenDelta GmbH

cilleruelo@greendelta.com



LCM 2025