



Reuse of IT-appliances

Federal Procurement Agency, Austria

- Extension of the lifetime of those IT-appliances that are recovered.
- Generally, the highest amount of greenhouse gas emissions and energy consumption in the lifecycle of IT-appliances can be attributed to the production of IT-appliances. Thus, the re-use of IT-appliances considerably reduces the environmental impact.



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Benchmark

Purchase of new notebooks

- 2,831 tCO₂e/year
- 698 toe/year

GPP 2020

Platform for direct awards
Purchase of re-use-notebooks
(made possible by the recovery
of old IT-appliances)

- 1,223 t CO₂e/year
- 318 toe/year

Results

Savings:

- 1,608 t CO₂e/year
- 4,823 t CO₂e/3 years
- 380 toe/year
- 1,141 toe/3 years

Concluded Agreement

- Contractual object: recovery of old IT-appliances. The recovery includes the collection, the certified data deletion, the cleaning, the processing and the sale with profit share or the disposal of the IT hardware.
- The Service of the recovery of old IT-appliances is offered through the Federal Procurement Agencies' "Platform for Direct Awards" (DVP). This platform presents the suppliers with whom the Federal Procurement Agency (FPA) concluded a user agreement.
- Value: about 0.9 Million €/year (without VAT)



Approach for the establishment of the DVP

The DVP was established by a user agreement.

Technical Specifications:

The service covers the following modules: collection of appliances, certified data deletion, destruction of the data carrier, processing of the appliances, management of empty toner cartridges, remarketing, environmentally responsible disassembling or disposal, coaching and consulting on remarketing.

Selection criteria

Mostly environmental and social aspects were used as selection criteria for the listing on the DVP (for example a high share of workers with disabilities, extension of the lifetime of IT-appliances).

Contract clauses

The partners on the DVP develop customer specific individual recycling concepts that are subject to bilateral agreement.

Criteria development

IT-appliances (like Desktop-PCs, notebooks, printers or displays) that are to be disposed by public authorities are collected and checked by the suppliers. Usually, the suppliers offer the recovered devices for sale with a 2-years-warranty. Often schools or non-profit organisations buy these appliances. The environmental relief results from the fact that the buyer buys a re-used device instead of a new one.

Results

The table below offers information about the reduction of greenhouse gas emissions and energy due to the reuse of IT-appliances on the platform for direct awards. The calculation is based on the estimation that the platform for direct awards helps to recover 12,000 notebooks that were otherwise disposed of.



	CO ₂ e emissions	Energy consumption
Low Carbon Solution	1,223 t CO ₂ e	318 toe
Benchmark	2,831 t CO ₂ e	698 toe
Savings for 12.000 notebooks recovered per year	1,608 t CO ₂ e	380 toe
Total savings (Framework contract for a 3 years-period)	4,823 t CO ₂ e	1,141 toe

Calculation basis

Data about greenhouse gas emissions in the lifecycle of notebooks originates from the study (2011) „Timely replacement of a notebook under consideration of environmental aspects“. The Federal Agency of Environment in Germany commissioned the Öko-Institut e. V. and the Fraunhofer IZM with this study. According to the result, 214 kg CO₂e are emitted during the production of a model notebook. Data for another step in the lifecycle of the notebook, the distribution (39 kg CO₂e for the distribution and 1 kg CO₂e for the shopping trip), is not included, because transport is also necessary during the reuse of the IT-device. The end-of-life-phase is also not included because it is of minor significance (4 kg CO₂e emissions that have to be set off with a credit of 5 kg CO₂e from the energy recovery during the combustion).

Benchmark: We assume that the public authority procures new notebooks and uses these new notebooks for 4 years. The typical electricity consumption of the new notebook is 34.0 kWh/year.

Low-Carbon-Solution: Instead of buying new notebooks, reused notebooks are procured. The reused notebooks are used for 3 years. The typical electricity consumption of the reused notebook is 46.3 kWh/year (that is the number from the study mentioned above) and thus slightly higher than the electricity consumption of

the new notebook.

Emissions factor for the Austrian electricity mix: 0.280 kg CO_{2e}/kWh (Environment Agency Austria).

The savings of the Low-Carbon-Solution result from the renouncement of a new notebook (with a lifetime of 4 years) minus the emissions that derive from the higher typical electricity consumption of the reused notebook: Savings from a 3-years-use of the reused notebook = $3 * (214/4) \text{ kg CO}_2\text{e} - (3 * (46.3 - 34.0) \text{ kWh} * 0.280 \text{ kg CO}_2\text{e}/\text{kWh})$.

The calculation is based on the assumption that due to the platform for direct awards 30,000 IT-appliances passes to recovery. Furthermore, it is assumed that 60 % of these appliances would either have been recovered also without the DVP or are too damaged for being recovered and thus are disposed of by the supplier. The calculation of savings is therefore based on a recovery of 12,000 appliances per year.

Due to the lack of data for the energy consumption in the life cycle of the notebook, we assume the following: 50 % of the 214 kg CO_{2e} from the production phase come from electricity consumption (emission factor of 0.997 kg CO_{2e}/kWh for the national electricity mix in China) and 50 % from the combustion of natural gas (emission factor of 0.247 kg CO_{2e}/kWh).



Lessons learned

There seems to be a growing interest of the producers of IT-appliances in reuse concepts of recycling companies. It seems that cooperation is in the making to increase the number of reused IT-appliances.

There is a need for more information about the ecological, economic and social benefits of the reuse of IT-appliances.

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About GPP 2020



GPP 2020 aims to mainstream low-carbon procurement across Europe in support of the EU's goals to achieve a 20% reduction in greenhouse gas emissions, a 20% increase in the share of renewable energy and a 20% increase in energy efficiency by 2020.

To this end, GPP 2020 will implement more than 100 low-carbon tenders, which will directly result in substantial CO₂ savings. Moreover, GPP 2020 is running a capacity building programme that includes trainings and exchange. – www.gpp2020.eu

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About PRIMES



Across six countries in Europe; Denmark, Sweden, Latvia, Croatia, France and Italy, PRIMES project seeks to help municipalities overcome barriers in GPP processes, many of which lack capacity and knowledge.

PRIMES aims to develop basic skills and provide hands-on support for public purchasing organisations in order to overcome barriers and implement Green Public Purchasing. This will consequently result in energy savings and CO₂ reductions. – www.primes-eu.net



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