"REFUND" PROJECT
LIFE CYCLE ASSESSMENT OF GREEN BONDS AND FUNDS

Fonds National de la Recherche Luxembourg
REFUND Project grant O19/13947579

AVOIDING GREENWASHING WITH ADEQUATE SUSTAINABILITY MEASUREMENT

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2023

LE GOUVERNEMENT DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de l'Environnement, du Climat et du Développement durable
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DID YOU EXPERIENCE NOT TRUSTING THE SUSTAINABILITY CLAIMS OF A INVESTMENT PRODUCT?

AND WHAT WAS THE REASON?

WHAT IS LIFE CYCLE ASSESSMENT ? AND HOW CAN IT SUPPORT SUSTAINABLE FINANCE ?

SUSTAINABILITY ASSESSMENT IN SUSTAINABLE FINANCE

impact over the life cycle

"take into account the life cycle, including evidence from existing life-cycle assessments, by considering both the environmental impact of the economic activity itself and the environmental impact of the products and services provided by that economic activity, in particular by considering the production, use and end of life of those products and services"

Article 19 (g), REGULATION (EU) 2020/852 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088

multi-criteria impact analysis

The six environmental objectives that this Regulation should cover are: climate change mitigation; climate change adaptation; the sustainable use and protection of water and marine resources; the transition to a circular economy; pollution prevention and control; and the protection and restoration of biodiversity and ecosystems.

"compliance with minimum safeguards should be a condition for economic activities to qualify as environmentally sustainable."

(23) REGULATION (EU) 2020/852 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088

LIFE CYCLE IMPACT ASSESSMENT

COMPLETE SET OF ENVIRONMENTAL IMPACTS

ecoinvent Database

As the world's most consistent and transparent life cycle inventory database, the ecoinvent database supports environmental assessments of products and processes worldwide.

Goal and scope

e.g. LCA of a car of typology X, assuming a use for Y years, produced in country Z, ect.

LCI - Life Cycle Inventory

For each stage of a product life cycle (e.g. resource extraction, manufacturing, use, etc.) data on **emissions into the environment** (e.g. CO_2, benzene, organic chemicals) and **resources used** (e.g. metals, crude oil) are collected in an inventory.

Each emission in the environment and resource used are then characterised in term of potential impact in the LCIA, covering a number of impact categories.

LCIA - Life Cycle Impact Assessment

CLIMATE CHANGE

EUTROPHICATION

LAND USE

RESOURCE DEPLETION

ACIDIFICATION

OZONE DEPLETION

ECOTOXICITY

IONISING RADIATION

PHOTOCHEMICAL OZONE FORMATION

WATER DEPLETION

HUMAN TOXICITY

Areas of protection

- Human health
- Ecosystem health
- Natural resources

Interpretation

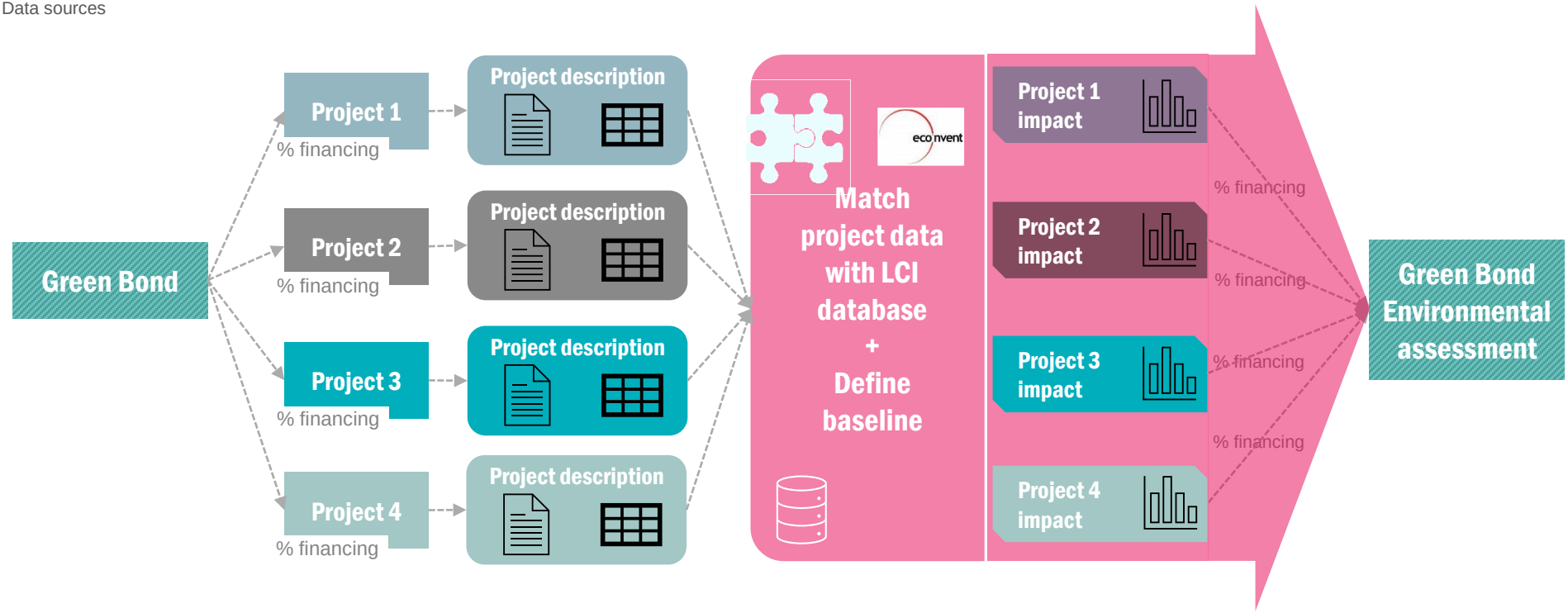
Sala S., Reale F., Cristobal-Garcia J., Marelli L., Pant R. (2016), Life cycle assessment for the impact assessment of policies, EUR 28380 EN; doi:10.2788/318544

EF impact category	Impact category indicator (unit)	IO-based environmental flows & ReCiPe method
Climate change, total	GHG emissions, GWP100 ($kgCO_2$ eq)	CO2, CH4, N2O, SF6, HFC, PFC
Human toxicity, cancer	Comparative Toxic Unit for humans (CTUh)	Benzo(a)pyrene, PCDD_F, HCB, As, Cd, Hg, Ni, B(a)P, Pb, PCDD/F
Human toxicity, non-cancer	Comparative Toxic Unit for humans (CTUh)	HCB, As, Cd, Cu, Hg, Ni, Pb, Zn
Particulate matter	Impact on human health (DALYs)	PM2.5, CO, SOx, NH3, TSP
Photochemical ozone formation, human health	Tropospheric ozone concentration increase (kg NMVOC eq)	CH4, SOx, CO, NMVOC
Acidification	Accumulated Exceedance (mol H+ eq)	SOx, NOx, NH3
Eutrophication, terrestrial	Accumulated Exceedance (mol N eq)	NH3, NOx
Eutrophication, marine	Fraction of nutrients reaching marine end compartment (kg N eq)	NH3, N
Ecotoxicity, freshwater	Comparative Toxic Unit for ecosystems (CTUe)	Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, PCDD_F, HCB, As, Cd, Cr, Hg, Cu, Ni, Pb, PAH, B(k)F, Benzo(k)fluoranthene, Se, Zn, B(a)P, Indeno, PCDD/F, NMVOC
Land use	Land-use related biodiversity loss (global PDF years)	Land use, crop, forest, pasture
Water use	Water stress (m^3 of H_2O equivalents)	Water consumption
Resource use, minerals and metals	Material footprint (tonnes of cultivated biomass, extracted mineral ore and fossils)	Extraction Used

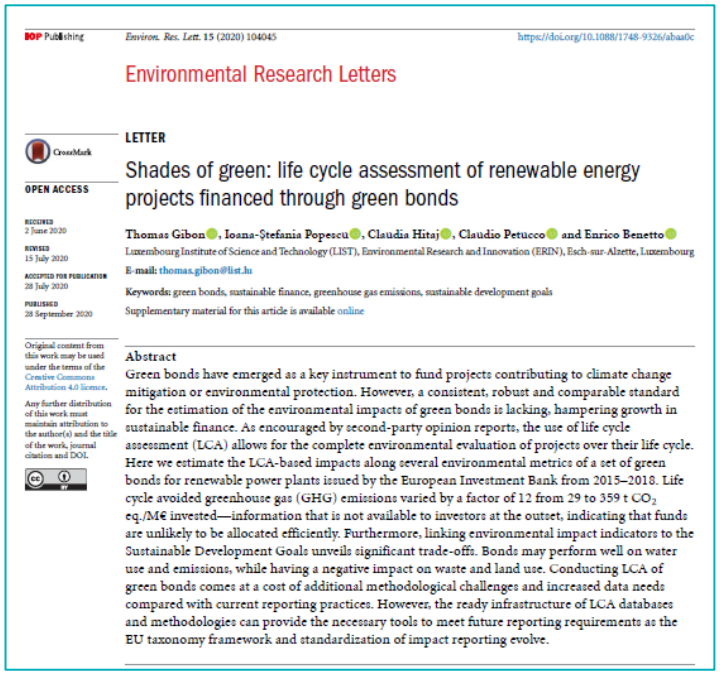
DEMYSTIFING SUSTAINABILITY ASSESSMENT – GREEN BONDS

LCA BASED METHODOLOGY: FOCUS ON PROJECTS

Data sources



ADDITIONALITY AND CHOICE OF REFERENCE PRODUCT



IOP Publishing Environ. Res. Lett. 15 (2020) 104045 https://doi.org/10.1088/1748-9326/abaa0c

Environmental Research Letters

LETTER

Shades of green: life cycle assessment of renewable energy projects financed through green bonds

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Keywords: green bonds, sustainable finance, greenhouse gas emissions, sustainable development goals

Supplementary material for this article is available online

OPEN ACCESS

RECEIVED 2 June 2020

REVISED 15 July 2020

ACCEPTED FOR PUBLICATION 28 July 2020

PUBLISHED 28 September 2020

Abstract

Green bonds have emerged as a key instrument to fund projects contributing to climate change mitigation or environmental protection. However, a consistent, robust and comparable standard for the estimation of the environmental impacts of green bonds is lacking, hampering growth in sustainable finance. As encouraged by second-party opinion reports, the use of life cycle assessment (LCA) allows for the complete environmental evaluation of projects over their life cycle. Here we estimate the LCA-based impacts along several environmental metrics of a set of green bonds for renewable power plants issued by the European Investment Bank from 2015–2018. Life cycle avoided greenhouse gas (GHG) emissions varied by a factor of 12 from 29 to 359 t CO_2 eq./M€ invested—information that is not available to investors at the outset, indicating that funds are unlikely to be allocated efficiently. Furthermore, linking environmental impact indicators to the Sustainable Development Goals unveils significant trade-offs. Bonds may perform well on water use and emissions, while having a negative impact on waste and land use. Conducting LCA of green bonds comes at a cost of additional methodological challenges and increased data needs compared with current reporting practices. However, the ready infrastructure of LCA databases and methodologies can provide the necessary tools to meet future reporting requirements as the EU taxonomy framework and standardization of impact reporting evolve.

sample of green bonds (climate awareness bonds) from the European Investment Bank

What is the impact attributable to the bond, on a series of indicators?

What would happen without the green bond investment?

If we have a renewable electricity project, do we consider as reference scenario the current electricity mix, or the electricity mix that we foresee for when the project would be in operation?

Thomas Gibon et al 2020 Environ. Res. Lett. in press
https://doi.org/10.1088/1748-9326/abaa0c

GREENWASHING RISK - CONCERNS REGARDING USE OF PROCEEDS

China expected to allow green bonds to fund clean coal projects in potential blow to climate change fight

- China consumes half of the world's coal and generates 60 per cent of its electricity from coal
- The move would put the world's largest emitter of greenhouse gases at odds with the European Union on green financing standards

Li Jing
Published: 8:00am, 12 Sep, 2019

- clean coal would be better than an inefficient coal plant, but is it what we aim to finance with a green bond project?

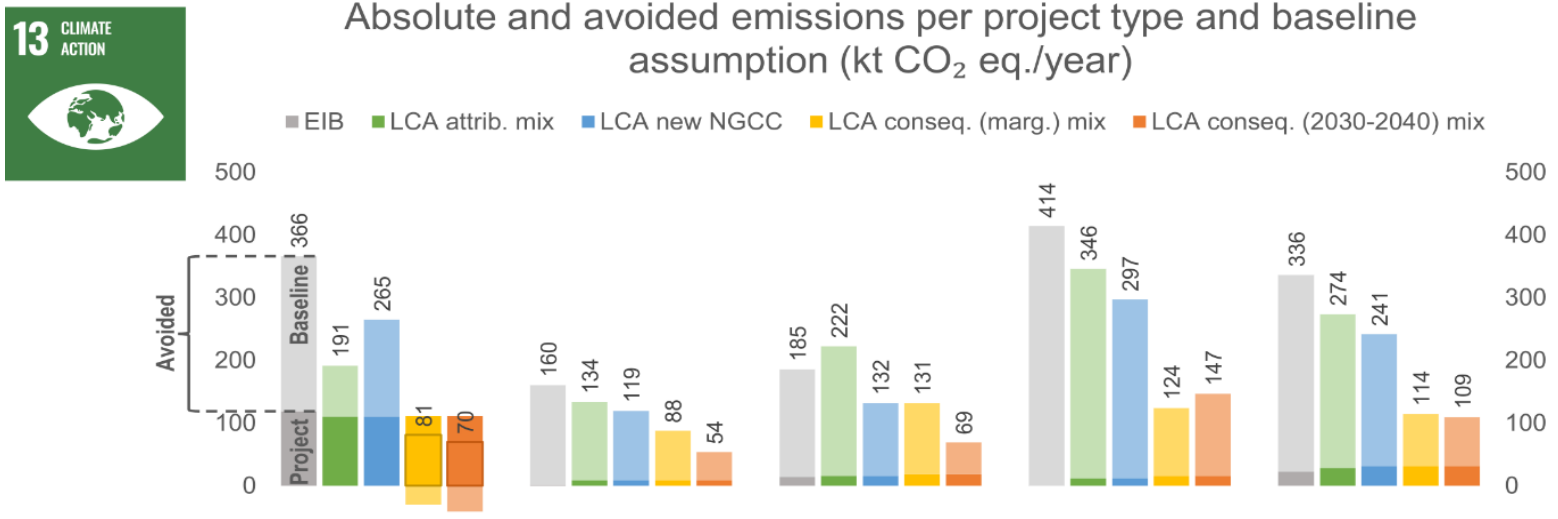
Teekay preps 'green bond' to fund new oil tanker fleet

By Owen Sanderson 01 Oct 2019

Teekay Shuttle Tankers has mandated a $150m "green bond" to fund new oil tankers built to the firm's "e-shuttle" standards. The deal raises questions about the logic of using green-branded debt instruments to fund fossil fuel extraction.

The bond has been assessed as "light green" by second-opinion provider Cicero.
Cicero describes such bonds as being climate friendly, but that they do "not by themselves represent or contribute to [a] long-term vision. These represent necessary and potentially significant short-term [greenhouse gas] emission reductions, but need to be managed ...

INFLUENCE OF THE CHOICE OF BASELINE ON AVOIDED EMISSIONS



	CHP	Hydropower	Solar	Wind	All
Number of projects	10	7	11	33	61
Avg investment (M€)	376	258	486	673	543
Avg capacity (MW)	188	301	112	204	196

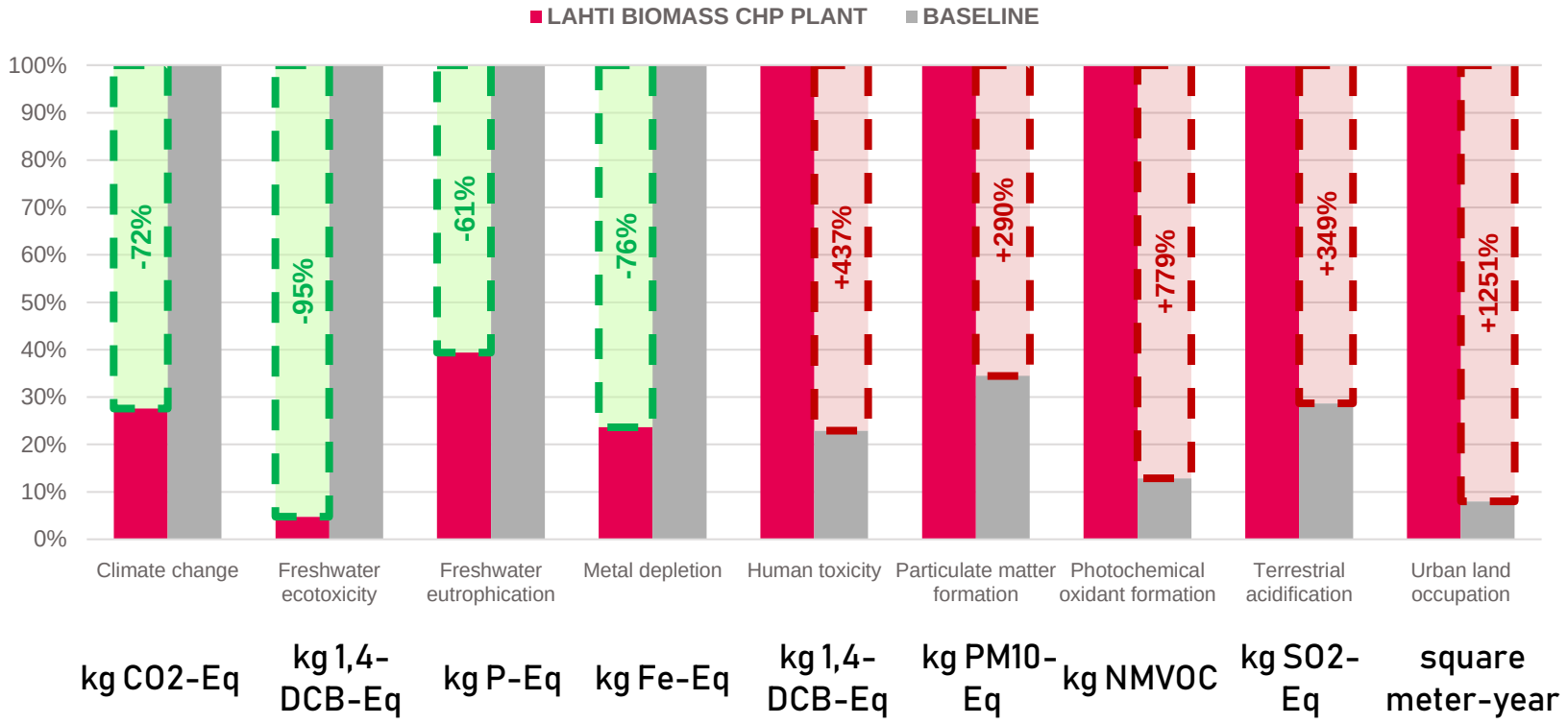
Thomas Gibon et al 2020 Environ. Res. Lett. in press
https://doi.org/10.1088/1748-9326/abaa0c

GREENWASHING RISK - CONCERNS REGARDING USE OF PROCEEDS

Amazonians protest at the construction of the Belo Monte hydroelectric dam in Brazil. The use of a green bond to fund the controversial Jirau Dam in 2014 raised questions about the lack of scrutiny and regulation.
© Lunae Parracho/Reuters

- are the effects on all stakeholders addressed in the impact assessment of the project ?
- social considerations start to be part of sustainable finance regulations, such as the EU Taxonomy

EIB GREEN BONDS & LCA IMPACT ANALYSIS Multicriteria. Co-benefits and trade-offs



Project Details. CHP biomass-fired plant at Kymijärvi in Lahti. The plant will provide 4.5 TWh of electricity to the national grid and heat to the district heating system in the city (***feedstock in this example: dedicated crops***)

Thomas Gibon et al 2020 Environ. Res. Lett. in press
https://doi.org/10.1088/1748-9326/abaa0c

EIB GREEN BONDS & LCA IMPACT ANALYSIS. THE IMPACT AT BOND LEVEL

CAB	CAB in sample (EURm)	CAB in Sample from total CAB value allocated by EIB proceeds 2015-2018 (%)	Climate Change	Freshwater ecotoxicity	Freshwater eutrophication	Human toxicity	Metal depletion	Relative Particulate matter formation	Relative photochemical oxidant formation	Terrestrial acidification	Urban land occupation
USD CAB due 24/05/2027	585.75	43%	208.52	27.56	79.0	88.0	20.9	143.2	221.1	259.6	-1006.2
SEK CAB due 20/01/2021	73.98	68%	36.34	26.22	54.2	167.0	19.0	127.4	273.7	230.5	1646.5
TRY CAB due 27/03/2019	46.85	55%	93.54	26.26	69.9	152.2	21.7	102.3	252.3	115.1	1287.4
EUR CAB due 15/11/2023	466.30	24%	215.02	17.78	83.6	140.2	12.3	268.2	351.4	294.1	-1.3
AUD CAB due 12/01/2023	185.63	38%	188.61	17.60	67.4	172.6	20.1	167.8	401.1	192.2	1127.7
SEK CAB due 19/07/2022	74.61	24%	113.01	22.08	70.7	-111.1	14.8	-18.2	-496.1	-314.1	-8444.0
EUR CAB due 18/05/2029	289.56	58%	136.67	23.93	79.3	9.2	17.2	125.1	-92.4	55.7	-4091.4
USD CAB due 15/10/2024	574.64	72%	124.29	30.72	130.1	251.1	22.4	407.2	686.9	1011.3	2704.7
USD CAB due 13/04/2026	572.08	44%	242.65	17.27	182.7	192.8	13.2	343.6	496.8	685.3	2177.6
EUR CAB due 15/11/2047	531.17	43%	308.83	22.28	164.2	161.0	14.2	415.3	295.3	382.6	-10931.6
CAD CAB due 18/01/2023	272.75	59%	333.43	15.07	122.9	129.2	9.0	425.9	365.4	387.6	-14616.4
CAD CAB due 16/09/2021	142.36	42%	212.43	16.41	207.4	133.4	15.3	203.2	229.6	468.9	-448.3
EUR CAB due 13/11/2037	606.77	54%	128.86	26.97	112.5	140.0	19.5	179.6	213.2	258.4	229.2
SEK CAB due 02/03/2027	141.60	61%	230.70	25.09	142.8	189.6	17.7	323.6	429.1	490.7	1500.5
SEK CAB due 30/01/2025	75.72	48%	508.15	24.55	131.7	106.3	16.0	433.1	717.3	1189.5	192.1
AUD CAB due 03/02/2028	268.23	38%	448.91	27.00	193.0	54.2	17.1	339.8	326.7	818.2	-2845.8
GBP CAB due 07/03/2020	811.34	45%	157.47	20.93	71.9	9.4	15.9	116.7	-31.4	46.5	-3938.6
EUR CAB due 13/11/2026	506.99	38%	131.87	24.29	102.0	184.4	18.1	239.5	401.1	436.0	958.7
SEK CAB due 13/11/2023	56.04	37%	158.60	19.00	56.2	118.2	16.0	106.3	294.2	183.4	878.1
ZAR CAB due 12/03/2018	11.03	75%	61.91	39.77	105.9	183.5	32.8	98.5	174.0	-26.9	1150.7
ZAR CAB due 15/09/2017	45.87	71%	30.31	19.35	47.1	175.7	17.1	129.8	310.2	238.3	1925.3
SEK CAB due 23/04/2019	78.57	100%	126.08	39.51	41.9	-448.6	31.2	-357.8	-1521.5	-1371.4	-22223.3
EUR CAB due 15/11/2019	196.30	49%	105.15	27.86	167.6	241.9	19.9	525.1	862.3	1573.3	2807.2
SEK CAB due 24/07/2020	20.49	77%	142.64	- 0.60	6.3	18.3	0.9	45.7	194.6	142.8	225.6

FINANCING THE GREEN TRANSITION... OR NOT?

Finally, Natixis CIB arranged the financing of the **largest green hydrogen production site, NEOM** Green Hydrogen Project, in Saudi Arabia, powered entirely by renewable energy. PFI awarded it the title of "Middle East & Africa Green Deal of the Year".

Yet Saudi Arabia **promised to increase oil production** just weeks after making headline green pledges for this year's COP26 climate conference. The energy minister Prince Abdulaziz bin Salman **reportedly said** the Saudis wouldn't stop pumping: "We are still going to be the last man standing, and every molecule of hydrocarbon will come out."

LIFE CYCLE ASSESSMENT FOR MEASURING IMPACT OF INVESTMENT FUNDS

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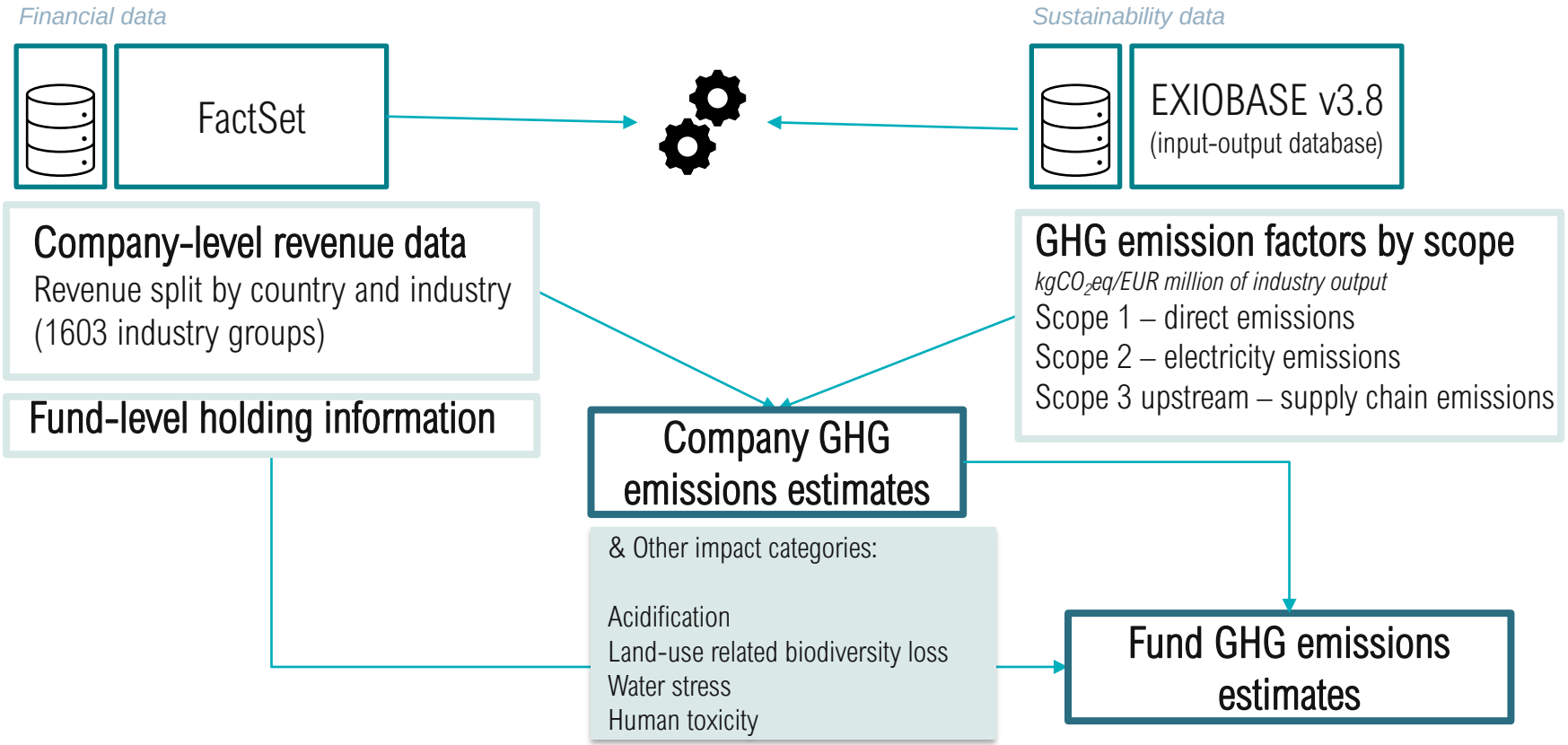
METHODOLOGY & DATA FOR CLIMATE CHANGE IMPACTS

DATA SOURCES AND MODEL STRUCTURE



IOLCA-ESTIMATED SUSTAINABILITY DATA – COVERAGE

- large coverage of listed companies (30,000 companies in year 2020) & time series data 2012 – 2021
- model can be adapted to compute impact for any company, needed data: revenue breakdown (production) by region and industry
- full range of environmental indicators and one social indicator: **GHG emissions, acidification, particulate matter, human toxicity, eutrophication, land use, water use, resources use, vulnerable employment**
- Scopes covered: scope 1, scope 2, scope 3 upstream **GHG emissions** and direct, indirect impact for other indicators
- results expressed as absolute values or intensity (per MEUR invested / per MEUR of revenue)

MODEL OUTPUT – LIFE CYCLE GHG EMISSIONS ESTIMATES FOR COMPANIES AND FUNDS

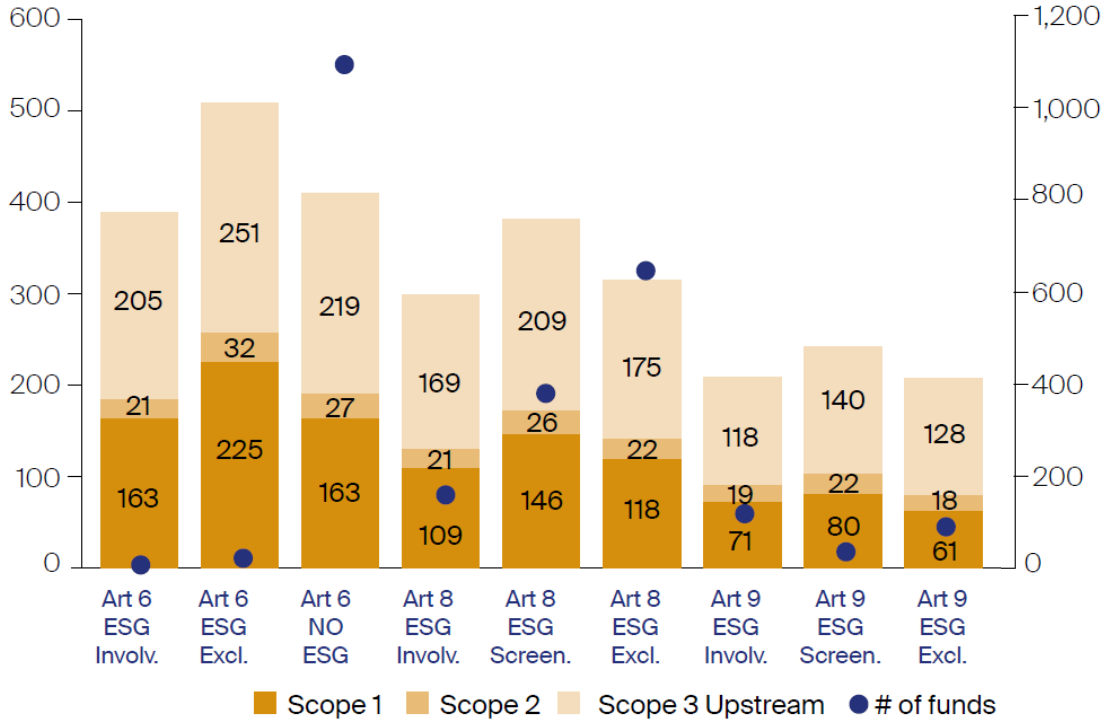
COMPANY	WACI – Weighed average Carbon Intensity (tCO_2-eq/MEUR)				reporting year
	scope 1	scope 2	scope 3 upstream	life cycle	
Saudi Arabian Oil Co.	1,267	77	575	1,919	2018
Agilysys, Inc. (software)	10	17	65	92	2018
iHeartMedia, Inc.	54	32	145	231	2018
CytomX Therapeutics, Inc.	130	74	235	439	2018
SG Fleet Group Ltd. (fleet mgmt.)	25	20	166	211	2018

FUND	RCF – Relative Carbon Footprint (tCO_2-eq/MUSD invested)				reporting year
	scope 1	scope 2	scope 3	life cycle	
State Street Europe Small Cap ESG Screened Equity Fund	104	20	196	321	2018
AMUNDI MSCI EMU ESG LEADERS	133	27	222	382	2018
iShares Developed World ESG Screened Index Fund (IE)	112	17	133	263	2018
Lyxor MSCI Europe ESG Leaders	108	21	172	301	2018
State Street Emerging Markets Small Cap ESG Screened Equity	639	214	643	1,497	2018

Including indirect scope 3 emissions doubles or even triples total carbon exposure of an investment fund

APPLICATION – SAMPLE OF SFDR SELF-LABELLED FUNDS DOMICILED IN LUXEMBOURG

Exhibit 65: Relative Carbon Footprint for the funds sample, in tCO2-eq/mUSD invested (GWP100) (averages by fund category)



https://lsfi.lu/sf-luxembourg-study/

Source: Luxembourg Institute of Science and Technology (LIST)

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DEMYSTIFING SUSTAINABILITY ASSESSMENT – GREEN/ESG INVESTMENT FUNDS

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UNDERLYING INVESTMENTS OF AN ESG FUND

Fund | iShares MSCI Europe ESG Screened UCITS ETF

CPRS /unit Classification based on Battiston et al. (2017)[1]	Total company revenue exposure *mEUR*	Market value held *mUSD*	Scope 1	Scope 2	Scope 3	Life cycle
			tCO_2-*eq*			
3-energy-intensive	2,041,664	125	9,447	2,943	18,587	30,976
7-finance	1,731,529	63	982	354	3,601	4,936
9-other	885,785	33	606	397	4,052	5,055
4-buildings	273,327	14	229	83	1,389	1,701
5-transportation	663,606	12	465	420	4,731	5,616
1-fossil|oil	553,133	11	6,925	571	15,142	22,639
2-utility|electricity	363,058	7	10,164	1,440	3,247	14,851
1-fossil|gas	97,605	4	1,187	225	1,448	2,861
5-transportation|air	59,031	1.4	843	8	279	1,130
1-fossil-fuel	138,769	1.3	2,086	243	1,117	3,446
5-transportation|other	34,457	1.3	40	11	106	157
5-transportation|roads	20,865	0.78	4	4	80	89
1-fossil|coal	118,802	0.74	9,863	225	2,812	12,900
2-utility|water&sewerage	12,436	0.65	6	44	71	121

- "ESG screened fund" does not ensure the investor that the investment fund is sustainable
- some "sustainable" funds still hold investments in polluting companies
- quantitative rather than qualitative indicators should be analysed when making an investment decision
- assessment usually includes only the direct commitments of a holding, without looking at the impact over the life cycle of the company

[1]Battiston, S., Mandel, A., Monasterolo, I., Schütze, F., Visentin, G., 2017. A climate stress-test of the financial system. Nat. Clim. Chang. 7, 283–288. https://doi.org/10.1038/nclimate3255

SFDR ARTICLE 9 VS ARTICLE 8 IMPACT AND EXPOSURE

BREAKDOWN OF FUND IMPACT USING CPRS INDUSTRY CLASSIFICATION

SFDR Article 9 fund
sustainable goals as their objective

CPRS2 sector	Holdings' revenue	MV held by fund	Scope 1 & 2 impact share		Scope 3 impact share	
	mEUR	*'000 USD*	*tCO2-eq.*		*tCO2-eq.*	
3-energy-intensive	287,629	144,364	7,644	*33%*	14,980	*62%*
9-other	222,974	66,754	834	*3.6%*	3,121	*13%*
7-finance	60,185	45,689	475	*2.1%*	1,116	*4.6%*
5-transportation	861	12,619	74	*0.3%*	170	*0.7%*
4-buildings	7,695	6,852	61	*0.3%*	283	*1.2%*
2-utility|electricity	34,757	4,510	13,865	*60%*	4,490	*19%*
2-utility|waste	377	2,403	9	*0.0%*	78	*0.3%*
1-fossil|oil	35	5	3	*0.0%*	1	*0.0%*
1-fossil|gas	14	2	3	*0.0%*	2	*0.0%*

SFDR Article 8 fund
promoting sustainability characteristics

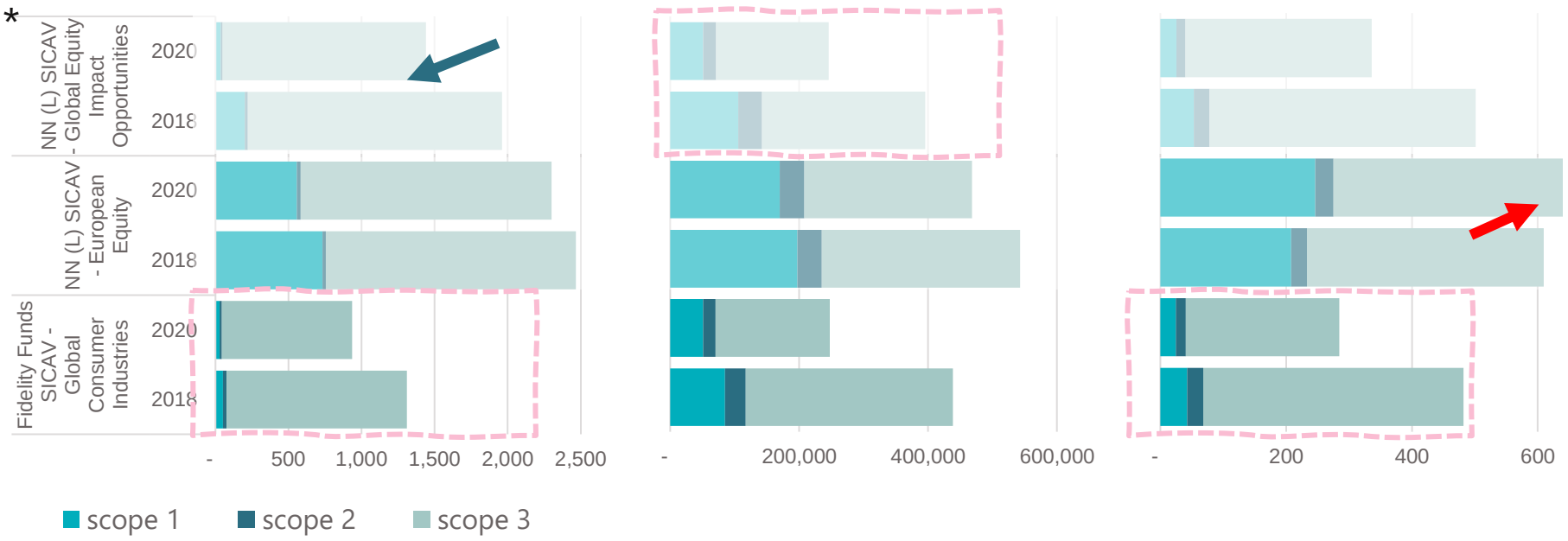
CPRS2 sector	Holdings' revenue	MV held by fund	Scope 1 & 2 impact share		Scope 3 impact share	
	mEUR	*'000 USD*	*tCO2-eq.*		*tCO2-eq.*	
3-energy-intensive	535,592	74,092	8,438	*27%*	10,499	*30%*
7-finance	513,047	33,346	419	*1.3%*	2,034	*5.9%*
9-other	244,320	22,360	575	*1.8%*	1,817	*5.2%*
1-fossil|oil	706,699	13,819	14,951	*48%*	28,341	*82%*
2-utility|electricity	156,778	12,249	12,296	*39%*	4,680	*13.5%*
4-buildings	75,471	11,051	409	*1.3%*	3,312	*9.5%*
5-transportation	322,840	8,527	908	*2.9%*	5,061	*14.6%*
2-utility|waste	5,626	2,744	461	*1.5%*	302	*0.9%*
5-transportation|air	5,040	2,699	389	*1.2%*	184	*0.5%*
1-fossil|gas	19,859	1,180	1,107	*3.5%*	844	*2.4%*
5-transportation|roads	9,156	423	9	*0.0%*	74	*0.2%*
1-fossil|coal	8,835	415	1,308	*4.2%*	520	*1.5%*
1-fossil-fuel	11,230	378	279	*0.9%*	358	*1.0%*
6-agric. etc|agriculture	2,133	166	32	*0.1%*	64	*0.2%*
6-agric. etc|forestry	320	36	3	*0.0%*	3	*0.0%*

ADDITIONAL ENVIRONMENTAL INDICATORS | LINK TO EU TAXONOMY ENVIRONMENTAL OBJECTIVES

Freshwater aquatic ecotoxicity

GHG emissions

Particulate matter



Sample selection: 3 Article 9 funds listed on LGX

LIFE CYCLE ASSESSMENT OF INVESTMENT FUNDS AND THEIR HOLDINGS
SUMMARY OF THE TOOL

- Estimation method for life cycle GHG emissions (and other sustainability impact categories), based on Input-Output (IO) Life Cycle Assessment (LCA), or IOLCA and company-level detailed revenue data, used as proxy to build the country-industry exposure profile of a company and investment fund
- The main novelty compared to previous tools and literature is using a detailed country and sectorial breakdown of companies' revenue, sourced from the FactSet database combined with regionalized industry emission factors from the Environmentally Extended Multi-Regional IO (EEMRIO) database EXIOBASE

Benefits

- Accounts for all impacts happening in supply chain and production phase (no cut-off)
- Ability to cover a very large universe of companies (95% sample coverage, compared to 17% coverage in company self-reported data)
- Homogenous method across industries and thus companies
- Uses real and verified trade data and emissions

Limitations

- Assumes the same production recipe for all companies under the same country industry class
- There are uncertainties in the data from the input-output databases that are transmitted to the company-level estimates
- Emissions intensity is expressed in monetary terms and thus absolute emissions are influenced by the price level of a company

ARE MEASUREMENT TOOLS AT INVESTMENT FUND LEVEL FIT FOR PURPOSE ?

- measurement tools should be science-based
- difficulty in adapting product-level tools to investment products

Sustainability Performance Measurement		Criteria							Total score
Level 2 Family of methods	Level 3/4 Specific Measurement Tool	Double Materiality	Reliability	Life cycle consideration	Comprehensiveness of impact categories	Compatibility with SBTs	Prospectiveness	Investor's additionality	(equally weighted criteria)
Carbon footprints and exposure metrics	Carbon Footprint	1	1	0		0	0		2
	Trucost Carbon Scorecard	2	2	2	1	2	2		11
	IO-based Carbon Footprint	2	1	3		0	0		6
	Weighted Average Carbon Intensity	1	2	0		0	0		3
Alignment with low-carbon pathways	Carbon Impact Analytics (CIA)	2	1	2		1	1		7
	PACTA	2	2	1		3	3	1	12
ESG ratings	Proprietary ESG Scores and Ratings	0	1	0	2	0	1		4
	Free-to-search Ratings	2	2	1	2	0	1	1	9
Sustainability labels		1	2	0	2	1	1	1	8
Sustainability-based impact assessments	CISL Impact Framework	2	2	0	3	3	2		12
	Portfolio Impact Footprint	1	1	0	2	2	0		6
	Biodiversity Footprinting	3	2	3	2	1	0		11
	Net Environmental Contribution	3	2	3	2	2	0		12

Legend

- 0 *Criterion not addressed*
- 1 *Slightly addressing criterion*
- 2 *Good level of addressing the criterion*
- 3 *Best practice in addressing criterion*
- *Criterion not applicable for method*

Source:
Popescu, I.-S., Hitaj, C., Benetto, E., 2021. Measuring the sustainability of investment funds: A critical review of methods and frameworks in sustainable finance. J. Clean. Prod. 314, 128016. https://doi.org/10.1016/j.jclepro.2021.128016

UNPACKING POSITIVE IMPACT CREATION

Need to adopt forward-looking view – otherwise already low-carbon sectors are more and more popular to invest in, without contributing to climate transition

Public equity investment funds may not be the answer to positive impact creation, alternatives can be – private equity, blended finance, impact funds, green and sustainability-linked bonds

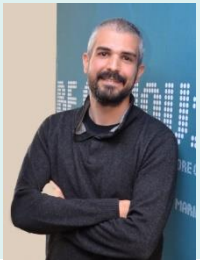
Measurement of impact should be differentiated by industry – a general metric may not be suited to measure impact across all industries

thank you

The “REFUND” project group at LIST


Enrico Benetto


Thomas Gibon


Claudio Petucco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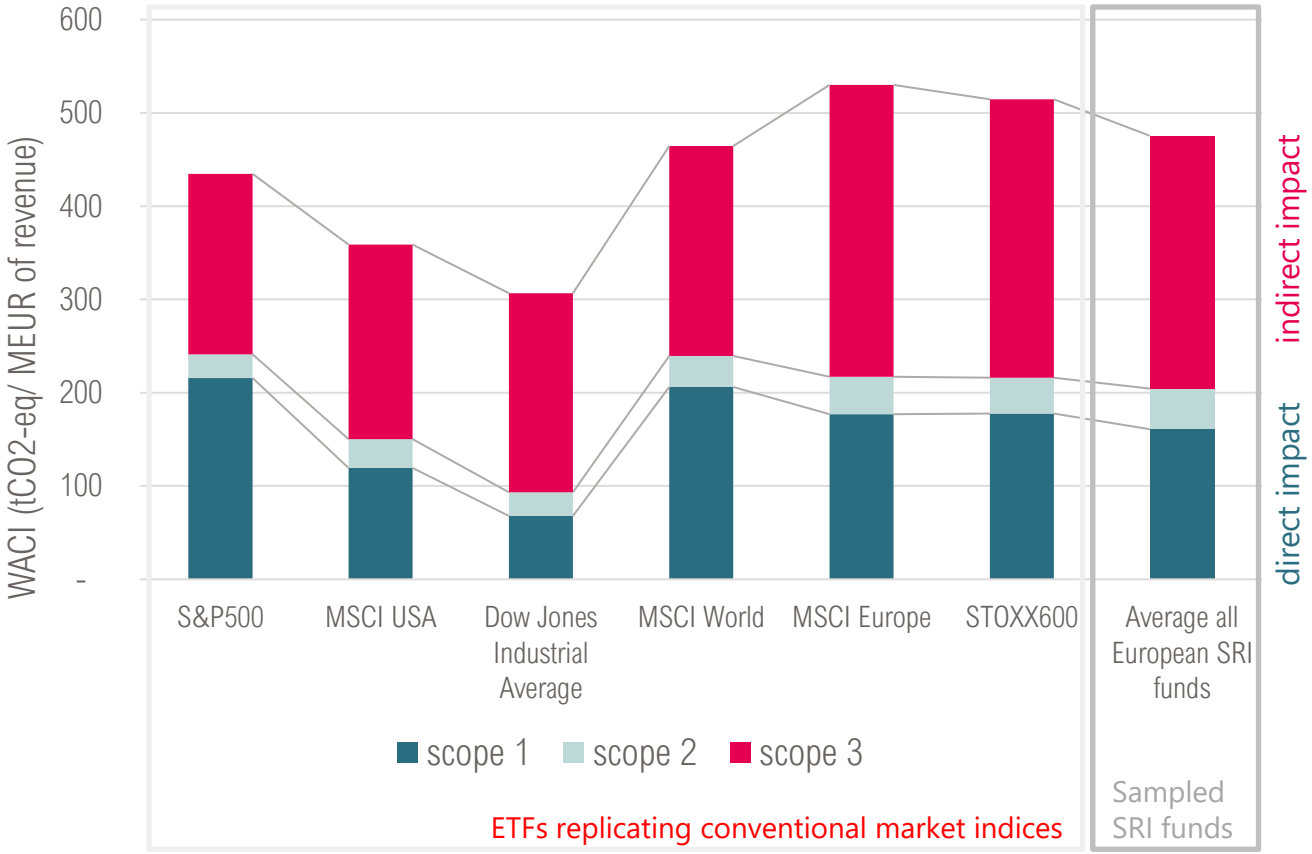
MODEL OUTPUT | COMPARING SUSTAINABLE FUNDS TO CONVENTIONAL INDICES

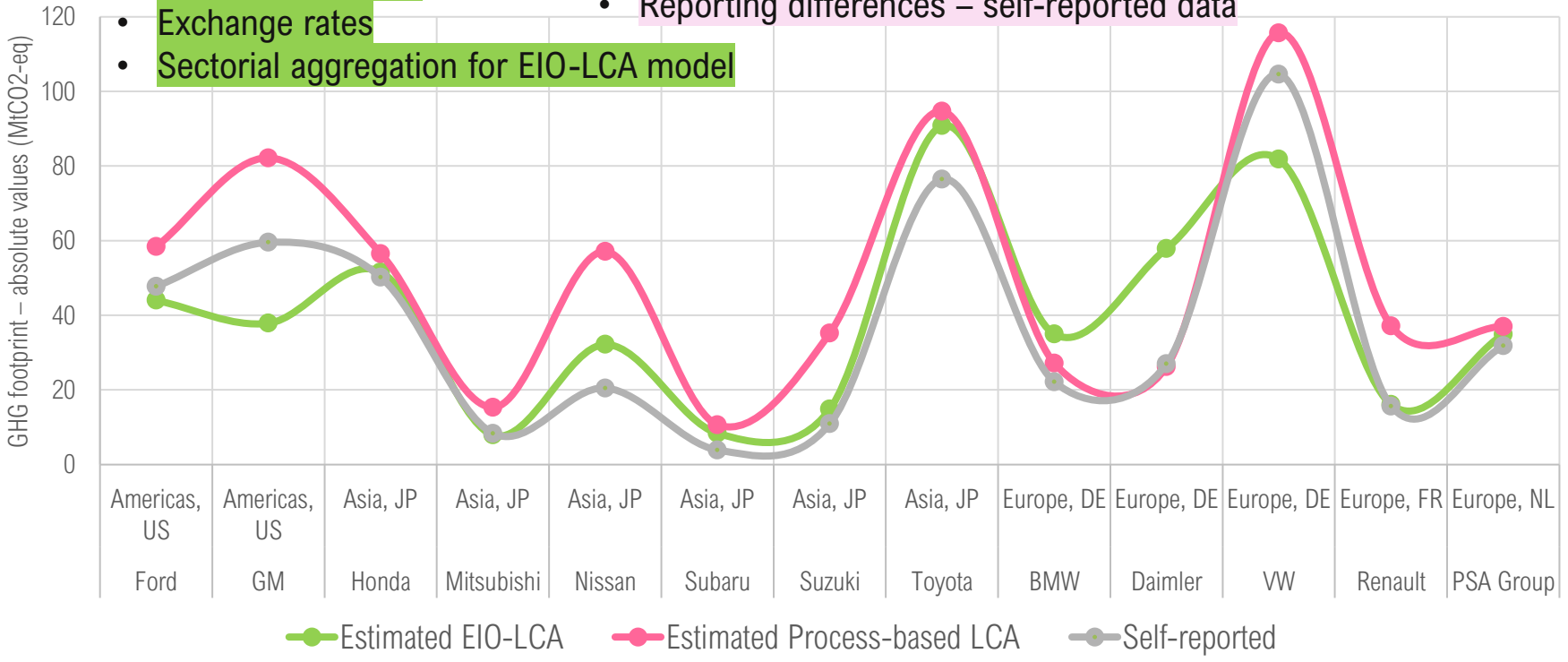


Including indirect scope 3 emissions doubles or even triples total carbon exposure of an investment fund

Validation of IOLCA estimation method in the Automobiles industry | Results – Estimated vs reported data

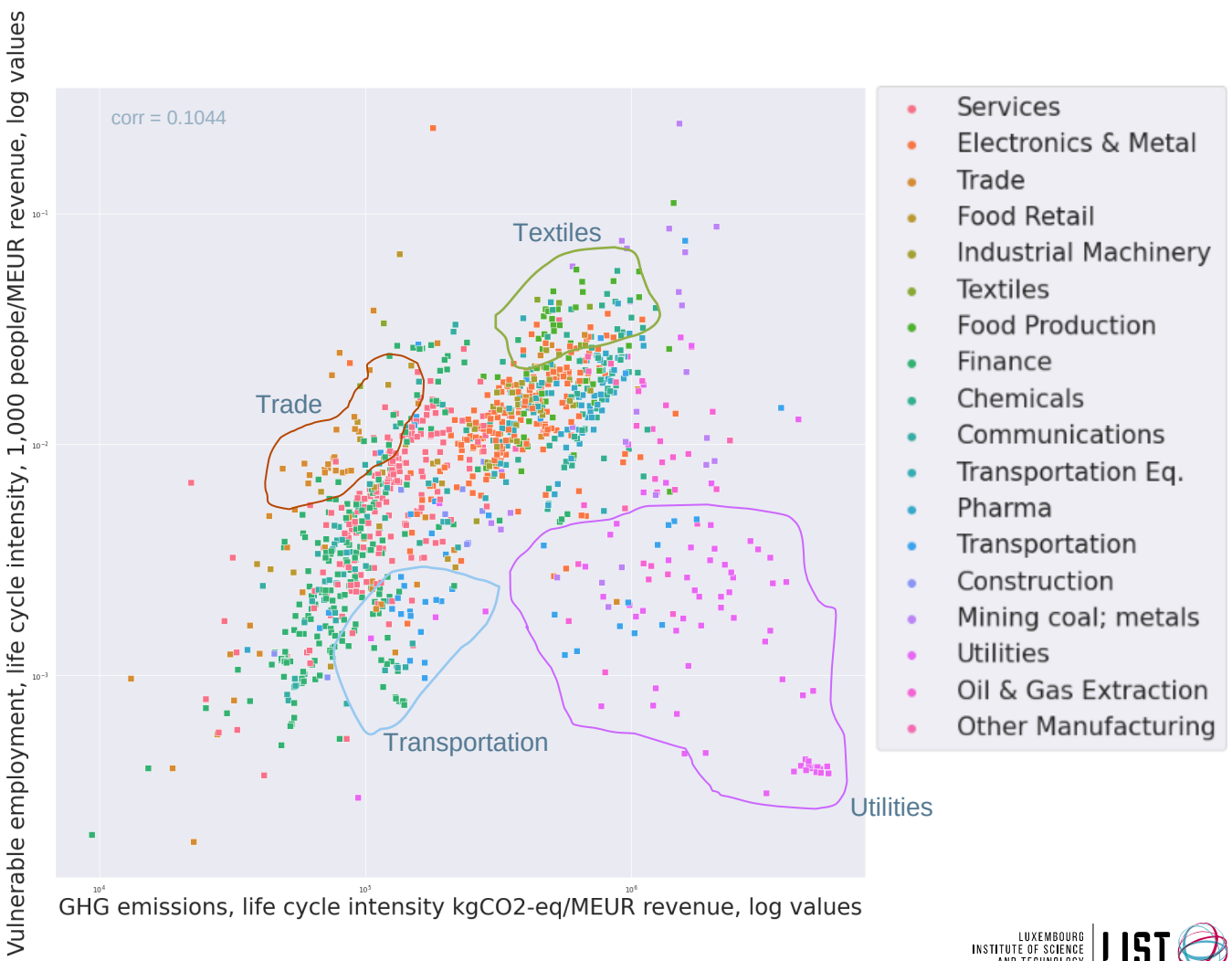
- Product price level
- Exchange rates
- Sectorial aggregation for EIO-LCA model

- Electricity mix
- Powertrain type (ICEVs vs BEVs vs PHEVs) and car size
- Reporting differences – self-reported data



RESULTS

Life cycle intensity, vulnerable employment and GHG emissions, for companies in the MSCI Climate Transition Index



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