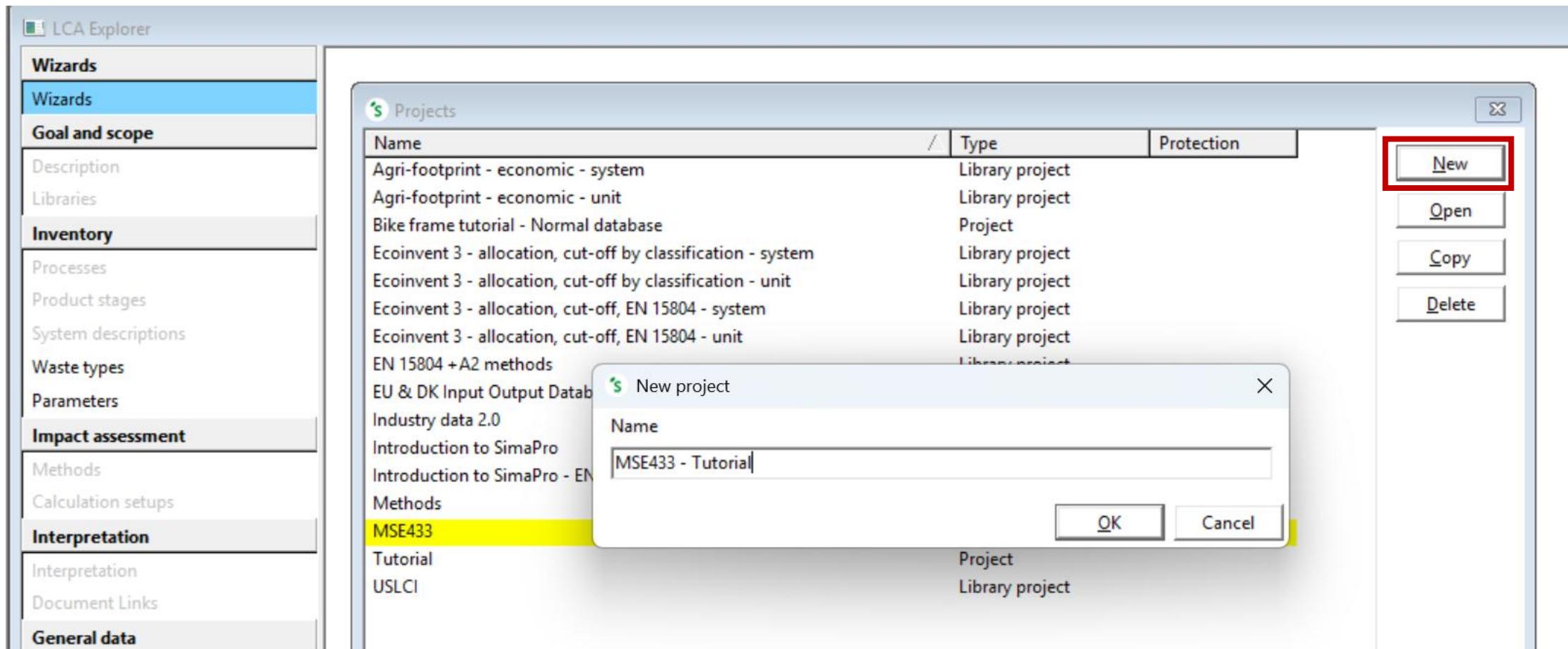
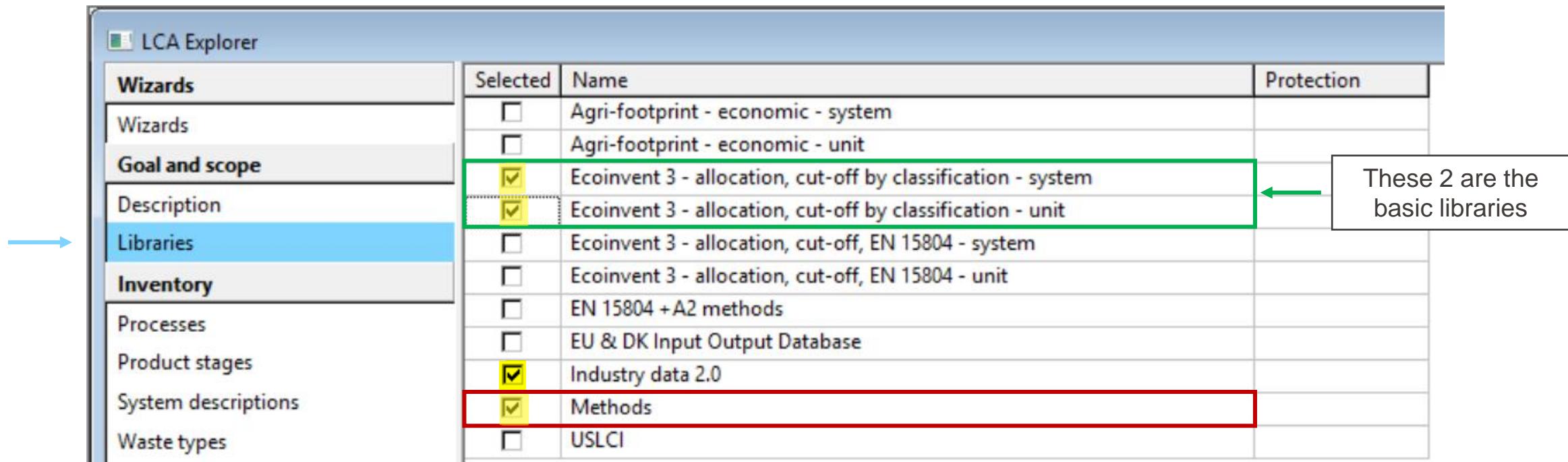


MSE 433 - SimaPro tutorial

Open SimaPro and create a new project



Select the libraries to use in the project



Selected	Name	Protection
<input type="checkbox"/>	Agri-footprint - economic - system	
<input type="checkbox"/>	Agri-footprint - economic - unit	
<input checked="" type="checkbox"/>	Ecoinvent 3 - allocation, cut-off by classification - system	
<input checked="" type="checkbox"/>	Ecoinvent 3 - allocation, cut-off by classification - unit	
<input type="checkbox"/>	Ecoinvent 3 - allocation, cut-off, EN 15804 - system	
<input type="checkbox"/>	Ecoinvent 3 - allocation, cut-off, EN 15804 - unit	
<input type="checkbox"/>	EN 15804 +A2 methods	
<input type="checkbox"/>	EU & DK Input Output Database	
<input checked="" type="checkbox"/>	Industry data 2.0	
<input checked="" type="checkbox"/>	Methods	
<input type="checkbox"/>	USLCI	

Make sure to always include **Methods** to avoid problems when modelling the impacts!

Create a new product and give it a name

LCA Explorer

Wizards

Goal and scope

Description

Libraries

Inventory

Processes

Product stages

System descriptions

Waste types

Parameters

Impact assessment

Methods

Calculation setups

Interpretation

Interpretation

Document Links

General data

Literature references

Substances

Units

Product stages

- Assembly
 - Others
- + Life cycle
- + Disposal scenario
- + Disassembly
- + Reuse

Name

New assembly

Input/output Parameters

Name	Status	Comment
MSE 433 Tutorial	None	

Materials/Assemblies

Processes

Image

New

Edit

View

Copy

Delete

Used by

Show as list

This is where you indicate the material and process inputs for that specific product

We now add 1.7 kg of Aluminium alloy

Double click on **Add line** underneath the **Materials/Assemblies** box and find the Aluminium we need for this tutorial

Select a material process or an assembly

- Assemblies and material
 - Assembly
 - Material
 - Agricultural
 - Appliances
 - Chemicals
 - Construction
 - Electronics
 - Electronics waste
 - Fuels
 - Glass
 - Metals
 - Alloys
 - Market
 - Transform
 - Extraction
 - Ferro

Name

Name	/ Un
Aluminium alloy, AlLi {CA-QC} aluminium alloy production, AlLi Cut-off, S	kg
Aluminium alloy, AlLi {CA-QC} aluminium alloy production, AlLi Cut-off, U	kg
Aluminium alloy, AlLi {RoW} aluminium alloy production, AlLi Cut-off, S	kg
Aluminium alloy, AlLi {RoW} aluminium alloy production, AlLi Cut-off, U	kg
Aluminium alloy, AlMg3 {RER} aluminium alloy production, AlMg3 Cut-off, S	kg
Aluminium alloy, AlMg3 {RER} aluminium alloy production, AlMg3 Cut-off, U	kg
Aluminium alloy, AlMg3 {RoW} aluminium alloy production, AlMg3 Cut-off, S	kg
Aluminium alloy, AlMg3 {RoW} aluminium alloy production, AlMg3 Cut-off, U	kg
Aluminium alloy, metal matrix composite {CA-QC} aluminium alloy production, Metallic Matrix Composite Cu	kg
Aluminium alloy, metal matrix composite {CA-QC} aluminium alloy production, Metallic Matrix Composite Cu	kg
Aluminium alloy, metal matrix composite {RoW} aluminium alloy production, Metallic Matrix Composite Cut-off	kg
Aluminium alloy, metal matrix composite {RoW} aluminium alloy production, Metallic Matrix Composite Cut-off	kg
Aluminium around steel bi-metal stranded cable, 3x3.67mm external diameter wire {CA-QC} aluminium around	m
Aluminium around steel bi-metal stranded cable, 3x3.67mm external diameter wire {CA-QC} aluminium around	m
Aluminium around steel bi-metal stranded cable, 3x3.67mm external diameter wire {RoW} aluminium around	m

Market: Includes transport from producers to consumers

Transformation: Excludes transport from producers to consumers

MSE

S: System, U: Unit
Pick U when selecting the materials, it can be changed when calculating the impact

View

Find

Cancel

Show as list

This dataset represents the manufacturing of aluminium alloyed billets and ingots. Aluminium scrap of the same alloy is used as the main aluminium bearing input. Aluminium scrap from external source accounts for 60% of secondary aluminium in final product, while 40% of secondary aluminium is from internal sources (remelting of internal scrap in closed loop - accounted in the primary aluminium input). Primary aluminium slab is used as aluminium input up to 30%. Aluminium losses, through blast furnace slag, are accounted for. Aluminium based alloys, metal powder and pure metals are added to obtain desired alloy composition. Final product is cast by direct chilled vertical casting. This alloy is mainly used in the aeronautic sector. This dataset is based on data from the one facility in Quebec region.

Filter on and or 68

22745 items 1 item selected

Add the amount of Aluminium needed

Name	Status	Comment				
MSE 433 Tutorial	None					
Materials/Assemblies		Amount	Unit	Distribution	SD2 or 2SD	Min
Aluminium alloy, AlLi {RoW} aluminium alloy production, AlLi Cut-off, U		1.7	kg	Undefined		
Add line						

We want to add Processes, Transportation, Energy...

Processing: Metal working, average for aluminium product manufacturing {GLO}| market for metal working, average for aluminium product manufacturing | Cut-off, U

Transportation: Transport, freight, lorry >32 metric ton, EURO6 {RER}| market for transport, freight, lorry >32 metric ton, EURO6 | Cut-off, U

Electricity: Electricity, medium voltage {CH}| market for electricity, medium voltage | Cut-off, U

Heat: Heat, central or small-scale, other than natural gas {CH}| heat production, light fuel oil, at boiler 10kW condensing, non-modulating | Cut-off, U

Select a process																																																																
<ul style="list-style-type: none"> - Processes <ul style="list-style-type: none"> + Energy + Transport - Processing <ul style="list-style-type: none"> + Agricultural + Cardboard + Compressed air + Electronics + Energy reduction + Ferro + Glass + Land transformation - Metals <ul style="list-style-type: none"> + Chipless shaping + Chipping + Coating - Metal working <ul style="list-style-type: none"> + Market <ul style="list-style-type: none"> + Infrastruct + Transformati + Welding + Non ferro + Others + Paper + Plastics + Power plants + Textiles + Ventilation + Waste + Wood + Use 	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Name</th> <th style="width: 80%;"></th> <th style="width: 10%; text-align: right;">Un</th> </tr> </thead> <tbody> <tr> <td>Degreasing, metal part in alkaline bath {GLO} market for degreasing, metal part in alkaline bath Cut-off, S</td> <td></td> <td style="text-align: right;">m²</td> </tr> <tr> <td>Degreasing, metal part in alkaline bath {GLO} market for degreasing, metal part in alkaline bath Cut-off, U</td> <td></td> <td style="text-align: right;">m²</td> </tr> <tr> <td>Energy and auxilliary inputs, metal working factory {RER} market for energy and auxilliary inputs, metal working</td> <td></td> <td style="text-align: right;">kg</td> </tr> <tr> <td>Energy and auxilliary inputs, metal working factory {RER} market for energy and auxilliary inputs, metal working</td> <td></td> <td style="text-align: right;">kg</td> </tr> <tr> <td>Energy and auxilliary inputs, metal working factory {RoW} market for energy and auxilliary inputs, metal working</td> <td></td> <td style="text-align: right;">kg</td> </tr> <tr> <td>Energy and auxilliary inputs, metal working factory {RoW} market for energy and auxilliary inputs, metal working</td> <td></td> <td style="text-align: right;">kg</td> </tr> <tr> <td>Energy and auxilliary inputs, metal working machine {RER} market for energy and auxilliary inputs, metal workin</td> <td></td> <td style="text-align: right;">kg</td> </tr> <tr> <td>Energy and auxilliary inputs, metal working machine {RER} market for energy and auxilliary inputs, metal workin</td> <td></td> <td style="text-align: right;">kg</td> </tr> <tr> <td>Energy and auxilliary inputs, metal working machine {RoW} market for energy and auxilliary inputs, metal workin</td> <td></td> <td style="text-align: right;">kg</td> </tr> <tr> <td>Energy and auxilliary inputs, metal working machine {RoW} market for energy and auxilliary inputs, metal workin</td> <td></td> <td style="text-align: right;">kg</td> </tr> <tr> <td>Metal working, average for aluminium product manufacturing {GLO} market for metal working, average for alu</td> <td style="background-color: yellow;"></td> <td style="text-align: right; background-color: yellow;">kg</td> </tr> <tr> <td>Metal working, average for aluminium product manufacturing {GLO} market for metal working, average for alu</td> <td></td> <td style="text-align: right;">kg</td> </tr> <tr> <td>Metal working, average for chromium steel product manufacturing {GLO} market for metal working, average fo</td> <td></td> <td style="text-align: right;">kg</td> </tr> <tr> <td>Metal working, average for chromium steel product manufacturing {GLO} market for metal working, average fo</td> <td></td> <td style="text-align: right;">kg</td> </tr> <tr> <td>Metal working, average for copper product manufacturing {GLO} market for metal working, average for copper</td> <td></td> <td style="text-align: right;">kg</td> </tr> <tr> <td>Metal working, average for copper product manufacturing {GLO} market for metal working, average for copper</td> <td></td> <td style="text-align: right;">kg</td> </tr> <tr> <td>Metal working, average for metal product manufacturing {GLO} market for metal working, average for metal pr</td> <td></td> <td style="text-align: right;">kg</td> </tr> <tr> <td>Metal working, average for metal product manufacturing {GLO} market for metal working, average for metal pr</td> <td></td> <td style="text-align: right;">kg</td> </tr> <tr> <td>Metal working, average for steel product manufacturing {GLO} market for metal working, average for steel prod</td> <td></td> <td style="text-align: right;">kg</td> </tr> <tr> <td>Metal working, average for steel product manufacturing {GLO} market for metal working, average for steel prod</td> <td></td> <td style="text-align: right;">kg</td> </tr> </tbody> </table>	Name		Un	Degreasing, metal part in alkaline bath {GLO} market for degreasing, metal part in alkaline bath Cut-off, S		m ²	Degreasing, metal part in alkaline bath {GLO} market for degreasing, metal part in alkaline bath Cut-off, U		m ²	Energy and auxilliary inputs, metal working factory {RER} market for energy and auxilliary inputs, metal working		kg	Energy and auxilliary inputs, metal working factory {RER} market for energy and auxilliary inputs, metal working		kg	Energy and auxilliary inputs, metal working factory {RoW} market for energy and auxilliary inputs, metal working		kg	Energy and auxilliary inputs, metal working factory {RoW} market for energy and auxilliary inputs, metal working		kg	Energy and auxilliary inputs, metal working machine {RER} market for energy and auxilliary inputs, metal workin		kg	Energy and auxilliary inputs, metal working machine {RER} market for energy and auxilliary inputs, metal workin		kg	Energy and auxilliary inputs, metal working machine {RoW} market for energy and auxilliary inputs, metal workin		kg	Energy and auxilliary inputs, metal working machine {RoW} market for energy and auxilliary inputs, metal workin		kg	Metal working, average for aluminium product manufacturing {GLO} market for metal working, average for alu		kg	Metal working, average for aluminium product manufacturing {GLO} market for metal working, average for alu		kg	Metal working, average for chromium steel product manufacturing {GLO} market for metal working, average fo		kg	Metal working, average for chromium steel product manufacturing {GLO} market for metal working, average fo		kg	Metal working, average for copper product manufacturing {GLO} market for metal working, average for copper		kg	Metal working, average for copper product manufacturing {GLO} market for metal working, average for copper		kg	Metal working, average for metal product manufacturing {GLO} market for metal working, average for metal pr		kg	Metal working, average for metal product manufacturing {GLO} market for metal working, average for metal pr		kg	Metal working, average for steel product manufacturing {GLO} market for metal working, average for steel prod		kg	Metal working, average for steel product manufacturing {GLO} market for metal working, average for steel prod		kg
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	<p>This is a market activity. Each market represents the consumption mix of a product in a given geography, connecting suppliers with consumers of the same product in the same geographical area. Markets group the producers and also the imports of the product (if relevant) within the same geographical area. They also account for transport to the consumer and for the losses during that process, when relevant.</p> <p>This is the market for 'metal working, average for aluminium product manufacturing', in the Global geography.</p> <p>Transport from producers to consumers of this product in the geography covered by the market is included.</p>																																																															
<input style="border: 1px solid black; padding: 2px 10px; margin-right: 5px;" type="button" value="Filter on"/> <input checked="" type="radio" value="and"/> and <input type="radio" value="or"/> or <input style="border: 1px solid black; padding: 2px 10px; margin-left: 10px;" type="button" value="Clear"/> 20																																																																
20931 items 1 item selected	<input style="border: 1px solid red; border-radius: 5px; padding: 2px 10px; margin-right: 10px;" type="button" value="Select"/> <input style="border: 1px solid black; border-radius: 5px; padding: 2px 10px;" type="button" value="New"/> <input style="border: 1px solid black; border-radius: 5px; padding: 2px 10px; margin-left: 10px;" type="button" value="View"/> <input style="border: 1px solid black; border-radius: 5px; padding: 2px 10px; margin-left: 10px;" type="button" value="Find"/> <input style="border: 1px solid black; border-radius: 5px; padding: 2px 10px; margin-left: 10px;" type="button" value="Cancel"/> <input type="checkbox" value="Show as list"/> Show as list																																																															

Selecting the transportation

Select a process

Processes

Energy

Transport

- Air
- Building equipment
- Electricity
- Intermodal
- Others
- Pipeline
- Rail
- Road
- Market
- Infrastructure
- Transformation
- Water

Processing

Use

Name

Transport, freight, lorry > 32 metric ton, EURO2 {ZA} | market for transport, freight, lorry > 32 metric ton, EURO2 | tkr

Transport, freight, lorry > 32 metric ton, EURO2 {ZA} | market for transport, freight, lorry > 32 metric ton, EURO2 | tkr

Transport, freight, lorry > 32 metric ton, EURO3 {BR} | market for transport, freight, lorry > 32 metric ton, EURO3 | tkr

Transport, freight, lorry > 32 metric ton, EURO3 {BR} | market for transport, freight, lorry > 32 metric ton, EURO3 | tkr

Transport, freight, lorry > 32 metric ton, EURO3 {RER} | market for transport, freight, lorry > 32 metric ton, EURO3 | tkr

Transport, freight, lorry > 32 metric ton, EURO3 {RER} | market for transport, freight, lorry > 32 metric ton, EURO3 | tkr

Transport, freight, lorry > 32 metric ton, EURO3 {RoW} | market for transport, freight, lorry > 32 metric ton, EURO3 | tkr

Transport, freight, lorry > 32 metric ton, EURO3 {RoW} | market for transport, freight, lorry > 32 metric ton, EURO3 | tkr

Transport, freight, lorry > 32 metric ton, EURO4 {RER} | market for transport, freight, lorry > 32 metric ton, EURO4 | tkr

Transport, freight, lorry > 32 metric ton, EURO4 {RER} | market for transport, freight, lorry > 32 metric ton, EURO4 | tkr

Transport, freight, lorry > 32 metric ton, EURO4 {RoW} | market for transport, freight, lorry > 32 metric ton, EURO4 | tkr

Transport, freight, lorry > 32 metric ton, EURO4 {RoW} | market for transport, freight, lorry > 32 metric ton, EURO4 | tkr

Transport, freight, lorry > 32 metric ton, EURO5 {BR} | market for transport, freight, lorry > 32 metric ton, EURO5 | tkr

Transport, freight, lorry > 32 metric ton, EURO5 {BR} | market for transport, freight, lorry > 32 metric ton, EURO5 | tkr

Transport, freight, lorry > 32 metric ton, EURO5 {RER} | market for transport, freight, lorry > 32 metric ton, EURO5 | tkr

Transport, freight, lorry > 32 metric ton, EURO5 {RER} | market for transport, freight, lorry > 32 metric ton, EURO5 | tkr

Transport, freight, lorry > 32 metric ton, EURO5 {RoW} | market for transport, freight, lorry > 32 metric ton, EURO5 | tkr

Transport, freight, lorry > 32 metric ton, EURO5 {RoW} | market for transport, freight, lorry > 32 metric ton, EURO5 | tkr

Transport, freight, lorry > 32 metric ton, EURO6 {RER} | market for transport, freight, lorry > 32 metric ton, EURO6 | tkr

Transport, freight, lorry > 32 metric ton, EURO6 {RER} | market for transport, freight, lorry > 32 metric ton, EURO6 | tkr

Select

New

View

Find

Cancel

Show as list

This is a market activity. Each market represents the consumption mix of a product in a given geography, connecting suppliers with consumers of the same product in the same geographical area. Markets group the producers and also the imports of the product (if relevant) within the same geographical area. They also account for transport to the consumer and for the losses during that process, when relevant.

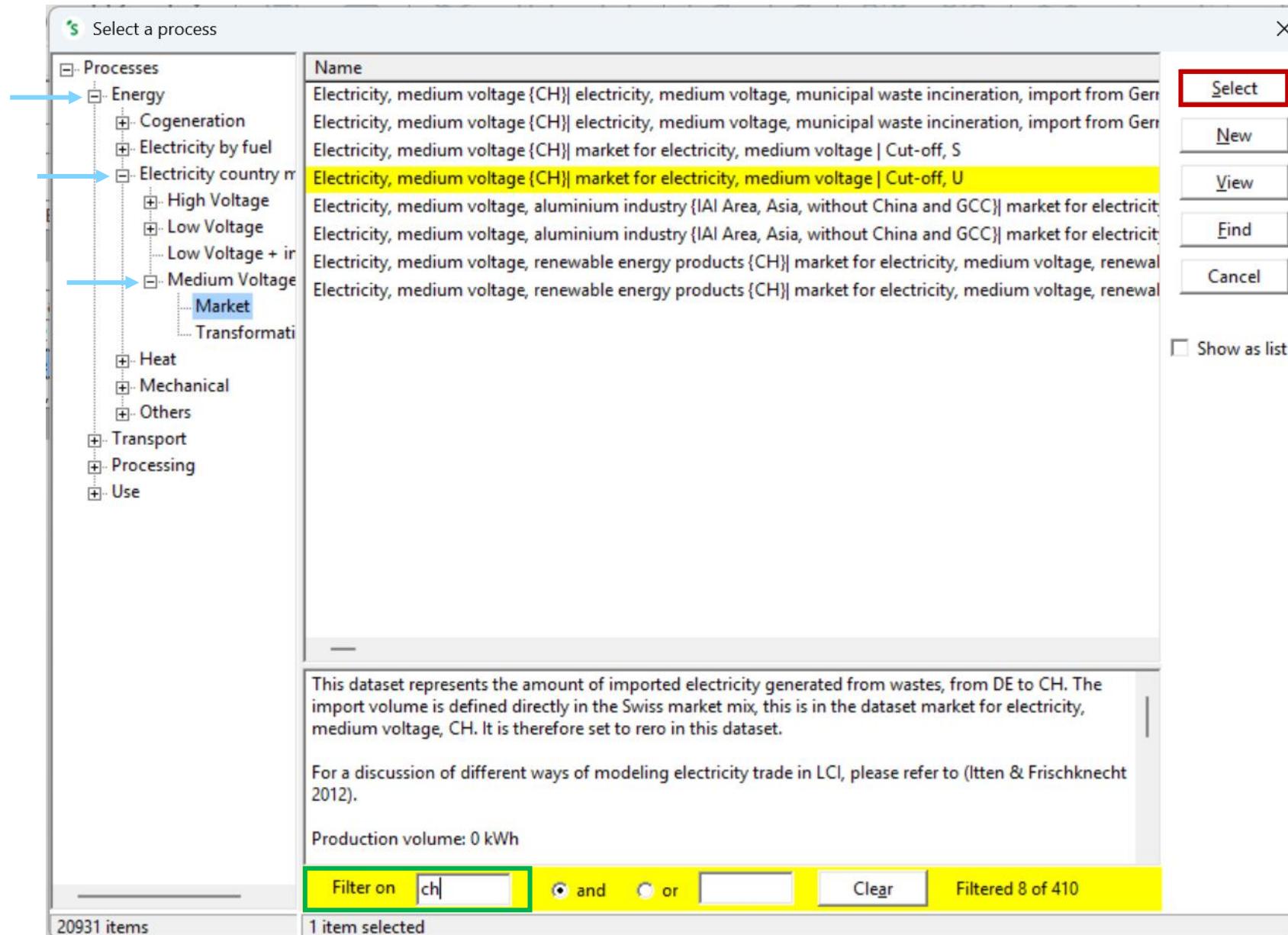
This is the market for 'transport, freight, lorry > 32 metric ton, EURO6', in the geography of Europe.

This market contains no transport or losses, as they are irrelevant for the delivered product.

Filter on and or Clear 406

20931 items 1 item selected

You can use the **filter on** option to help



Select a process

Processes

- Energy
 - Cogeneration
 - Electricity by fuel
 - Electricity country mix
 - High Voltage
 - Low Voltage
 - Low Voltage + import
 - Medium Voltage
 - Market
 - Transformation
 - Heat
 - Mechanical
 - Others
 - Transport
 - Processing
 - Use

Name

- Electricity, medium voltage (CH) electricity, medium voltage, municipal waste incineration, import from Germany
- Electricity, medium voltage (CH) electricity, medium voltage, municipal waste incineration, import from Germany
- Electricity, medium voltage (CH) market for electricity, medium voltage | Cut-off, S
- Electricity, medium voltage (CH) market for electricity, medium voltage | Cut-off, U**
- Electricity, medium voltage, aluminium industry {IAI Area, Asia, without China and GCC} market for electricity
- Electricity, medium voltage, aluminium industry {IAI Area, Asia, without China and GCC} market for electricity
- Electricity, medium voltage, renewable energy products {CH} market for electricity, medium voltage, renewable energy products
- Electricity, medium voltage, renewable energy products {CH} market for electricity, medium voltage, renewable energy products

Select

New

View

Find

Cancel

Show as list

This dataset represents the amount of imported electricity generated from wastes, from DE to CH. The import volume is defined directly in the Swiss market mix, this is in the dataset market for electricity, medium voltage, CH. It is therefore set to zero in this dataset.

For a discussion of different ways of modeling electricity trade in LCI, please refer to (Itten & Frischknecht 2012).

Production volume: 0 kWh

Filter on **ch** and or Clear Filtered 8 of 410

20931 items 1 item selected

Select a process

Processes

- Energy
 - Cogeneration
 - Electricity by fuel
 - Electricity country m
 - Heat
 - Coal
 - Gas
 - Heat pump
 - Lignite
 - Oil
 - Market
 - Transformation
 - Infrastructure
 - Others
 - Solar
 - Steam
 - Waste
 - Wood
 - Mechanical
 - Others
- Transport
- Processing
- Use

Name

Heat, central or small-scale, other than natural gas {CH}|| heat production, light fuel oil, at boiler 100kW con
 Heat, central or small-scale, other than natural gas {CH}|| heat production, light fuel oil, at boiler 100kW con
 Heat, central or small-scale, other than natural gas {CH}|| heat production, light fuel oil, at boiler 100kW, nc
 Heat, central or small-scale, other than natural gas {CH}|| heat production, light fuel oil, at boiler 100kW, nc
 Heat, central or small-scale, other than natural gas {CH}|| heat production, light fuel oil, at boiler 10kW con
Heat, central or small-scale, other than natural gas {CH}|| heat production, light fuel oil, at boiler 10kW con
 Heat, central or small-scale, other than natural gas {CH}|| heat production, light fuel oil, at boiler 10kW, nc
 Heat, central or small-scale, other than natural gas {CH}|| heat production, light fuel oil, at boiler 10kW, nc
 Heat, central or small-scale, other than natural gas {Europe without Switzerland}|| heat production, light fuel
 Heat, central or small-scale, other than natural gas {Europe without Switzerland}|| heat production, light fuel
 Heat, central or small-scale, other than natural gas {Europe without Switzerland}|| heat production, light fuel
 Heat, central or small-scale, other than natural gas {Europe without Switzerland}|| heat production, light fuel
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 Heat, central or small-scale, other than natural gas {Europe without Switzerland}|| heat production, light fuel
 Heat, central or small-scale, other than natural gas {Europe without Switzerland}|| heat production, light fuel
 Heat, central or small-scale, other than natural gas {RoW}|| heat production, light fuel oil, at boiler 100kW c
 Heat, central or small-scale, other than natural gas {RoW}|| heat production, light fuel oil, at boiler 100kW c
 Heat, central or small-scale, other than natural gas {RoW}|| heat production, light fuel oil, at boiler 100kW, r
 Heat, central or small-scale, other than natural gas {RoW}|| heat production, light fuel oil, at boiler 100kW, r

Show as list

Select

New

View

Find

Cancel

Inventory for the operation of a light fuel oil boiler. Data related to input.

[This dataset was already contained in the ecoinvent database version 2. It was not individually updated during the transfer to ecoinvent version 3. Life Cycle Impact Assessment results may still have changed, as they are affected by changes in the supply chain, i.e. in other datasets. This dataset was generated following the ecoinvent quality guidelines for version 2. It may have been subject to central changes described in the ecoinvent version 3 change report (<http://www.ecoinvent.org/database/ecoinvent-version-3/reports-of-changes/>), and the results of the central updates were reviewed extensively. The

Filter on and or 130

20931 items 1 item selected

Now we are ready to calculate the impacts

Name	Status	Comment						It can be helpful to add comments
Materials/Assemblies	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment	
Aluminium alloy, AlLi {RoW} aluminium alloy production, AlLi Cut-off, U	1.7	kg	Undefined					
Add line								
Processes	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment	
Metal working, average for aluminium product manufacturing {GLO} market for metal working, average for aluminium pro	1.7	kg	Undefined					We assume no waste produced
Transport, freight, lorry >32 metric ton, EURO6 {RER} market for transport, freight, lorry >32 metric ton, EURO6 Cut-off, U	$1.7/1000*10000 = 17$	tkm						
Electricity, medium voltage {CH} market for electricity, medium voltage Cut-off, U	30	kWh	Undefined					Assuming production in Switzerland
Heat, central or small-scale, other than natural gas {CH} heat production, light fuel oil, at boiler 10kW condensing, non-mod	15	MJ	Undefined					
Add line								
Image								

It is possible to add the amount using formulas

Remember to **save** to avoid losing your work!!

The screenshot shows the SimaPro software interface. At the top, there is a toolbar with various icons: a house, a magnifying glass, a file with a plus, a file with a minus, a save, a print, a scissor, a copy, a clipboard, a plus sign, a minus sign, an equals sign, and a 'D+A 42' button. To the right of these are icons for a tree (highlighted with a red box), a bar chart, a line graph, a document with a plus, and a calculator. Below the toolbar, there are two tabs: 'Input/output' (selected) and 'Parameters'. The main area contains a table for 'Materials/Assemblies' and another for 'Processes'.

Name	Status	Comment
MSE 433 Tutorial	None	

Materials/Assemblies	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Aluminium alloy, AlLi {RoW} aluminium alloy production, AlLi Cut-off, U	1.7	kg	Undefined				
Add line							

Processes	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Metal working, average for aluminium product manufacturing {GLO} market for metal working, average for aluminium pro	1.7	kg	Undefined				We assume no waste produced
Transport, freight, lorry >32 metric ton, EURO6 {RER} market for transport, freight, lorry >32 metric ton, EURO6 Cut-off, U	1.7/1000*10000 = 17	tkm					
Electricity, medium voltage {CH} market for electricity, medium voltage Cut-off, U	30	kWh	Undefined				Assuming production in Switzerland
Heat, central or small-scale, other than natural gas {CH} heat production, light fuel oil, at boiler 10kW condensing, non-mod	15	MJ	Undefined				
Add line							

Image

Give it a name, select the method, switch to system (if needed) and start the calculation

Name
MSE 433 - Tutorial

Comment

Calculation function
 Tree
 Network
 Analyse
 Compare
 Uncertainty analysis

Method
ReCiPe 2016 Endpoint (H) V1.09 / World (2010) H/A

Product	Amount	Unit	Project	Comment
MSE 433 Tutorial	1	p	MSE433 - Tutorial	

Current library
Ecoinvent 3 - allocation, cut-off by classification - unit
Replacing library
Ecoinvent 3 - allocation, cut-off by classification - system

Switches
 Inventory per sub-compartment
 Exclude infrastructure processes
 Exclude long-term emissions

Monte Carlo stop criterion
 Fixed number of runs
 Use stop factor
 Seed value
1000
0.005
Value
Inventory result (Air/(unspecified)/Water/m³, CN-ECGC)
0

Help Calculate Close

You can easily switch from Unit to System for a quicker calculation time

Selection of method

Select a method and a normalization/weighting set

Methods

- European
- Global**
- North American
- Others
- Single issue
- Superseded
- Water footprint

Name	Version	Project
LC-IMPACT marginal pref. all imp. 11	1.03	Methods
LC-IMPACT marginal pref. all imp. ir	1.03	Methods
LC-IMPACT marginal pref. certain imp	1.03	Methods
LC-IMPACT marginal pref. certain imp	1.03	Methods
IMPACT World+ Endpoint	1.04	Methods
IMPACT World+ Midpoint	1.04	Methods
ReCiPe 2016 Endpoint (E)	1.09	Methods
ReCiPe 2016 Endpoint (H)	1.09	Methods
ReCiPe 2016 Endpoint (I)	1.09	Methods
ReCiPe 2016 Midpoint (E)	1.09	Methods
ReCiPe 2016 Midpoint (H)	1.09	Methods

Normalisation/Weighting

- World (2010) H/A**
- World (2010) H/H
- World (2010) H/Official

ReCiPe 2016 v1.1 endpoint, Hierarchist perspective

=====

This is the default ReCiPe endpoint method.

The ReCiPe 2016 method is a new version of ReCiPe 2008, created by RIVM, Radboud University, Norwegian University of Science and Technology and PRé Sustainability. Due to significant methodological differences, the results of ReCiPe 2008 and ReCiPe 2016 cannot and should not be compared. In ReCiPe you can choose to use midpoint indicators or endpoint indicators. Each method has been created for three different perspectives. The

106 items

1 item selected

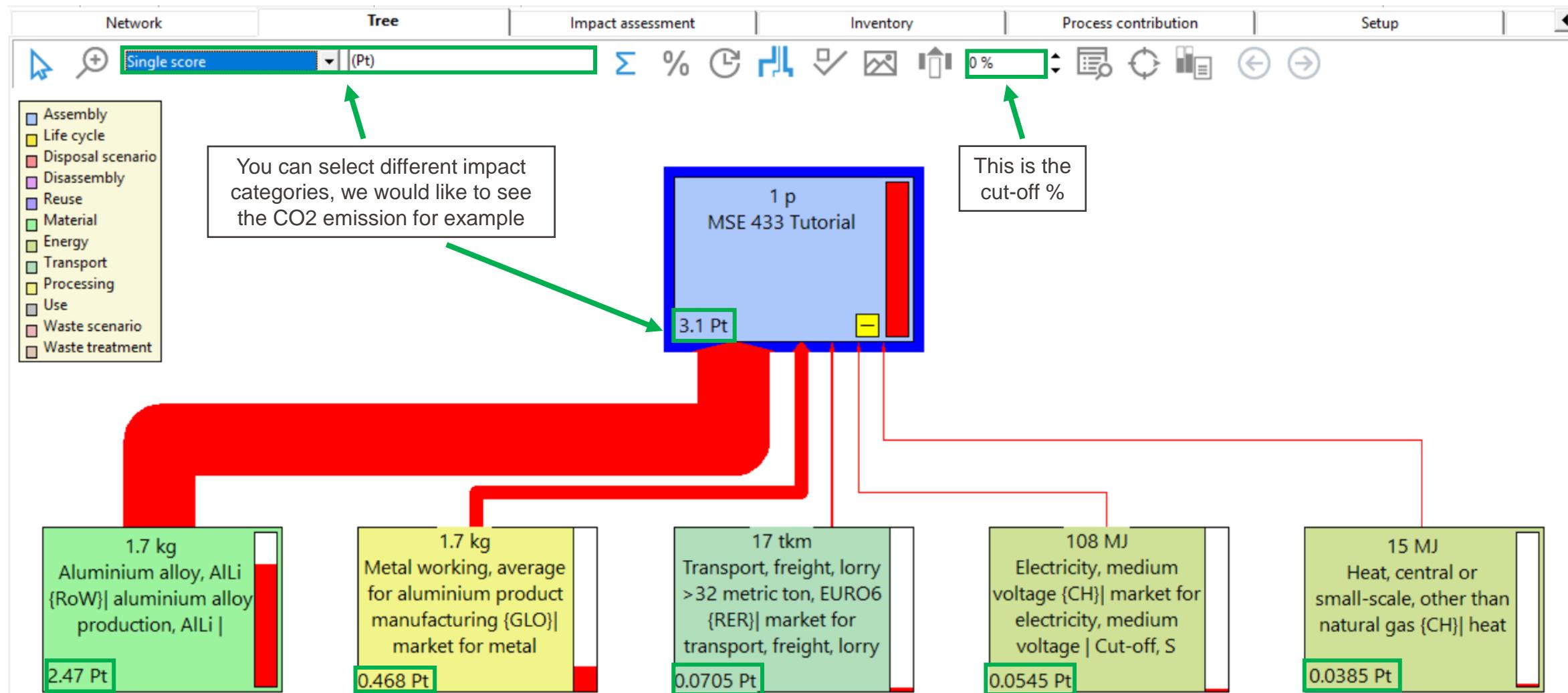
Select

View

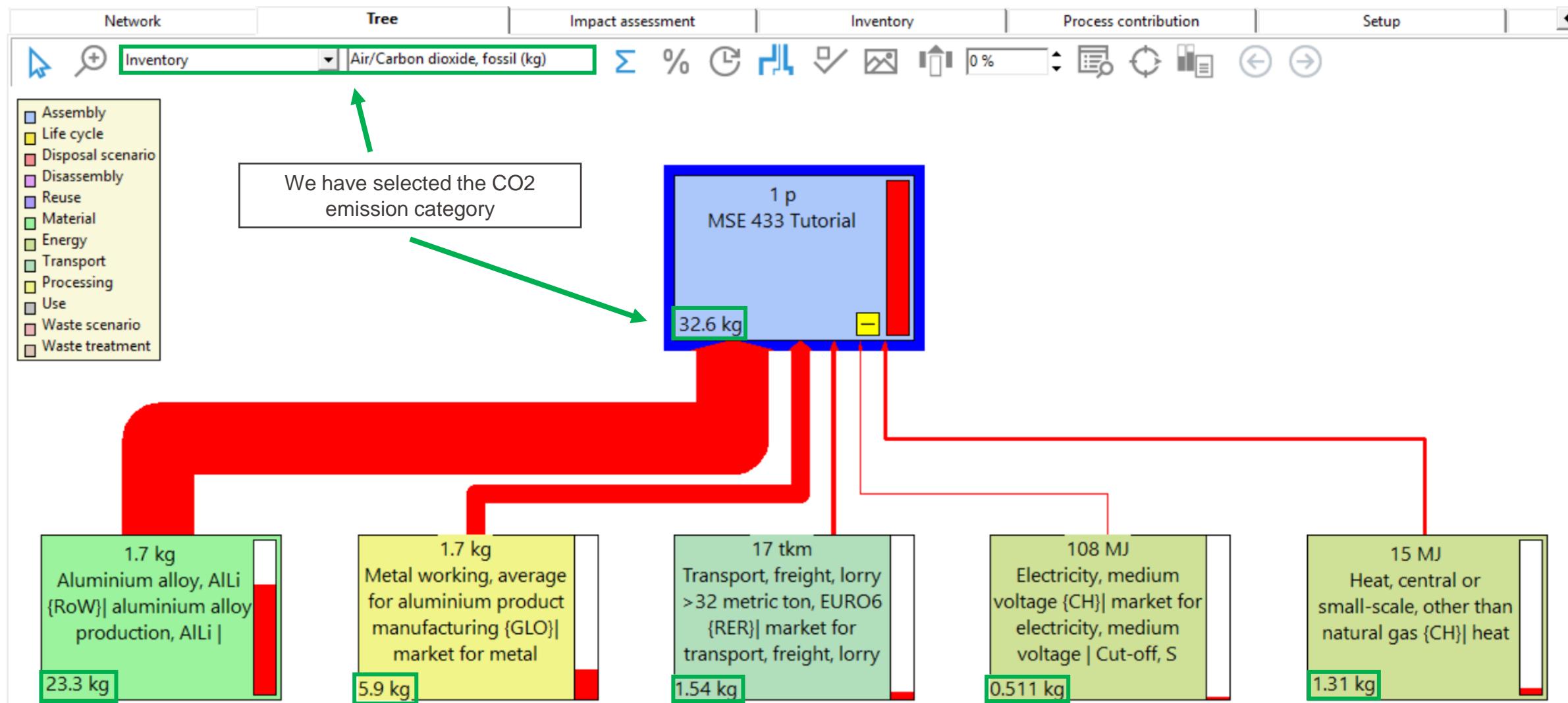
Find

Cancel

Now we have our tree



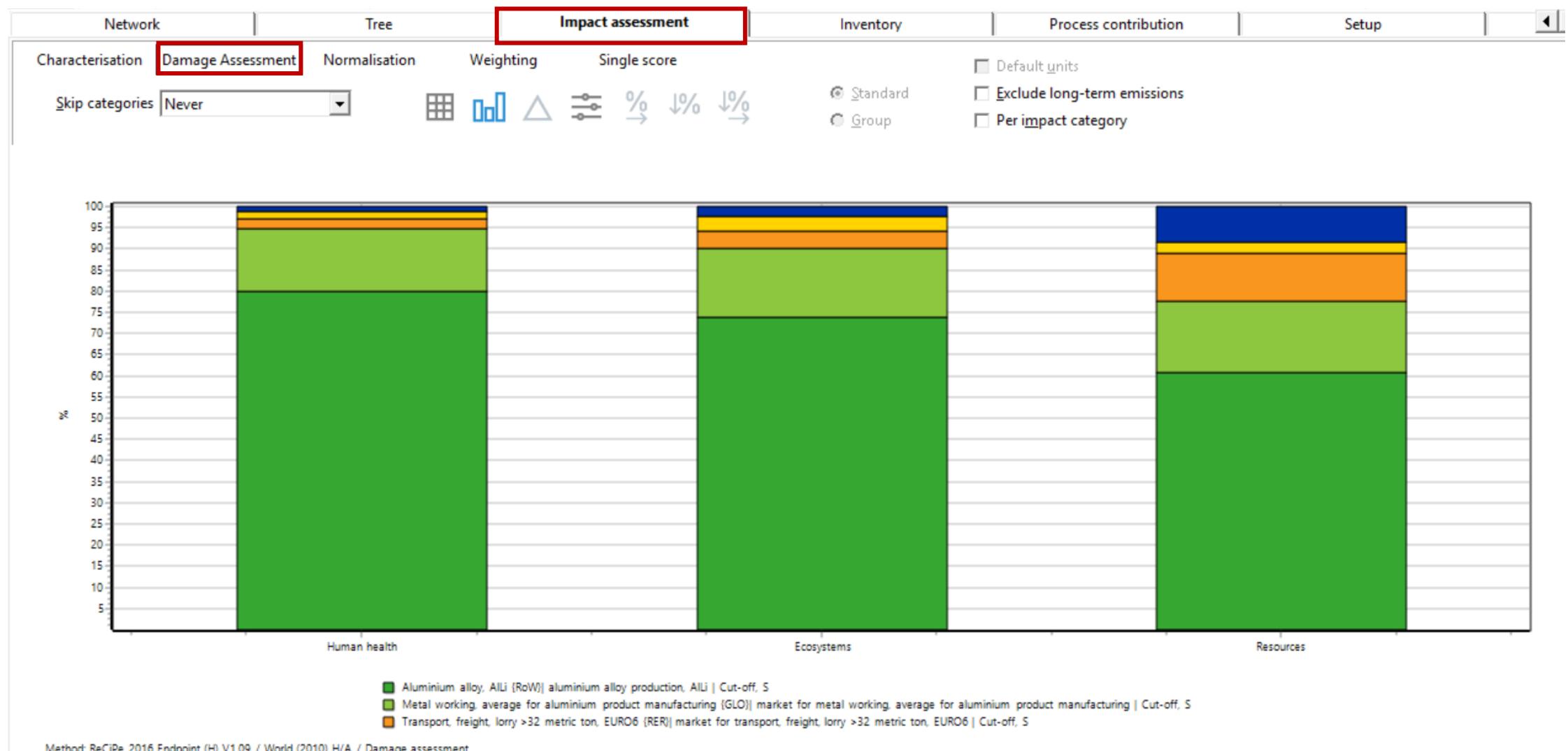
The CO2 (not kgCO2e) tree for the same product



Impact assessment - Characterisation



Impact assessment – Damage Assessment



Damage Assessment: Table form

Characterisation **Damage Assessment** Normalisation Weighting Single score

Default units

Skip categories **Never**       

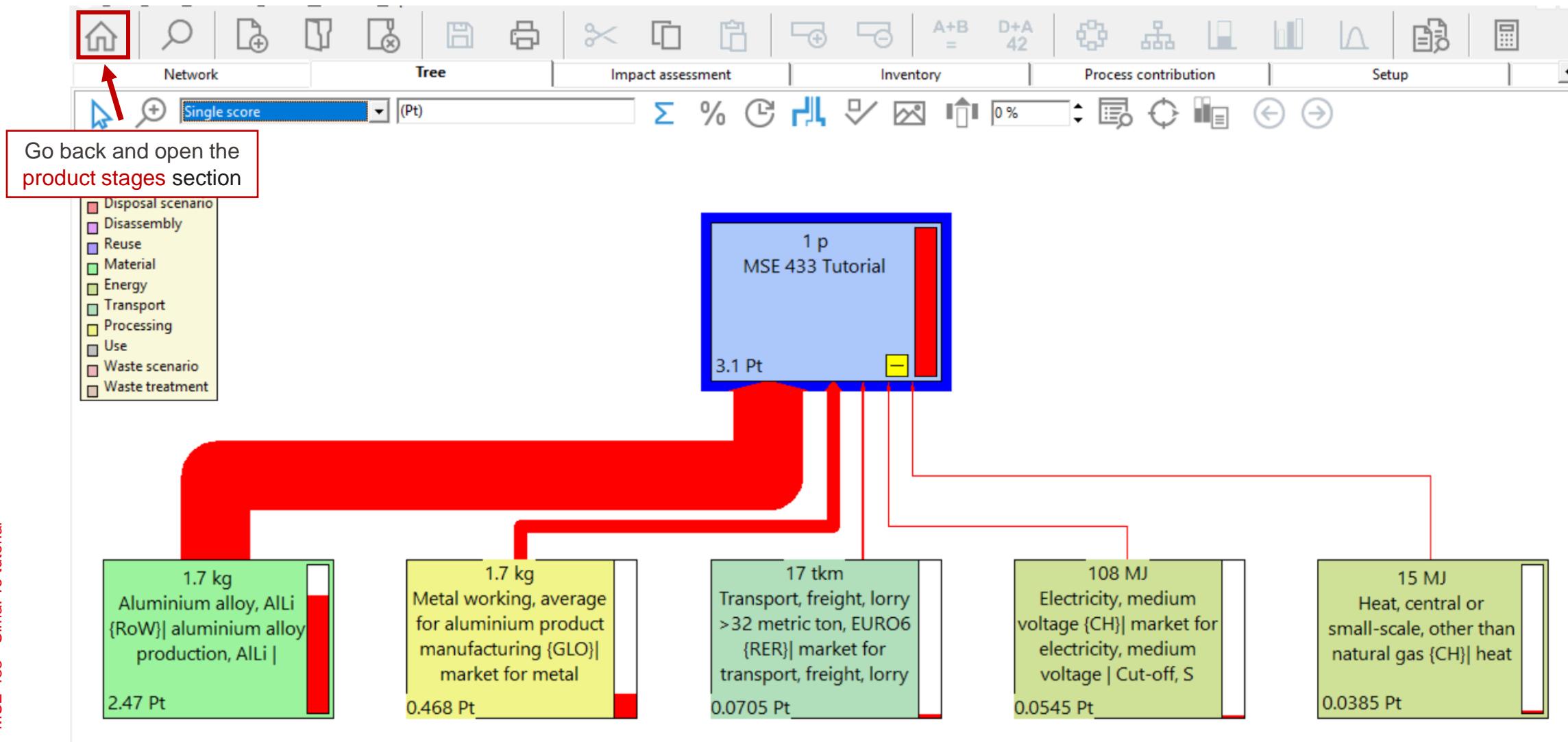
Standard Group

Exclude long-term emissions

Per impact category

Se	Damage category	/	Unit	Total	Aluminium alloy, AlLi	Metal working, average for	Transport, freight, lorry >32	Electricity, medium voltage	Heat, central or small-scale,
<input checked="" type="checkbox"/>	Human health		DALY	0.000181	0.000145	2.74E-5	3.98E-6	3.13E-6	2.15E-6
<input checked="" type="checkbox"/>	Ecosystems		species.yr	2.06E-7	1.52E-7	3.37E-8	8.13E-9	7.07E-9	5.04E-9
<input checked="" type="checkbox"/>	Resources		USD2013	2.24	1.36	0.377	0.256	0.0583	0.189

What if we substitute the Aluminium for recycled Aluminium?



Input/output Parameters

Name	Status	Comment
MSE 433 Tutorial	None	

Materials/Assemblies

Materials/Assemblies	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Aluminium, cast alloy {RER} treatment of aluminium scrap, post-consumer, prepar	1.7	kg	Undefined				

Add line

Processes

Processes
Metal working, average for aluminium product manufacturing {GLO} market for metal
Transport, freight, lorry >32 metric ton, EURO6 {RER} market for transport, freight, lorry
Electricity, medium voltage {CH} market for electricity, medium voltage Cut-off, U
Heat, central or small-scale, other than natural gas {CH} heat production, light fuel oil,

Add line

Image

Go back to the tree and calculate the impact

Select a material process or an assembly

Assemblies and material

- Assembly
- Material
 - Agricultural
 - Appliances
 - Chemicals
 - Construction
 - Electronics
 - Electronics waste
 - Fuels
 - Glass
 - Metals
 - Alloys
 - Extraction
 - Ferro
 - Non Ferro
 - Market
 - Transform
 - Infrast
 - Waste metals
 - Minerals
 - Others
 - Paper + Board
 - Paper+ Board
 - Plastics
 - Textiles

Name	Unit
Aluminium scrap, new {GLO} aluminium scrap, new, Recycled Content cut-off Cut-off, S	kg
Aluminium scrap, new {GLO} aluminium scrap, new, Recycled Content cut-off Cut-off, U	kg
Aluminium scrap, post-consumer {GLO} aluminium scrap, post-consumer, Recycled Content cut-off Cut-off, S	kg
Aluminium scrap, post-consumer {GLO} aluminium scrap, post-consumer, Recycled Content cut-off Cut-off, I	kg
Aluminium scrap, post-consumer, prepared for melting {GLO} aluminium scrap, post-consumer, prepared for n	kg
Aluminium scrap, post-consumer, prepared for melting {GLO} aluminium scrap, post-consumer, prepared for n	kg
Aluminium, cast alloy {RER} treatment of aluminium scrap, new, at refiner Cut-off, S	kg
Aluminium, cast alloy {RER} treatment of aluminium scrap, new, at refiner Cut-off, U	kg
Aluminium, cast alloy {RER} treatment of aluminium scrap, post-consumer, prepared for recycling, at refiner C	kg
Aluminium, cast alloy {RER} treatment of aluminium scrap, post-consumer, prepared for recycling, at refiner C	kg
Aluminium, cast alloy {RoW} treatment of aluminium scrap, new, at refiner Cut-off, S	kg
Aluminium, cast alloy {RoW} treatment of aluminium scrap, new, at refiner Cut-off, U	kg
Aluminium, cast alloy {RoW} treatment of aluminium scrap, post-consumer, prepared for recycling, at refiner C	kg
Aluminium, cast alloy {RoW} treatment of aluminium scrap, post-consumer, prepared for recycling, at refiner C	kg
Aluminium, in mixed metal scrap {GLO} aluminium, in mixed metal scrap, Recycled Content cut-off Cut-off, S	kg

Show as list

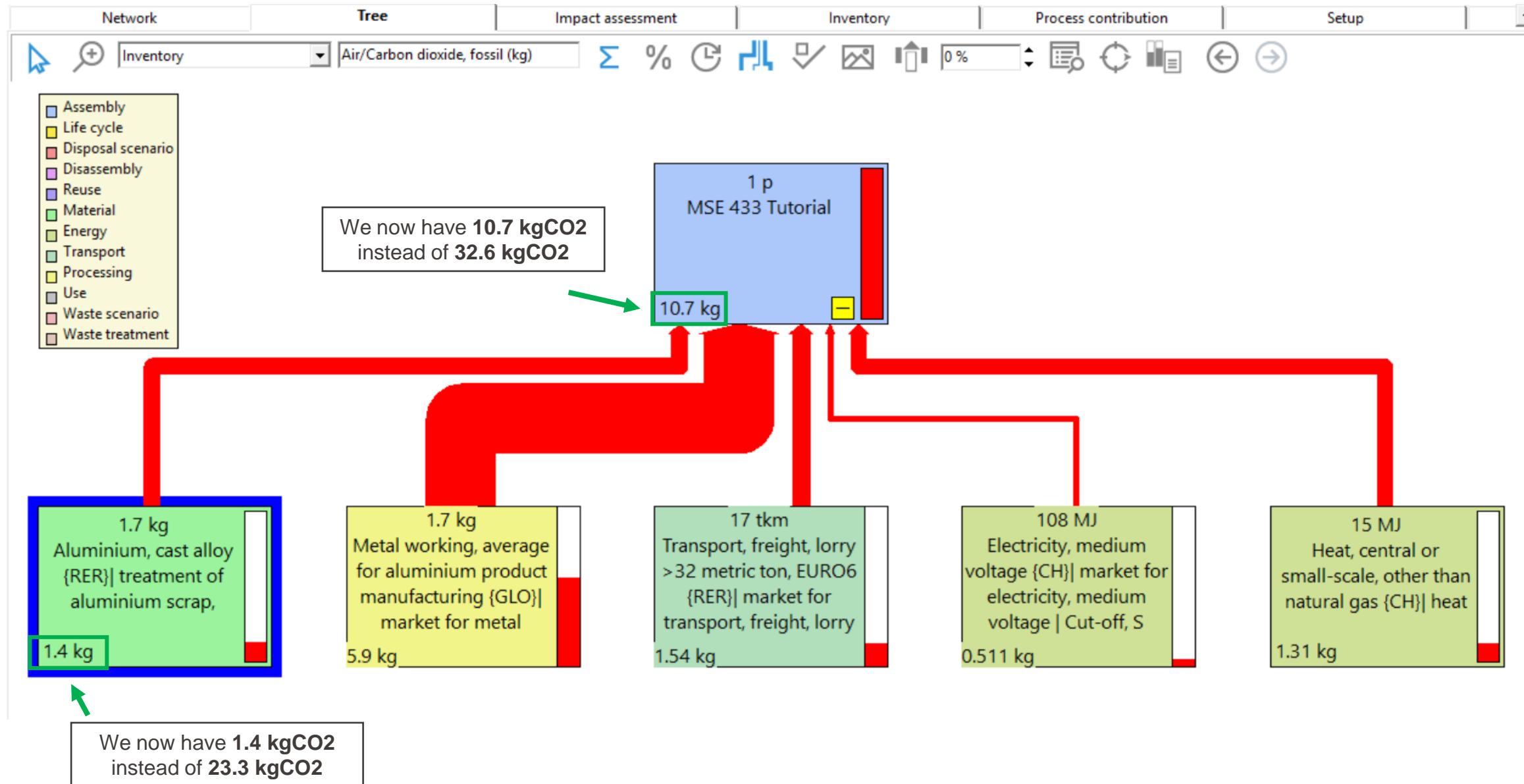
Select New View Find Cancel

This dataset is based on two sources: the European Aluminium Association 2005 LCI data (EAA, 2008); and (2) the ecoinvent v2.2 dataset for the same activity (Althaus, 2009), itself largely based on EAA data from 2000. Priority was given to data contained in EAA (2008); Althaus (2009) was used only in cases where it was found to be more complete than EAA (2008).

While this dataset represents the refining of prepared post-consumer scrap aluminium, the inputs and outputs reported by EAA (2008) actually refer to refining of all scrap, including post-consumer scrap, scrap from foundries, turnings, skimmings (dross) and aluminium metallics. In the ecoinvent database, the refining of post-consumer

Filter on and or 476

22935 items 1 item selected



We can quickly switch to EN15804 if needed

Name
MSE 433 - Tutorial EN

Comment

Calculation function
 Tree
 Analyse
 Compare
 Uncertainty analysis

Method

Product	Amount	Unit	Project	Comment
MSE 433 Tutorial	1	p	MSE433 - Tutorial	

Current library
Ecoinvent 3 - allocation, cut-off by classification - unit
Replacing library
Ecoinvent 3 - allocation, cut-off, EN 15804 - system

Switches
 Inventory per sub-compartment
 Exclude infrastructure processes
 Exclude long-term emissions

Monte Carlo stop criterion
 Fixed number of runs
 Use stop factor
 Seed value

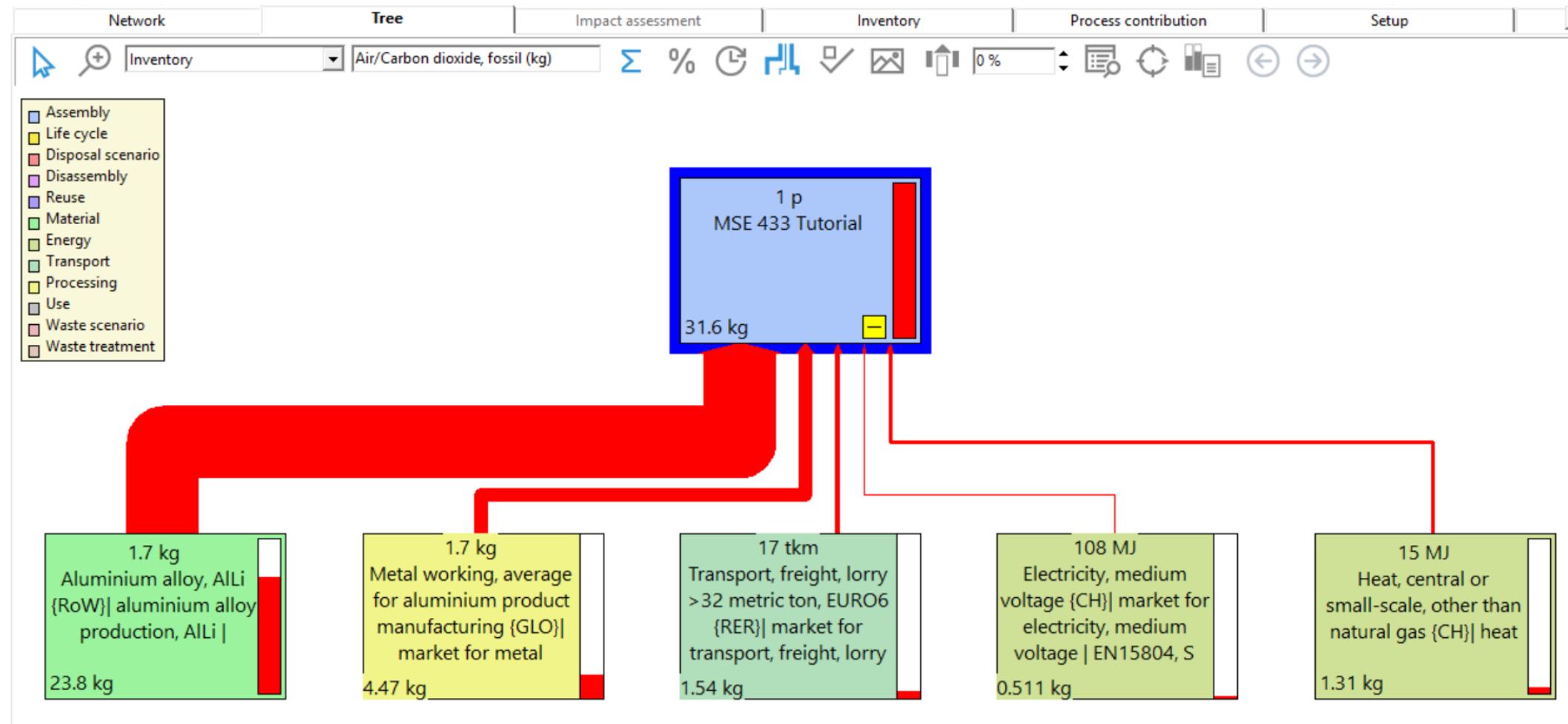
Value: 1000
Inventory result (Air/(unspecified)/Water/m³, CN-ECGC)

Value: 0.005

In the calculation setup
add the current and
replacing libraries

Help Calculate Close

EN15804 Calculation with the previous Aluminium (not the scrap)



What if we want to calculate the kgCO2e?

Name
MSE 433- Tutorial GWP100

Comment

Calculation function

Network
 Tree
 Analyse
 Compare
 Uncertainty analysis

Method
IPCC 2021 GWP100 V1.03

Change Method to analyze the GWP100

Product Amount Unit Project Comment

MSE 433 Tutorial	1	p	MSE433 - Tutorial	
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Current library Suffix
Ecoinvent 3 - allocation, cut-off by classification - unit Cut-off, U

Replacing library Suffix
Ecoinvent 3 - allocation, cut-off by classification - system Cut-off, S

Switches

Inventory per sub-compartment
 Exclude infrastructure processes
 Exclude long-term emissions

Monte Carlo stop criterion

Fixed number of runs 1000
 Use stop factor 0.005 Value Inventory result (Air/(unspecified)/Water/m³, CN-ECGC)
 Seed value 0

Help Calculate Close

What if we want to calculate the kgCO2e?

Select a method and a normalization/weighting set

Methods

- European
- Global
- North American
- Others
- Single issue**
- Superseded
- Water footprint

Name	Version	Project
Mineral resource dissipation (Poncelet 2	1.00	Methods
Cumulative Energy Demand (LHV)	1.01	Methods
Freshwater eutrophication (Payen et al.,	1.01	Methods
Land use biodiversity (Chaudhary et al.,	1.02	Methods
IPCC 2021 GTP100	1.03	Methods
IPCC 2021 GTP100 (incl. CO2 uptake)	1.03	Methods
IPCC 2021 GWP100	1.03	Methods
IPCC 2021 GWP100 (incl. CO2 uptake)	1.03	Methods
IPCC 2021 GWP20	1.03	Methods
IPCC 2021 GWP20 (incl. CO2 uptake)	1.03	Methods
IPCC 2021 GWP500	1.03	Methods

Normalisation/Weightir /

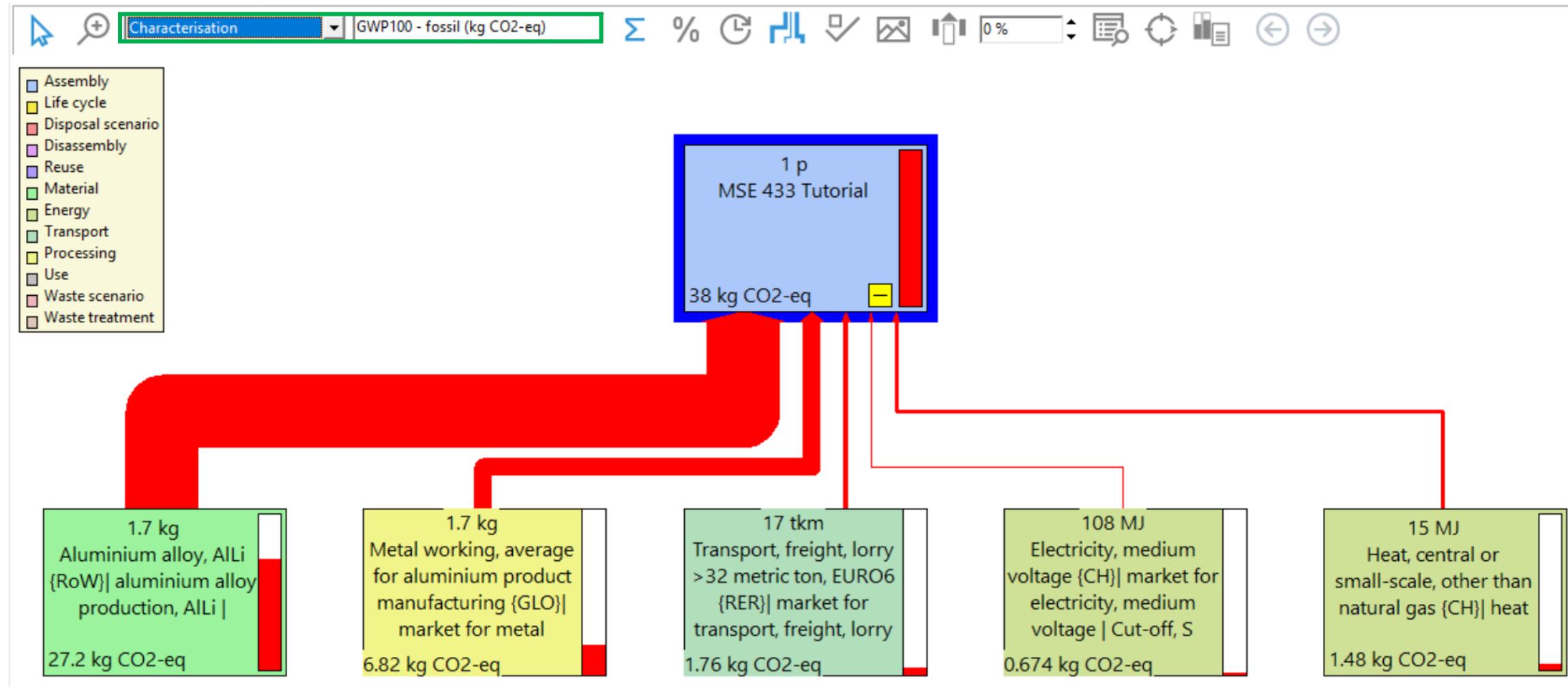
IPCC 2021 is the successor of the IPCC 2013 method, which was developed by the Intergovernmental Panel on Climate Change. It contains the Global Warming Potential (GWP) climate change factors of IPCC with a timeframe of 100 years. Note that the GWP 100 factors are recommended as default by UNEP-GLAM (2017), and the GWP20 and GTP100 factors for sensitivity analysis.

NOTE: This version of the method EXCLUDES CO2 uptake and biogenic CO2 emissions. The uptake and emissions of biogenic CO2 are part of a short cycle and has net zero impact; the biogenic methane factor is corrected for methane oxidation.

106 items 1 item selected

Select View Find Cancel

What if we want to calculate the kgCO2e?



What if we want to see the flow in more details?

Name
MSE 433- Tutorial GWP100

Comment

Calculation function
 Tree
 Analyse
 Compare
 Uncertainty analysis

Method
IPCC 2021 GWP100 V1.03

Product	Amount	Unit	Project	Comment
MSE 433 Tutorial	1	p	MSE433 - Tutorial	

Current library
Ecoinvent 3 - allocation, cut-off by classification - unit
Replacing library
Ecoinvent 3 - allocation, cut-off by classification - unit

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 Exclude long-term emissions

Monte Carlo stop criterion
 Fixed number of runs
 Use stop factor
 Seed value

1000
0.005
Value
Inventory result (Air/(unspecified)/Water/m3, CN-ECGC)

Keep the unit library

Help Calculate Close

What if we want to see the flow in more details?

