

Estimating GPP impacts for the City of Berlin

Methodology for calculating potential economic and environmental savings

Ashleigh McLennan | Freiburg | 7th June 2022

Study on the effects of Green Public Procurement

Assessment of potential environmental and economic impact of GPP on behalf of the senate administration of the City of Berlin

- Identification of **15 product groups** and services with high environmental and cost relevancy
- Comparison of one conventional and one environmentally compatible product
- Extrapolation of results according to the public procurement volume of Berlin
 - CO² impacts (*mostly during the use phase*)
 - Lifecycle cost savings



Product Selection

- Computers
- Multifunction devices
- Paper
- Refrigerators
- Dishwashers
- Office lighting
- Textiles
- Cleaning products
- Buildings
- Flooring
- Electricity
- Streetlights
- Commercial waste management
- Vehicles (passenger cars)
- Construction machines



Conventional product: current state of art (identified using market reviews, eco-design guidelines, or consumer portals)

Environmentally compatible alternative: most environmentally friendly product available (where possible, using criteria of Blue Angel ecolabel)

Calculation of environmental impacts

- Calculation based on following costs:
 - Purchase price
 - Energy costs (electricity, heating energy, fuel)
 - Recurring costs for service
 - Costs of consumables, water costs
 - Disposal costs
- Period for LCC calculation based on:
 - depreciation period according to depreciation table for fixed assets (AfA table) or typical useful life
 - Calculation of annual costs using the net present value method

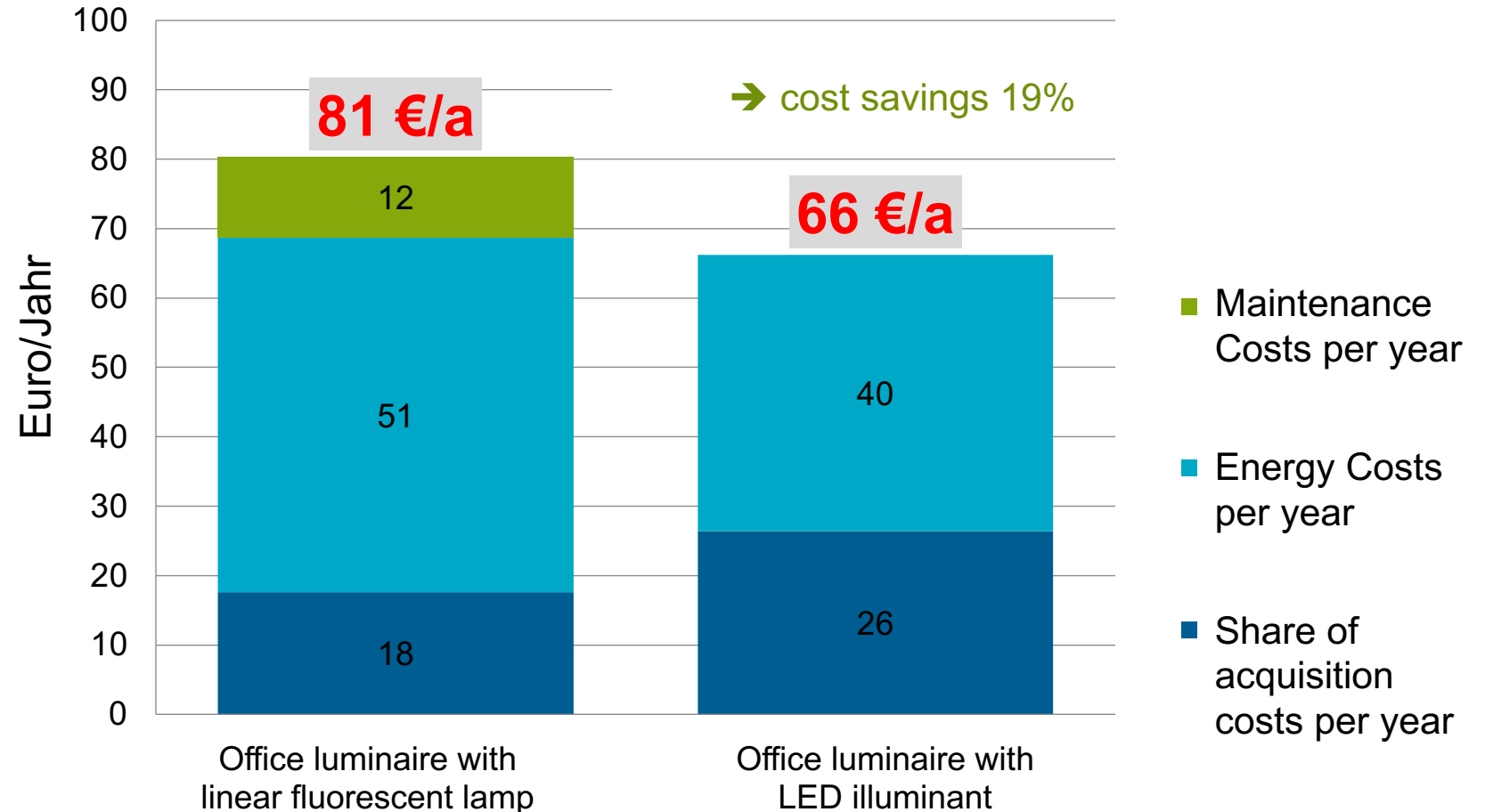
Example: Office luminaire for a workplace (1)



Economic and technical product characteristics	Unit	Office luminaire with linear fluorescent lamps	Office luminaire with LED light source
<u>Payments for the procurement of the products</u>			
Purchasing costs	€	264	396
<u>Information on the calculation of consumption-related costs</u>			
Luminous efficacy	lm/W	67	86
Power consumption	W	54	42
Useful life of the lamps	h	18.000	40.000
Number of replaceable lamps	Stück	3	None
Maintenance costs per illuminant	€	50	-
Service life of the luminaire	a	15	15

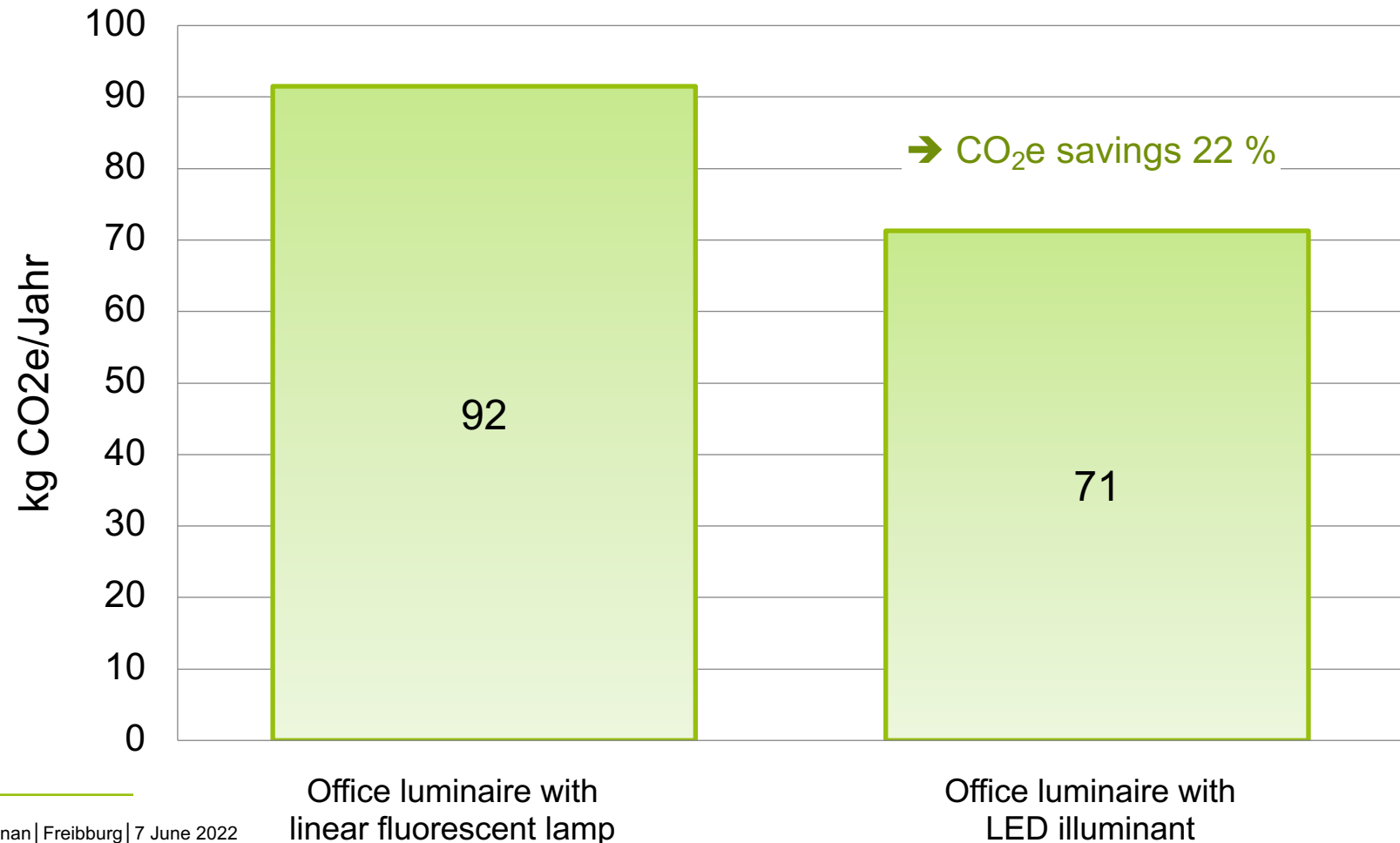
Example: Office luminaire for a workplace (2)

Comparison of annual life cycle costs



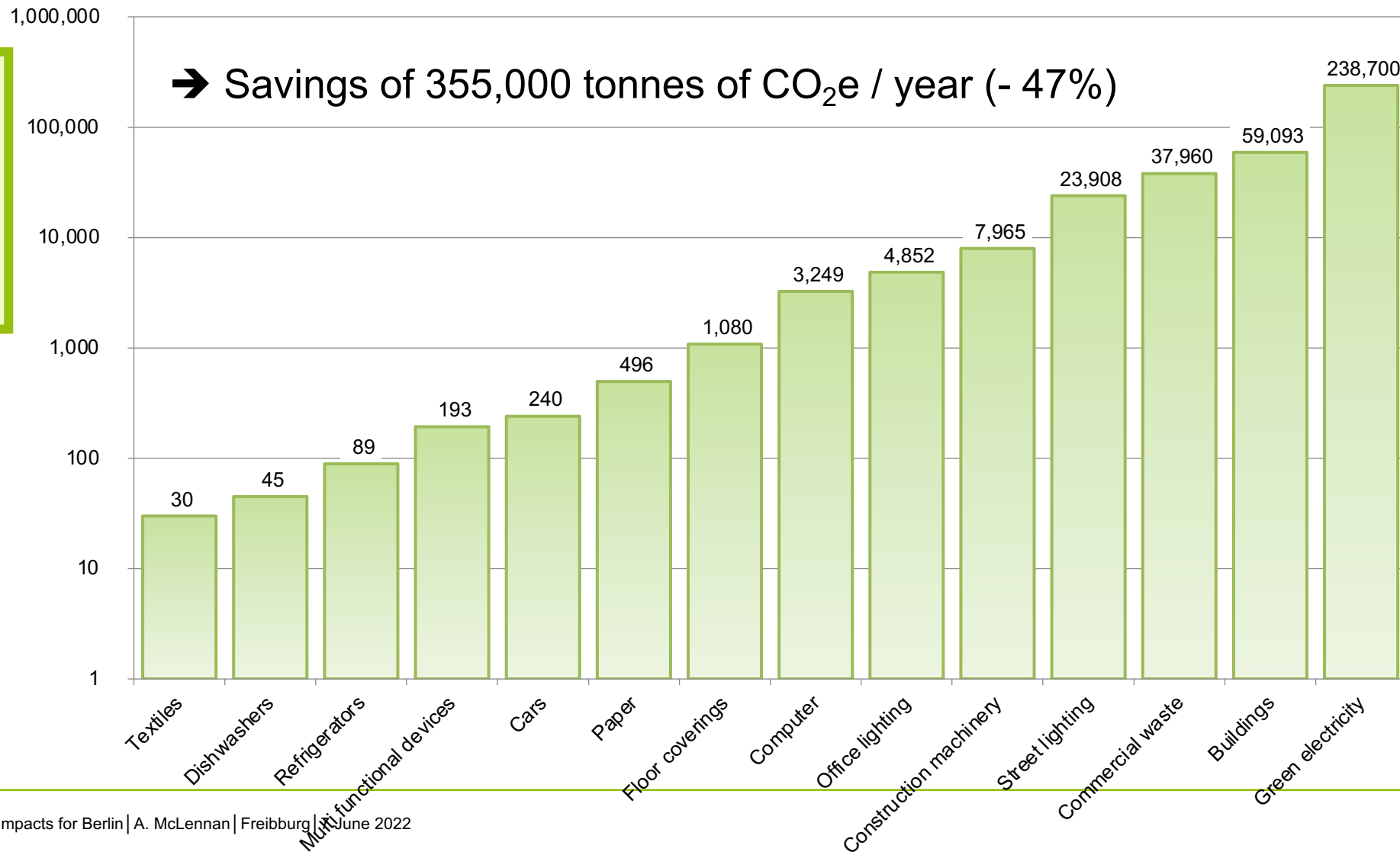
Example: Office luminaire for a workplace (3)

Comparison of CO₂-equivalent emissions



Extrapolation of CO₂ savings though energy efficient procurement in Berlin [t CO₂e/a]

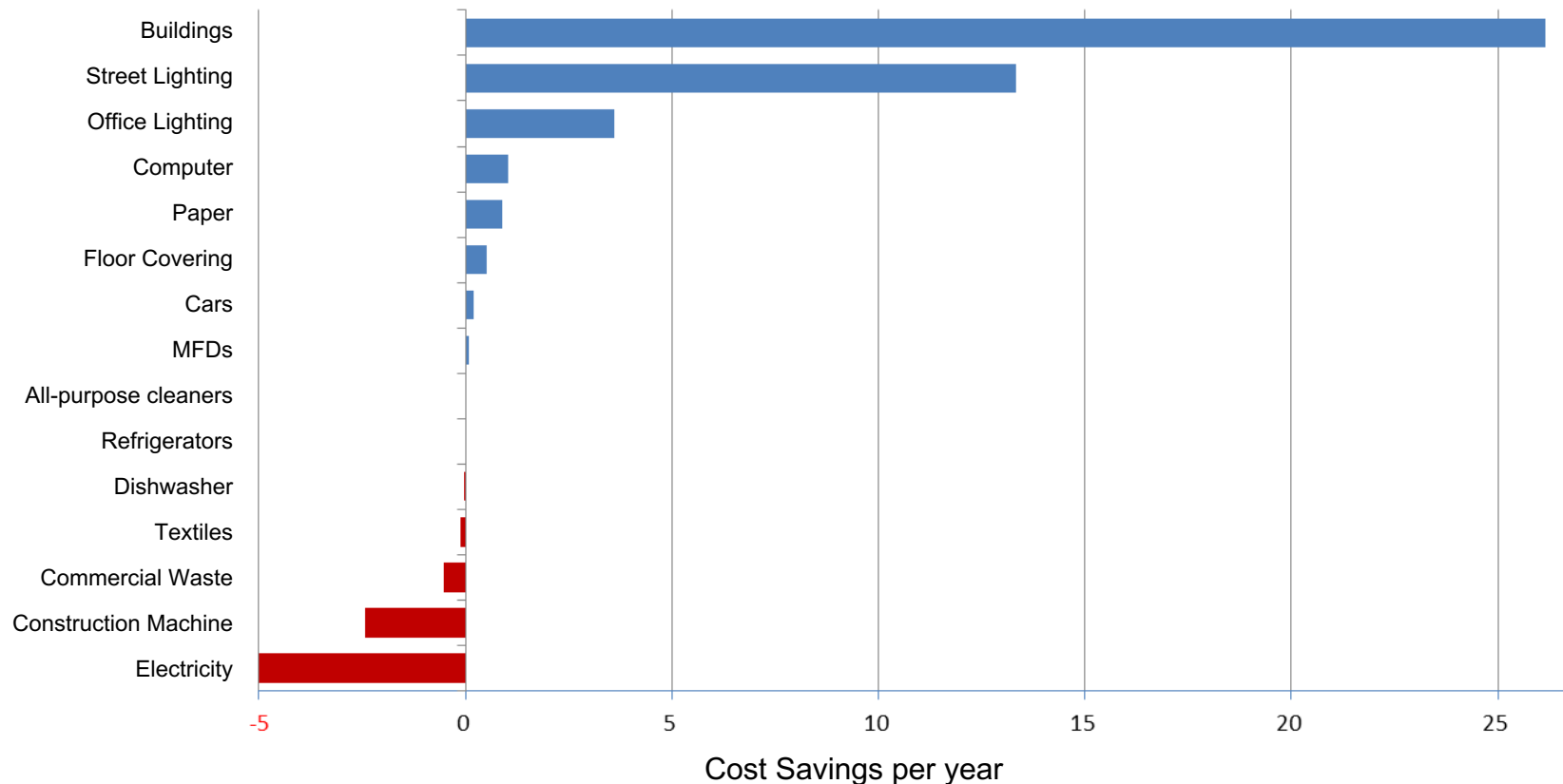
Extrapolation using estimates of annual Berlin procurement volumes



Extrapolation of cost savings through energy efficient procurement in Berlin [1,000€/a]

→ Overall savings of 38 million € / year

Extrapolation using estimates of annual Berlin procurement volumes



Further Information

- Studie „Umwelt- und Kostenentlastung durch eine umweltverträgliche Beschaffung“ des Öko-Instituts
 - Short version (German): <http://www.oeko.de/publikationen/p-details/umwelt-und-kostenentlastung-durch-eine-umweltvertraegliche-beschaffung-kurzfassung/>
 - Long version (German): <http://www.oeko.de/publikationen/p-details/umwelt-und-kostenentlastung-durch-eine-umweltvertraegliche-beschaffung-langfassung/>

LCC-Tool, Umwelt Bundesamt (German)

- <https://www.umweltbundesamt.de/dokument/berechnungswerkzeuge-fuer-lebenszykluskosten>

Thank you for your attention!

Ashleigh McLennan

Researcher

Öko-Institut e.V.

Geschäftsstelle Freiburg

Postfach 17 71

79017 Freiburg

Mail: a.mclennan@oeko.de