

ライフサイクルアセスメント  
生命週期評估  
전 과정 평가  
வாழ்க்கை வட்டப் பகுப்பாய்வு  
ارزیابی چرخه عمر  
Evaluarea Ciclului de Viață  
Posuzování Životního Cyklu  
Bizi zikloaren analisi  
Olelusingi hindamine  
Lífsferilsgreining  
Levenscyclusanalyse  
Livscyklusvurdering  
Livscykelanalys  
Elinkaariarviointi



Environmental Impact of LCA consulting  
The case of ESU-services

Niels Jungbluth  
ESU-services Ltd, Schaffhausen  
[www.esu-services.ch](http://www.esu-services.ch)



81st Swiss Discussion Forum LCA  
Wädenswil, Switzerland  
15.9.2022

# Environmental Impact of LCA consulting

## The case of ESU-services

Niels Jungbluth  
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## Problem and Aim

- We tell our customers about the environmental impact they cause, now they ask us the same
- What is the environmental impact of doing a project with ESU-services?
- What should be included in such an assessment?
- Can you compare you consultant by the impact?

# About us

A photograph of four people standing in front of a building. From left to right: a man with dark hair and glasses wearing a light blue t-shirt and holding a green bag; a man with glasses and a beard wearing a grey zip-up jacket; a woman with blonde hair wearing a red hoodie; and a man with dark hair wearing a white t-shirt. The building behind them has white walls, brown shutters, and arched windows.

Clients from  
industry, NGOs,  
administration,  
universities

25+ years and  
350+ projects  
experience in life  
cycle assessment



Company  
database with  
more than ten  
thousands of  
datasets

All economic sectors covered

## We provide...

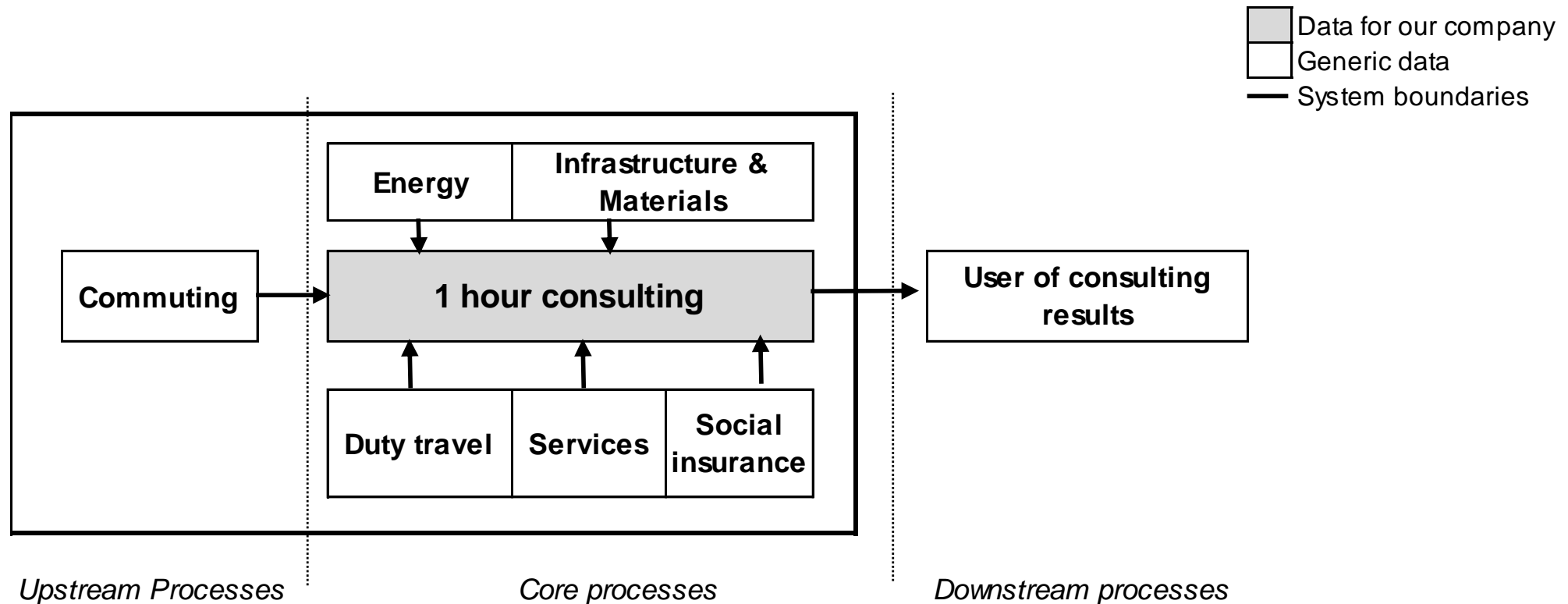
- Full studies, e.g. ISO-compliant LCAs, OLCA, CF, EPD & PEF
- Simplified assessments, e.g. Screening LCA, ecoprofiles, key parameter models, etc.
- Databases and single datasets (data-on-demand)
- LCA software (SimaPro), training & coaching
- Critical peer reviews, validation & verification

## Methodology for our reporting

- Product category rules (PCR) for environmental science, engineering research and development services (2012, not valid anymore, lack of interest)
- **LCIA** method changed over time: e.g. Ecological Scarcity (13, 21), environmental footprint (EF 3.0) and Global Warming Potential (13, 21)
- Declared unit: 1 hour of consulting service
- No verification



# System boundaries



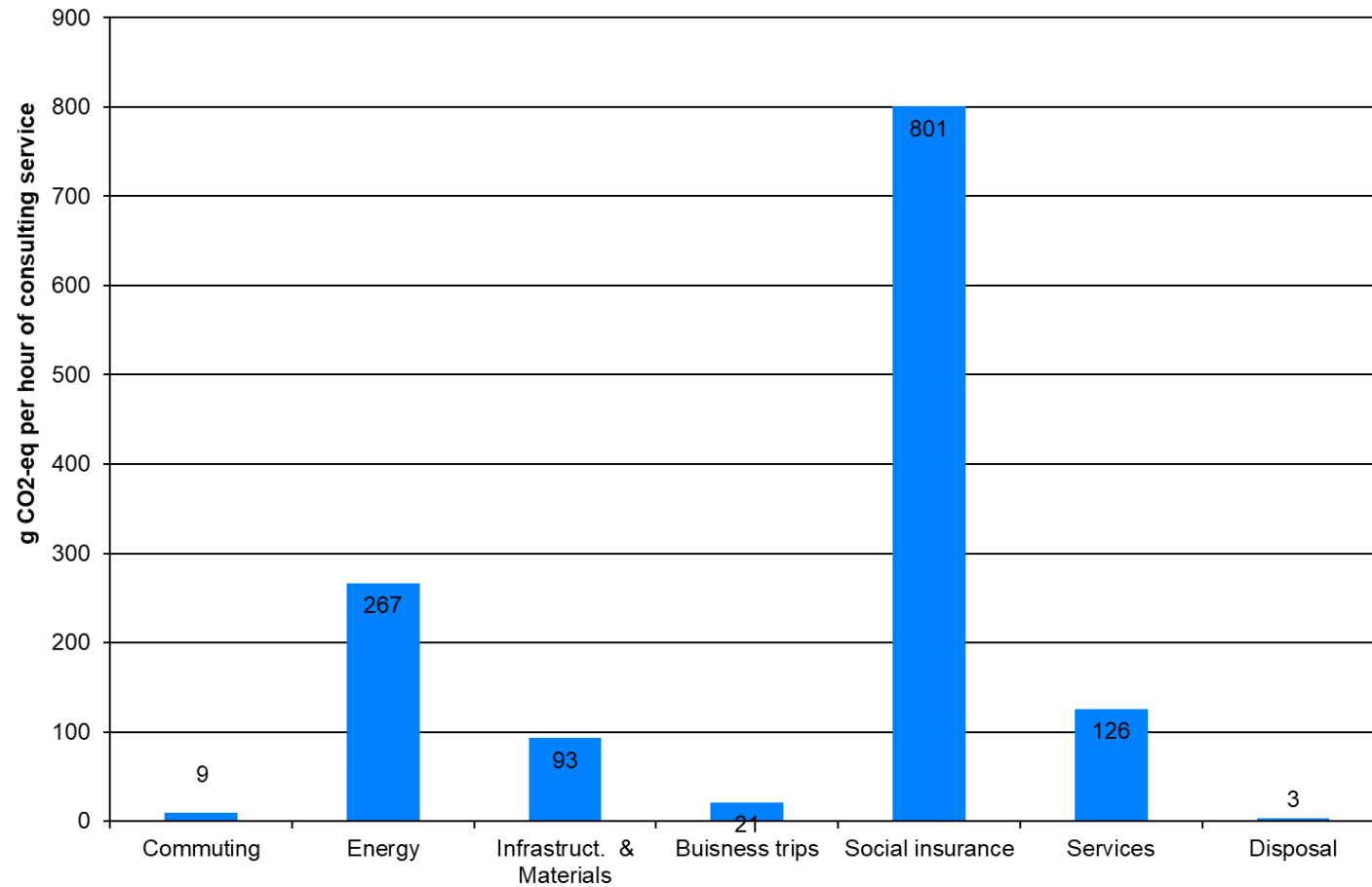
- LCI includes what ESU pays for: energy, rent, person transports, some consumables (paper, tea, coffee), internet, social insurances, commuting (paid as GA)
- Not including wages, AHV pension funds and SimaPro licences distributed (no ownership)

## Inventory data

- Foreground data: Financial accounting, bills for electricity and heating, billets for travelling, own electricity measurements and estimations
- Background data:
  - ESU service's internal database (based on UVEK'18)
  - Swiss Environmental-Extended Input-Output-Analysis (EE-IOT), DF45
- No (carbon) compensation measures to avoid wrong incentives

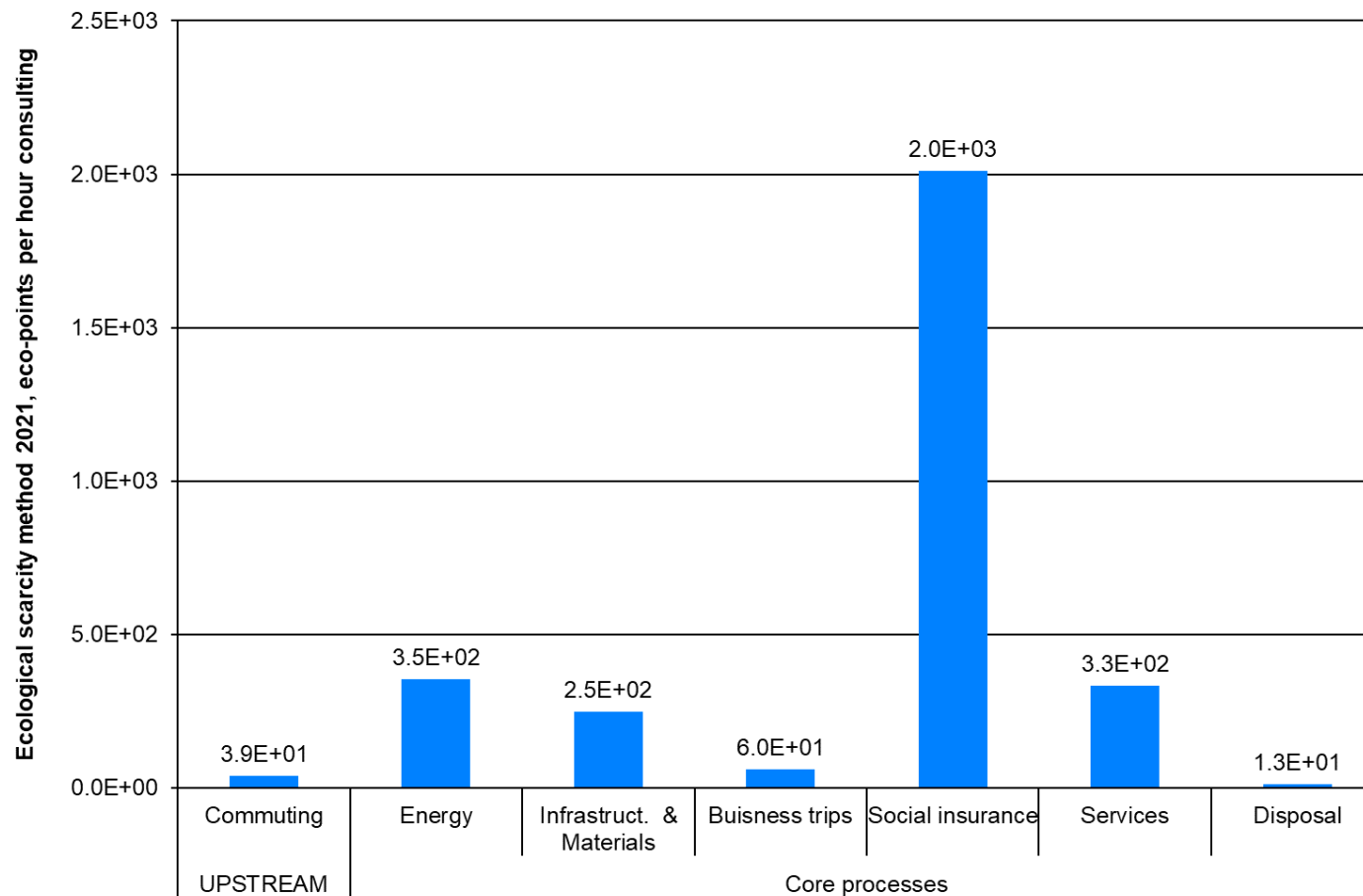


## Carbon footprint in 2021



➤ Reduced impacts from commuting and business trips due to Corona crisis

# Eco-points'21 in 2021



➤ Social insurance highly relevant

## Social insurances

- Pension funds, accidents and coverage of long-term health costs
- Estimated with EE-IOT data
- For the direct benefit of employees (partly paid out later as pension)
- Not considered in PCR
- Choice of insurance companies is an administrative decision, but no environmental differentiation possible

## Learnings

- Business trips → huge increase of online meetings, business trips by train instead of airplane
  - Commuting depends on where employees live and is therefore an individual decision → facilitate home office
  - Certified electricity from local hydro power and PV
  - Several barriers for the choice of office building and heating (availability vs. wishes of staff)
- Highlight: We discovered that invoicing was based on the wrong electricity meter → much too high bill for the night consumption

## Development over the years

- Annual reports 2015-2021 published on <https://esu-services.ch/news/reporting/>
- Major improvement areas were known before and already followed
- Structural changes (move of office from Zürich to Schaffhausen, number and place of living of employees, corona crisis and home office), type of projects (EU projects with more travelling activities) overlap the influence of real decisions

## Enabling project specific reporting

Calculation of impacts per project		Expenses	Greenhouse gas emissions	Ecological scarcity method
			kg CO2-eq	UBP'21
Time budget consultancy	d	12.3	128	295'024
Train trips, CH	km	100	1	3'010
Train trips, DE	km	500	25	42'938
Airplane travel	km	-	-	-
Hotel nights	-	2	62	96'137
<b>Total</b>			<b>216</b>	<b>437'109</b>

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➤ Travel and hotel nights calculated separately from consultancy time



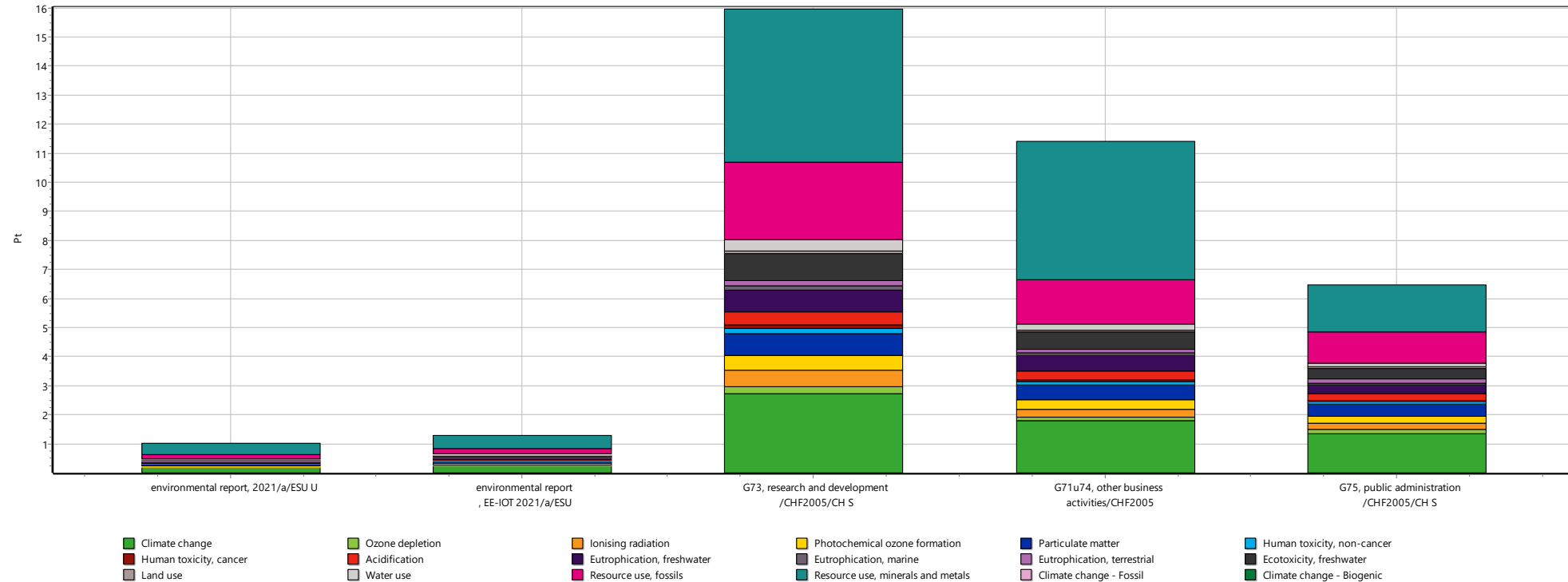
## Feedback and interest by customers

- Some interest shown by applicants for open positions
- Never mentioned as a relevant criteria in the competition for projects
- So far not much request for project specific reporting

## Second calculation: Environmental Extended Input-Output-Analysis

- Accounting according to the annual balance sheet for spendings (not including personal costs)
- Spending categories in bookkeeping so far do not match very well with EE-IOT
- No differentiation for means of energy and transports possible
- Direct emissions e.g. of oil heating difficult to balance

# Environmental footprint in 2021



Method: EF 3.0 Method (adapted ESU) V1.02 / EF 3.0 normalization and weighting set / Single score  
Comparing processes:

- Results for LCA and EE-IOT not to far away (still main issue insurances)
- Huge difference to similar categories in EE-IOT
- Much lower purchases of materials at ESU-services



## Three overarching questions



1) The biggest challenge concerning the analysis of the service was ...

*To calculate the impacts of heating in a rented office with  
accounting period over the full winter*

*Inclusion of services paid for (insurances, software) directly  
benefiting staff and customers*



## Three overarching questions



2) My main recommendations are

... for the choice of functional unit of LCA consulting

*Apply the PCR for services (one hour of consulting service)*

...for the choice of system boundaries of LCA consulting

*Take your balance sheet expenses as a basis, excluding wages  
and separating insurances*

## Three overarching questions



3) I see the following major differences between LCA's of services & common LCA's of products:

*Use EE-IOT for estimating impacts from service inputs is more relevant, but quite uncertain*



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In case of any questions, please contact:

Dr. Niels Jungbluth, CEO - Chief Executive Officer  
ESU-services Ltd. - fair consulting in sustainability  
Rheinstrasse 20  
CH-8200 Schaffhausen  
[www.esu-services.ch](http://www.esu-services.ch)  
tel +41 44 940 61 32  
[jungbluth@esu-services.ch](mailto:jungbluth@esu-services.ch)