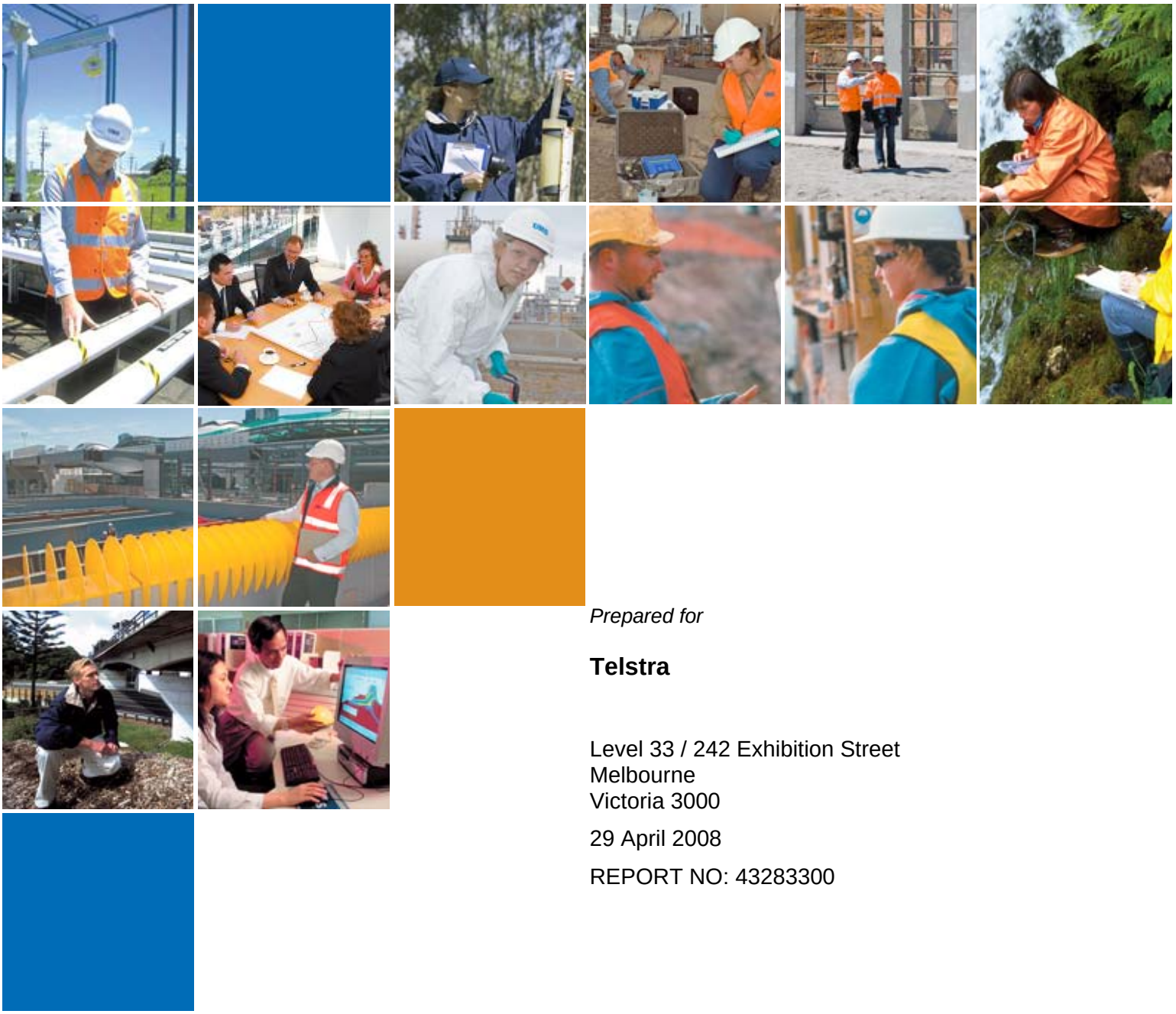
REPORT

Online Billing Life Cycle Analysis



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Executive Summary

This report contains the results of a comparative Life Cycle Assessment (LCA) undertaken to compare the environmental impacts from online billing and paper billing. The project has been completed to inform Telstra management and customers about the benefits of a customer choosing pure online billing over paper billing. Telstra, by employing LCA, has ensured that a robust analysis has been completed prior to publicly stating the environmental impacts of its products and services, in this case, of online billing compared to conventional paper billing.

ES 1 Key activities

The key activities associated with the two scenarios (online billing and paper billing) that were incorporated into the model include:

- preparation;
- distribution; and
- use of the bill by the customer.

ES 2 Model

The model considers two types of impacts associated with these activities: resource consumption and materials impact. Resource consumption captures the impacts associated with energy usage for different aspects of the scenario, such as powering the online billing servers. The material impacts are the impacts associated with embodied materials, i.e. the impacts associated with manufacturing and disposing of different pieces of equipment and products, such as the servers.

ES 3 Data collection

The data collected for the model was obtained from Telstra, its contractors and scholarly sources. The data was entered into SimaPro V7 software and combined with information from Australian databases (wherever feasible) in SimaPro to construct the LCA model. It is essential to note that the comparative LCA focuses on the differential use of resources between the two scenarios. As a consequence, it is not possible to read the results of this LCA as total values for either scenario. The results are relative. Anything common to both scenarios is considered as outside of the scope of the model (as they cancel each other out).

ES 4 Environmental impacts

The environmental impact categories considered were: global warming, human toxicity, abiotic depletion and land use. The impact categories for the comparative LCA indicate that the environmental burdens associated with online billing are less than those associated with paper billing. Key results are shown in Table ES-1. The data shows a comparison of the impacts associated with one online bill compared to one paper bill. The results illustrate that online billing contributes 25% less to the greenhouse effect, consumes 20% less fossil fuels and scarce metals, produces 125% less toxic substances and saves approximately 160% on land use.

Executive Summary

ES 5 Key findings

For every 1 million online bills received by customers instead of a paper bill, 18.9 tonnes of CO_2 equivalents is saved, 6 tonnes of fossil fuels and scarce metals, 32 tonnes of toxic substances and reduces the potential impact on land use by 20,000 PDF*cm^2*yr^1.

A sensitivity analysis was undertaken on the global warming impact and land use categories to test the model assumptions. The results indicated that the conclusion remains true in most cases and that the number of online bills produced is the most sensitive parameter that influences environmental impacts.

However, the results for the model are reversed (i.e. paper billing has a lower environmental impact than online billing) in the following instances:

1) less than approximately 70% of the base case number of online bills are actually produced, i.e. servers are used 30% below capacity;
2) the server energy consumption (including air conditioning) increases by 50% over the base case;
3) the ratio of energy consumption for the servers' air conditioners to energy consumption for the servers becomes greater than approximately 2:1;
4) approximately 95% of customers print their online bill; or
5) all paper bill customers recycle the paper associated with their bill.

Only outcomes 1, 3, 4 and 5 are considered likely and a number of recommendations have been made in response to these.

Table ES-1 Impacts of online billing compared to paper billing for one bill alongside comparative data

Impact category	Unit	Online billing	Paper billing	Difference between online billing and paper billing
Abiotic depletion (the consumption of energy sources and a number of scarce metals)	g Sb eq	0.5	0.6	0.1 (equivalent to the impact of the consumption of petrol by a car travelling 50 m)
Global warming (GWP100) (the potential contribution of a substance to the greenhouse effect)	g CO2 eq	71.6	90.5	18.9 (equivalent to the impact of the consumption of petrol by a car travelling 58 m)
Human toxicity (the effects of toxic substances on the human environment)	g 1,4-DCB eq	23.6	55.6	32 (equivalent to the total LCA impact of producing 73 mL of beer or 3 kg of wheat)
Land use (the change in land use affecting natural environment, particularly vascular plants)	PDF*cm^2*year	12.4	32.5	20.1 (equivalent to the life cycle impact of approximately one piece of paper)

[1] The effect a decrease in natural land use has on the number of vascular plants* (Potentially Disappeared Fraction) both locally and regionally over a certain area, within a certain time frame.

Executive Summary

The key recommendations include:

1) Server utilisation should be maximised (as close as possible to their capacity);
2) Consideration should be given to how to best reduce the amount of energy required to cool the online billing servers;
3) Customers should be encouraged not to print their online bill;
4) Communicate the outcomes to suppliers (particularly the print contractor and server supplier) and encourage them to reduce the environmental impacts of their products and services;
5) Review the bill content and structure with the aim of reducing the number of pages, graphics and ink required by the bill;
6) Communicate to clients how they can help reduce their environmental impacts; and
7) Consider buying green energy to offset the servers' energy use and further reduce the impact of online billing.

Section 1 Introduction

URS was engaged by Telstra Corporation to carry out a Life Cycle Assessment of the environmental impacts of online billing compared to paper billing.

1.1 Context

Many companies are now offering their customers the choice of receiving their bills electronically rather than in paper form. Consolidated statistics for the growth in online billing are difficult to find, however a number of companies have reported the number of online billing or electronic statement customers they have at different points in time. For example, Westpac note as at 30 September, 2006 it had approximately 200,000 customers who receive electronic statements[2] and the NTT Group in 2005 had approximately 3.6 million customers using an electronic billing reference service (NTT, 2006). The environmental impacts associated with shifting customers from paper bills to electronic bills are unclear. Westpac notes saving 41 tonnes of paper, and 103 tonnes of greenhouse emissions (Westpac, 2006). NTT states that they saved nearly 698.6 tonnes of paper resources (NTT, 2006). However this information only provides a very limited indication of the environmental impacts associated with online billing or electronic statements.

At the initiation of this project we undertook a desk top review to identify studies that considered the life cycle impacts of online billing and paper billing. A total of over 80 national and international databases including the RMIT based Informit databases and two groups of Thomson Dialog were searched, but no specific studies focused on online billing and paper billing were found. It was assumed that any work completed in the area has been done by private consultants for clients and the results have not been published in the public domain. There were however several studies that provide insights that can be applied to this project.

A case study based on Barclays Bank (Turk et al, 2003) exploring the environmental impact of e-banking versus traditional banking found that traditional banking had a far greater environmental impact (2.76 kg total material required per traditional bill-payment versus 1.09 kg per electronic bill-payment for e-banking). The biggest impacts for both scenarios were associated with building infrastructure and electricity consumption. The results relied on the assumption that e-banking was used as an alternative to traditional banking, and banks reduced their total physical assets accordingly. If e-banking was treated as complementary to traditional banking, then the total material requirement for e-banking becomes greater than that for traditional banking.

The environmental impact of telecommunication services was considered by Zurkirch and Reichart (2002) which examines one company's internal post service versus email. It was concluded that computer peripherals contributed the most to the environmental impact of telecommunications, rather than the transport of a letter or email transmission. For documents up to 15 pages, the impact of emailing the document was equivalent to the impact of posting it for up to 20 kilometres. The largest impact of postal mail comes from transportation, whereas for email it is the internet server, air conditioning of the network, and the computer itself.

Gard and Keoleian (2003), examined the impact of digital versus paper journal collections, which revealed conflicting results. Out of the five scenarios tested, digital journals proved more energy efficient in two, and neither medium had a superior energy performance in every case. The results were influenced most by the number of times a particular journal article was read.

[2] Westpac, 2006, pg 43

Section 1 Introduction

Gard and Keoleian's work is strengthened by a life-cycle analysis of online versus paper newspapers by Hischier and Reichart (2003), which obtained similar results. Hischier and Reichart found that the manufacture of the computer, and power consumption of the computer during use, individually contributed the most to the environmental impact. However, paper newspapers overall still had the highest environmental impact due to the high energy requirements of pulp and paper production. Changing the electricity mix altered the results significantly – changing from the Swiss energy mix (high use of renewable energy) to the average European energy mix tripled the impact of internet newspapers, making them worse for the environment than paper newspapers. The energy mix is one of three key conditions that influence the results - Internet newspapers will only be more environmentally friendly than paper newspapers if:

1) there is no printing of online information;

2) internet surfing is directed at specific sites and limited in time; and

3) computer power consumption is based on renewable energy sources

Another life-cycle analysis of a printed newspaper versus a weekly magazine by INFRAS (1998), also found that the highest environmental impact came from the high energy requirements of pulp and paper production. For both the newspaper and the magazine, the impacts were largely divided between three areas: fresh fibre production (pulp), paper production, and printing.

The outcomes from this project, to compare billing methods, were similar to those observed by the studies mentioned above. In essence this project concluded that a number of environmental benefits could be gained through utilising an online bill compared to a paper bill, based on Telstra as an example. The key impacts were associated with the:

- number of online bills produced;
- amount of energy consumed by the production, test and development servers that support online billing (which includes the energy required for air conditioning);
- percentage of customers who print their online bill; and
- average number of pages per bill.

Similar to the Barclay Bank case study the results rely on online billing acting as an alternative to paper billing. If a customer was to utilise both simultaneously the results would be reversed.

1.2 Objectives

The project objectives are:

- to identify the life cycle environmental impacts associated with online billing and compare them with those associated with paper billing;
- to identify the key contributors to the life cycle impacts of these two scenarios; and
- provide recommendations to Telstra on how to reduce the environmental impact of both online and paper billing services.

Section 1 Introduction

1.3 Key definitions

Life Cycle Assessment (LCA) is a quantitative assessment tool. It applies a systems approach to identify, quantify and compare the environmental impacts of a product, service or system. For each key stage, the impact is measured in terms of resources used and resulting environmental impacts. The key stages for a product or service can include raw materials extraction through to processing, transport, use, reuse, recycling or disposal, and the process assessment is often referred to as "cradle to grave". In this study, a LCA systems analysis was undertaken to assess the impacts associated with online billing and paper billing services. Consideration was given to resource consumption and materials consumption associated with a number of products and equipment which were integrated into the process (refer to Section 3 for more detail).

A **comparative LCA** has been undertaken, which means that it incorporates only the processes and stages where a difference between the two scenarios, online billing and paper billing has been identified. Practically, this means that this study does not cover the full LCA of online billing nor paper billing.

1.4 Goal and scope definition

1.4.1 Objective

The overall objective of the project was to compare the impact of one online bill with the impact of one paper bill.

1.4.2 Functional unit

The functional unit for the study is one instance of billing information delivery to a standard Telstra client. This includes the following processes:

- Online billing: producing, viewing and (sometimes) printing the online bill, as well as (when applicable) disposing of the paper the bill is printed on; and
- Paper billing: producing, receiving and disposing of a paper bill sent via Australia post.

It should be noted that this assessment was completed in reference to the projected capacity of the online billing servers and not the present online billing utilisation level. As at 21 October 2007, approximately 13 million online bills[3] were being produced yearly for Telstra's customers but only approximately 80,000 individual online billing customers chose not to receive a paper bill with their online bill. The remaining online billing customers received both the online bill and the paper bill.

The model uses the number of online bills that will be generated **once the servers are operating at capacity**. This is to allow for the accurate determination of the environmental impacts per online bill. The model only considers online billing customers who do not receive a paper bill.

[3] Data was provided by John McKenzie, Telstra Online Billing.

Section 1 Introduction

1.4.3 System boundaries and related assumptions

In order to set the project boundaries, consideration was given to the work flows for the preparation of the bills and how they are received and handled by the customer. It is essential to note that the comparative LCA focuses on the differential use of resources between the two scenarios. Therefore, anything in common to both scenarios does not need to be included in the model.

The following have not been included in the model:

- Energy inputs associated with air transportation of paper bills – Australia Post was unable to provide this information. Inclusion of this information would increase paper billing's impacts.
- paper reminders, as they are sent to both online customers and paper billing customers (same profile assumed for contacting both categories of customers);
- payment, as it is assumed that online billing and paper billing customers have the same profile of payment methods (BPay, Australia Post etc);
- collections agency action, fraud, enquiries and disputes;
- storage capacity of online servers, as they store all customer billing information for access by Telstra's customer service or "front of house" staff; and
- server capacity used by "front of house staff" as this service is available to both online billing and paper billing customers.

The impacts associated with changed levels of customer interaction, such as the reduction in call centre costs and impacts associated with increased online interaction with online billing customers are considered outside the scope of the project.

As marketing material distributed with the bills is not directly related to the billing process, this is also considered outside the scope of the project.

As the Simapro database did not offer the possibility of selecting appropriate paper (printing quality) from an Australian database, we selected relevant paper in the Ecoinvent (European) database and substituted the key inventory elements from an impacts perspective, i.e. the pulp and the electricity input (INFRAS, 1998), to reflect the sourcing of the pulp and the production of electricity in Australia. The amounts (weight of pulp and kWh of electricity) used have been kept at the same level. It should also be noted that the same principle was applied to the recycling of paper.

It is assumed that the contribution of the online bill to the customer's decision to purchase the home computer and printer is nil, therefore the impacts of the materials associated with home electronic equipment are not included in the LCA, only the impact of the *use* of such equipment.

Depletion of water resources was excluded from the scope of the project. We hypothesise that water demand could be correlated to other resource use and therefore favour online billing, in terms of environmental burden assessment.

The processes inside the scope boundaries have been grouped into the following categories:

1) bill preparation;
2) distribution; and
3) customer handling.

Figure 1-1 shows the scope of the project diagrammatically.

Section 1 Introduction

Customer Categories

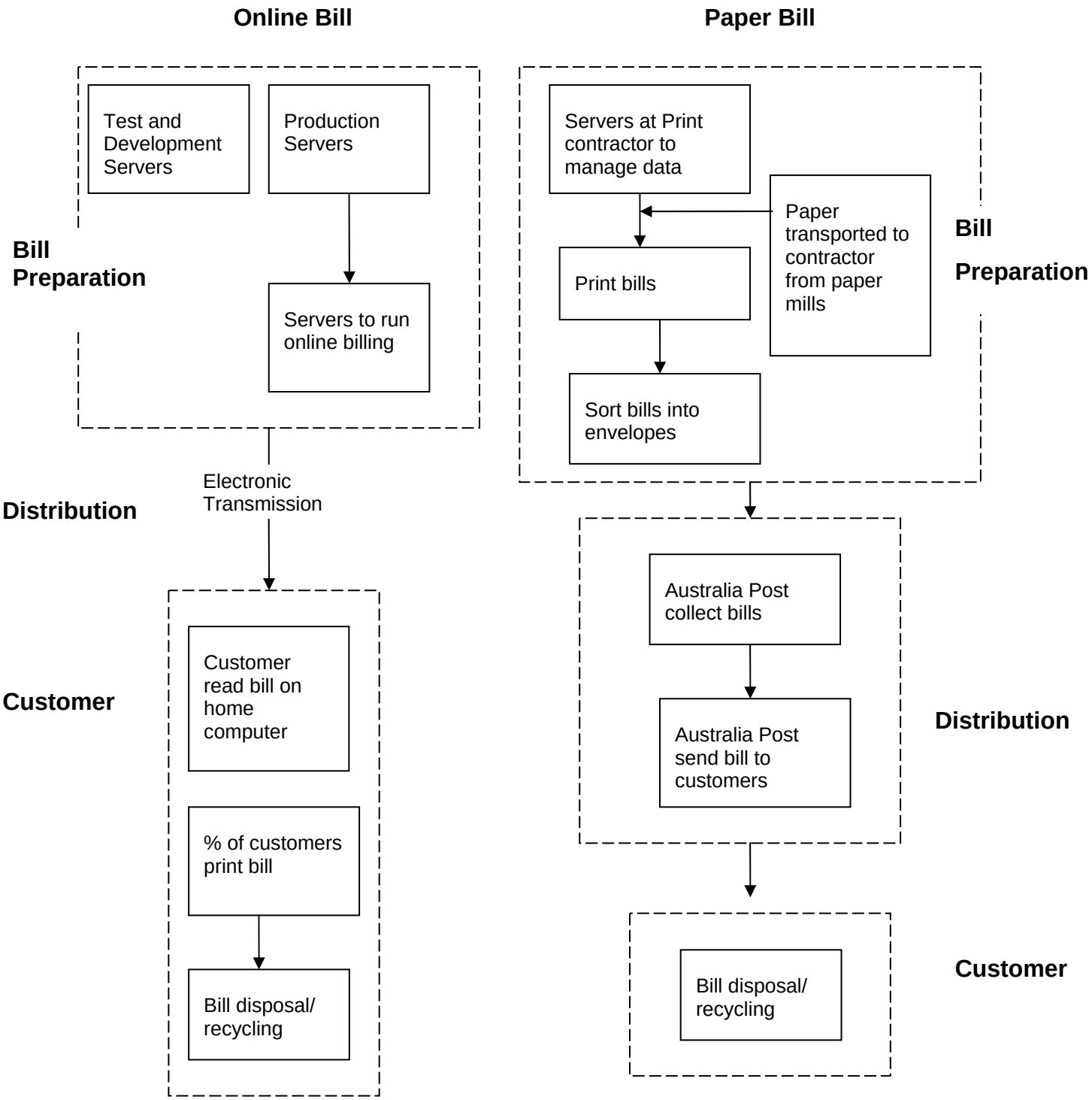
Telstra has approximately 11.52 million customers. The customer categories are divided into online billing customers or paper bill customers. There are currently approximately 1.4 million individual customers utilising online billing. Of these, approximately 80 000 do not receive a paper bill. The remaining customers receive both the online bill and the paper bill.

There are approximately 11.4 million paper bill customers and in 2006 approximately 105.2 million paper bills were sent to Telstra customers.

In June 2009, it is anticipated that online billing will be operating at full capacity with the equivalent of 3.8 million customers utilising online billing. It is also expected that at this point in time billing will be monthly for all customers that is they will receive 12 bills a year, whereas the average billing frequency is currently 9.2 bills a year.

Section 1 Introduction

Figure 1-1 Scope of LCA project



Note: all aspects within the dashed lines are included in the scope of the project

Section 2 Methodology

The recommendations of the International Standards for Environmental Management - Life Cycle Assessment were used as guidance for this study (AS/NZS ISO 14040:1998, AS/NZS ISO 14041:1999, AS/NZS ISO 14042:2001, AS/NZS ISO 14043:2001 and AS/NZS ISO 14048:2003). The recommended steps for scope and goal definition, life cycle mapping, life cycle inventory and life cycle impact assessment were followed.

2.1 Life cycle assessment tool

To undertake the analysis we used the SimaPro V7 software[4]. SimaPro contains background data associated with nested and non-nested material, transport, waste treatment, manufacturing, and energy processes from various countries for a wide range of technologies and scales. The quantitative data are entered in matrix (tabular) format. The program performs the matrix multiplication of tables (emission rates multiplied by life cycle impact category potency factor to provide life cycle impact values). The program allows the user to logically link various processes from "cradle to grave". The processes can be assembled into a life cycle tree and can produce graphical outputs. The project and its outputs can be exported to and/or imported from Microsoft Excel and Access. In addition, the software has a special provision to generate real time LCA reports. The main advantages of the software are life cycle tracing and tracking of all material and energy inputs and outputs and the greater speed and accuracy with which thousands of nested and linear process inputs can be handled and analysed.

2.2 Life cycle mapping

To understand the life cycle of online billing and paper billing and their associated impacts, a literature review was undertaken. To develop an understanding of Telstra's specific processes, numerous meetings were held between URS and Telstra, and several of Telstra's contractors. The outcomes from these processes led to identifying the boundary of the project as clarified in Section 1.4 and dividing the impacts into three key areas: bill preparation, distribution and customer use of the bill, as discussed in Section 1.4.

A literature review of the equipment used in the billing process was conducted. This primarily focused on the material composition of the equipment and electronic processing hardware. Time was also spent researching the amount of energy used by key activities within the model such as the air-conditioners which accompany the servers and the client printing their online bill.

Additional liaising with Telstra allowed the development of realistic assumptions. These assumptions were documented and formally validated by Telstra and are described in Section 3.

Based on these assumptions, data sheets were drafted. The data sheets included calculations corresponding to the various processes contributing to the key headings (bill preparation, distribution and customer use) for each scenario (online billing and paper billing). Data gaps were then identified and a data collection process agreed upon.

[4] SimaPro stands for System for Integrated Environmental Assessment of Products. It has been developed by PRé Consultants, a company based in the Netherlands and follows the ISO 14040 series recommendations that consist of environmental management, principles and framework of life cycle assessment. It is a database embedded LCA software tool that has been written in Microsoft Access.

Section 2 Methodology

2.3 Allocation procedures

Allocation procedures have been uniformly applied throughout the life cycle analysis process. Resource input allocation was done on the basis of items, either the number of pages (paper inputs) or the number of bills.

2.4 Data collection

The data for the online billing and paper billing processes were collected from Telstra (e.g. customer numbers); Telstra's contractors (e.g. the number of paper bills printed); scholarly journals (e.g. life cycle assessments of computers); and product specification sheets (e.g. materials associated with print and sorting equipment).

Whenever possible, data available in the SimaPro 7 software was used with preference given to products and processes from the Australian databases.

These inputs enabled the completion of the stages in the life cycle assessment known as life cycle inventory (described in Section 3).

2.5 Modelling

A model was then built in SimaPro to bring all the collected data and defined calculations together in a life cycle system. This was done using the SimaPro functionalities which allow the construction of successive "product stages" corresponding to aggregation steps (or modules) of basic processes (for both materials and usage). The model was built along the same three key headings defined above (bill preparation, distribution and use of the bill by the customer), distinguishing between the life cycle impacts associated with each scenario.

To allow comparison of the online billing and the paper bill scenarios, a "product stage" comparing the impact of one online bill equivalent and one paper bill equivalent was built.

The overall impact of the online bill was then calculated using an equivalent number of customers. This calculation was performed by assuming an equivalent number of customers for each major business (retail, business, etc.) using the online billing service. The basis for this calculation was the average number of bill pages received by a customer group and the equivalent number of customer bills required to match this.

The SimaPro model could then be run, and its graphical presentation functionalities used to produce the analyses presented in this report.

2.6 Method

SimaPro offers the possibility to run the model using a range of standard impact assessment methods. Each method uses different approaches (methodologies and weighting systems) to determine the impact associated with an activity. Two methods were chosen for our model CML2001 V2.0 – Australian toxicity factors and Eco-indicator 99. The rationale for using two methods instead of one is to be able to present relevant indicators covering all aspects of the LCA.

Section 2 Methodology

The CML 2001 life cycle impact assessment method has been developed on the basis of AS/ISO 14043:2001 specifications. Under this method, SimaPro produces impact assessment results for 10 indicators: abiotic depletion, global warming (GWP100), ozone layer depletion (ODP), human toxicity, fresh water aquatic ecotoxicity, marine aquatic ecotoxicity, terrestrial ecotoxicity, photochemical oxidation, acidification and eutrophication. It contains the most recent and internationally reviewed and accepted impact assessment models for impact categories such as global warming, atmospheric acidification, stratospheric ozone depletion, human toxicity, terrestrial and aquatic (fresh water and marine) eco-toxicity, resource energy, winter and summer smog, and abiotic resource depletion. The potency factors for the impact categories have been internationally adopted and are consistent with respective international protocols, e.g. global warming potency factors are consistent with Intergovernmental Panel on Climate Change (IPCC) and United Nations Framework Convention on Climate Change (UNFCCC). The CML 2001 V2.0 – Australian toxicity factors have been derived from the European models with necessary adaptations to Australian spatial and temporal context and human and ecosystem health standards (Huijbregts and Lundie 2002).

One of the key aspects of the model is paper usage which creates environmental impacts associated with land clearing. It was therefore determined that a land use indicator was needed. Because the Australian toxicity factors in CML 2001 V2.0 do not include a land use impact category, the Eco-indicator 99 method (Goedkoep and Spriensma, 2000) Australian substances, version 2.03, was used. Eco-indicator 99 is an assessment method that has been updated and developed based on the well known Eco-indicator 95 (Goedkeop 1995). It is compatible with AS/ISO 14042 requirements and the version of Eco-indicator 99 applied is the same as the European version however Australian substance definitions for fuels have been added.

The key environmental impacts associated with the model are:

- energy usage for the servers used to prepare and maintain the online billing system;
- energy usage to view and print online bills at home;
- energy required to prepare the paper bill; and
- materials and energy required to produce paper.

Impact categories that reflect these issues and are most relevant to the Australian environment include: abiotic depletion, global warming and human toxicity under the CML methodology and land use from Eco-indicator 99. Therefore the analysis focused on these four impact categories. These impact categories are defined in Table 2-1. The unit used is a standardisation process used in LCA.

Table 2-1 Definition of Impact Categories

Impact Category	Definition	Unit
Abiotic Depletion	The consumption of energy sources and a number of scarce metals. This impact category is concerned with protection of human welfare, human health and ecosystem health.	kilogram of antimony equivalents/ kilogram of extraction
Global warming	The potential contribution of a substance to the greenhouse effect. It can result in adverse affects upon ecosystem health, human health and material welfare.	kilogram carbon dioxide/ kilogram emission
Human Toxicity	The effects of toxic substances on the human environment. In this model the toxic substances include compounds such as arsenic, chromium IV and polycyclic aromatic hydrocarbons (PAH).	1,4-dichlorobenzene equivalents/ kilogram emission

Section 2 Methodology

Impact Category	Definition	Unit
Land Use	The effect a decrease in natural land use has on the number of vascular plants* (Potentially Disappeared Fraction) both locally and regionally over a certain area, within a certain time frame.	Potentially Disappeared Fraction*area*time

* examples of vascular plants include ferns, club mosses, flowering plants and conifers

It should be noted that water resource depletion is not a separate indicator available in CML 2001, nor the Eco-indicator 99 methodology. Although water scarcity is a major issue in Australia, the only impact associated with the processes included in the model that involve direct water usage was the pulping of wood for paper, hence this is not considered a major concern.

The major impacts highlighted under each impact category (as discussed in Section 4.4) were those associated with energy and paper usage. Therefore, global warming and land use became the two main focuses of the analysis as they are the most relevant indicator when addressing environmental issues associated with energy and paper consumption.

2.7 Analysis

Once the model was established in SimaPro the results were obtained and analysed. Key results are presented in Section 4 of this report with life cycle evaluation information presented in Section 6. The latter describes the controls that were established to ensure that the results made sense and to help identify and rectify any errors. A key step of the study was to undertake sensitivity analyses to assess the impact of potential variations of key input parameters on the results (see Section 5). Sensitivity analysis highlights the significance of assumptions and input data and this technique was used to help establish recommendations for the management of impacts, which are summarised in Section 7.

2.8 Peer review

The process and the present report were subject to an internal (i.e. performed by URS) and external peer review process. The external peer review was undertaken by the Centre for Water and Waste Technology (CWWT), School of Civil and Environmental Engineering, University of New South Wales. The peer review team at CWWT was provided with a copy of the full report and the complete underlying LCA model constructed using the SimaPro life cycle assessment software. The peer review process gave consideration to:

- the appropriateness of the scope to the goal of the study;
- the consistency of the system boundaries with the scope;
- the contents of the Life Cycle Inventory;
- the consistency of the Life Cycle Impact model with the report;
- the use of Life Cycle Impact Assessment characterisation factors; and
- the consistency of the interpretation with the characterised results.

Section 2 Methodology

The Peer Review report is presented in Appendix C. Most Peer Review comments were adopted and this report is an amended version taking into account the points made in the review. Appendix C also presents a summary table of how the comments have been taken into account or of the response to the comments when they have not been pursued.

Section 3 Life Cycle Inventory

The life cycle inventory analysis of online billing and paper billing involved collecting and collating information regarding customer numbers, billing information, the different pieces of equipment utilised and resources consumed for identified components and processes. This required assumptions to be made as presented in this section. The processes were then aggregated into appropriate product stages and consolidated to produce life cycle results.

The inventory data and key assumptions are presented under four key areas: customer and bill numbers; bill production impacts (direct and indirect); bill distribution impacts and customer impacts, for both online billing and paper billing.

3.1 Online billing

3.1.1 Customer and bill numbers

There are four major categories of customers who receive online bills:

- Individual consumers – an individual or family who has a service provided by Telstra.
- Small Medium Enterprises (SME) – small to medium size businesses that use one or more Telstra services for business communication.
- Enterprise and Government – large business/ government organisations that use one or more Telstra services for business communication.
- Wholesale – telecommunication service providers who use a proportion of Telstra's network to on-sell communication products to customers external to Telstra.

Table 3-1 highlights the number of customers under each type expected to receive online bills when the online billing servers are operating at capacity. All customer numbers have been adjusted to equate to individual customer equivalents. This adjustment has been based on the number of pages received per bill by the different types of customer, for example SMEs on average receive bills 15 pages long and therefore represent 2.3 individual customers equivalent as individual customers only receive 6.5 pages per bill. This approach provides us with a common unit across all customer types which allows a consolidation of the number of bills being produced. The total number of bills is used to apportion the impacts associated with online billing and therefore allows the determination of the impact of one standard online bill. This allows a comparison between the impacts associated with producing one on-line bill with one paper bill.

Section 3 Life Cycle Inventory

Table 3-1 Online billing customers – at capacity[5]

Customer Type	Number of Customers	Pages per bill	Number of individual customer equivalents	Total number of individual customer equivalents
Individuals	1,715,944	6.5	1.0	1,715,944
SME	770,000	15	2.3	1,776,923
Enterprise	22,750	100	15.4	350,000
Wholesale	80	200	30.8	2,462
		Total individual customer equivalents		3,845,329
		Bills received per year per customer equivalent		12
		Total number of bills produced per year		46,143,943

Source: Telstra, pers.communication

As mentioned in Section 1.4.2, the model uses the number of online bills that will be generated once the servers will be operating at capacity and only considers online billing customers who do not receive a paper bill ("paper off" clients).

3.1.2 Bill production

Servers are the main equipment used to produce online bills. There are two distinct groups of servers: those used in the production of online bills; and those used to test and develop the online billing function. It should be noted that some online billing servers are also used for other on-line services, therefore only a proportion of these servers were allocated to the model.

Telstra provided the type, number of servers and proportion of their use applied to online billing, for both production and test and development servers. This information is presented in Table 3-2.

[5] Data provided on 2 October 2007, by Abe Sahely, Telstra Online Billing Project, Accenture

Section 3 Life Cycle Inventory

Table 3-2 Number, type of servers and proportion of use for online billing purposes

Purpose	Server Type		Number	Percentage of use for online billing (%)
Production	Sun Fire V440		2	60
Both production and Test & Develop	E25K	Production	8	37.2
		Test and Dev.		16
Test and Develop	SunFire V210		5	50
	SunFire V100		6	50
	Sun Fire V240		9	50
	Sun Enterprise 420R (SUNW,Ultra-80)		1	50
	Sun Workgroup Ultra 4 E450		1	50
	SunFire V250		1	50
	SunFire E220R (Ultra 60)		2	50

Source: Telstra, pers. communication

The impact of the servers required to produce the online bills can be broken into materials and usage impacts. The usage impact is the energy required to power the servers and the supporting infrastructure. The materials impact is the environmental impact associated with manufacturing and disposing of the components in the server.

Server Usage Impact

The measurement of electricity usage for servers is highly complex. The electricity usage incorporates electricity used by both the servers and associated air conditioning for cooling. The online billing servers at Telstra are located with a number of other servers with no separate metering capacity available, therefore direct energy use for the servers could not be measured.

In 2006 Dr J. Koomey led an industry consensus process on developing a method for estimating electricity usage in servers. Companies supporting the process included HP, Intel, Sun Microsystems, Dell and IBM. In February 2007, an estimate was made on the total power consumption required to run all the servers in the USA and worldwide. The estimate was captured in a paper which utilises the industry agreed process for measuring energy consumption (Koomey, 2007). In this paper, estimates are made on E25 K Sun servers, two of which are utilised by Telstra. In particular, Koomey (2007) has found that "[the] total power used by servers represented about 0.6% of total U.S. electricity consumption in 2005." and that "When cooling and auxiliary infrastructure are included, that number grows to 1.2%", which led us to conclude that the power used by servers for their data operation function is approximately the same as the power used by the cooling and auxiliary infrastructure. In the same study, a graph shows that the proportion is approximately the same when considering worldwide data.[6]

[6] This is also supported by data from a presentation by IBM which suggests that IT load accounts for 45% of data centre energy use consumption while ancillary activities account for 55% of the energy use." Energy Efficiency in the Data Center, IBM, 2007

Section 3 Life Cycle Inventory

The following information was taken from the paper and used in the model:

- the E25K server uses 15,840 watts of electricity;
- all other Telstra servers use 524 watts of electricity;
- a 1:1 ratio is assumed between the close control air conditioning energy usage and the server energy usage; and
- the servers run 24 hours per day, 365 days per year.

Based on these assumptions, Table 3-3 provides the total amount of electricity used by the servers (including that associated with air conditioning).

Table 3-3 Electricity data relating to server activity

Purpose	Server Type	Number	Amount of electricity used for operating the servers (W)	Amount of electricity used for air conditioning (W)	Proportion of server activity allocated to online billing (%)	Total amount of electricity used annually for online billing (kWh/yr)
Production	Sun Fire V440	2	524	524	60	11,016
	E25K	8	15,840	15,840	37.2	825,890
	Sub Total – Production Servers					**836,907**
Test and Develop	SunFire V210	5	524	524	50	22,951
	SunFire V100	6	524	524	50	27,541
	Sun Fire V240	9	524	524	50	41,312
	Sun Enterprise 420R (SUNW,Ultra-80)	1	524	524	50	4,590
	Sun Workgroup Ultra 4 E450	1	524	524	50	4,590
	SunFire V250	1	524	524	50	4,590
	SunFire E220R (Ultra 60)	2	524	524	50	9,180
	E25K	8	15,840	15,840	16	355,221
	Sub Total – Test and Development Servers					**469,978**
	Total					**1,306,884**

Source: Koomey, 2007

Section 3 Life Cycle Inventory

Server materials impact

The materials impacts are related to the environmental impacts associated with manufacturing and disposing of the servers. Table A-1, in Appendix A outlines the material composition assumed for the average Telstra server as a percentage of the weight of the server. The material consumption for the servers is assumed to be the same as a computer. The weight of each of the servers was provided by Telstra and is outlined in Table 3-4. The total weight column indicates the weights that were included in the model, based on the proportion of the servers allocated to online billing (refer to Table 3-2).

Table 3-4 Weight of servers

Server type	Weight (kg)	Number of servers	Total weight (kg)
Production			
SunFire V440	36.0	2	43.2
E25K (*)	1143.0	8 (*)	3,401.6
Test and Development			
SunFire V210	15.0	5	37.5
SunFire V250	31.0	1	15.5
SunFire V100	34.0	6	102
Sun Fire V240	26.0	9	117
Sun Enterprise 420R (SUNW,Ultra-80)	29.5	1	14.8
Sun Workgroup Ultra 4 E450	95.0	1	47.5
SunFire E220R (Ultra 60)	29.5	1	14.8
SunFire E220R (Ultra 60)	29.5	1	14.8
E25K (*)	1143.0	8 (*)	1463

Source: Telstra's server supplier

(*) the same E25K servers are used for Test and Development and for Production

The infrastructure impacts of the server are spread over the life of the server. Based on information supplied by Telstra the expected life of the servers is 3 years[7].

[7] Sources from Paul Boutaud, Accenture Australia, Telstra Online Billing Project

Section 3 Life Cycle Inventory

Employee Energy Usage

In addition to the energy used by the server, it is estimated that 14 staff are required to run the production and test and development servers[8]. The average Telstra office annually consumes 246 kWh of electricity per m^2 of office space and 0.075 GJ of gas per m^2 of office space (Telstra, pers. communication). The average office space per person is 12.5 m^2. Therefore 43,050 kWh[9] of electricity and 13 GJ of gas per annum correspond to the direct environmental impacts of the staff required to operate and maintain the servers.

Considering all the data in Table 3-2, 47.3% of server capacity was associated with online billing. We used this factor to allocate to the model a fraction the total electricity and gas demands caused by the employment of the server staff. The fractions were 20,363 kWh electricity and 6 GJ gas respectively.

3.1.3 Bill distribution

The impact associated with transmitting the bill from Telstra's servers to the customer's computer on the telecommunication network is considered negligible and therefore is not included in the model.

3.1.4 Customer impact

Viewing online bills

The customer's behaviour regarding viewing the online bill is hard to predict. The key assumptions associated with viewing the bill online have been based on a literature review and are summarised in Table 3-5.

Table 3-5 Customer energy usage for computers

Activity	Units
Energy use - computer	120 W
Energy use - monitor	150 W
Total energy use per hour	270 W
Time for looking at online bill	3 mins
Energy for looking at online bill	**13.5 Wh**

Source: National Teacher Enhancement Project, web resource

[8] Data provided by Daniel Gunawan, Telstra Online Billing, 22 August, 2007

[9] Calculation: Electricity: (246*12.5)*14 Gas: (0.075*12.5)

Section 3 Life Cycle Inventory

Printing online bills

It is assumed that approximately 50% of online billing customers will print their bill to retain a copy. As confidence in the online billing system increases it is anticipated that the number of consumers printing their bill will decrease. Like other key assumptions, this assumption has been tested in the sensitivity analysis.

The other assumptions associated with customers printing their online bill include:

- the energy required to print a bill is 18Wh/bill (Canon);
- 50% of printed online bills are recycled, 50% are sent to landfill[10]; and
- the distance from the customers' residence to the landfill or the recycling centre is 50 km (Grant et al, 2001).

The storage of the electronic or printed bill by the customer is assumed to have no significant environmental impact and has therefore not been included in the model.

3.2 Paper billing

3.2.1 Customer and bill numbers

Key data relating to the paper billing process is contained in Table 3-6.

Table 3-6 Paper bill customer and bill numbers

Input	Data	Unit	Source
Number of bills	105,241,198	Total bills per year	Telstra's Print Contractor
Total number of customers	11,439,260	Customers	Telstra
Average number of bills per account	9.3	Bills per year per account	Telstra [11]
Average number of Pages	6.50	Pages per bill	Telstra's Print Contractor
Average number of sheets of paper	3.25	Sheets of paper per bill	Calculation

Source: Telstra, pers. communication

[10]This data is extrapolated from Industryedge, 2007, p.87. It is noted that this reference refers to the percentage of wastepaper fibre in Australian fibre furnish, therefore the underlying assumption is that this percentage represents the percentage of wastepaper that actually gets recycled (as the limiting factor for paper recycling in Australia seems to be the recycling capacity rather than the collection of wastepaper).

[11] Calculation: Average number of bills per customer = Number of bills/ Total number of customers

3.2.2 Bill production

The key activities associated with the bill production process that are unique to the paper billing process occur at Telstra's print contractor and include receiving the billing data, printing the bills, placing each bill in an envelope and sorting the envelopes.

Where possible the information included in this section was provided by Telstra's print contractor via Telstra, in some instances assumptions were made and are highlighted below along with the key data collected.

Paper

Paper assumptions include:

- the bill paper is sourced from Australian Paper Mills and does not contain any recycled material;
- on average paper is transported 857 km from Australian Paper Mills to Telstra's Print Contractor[12];
- the bill paper weighs 5.0 g per sheet[13];
- the envelope paper weighs 4.6 g[14]; and
- the envelope paper contains 60% recycled paper and 40% non-recycled paper;

As per Table 3-6, each bill consumes 6.5 pages or 3.25 sheets of paper on average. This figure includes any miss-feeds and miss-prints. The average customer therefore is delivered 29.9 sheets of paper and 9.2 envelopes per year. Consequently, a total of approximately 342 million sheets of paper were used for Telstra's billing process in 2006.

Toner

Telstra's print contractors indicated that one impression of black toner (monochrome printing) and one impression of coloured toner are used per page and that they use 1 kg of black toner per 33,000 impressions and 1 kg of coloured toner for 44,000 impressions on the Telstra bill. Therefore for each Telstra bill, 0.2 g of black toner and 0.15 g of coloured toner are used.[15]

[12] Source: URS calculated using Sensis internet directory: "Where is" (http://www.whereis.com)

[13] Source: URS calculated – based on the weight of a piece of Reflex 80 gsm bond A4 paper from Australian Paper

[14] Source: URS calculated – based on the weight of a Postspeed Recycled envelope from Australian Paper

[15] Calculations: Amount of black toner per bill = (1,000 g of black toner/33,000 impressions)*6.5 pages. Amount of colour toner per bill = (1,000 g of coloured toner/44,000 impressions)*6.5 pages

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Table 3-7 Toner contents

Ink Type	Content	Percentage
Monochrome Toner	Styrene/ butadiene copolymer	78%
	Iron Oxide Sulfate	17%
	Carbon black	5%
Colour Toner	Polyster resin	85%
	Pigment	10%
	Wax	5%

Source: Telstra's print contractor, pers. communication

All toner cartridges are reused and therefore materials from the cartridge case have not been included in the model.

Energy

Telstra's print contractor indicated that they require 280 kWh of energy per year per m^2. This includes energy use for storage, printing, lighting, sundry equipment, air conditioning etc. The floor space dedicated to Telstra's bill production is highlighted in Table 3-8.

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Table 3-8 Floor space at Telstra's print contractor's premises allocated to Telstra's activities

Location	Approximate floor space (m^2)
Melbourne	5,000
Sydney	5,000
Brisbane	2,000
Total	**12,000**

Source: Telstra's print contractor

Therefore a total of 3,360,000 kWh (12,000 m^2 *280 kWh/ m^2) is necessary yearly for the production of Telstra's bills. Hence the electricity required per bill is 31.9 Wh.

The forklifts used to move the bills and paper at Telstra's print contractor's have been excluded from the model as they are assumed to have a negligible impact on the model.

Indirect environmental impacts

The indirect environmental impacts are the impacts associated with the materials that make up the electrical equipment utilised by Telstra's print contractor. Table 3-9 highlights the equipment utilised in each State to produce the paper bill.

Table 3-9 Electrical equipment utilised by Telstra's print contractor to produce the paper bill

Location	Printer contractor equipment	Model	Quantity
	Unix Servers	Del 4600	2
Melbourne	Printer	FX 980CCF	1
		FX HLC4180	3
		FX EPS4180	3
		FX LPS4180	1
	Sorter	Pitney Bowes APS - 22	1
		inTelmail C5's	4
		inTelmail Master Mailer	1
Sydney	Printer	FX EPS4180	6
	Sorter	inTelmail C5's	4
Brisbane	Printer	FX EPS4180	5
	Sorter	inTelmail C5's	3

Source: Telstra's print contractor

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It has been assumed that the embodied materials in the printing and sorting equipment are the same as those making up a Printer Konica 7085, for which data was available (see Appendix A, Table A -2). For the model, the data was extrapolated based on the weight of the printers and sorters used by Telstra's print contractor. It was assumed that the average weight of the sorters was 2,300 kg[16] and the average weight of the printers was 1,538 kg[17] .The Konica 7085 used weighs 325.5kg (Konica, 2002).

The materials embodied in the server were also built into the model, based on the material information provided in Table A-1. The weight of the Dell 4600 server is 10.4 kg (Dell) and Telstra's print contractor noted that the server life was 5 years.

3.2.3 Bill distribution

Australia Post collects all of Telstra's bills from Telstra's print contractor.

Annually, Australia Post distribute approximately 4.5 billion mail items. The energy inputs associated with the distribution of these mail items are highlighted in Table 3-10. Energy input associated with air transportation of mail is not included, as it is not tracked by Australia Post on the basis that they are only using regular flights which would be flying anyway.

Table 3-10 Australia Post Energy Usage

Activity	Australian Post Total
Petrol	2,665,156 L
Diesel	5,333,469 L
Electricity	105,978,440 kWh
Natural Gas	48,786 GJ

Source: Australia Post

The total number of bills distributed on behalf of Telstra makes up 2.3% of Australia Post's mail volume[18]. Therefore 2.3% of the impacts highlighted in Table 3-10 have been incorporated into the model.

It is assumed that Telstra's activities do not influence the size of Australia Post's vehicle fleet or the need for additional mail centres etc. Consequently the material impacts associated with Australia Post's infrastructure have not been included in the model.

3.2.4 Customer impact

The key assumptions associated with the customers use of the bill includes:

- 50% of paper bills are recycled, 50% are sent to landfill[19];

[16] Source: Personal correspondence with Ptiney Bowes

[17] Source: Personal correspondence with Fuji Zerox

[18] Calculation: (Total number of bills/ Australia Post's mail volume)*100 = (105,241,198/4,517,550,000)*100

Section 3 Life Cycle Inventory

- the distance from the customers residence to the landfill or recycling centre is 50 km (Grant et al, 2001); and
- the storage of the paper bill, by the customer is assumed to have no significant environmental impact.

3.3 Comparative life cycle inventory

A simplified comparative life cycle inventory for the model is provided in Table 3-11. The SimaPro output data for the model is provided in Appendix B.

Table 3-11 Comparative life cycle inventory for online billing and paper billing per bill

Aspects	Online Billing	Paper Billing
Bill preparation	Electricity: 28.8 Wh/bill (1) Gas: 130 J/bill (2) Equipment*: 35 Servers	Paper: 3.25 pages/bill Black toner: 0.20 g/bill Coloured toner: 0.15 g/bill Energy (for printing and sorting): 31.9 Wh/bill Equipment*: 19 printers, 13 sorters and 2 servers
Bill distribution	Negligible	Petrol: 0.59 mL/bill Diesel: 1.2 mL/bill Electricity: 23 Wh Natural Gas: 0.0108 MJ
Customer use of the bill	Viewing online bill:13.5 Wh/bill Printing online bill: 18 Wh/bill Distance printed bills travel from customer to landfill: 50 km	Distance the paper bill travels from customer to landfill: 50 km

* Materials used in the manufacture of the equipment are provided throughout Section 3 of this report. Appropriate data sources and assumptions are provided.

(1) 20,363kWh relating to office space used by employees working on online billing (see Section 3.1.2) and 1,306,884kWh used by servers in relation to online billing, divided by 46,143,943 online bills produced per year at capacity.

(2) 6GJ relating to office space used by employees working on online billing (see Section 3.1.2) divided by 46,143,943 online bills produced per year at capacity.

It should be noted that for inputs associated with air emissions and water (including usage and emissions to water) we relied on the data built into SimaPro's databases.

[19] This data is extrapolated from Industryedge, 2007, p.87. It is noted that this reference refers to the percentage of wastepaper fibre in Australian fibre furnish, therefore the underlying assumption is that this percentage represents the percentage of people who place paper in the recycling bin.

Section 4 Life Cycle Impact Results

4.1 Introduction

SimaPro offers the possibility to run a model using a range of standard impact assessment methods. As explained in Section 2.6, the methods chosen for the project were CML2001 V2.0 – Australian toxicity factors and Eco-indicator 99, Australian Substances, Version 2.03.

The key impacts being considered by the chosen model fall in three main classes:

- exhaustion of raw materials and energy;
- pollution; and
- ecosystem quality.

The indicators for these are specified below and are defined in Section 2.6:

- Exhaustion of raw materials and energy: Abiotic depletion
- Pollution: Global warming and Human toxicity
- Ecosystem quality: Land use

The reason these indicators have been chosen is explained in Section 2.6 of this report.

4.2 Indicator significance

To assess the relative importance of each impact indicator, three approaches are generally adopted by LCA practitioners.

- benchmarking life cycle impact category values for paper vs online billing from other similar LCA studies either Australian or International;
- comparing the life cycle impact category values on a regional or national scale. Drawbacks to this approach include significant gaps and uncertainty regarding data on the state of the national or regional environment; and
- comparing the life cycle impact category values for comparable environmental damage (5% destruction of native/pristine ecosystem) and/or human damage (Disabilities Adjusted Life Years). A potential drawback of this approach is that it is inherently complex and there are uncertainties in estimating pathways and damage functions for a myriad of life cycle impact categories.

The higher the impact category values, the greater the harmful effects of those impacts, and therefore less environmentally preferable are those activities that cause those impacts.

A simpler way is to compare the impacts with other points of reference, such as the impact of well-known activities or product as is the case in Table 4-1. For example, the net abiotic depletion impact value of 0.1 g Sb equivalent, the difference between an online bill compared to a paper bill (Table 4-1) is approximately equal to the abiotic depletion impact associated with the petrol consumed by a car travelling 50 m. The human toxicity impact value of 32 g 1,4-DCB equivalent, the difference between an online bill compared to a paper bill (Table 4-1) is approximately equal to the human toxicity impact

associated with growing 3 kg of Australian wheat[20] or the life cycle impacts of the production of 70 mL of Australian larger beer.

4.3 Interpretation of results

The total comparative life cycle impact values for online billing and paper billing are presented in Table 4-1 for one bill. In essence the impact of producing one online bill is compared with one paper bill which enables us to form a judgment on the benefit of online billing.

Table 4-1 demonstrates that for each indicator, the impact associated with online billing is less than that associated with paper billing[21]. For abiotic depletion and global warming, comparison has been made with the number of meters of car travel that would produce the same impact. A comparison with the life cycle production of Australian beer or Australian wheat[22] has been provided for human toxicity and the life cycle impact of producing a piece of paper (based on the same consumption data as has been used for paper in the model) is used as a comparison for land use.

Table 4-1 Impacts of online billing compared to paper billing for one bill alongside comparative data

Impact category	Unit	Online billing	Paper billing	Difference between online billing and paper billing	Comparative data
Abiotic depletion	g Sb eq	0.5	0.6	0.1	Equivalent to the impact of the consumption of petrol by a car travelling 50 m
Global warming (GWP100)	g CO2 eq	71.6	90.5	18.9	Equivalent to the impact of the consumption of petrol by a car travelling 58 m
Human toxicity	g 1,4-DCB eq	23.6	55.6	32	Equivalent to the total LCA impact of producing 73 mL of beer or 3 kg of wheat
Land use	PDF*cm^2*t	12.4	32.5	20.1	Equivalent to the life cycle impact of approximately a piece of paper

[20] V.Narayanaswamy et al, 2004.

[21] **Note:** The focus of this study has been on the comparison of the life cycle environment impacts of an online bill compared to a paper bill. If we compare the impacts associated with an online billing customer to a paper billing customer the results are reversed, except in the case of human toxicity. This occurs because presently each online billing customer receives 12 bills a year, whilst each paper billing customer on average only receives 9.2 bills a year.

[22] V.Narayanaswamy et al, 2004.

Section 4 Life Cycle Impact Results

Some of the avoided impacts are fairly significant if we consider more than just one bill. For example, producing 1 million online bills compared to paper bills leads to avoiding the production of 18.9 tonnes of CO_2 equivalent a year, which is equivalent to the amount of annual CO_2 emissions produced by approximately 4 cars in Victoria[23].

The pathway for each type of impact can be mapped out in a flow-chart produced by SimaPro, as shown in Figure 4-1 through to Figure 4-4 and can be used to help explain the results.

In Figure 4-1 through to Figure 4-4, the numbers associated with online billing are presented as negatives because it is a comparative model. In the model, paper billing impacts were subtracted from the impacts associated with online billing, which determines the overall difference between the impacts caused by the two scenarios. The number presented at the top of the flow chart is the overall difference. A positive number means that the impacts associated with paper billing are greater than those associated with online billing (as is the case in Figure 4-1) and a negative would mean the reverse. The thickness of the lines linking activities represents the contribution that activity makes to the overall impact.

In Figure 4-4 for land use it is noted that the waste scenario associated with recycling the paper bill and envelope is illustrated by two downward facing arrows flowing from the bill paper and envelope paper to recycling paper and board, and a solid line between recycling paper and board to unbleached craft pulp, which is unique to this figure. This occurs because when paper is recycled rather than sent to landfill the waste processing results in a useful by-product (recycled paper). The energy and material flows related to the recycled paper are regarded as an environmental benefit and are illustrated in the model by these unique features.

4.4 Contribution analysis

To assess the contribution of different activities to the overall result, graphs and tables from SimaPro were used. The key flow charts produced and used are found in Figure 4-1 through to Figure 4-4. The key data obtained is captured in Table 4-2. For each impact category, Table 4-2 shows the key contributing processes (including the size of the burden associated with that contributing process). The key processes for each contributor and the percentage of the contributor's impact that the process represents. The key inventory data (i.e. data representing > 5% of the impact) and its percentage contribution for the key contributors is also shown in this table.

[23] Sustainability Victoria – personal communication, date: 25 June 2007

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Table 4-2 Key contributors, processes and inventory for each impact category

Impact Category	Key Contributor	Amount	Key Processes	%	Inventory	%
Global Warming	Energy usage product and test and development servers	37.3 g CO_2 eq	Electricity, brown coal, Victoria	98.4	Carbon dioxide (air)	98.9
	Use of online bill by customer	33.7 g CO_2 eq	Electricity, brown coal, Victoria	28	Carbon dioxide (air)	95.3
			Electrictiy black coal NSW	25.1		
			Electrictiy black coal QLD	18.4		
	Paper	34.2 g CO_2 eq	Electricity, brown coal, Victoria	15.5	Carbon dioxide (air)	96.5
			Natural gas	14.4		
			Electricity, black coal, NSW	13.9		
			Electricity, black coal, QLD	10.2		
			Diesel	6.8		
	Electricity to produce paper bill	31.3 g CO2 eq	Electricity, brown coal, Victoria	33.5	Carbon dioxide (air)	98
			Electrictiy black coal NSW	30		
			Electrictiy black coal QLD	22		
Abiotic Depletion	Energy usage product and test and development servers	0.27 g Sb eq	Electricity, brown coal, Victoria	98.3	Brown coal	98.4
	Paper	0.23 g Sb eq	Electricity, brown coal, Victoria	16.5	Coal	35.7
			Electricity, black coal, NSW	10.9		
			Electricity, black coal, QLD	8.3		
			Natural Gas	6.4	Natural Gas	30.6
			Crude Oil	6.4	Oil	20.2
	Use of online bill by customer	0.22 g Sb eq	Electricity, brown coal, Victoria	31.6	Coal	68.2
			Electricity, black coal, NSW	20.7		
			Electricity, black coal, QLD	15.8		
	Electricity to produce paper bill	0.19 g Sb eq	Electricity, brown coal, Victoria	39.3	Coal	84.8
			Electricity, black coal, NSW	25.9	Natural Gas	76.4
			Electricity, black coal, QLD	19.6		

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Impact Category	Key Contributor	Amount	Key Processes	%	Inventory	%
Human Toxicity	Energy at the print contractor	2.4 g 1,4 DCB eq.	Electricity, black coal, QLD	45.9	Fluoride (Air)	98
			Electricity, black coal, NSW	42.6		
			Electricity, black coal, WA	6.91		
	Use of online bill by customer	2.2 g 1,4 DCB eq.	Electricity, black coal, QLD	46	Fluoride (Air)	91.4
			Electricity, black coal, NSW	42.7		
Land Use	Paper	0.0031 PDF*m^2*yr	Wheat	48.9	Occupation, arable, non-irrigated	93
			Green manure	25.3		
			Potatoes	15.9		

As highlighted in Table 4-2 the key contributor to **global warming** is energy usage to run the production and test and development servers and to produce the paper consumed for paper billing.

The key contributors for **abiotic depletion** are the same as those identified for global warming (refer to Figure 4-3 and Table 4-2).

Energy used by Telstra's print contractor is the key contributor for **human toxicity** (refer to Figure 4-2)[24]. The print contractor obtains its electricity from a variety of sources, including black coal. Black coal has a number of impurities, mainly fluoride, that result in a human toxicity impact.

The key contributor for **land use** is paper consumption for the paper billing process (refer to Figure 4-4).

One major conclusion arises from this analysis: energy usage and paper consumption are the key activities contributing to the impacts. Rather than focus on all indicators for the sensitivity analysis, it was decided to focus on global warming and land use. This is because global warming and land use are the most relevant indicators (given the key contributing activities) and provide more reliable data as the pathways are well known.

[24] It should be noted that human toxicity pathways are not as well known as global warming pathways and therefore the data embedded in the SimaPro database with regards to human toxicity must be interpreted with caution (personal communication: SimaPro distributors)

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Figure 4-1 Global Warming flow-chart

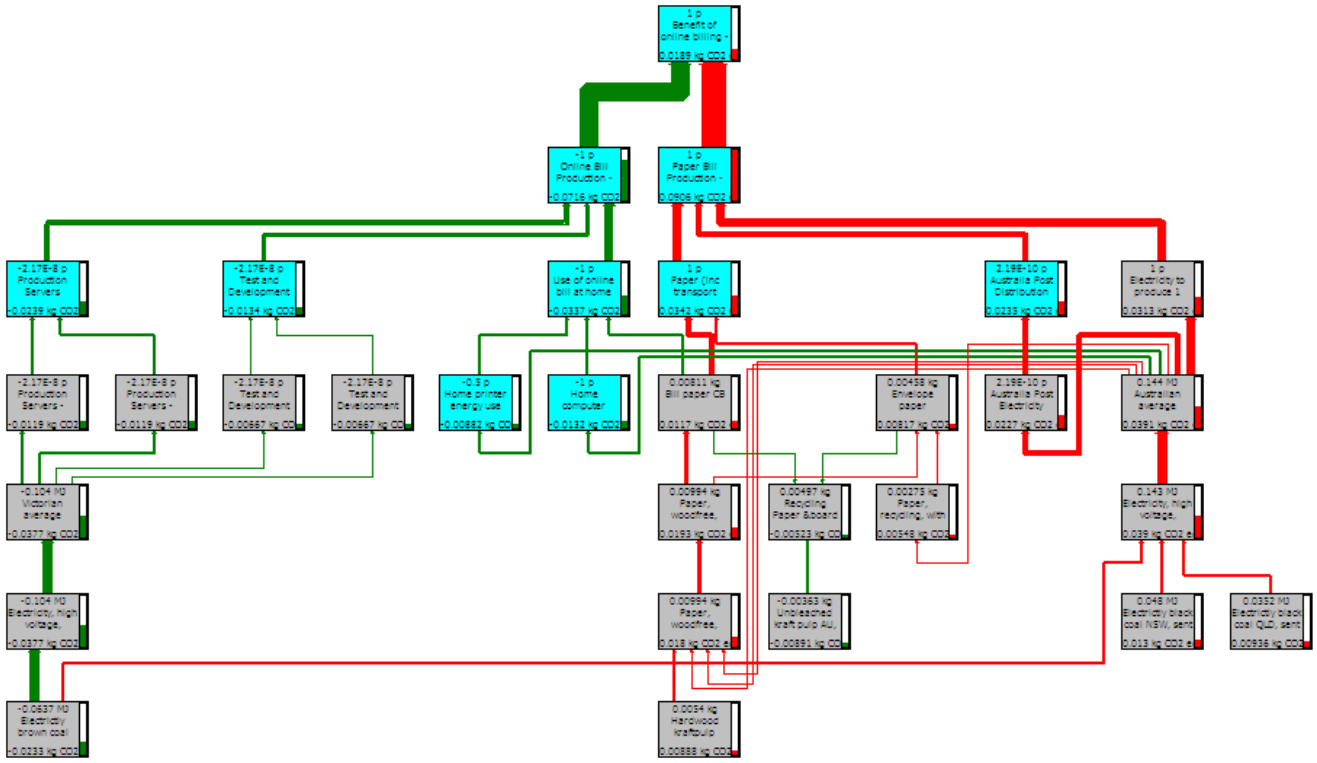

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Figure 4-2 Human toxicity flow chart

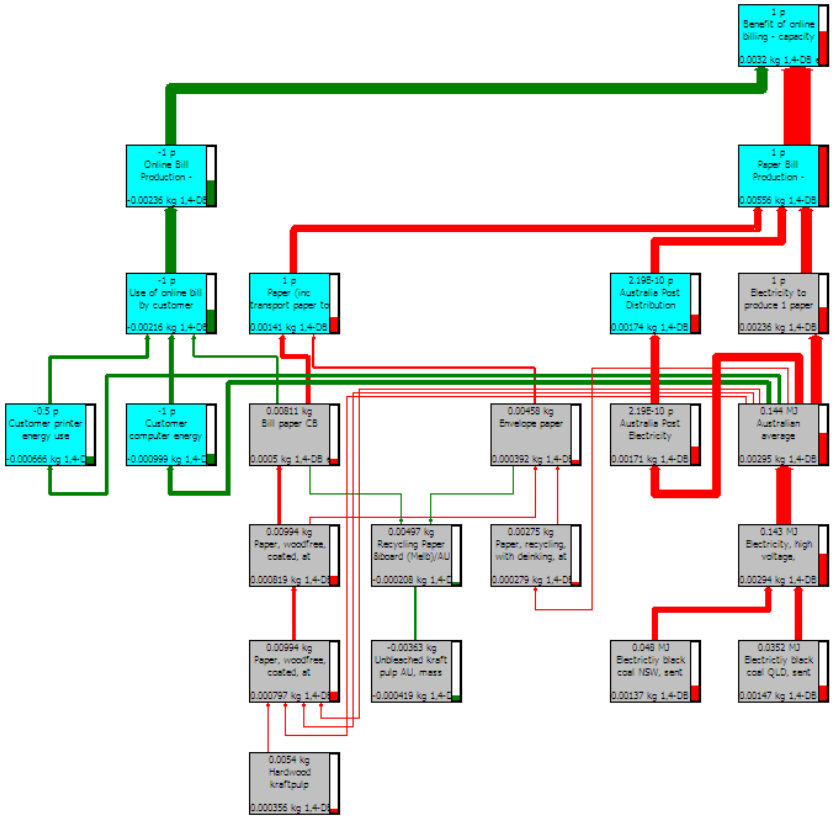

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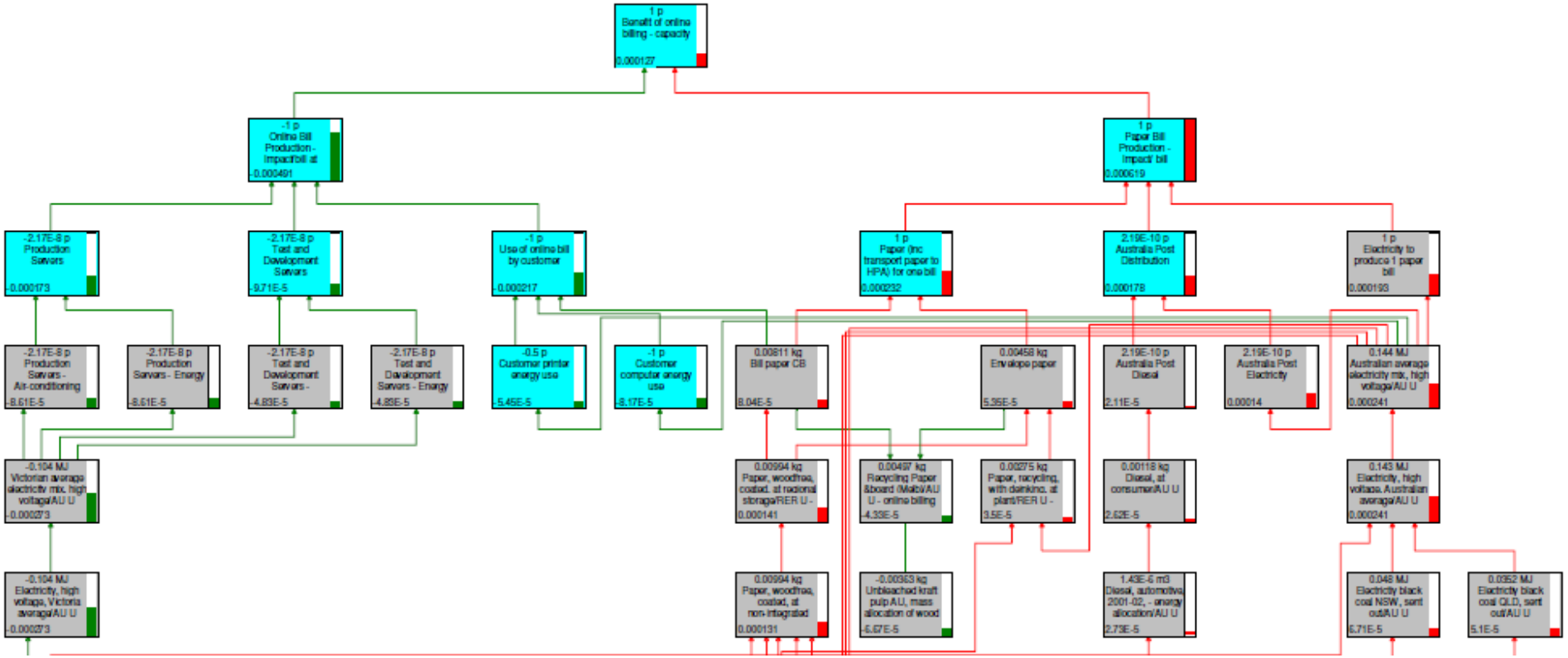
Figure 4-3 Abiotic depletion flow chart (kg Sb eq.)



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Abiotic depletion flow chart (kg Sb eq.) – second half of the chart

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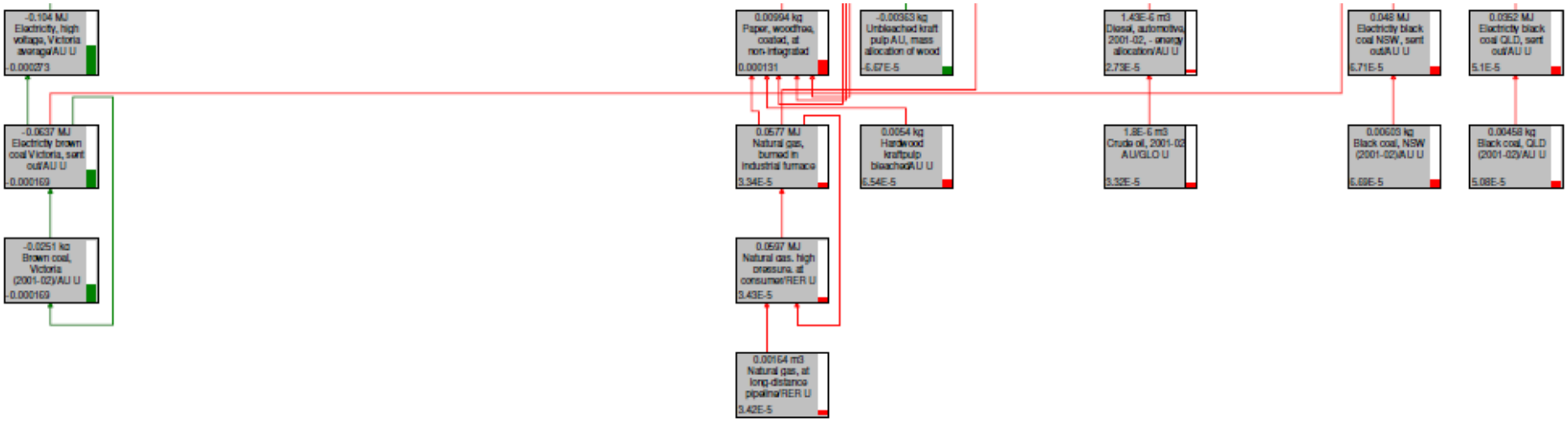

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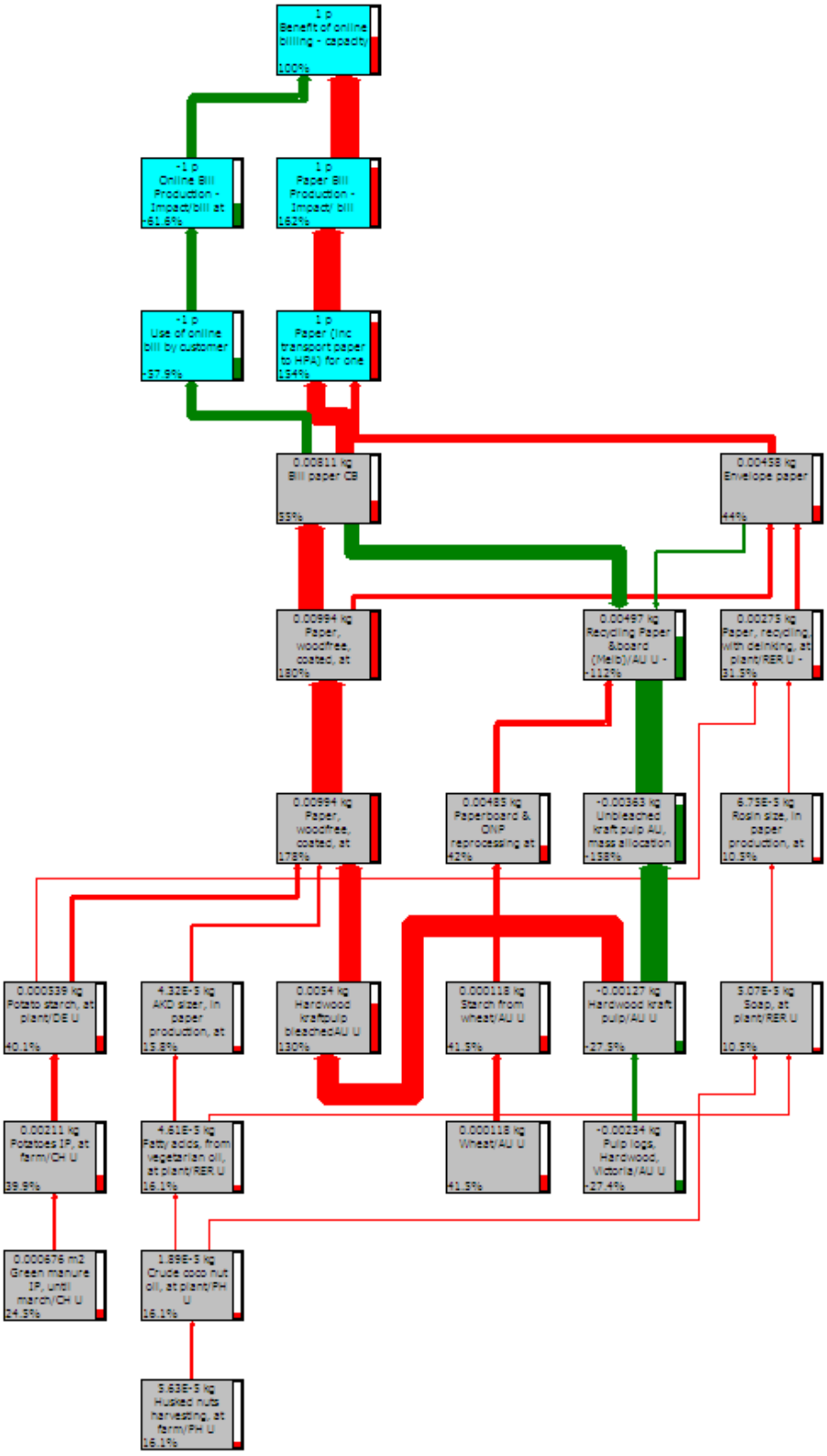
Figure 4-4 Land use flow chart



Section 5 Sensitivity Analysis

To test the robustness of the initial key conclusion that the impacts associated with online billing are less than those associated with paper billing, we undertook a sensitivity analysis on data associated with the key contributors identified in Section 4.3.

The sensitivity analysis demonstrated that the global warming burdens associated with online billing exceed those associated with paper billing when the number of customers receiving both paper and online bills is reduced to 70% of the base case figure. This also occurs if the server energy increases by 50% or approximately 95% of customers print their online bill. With regards to land use, the land use burdens associated with online billing exceed those associated with paper billing if 100% of customers recycle their paper bills.

5.1 Global Warming

The global warming flowchart, shown in Figure 4-1 in conjunction with the model input data and the information in Table 4-2, was used to determine the most important parameters that the sensitivity analyses should focus on. The most important parameters are those that have the biggest impact on key contributors. For example, for online billing, energy usage associated with the servers consumed the most energy and therefore parameters associated with server energy usage were tested for sensitivity.

The following parameters were used in the sensitivity analysis:

- Online bill production:
  - number of online bills produced;
  - amount of energy consumed by the production and test and development servers; and
  - ratio of the amount of energy consumed by the servers to the amount of energy used by the air-conditioners to cool the servers.
- Use of the online bill by the customer:
  - amount of energy consumed by the customer's computer and printer;
  - percentage of customers printing their online bill; and
  - number of sheets per bill printed by the customer.
- Paper bill production:
  - average number of sheets per bill;
  - amount of energy consumed by Telstra's print contractor to print and sort Telstra's bill
- Distribution of the paper bill:
  - amount of energy consumed by Australia Post.

The sensitivity analysis demonstrates that the most sensitive parameters are:

- number of online bills produced;
- the production and test and development server energy (including energy required for air conditioning); and
- the percentage of customers who print their online bill

Section 5 Sensitivity Analysis

The analysis shows that the global warming impacts associated with online billing are greater than those associated with paper billing when:

- less than approximately 70% of the base case number of online bills are actually produced;
- the base case for the server energy (including air conditioning) increases by 50%;
- the ratio of energy consumption for the servers' air conditioners to energy consumption for the servers becomes greater than approximately 2:1; or
- approximately 95% of customers print their online bill.

The results would also be reversed if Telstra, Telstra's print contractor or Australia Post was to go carbon neutral and therefore reduce their greenhouse gas emissions to zero.

5.1.1 Online bill production

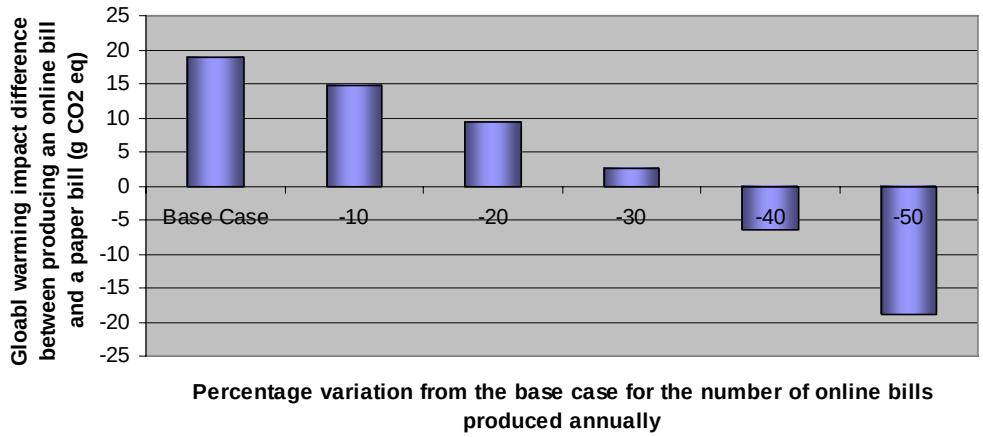
Number of online bills produced

The results of the sensitivity analysis for the number of online bills produced are shown in Figure 5-1. In the base case it is assumed that when the online billing servers operate at capacity they will generate approximately 46 million bills. In this situation, the difference in the global warming impact caused by an online bill compared to a paper bill is approximately 19 g of CO_2 eq. i.e. an online bill produces 19 g of CO_2 eq less than a paper bill. This difference decreases, because the impact caused by an online bill compared to a paper bill increases when the number of online bills produced decreases (assuming that the same IT equipment remains.) This is because the energy usage of the servers remains constant regardless of the reduction in the number of bills produced (as data sits on the server and requires approximately the same amount of energy regardless whether it is used or not by the process; Telstra, pers. communication). Therefore, the energy usage of the servers has to be apportioned across a smaller number of bills. If just less than 70% of the base number of online bills is actually produced, the global warming impacts associated with online billing become greater than those associated with paper billing and hence the difference between the two options becomes negative.

Telstra presently produces less than 70% of the base number of online bills to be produced when the servers are operating at capacity.

Section 5 Sensitivity Analysis

Figure 5-1 Global warming impact (difference between online billing and paper billing) associated with varying numbers of online bills produced

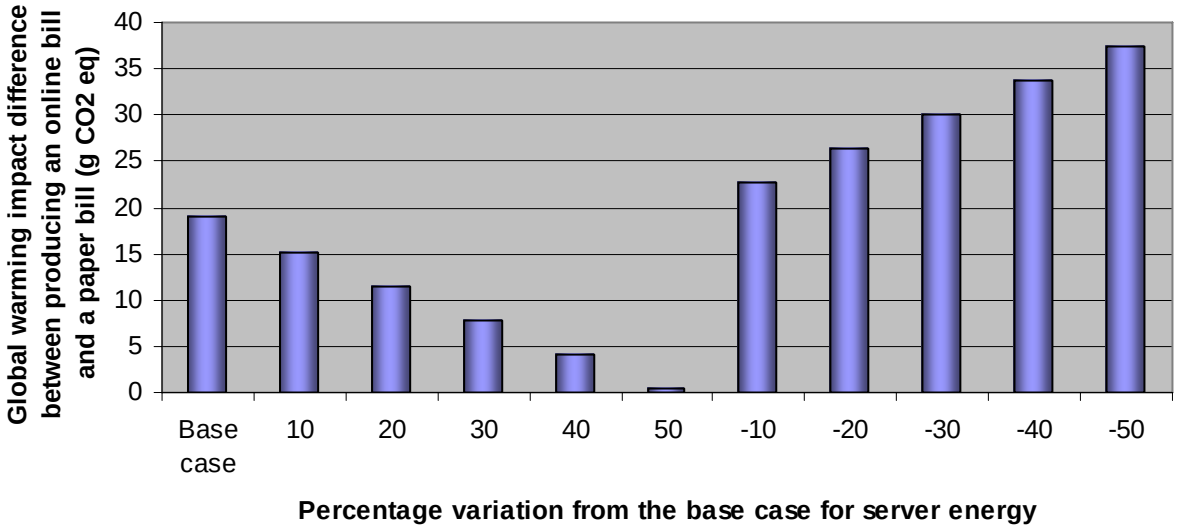


Amount of energy consumed for the production and test and development servers

The results of the sensitivity analysis for the amount of energy consumed for the production and test development servers are shown in Figure 5-2. In the base case it is assumed that the servers consume 28.3 Wh/bill (which includes energy associated with cooling the servers). In this situation, the difference in the global warming impact caused by an online bill compared to a paper bill is approximately 19 g of CO_2 i.e. the impact caused by an online bill compared to a paper bill increases when the amount of energy consumed by the servers increases and vice versa. If we extrapolate the results, when the server energy usage becomes greater than approximately 50% of the base case amount, the global warming impact of the online bill becomes greater than the paper bill.

Section 5 Sensitivity Analysis

Figure 5-2 Global warming impact (difference between an online bill and a paper bill) for the energy use by servers



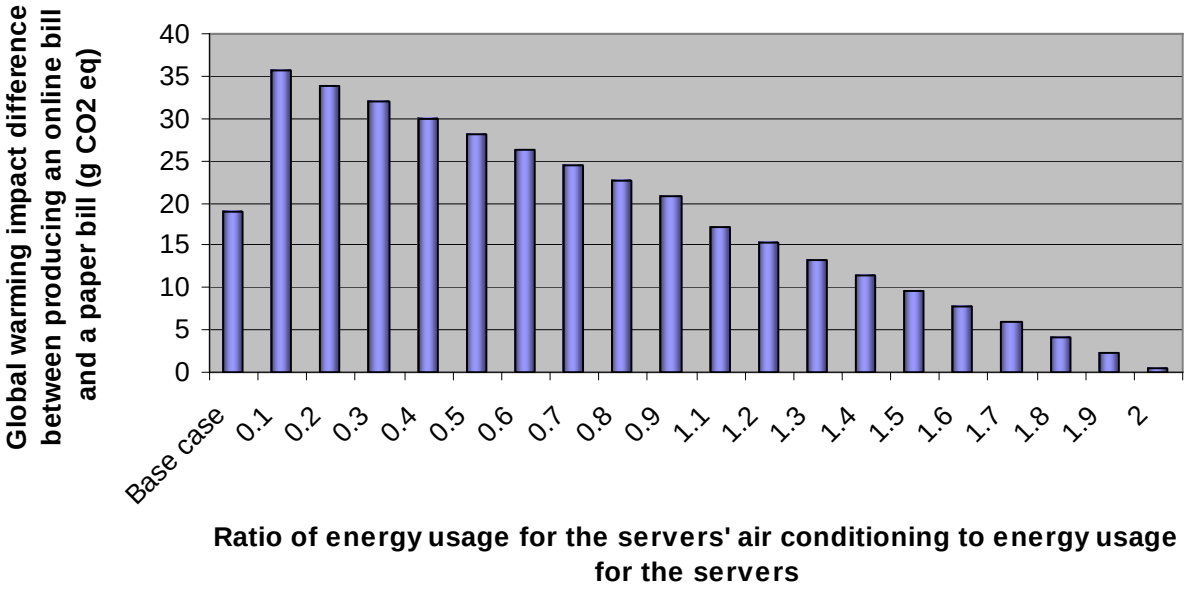
It must noted that this sensitivity analysis also provides information on what would happen if online billing IT processes took up a higher proportion of the servers' capacity than as been assumed in Table 3-3, as the key factor is the energy usage allocated to online billing.

Section 5 Sensitivity Analysis

Ratio of energy consumption for the servers' air conditioners to energy consumption for the servers

The results of the sensitivity analysis for the ratio of energy consumption for the servers' air conditioning to energy consumption for the operation of the servers are shown in Figure 5-3. In the base case it is assumed that the ratio is 1:1. The difference in the impact caused by an online bill compared to a paper bill decreases the higher the ratio. If we extrapolate the results, when the ratio of energy consumption for the servers' air conditioners to energy consumption for the server's operation becomes greater than approximately 2:1, the global warming impact of the online bill becomes greater than the impact associated with the paper bill.

Figure 5-3 Global warming impact (difference between an online bill and a paper bill) for the ratio of energy consumption for the servers' air conditioners to energy consumption for the servers



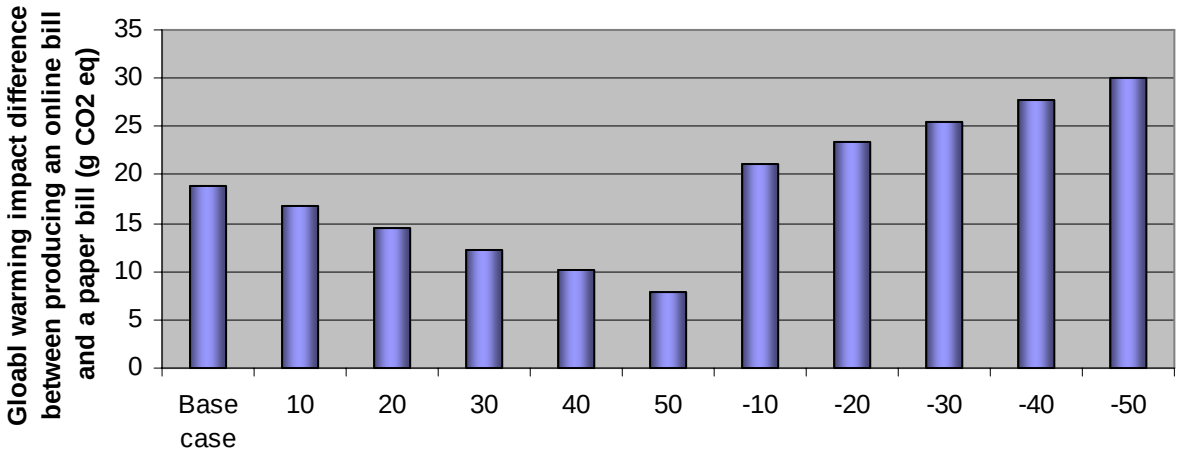
Section 5 Sensitivity Analysis

5.1.2 Use of the online bill by the customer:

Amount of energy consumed by the customer's computer and printer

The results of the sensitivity analysis for the amount of energy consumed by the customer's computer and printer are shown in Figure 5-4. In the base case it is assumed that the home computer and printer consume in total 31.5 Wh/bill. The difference in the impact caused by an online bill compared to a paper bill decreases when the amount of energy consumed by the customer's printer and computer increases and vice versa.

Figure 5-4 Global warming impact (difference between online billing and paper billing) for energy usage by the customer

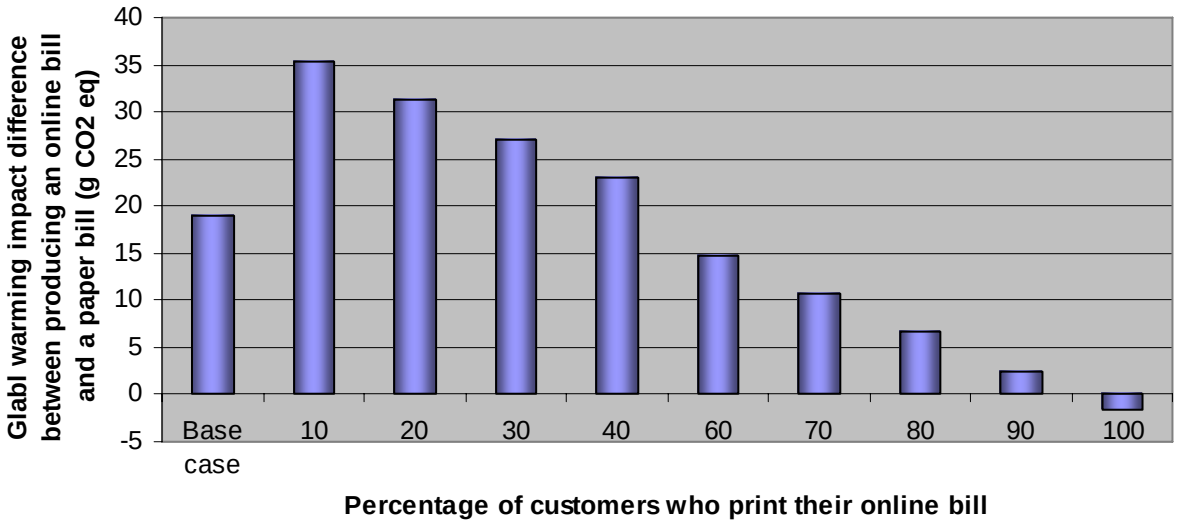


Section 5 Sensitivity Analysis

Percentage of customers printing their online bill

The results of the sensitivity analysis for the number of customers printing their online bill are shown in Figure 5-5. In the base case it is assumed that 50% of customers print their online bill. The difference in the impact caused by an online bill compared to a paper bill decreases as the percentage of customers printing their online bill decreases. When approximately 95% of customers print their online bill the global warming impact of an online bill becomes greater than that of a paper bill.

Figure 5-5 Global warming impact (difference between online billing and paper billing) associated with the percentage of customers who print their online bill

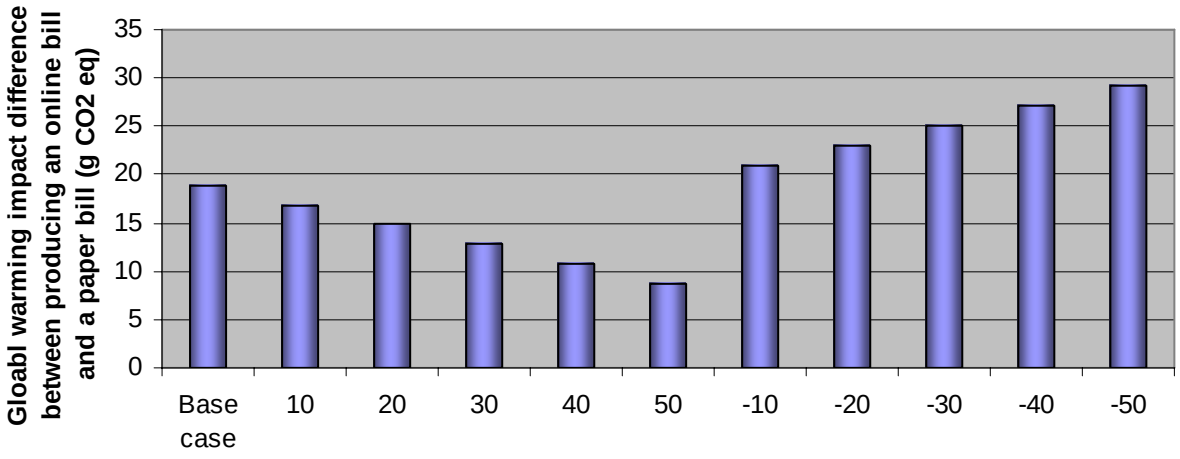


Section 5 Sensitivity Analysis

Number of sheets per bill printed by the customer

The results of the sensitivity analysis for the average number of sheets of paper used by customers to print their online bill are shown in Figure 5-6. In the base case it is assumed that on average 3.25 sheets of paper are used by customers to print their online bill. The difference in the global warming impact caused by an online bill compared to a paper bill decreases when the average number of sheets of paper used by customers to print their online bill increases. Even when on average 4.9 sheets of paper are used by customers to print their online bill (i.e. 50% more than the base case figure) we see that the impacts associated with an online bill are still smaller than those associated with the paper bill.

Figure 5-6 Global warming impact (difference between an online bill and paper bill) associated with the average number of sheets of paper used by customers to print their online bill



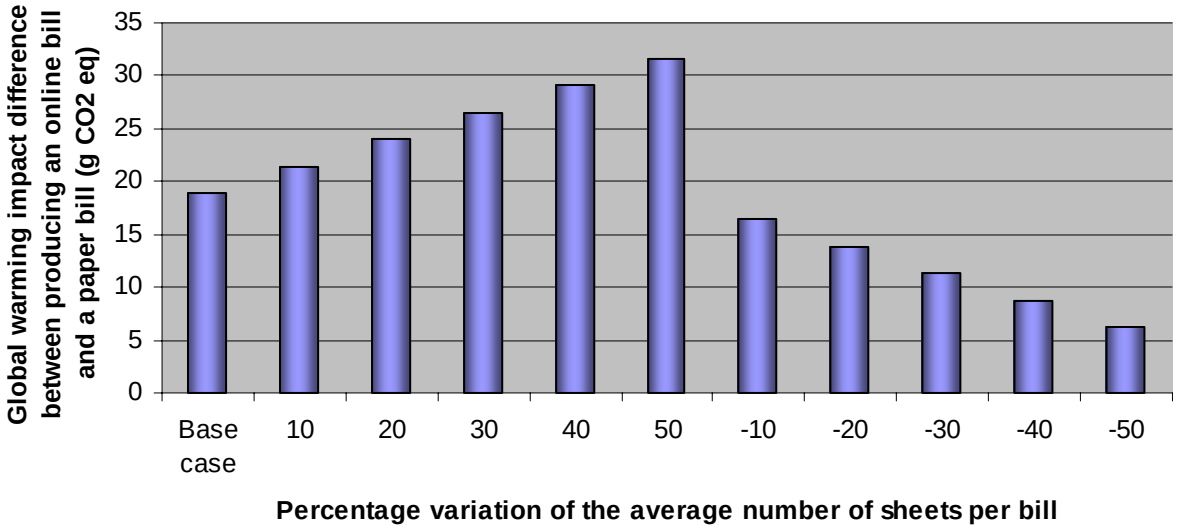
Section 5 Sensitivity Analysis

5.1.3 Paper bill production

Average number of sheets per bill

The results of the sensitivity analysis for the average number of sheets used per bill are shown in Figure 5-7. In the base case it is assumed that the average number of sheets per bill is 3.25. As the average number of sheets per bill increases the global warming impact difference between an online bill and a paper bill increases and decreases when the opposite occurs.

Figure 5-7 Global warming impact (difference between online billing and paper billing) associated with percentage variations to the average number of sheets per bill

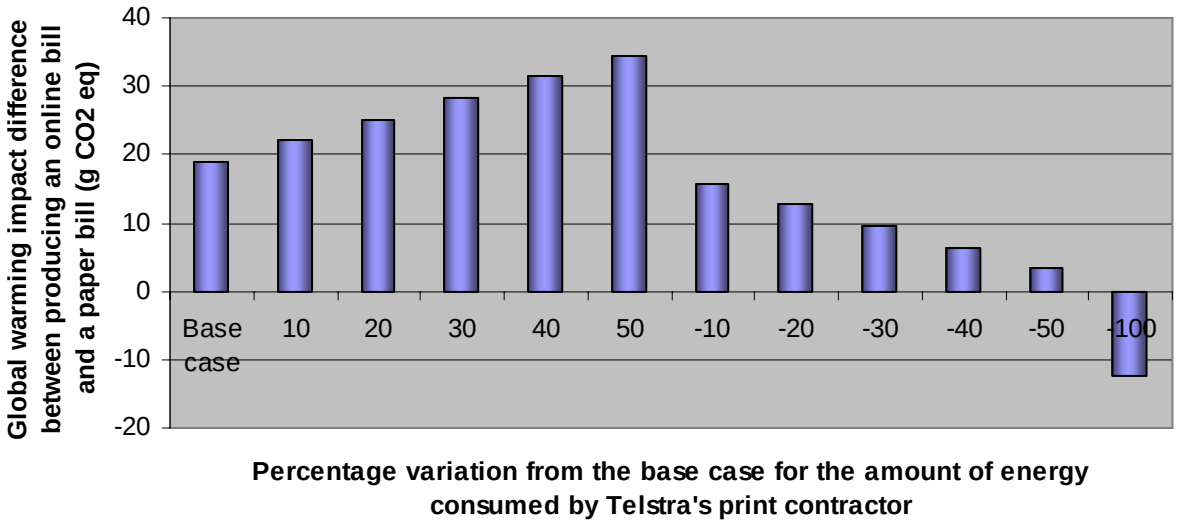


Section 5 Sensitivity Analysis

Amount of energy consumed by Telstra's print contractor

The results of the sensitivity analysis for the amount of energy consumed by Telstra's print contractor to print and sort a Telstra paper bill are shown in Figure 5-8. In the base case it is assumed that the print contractor consumes 31.9 Wh/bill. The global warming difference between an online bill and a paper bill increases as the amount of energy consumed by the print contractor increases and decreases as the amount of energy decreases. If the print contractor was to go carbon neutral (indicated by the -100% point in Figure 5-8), then the impact associated with producing an online bill would be greater that that associated with a paper bill.

Figure 5-8 Global warming impact (difference between online billing and paper billing) associated with varying amounts of energy usage at Telstra's printer contractor



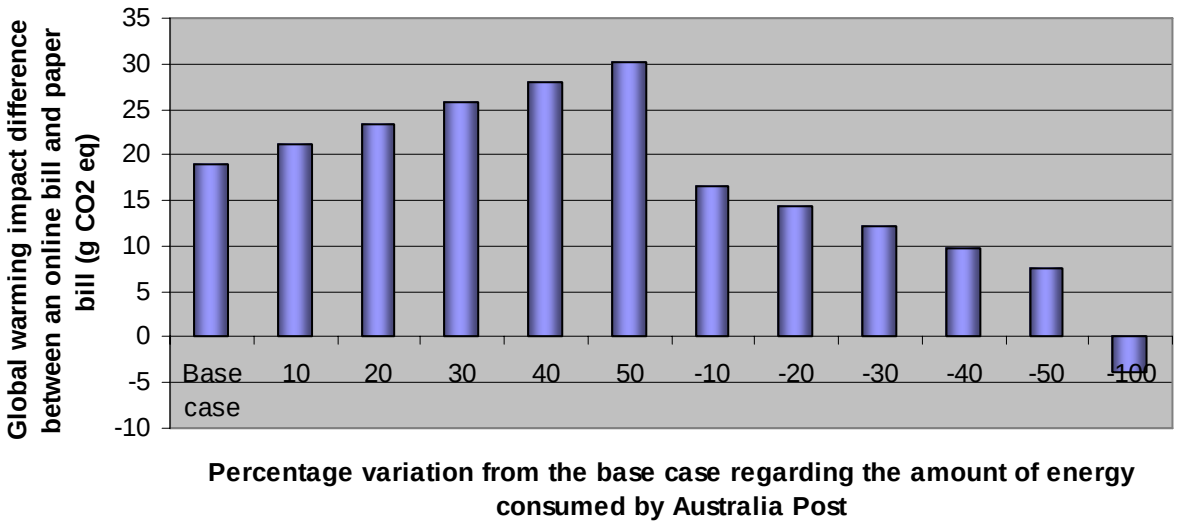
Section 5 Sensitivity Analysis

5.1.4 Distribution of the bill

Amount of energy consumed by Australia Post.

The results of the sensitivity analysis for the amount of energy consumed by Australia Post in distributing a paper bill are shown in Figure 5-9. In the base case it is assumed that Australia Post consumes 0.6 mL of petrol, 1.2 mL of diesel, 23 Wh of electricity and 0.01 MJ of natural gas per paper bill. The difference in the global warming impact caused by an online bill compared to a paper bill increases as Australia Post consumes more energy and reduces as Australia Post's operations become more energy efficient. If Australia Post was to become carbon neutral (indicated by the -100% point in Figure 5-9), the impact of producing an online bill would become greater than the impact associated with a paper bill.

Figure 5-9 Global warming impact (difference between online billing and paper billing) for energy use by Australia Post



5.2 Land Use

The land use chart, shown in Figure 4-4 and Table 4-2, in conjunction with the model input data was used to determine the most important parameters associated with the key contributors. The most important parameters are those that have the biggest impact on key contributors and were therefore the focus of the sensitivity analysis. For example, for paper billing, paper had the biggest impact on ecosystem quality, therefore the sensitivity of parameters associated with paper were tested.

The following parameters were used in the sensitivity analysis:

- Applicable to both services:
  - weight of the paper; and
  - percentage of customers who recycle the paper associated with their bill.
- Use of the online bill by the customer:

  - percentage of customers printing their online bill; and
  - number of sheets per bill printed by the customer;
- Paper bill production:
  - average number of sheets per bill.

The sensitivity analysis demonstrates that the most sensitive parameters are:

- the percentage of customers who recycle the paper associated with their bills; and
- the average number of pages per bill.

The analysis shows that the land use impacts associated with online billing are greater than those associated with paper billing when;

- 100% of customers recycle the paper associated with their bill, the land use impact of online billing becomes greater than that associated with paper billing.

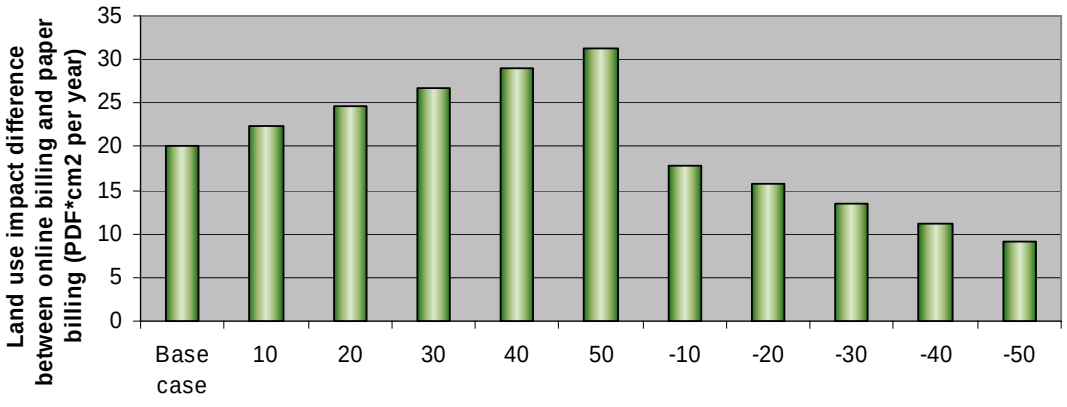
The result for these sensitivity analyses are described in detail below.

5.2.1 Applicable to both services

Weight of the paper

The results of the sensitivity analysis for the weight of paper are shown in Figure 5-10. In the base case it is assumed that the paper used weights 4.9896 g. This results in a land use impact difference between an online bill and a paper bill of approximately 20 PDF*cm^2*year, meaning that a paper bill's impact on the number of vascular plants both locally and regionally over a cm^2 area within a year is 20 times greater than that of an online bill. As the weight of the paper increases the land use impact difference between an online bill and a paper bill increases and decreases when the opposite occurs.

Figure 5-10 Land use impact difference between an online bill and a paper bill for varying weights of paper

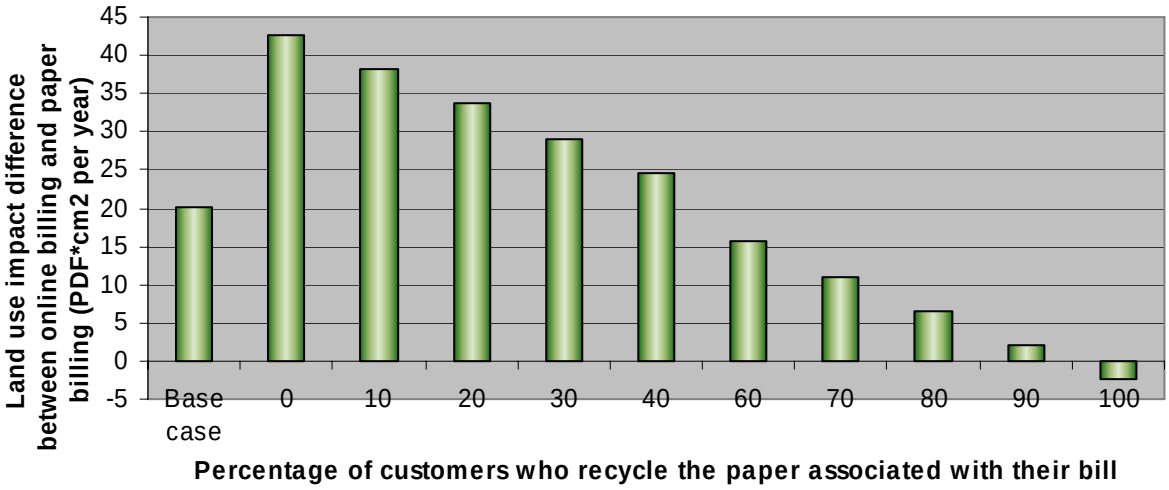


Section 5 Sensitivity Analysis

Percentage of customers who recycle the paper associated with their bill

The results of the sensitivity analysis for the percentage of customers who recycle their paper bill or the paper used to print their online bill are shown in Figure 5-11. In the base case it is assumed that 50% of customers recycle the paper associated with their bill. As the percentage of customers who recycle their paper increases, the land use impact difference between an online bill and a paper bill decreases. If 100% of customers recycle the paper associated with their bill, the land use impact of online billing becomes greater than that associated with paper billing.

Figure 5-11 Difference in the land use impact associated with an online bill compared to a paper bill associated with the percentage of customers who recycle the paper associated with their bill



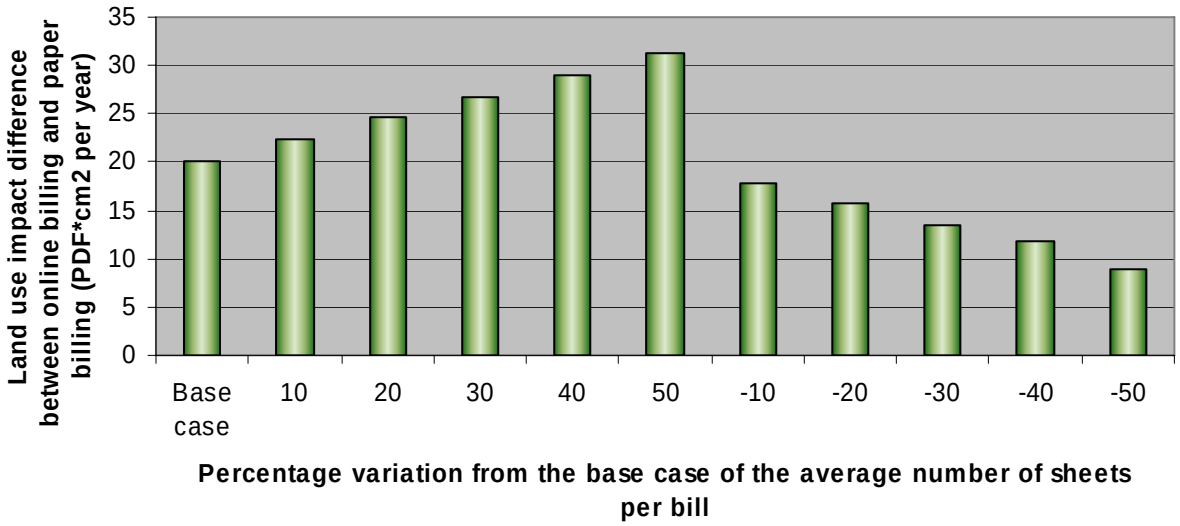
Section 5 Sensitivity Analysis

5.2.2 Paper bill production

Average number of sheets per bill

The results of the sensitivity analysis for the average number of sheets used per bill are shown in Figure 5-12. In the base case it is assumed that the average number of sheets per bill is 3.25. As the average number of sheets per bill increases, the land use impact difference between an online bill and a paper bill increases and vice versa.

Figure 5-12 Difference in land use impact between an online bill and paper bill as the average number of sheets per bill varies



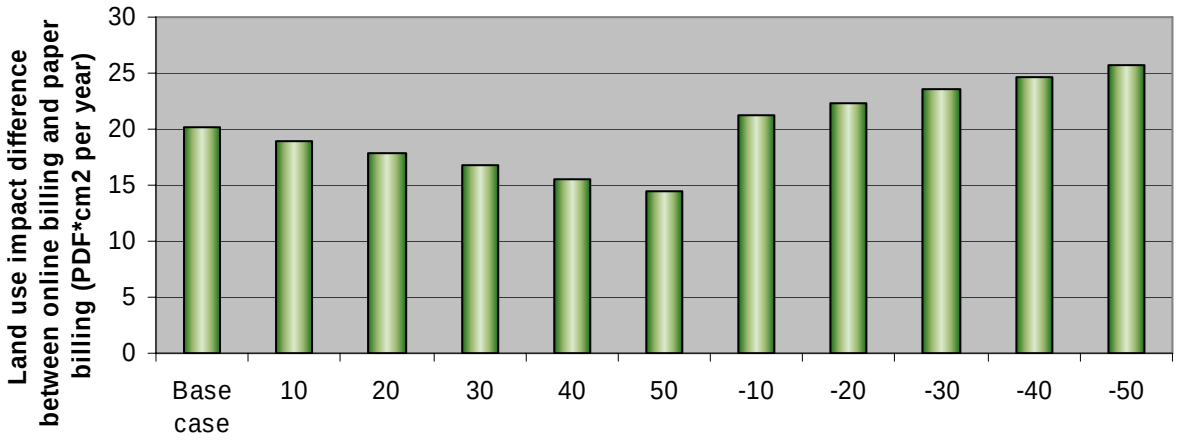
Section 5 Sensitivity Analysis

5.2.3 Use of the bill by the customer

Average number of sheets used by the customer to print their bill

The results of the sensitivity analysis for the average number of sheets used by the customer to print their bill are shown in Figure 5-13. In the base case it is assumed that the customer uses 3.25 sheets of paper. It is possible that this length could be reduced by formatting the bill differently or giving less information on the bill. The difference in the land use impact caused by an online bill compared to a paper bill decreases as the number of sheets increases and increases as the number of sheets decreases.

Figure 5-13 Average number of sheets used by the customer to print their bill

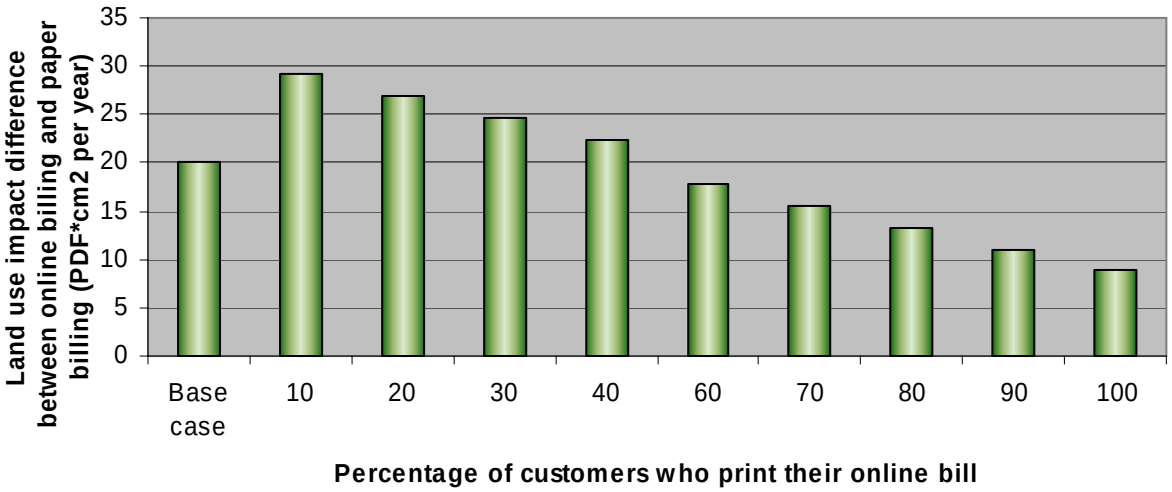


Section 5 Sensitivity Analysis

Percentage of customers who print their online bill

The results of the sensitivity analysis for the percentage of customers who print their online bill are shown in Figure 5-14. In the base case it is assumed that 50% of customers print their online bill. As the percentage of customers who print their online bill increases, the land use impact difference between an online bill and a paper bill decreases and increases when the opposite occurs.

Figure 5-14 Difference in land use impact between an online bill and a paper bill for the percentage of customers who print their online bill



Section 6 Data Quality Evaluation

This section analyses the life cycle inventory and impact assessment results against the stated goal and scope definition of the LCA. It deals with issues of data consistency, variability, uncertainty and completeness and discusses how these affect the interpretation of the results.

6.1 Consistency check

- The system boundaries and allocation procedures have been uniformly applied throughout the life cycle analysis process. All reported resource inputs and emissions under the chosen sub-systems have been considered for the inventory analysis and impact assessment in a consistent manner.
- As mentioned in section 1.4.3, we selected relevant paper in the Ecoinvent (European) database and substituted the key inventory elements from an impacts perspective, i.e. the pulp and the electricity input (INFRAS, 1998), to reflect the sourcing of the pulp and the production of electricity in Australia.
- Regarding recycling of paper, it was considered that only the non-recycled paper component of the envelopes (used in the paper billing process) would be recycled post-consumer use. This is to avoid double-counting the benefits of recycling paper (as these are already included in the model at the beginning of the process via the selection of recycled paper)[25].

6.2 Completeness and uncertainty check

The life cycle impact assessment covered a significant range of impact categories and emission substances. However, due to the project scope, timeframes and resources, the model is based on a number of key assumptions, which if changed may have significant impacts on the results obtained.

- As mentioned in section 1.4.3, energy input associated with air transportation of mail is not included in the model. The project team felt that trying to build up assumptions around this would be a project in itself. Inclusion of this information would only reinforce the conclusion that online billing impacts are less than paper billing's impacts.
- All toner cartridges are reused and therefore the material impacts of the cartridge cases have not been included in the model. Even though energy would be required to transport and reprocess the cartridge cases, given the small number of actual cartridges used in the process it is likely that this assumption would be found reasonable. Inclusion of this information would reinforce the conclusion that online billing impacts are less than paper billing.
- It is assumed that Telstra's activities do not influence the size of Australia Post's vehicle fleet or the need for additional mail centres etc. Consequently the material impacts associated with Australia Post's infrastructure have not been included in the model. This assumption seems reasonable as Telstra only represent 2.3% of Australia Post's present deliveries and Telstra's delivers are not concentrated in one particular geographical area. However, this only reinforces the conclusion that online billing impacts are less than paper billing.
- It has been assumed that the life cycle impacts of the printer and sorter at Telstra's print contractor were the same. This is questionable but the difference is unlikely to be significant enough to influence the results of the model because the material impacts of the equipment are negligible in the overall LCA results.
- The impact associated with transmitting the bill from Telstra's servers to the customer's computer on the telecommunication network is considered negligible and therefore is not included in the model. This assumption seems reasonable given that the activity would represent only a very small proportion of the networks' total activity.

[25] Tim Grant, personal communication

Section 6 Data Quality Evaluation

- It is assumed in the model that online billing customers and paper billing customers require the same level of customer support from Telstra and hence Telstra's building infrastructure and associated energy usage for its customer service staff has not been built into the model. This assumption is not very conservative and as suggested by V Turk et al, 2003, may impact greatly on the results. However inclusion of this information would only reinforce the conclusion that online billing impacts are less than paper billing.
- Although water scarcity is a major issue in Australia, as no indicator is available in the two selected methodologies, this impact is not directly covered in this report. This may present an issue from a completeness perspective but the only significant impact associated with the processes included in the model that involves direct water usage was the pulping of wood for paper. Therefore, inclusion of a water use impact category would enhance the conclusion that online billing impacts are less than paper billing.

Section 7 Conclusions and Recommendations

The life cycle assessment of an online bill compared to a paper bill shows that, using Telstra as an example, and based on the data and assumptions laid out in this report, online billing can avoid a number of environmental impacts. While the results are robust and the conclusion remains true in most cases covered in the sensitivity analysis, the following key parameters greatly influence the magnitude of the environmental benefits of online billing:

- the number of online bills produced per year – i.e. whether IT infrastructure is used at capacity or not;
- the amount of energy consumed by the production and test and development servers that support online billing (which includes the energy required for air conditioning);
- the percentage of customers who print their online bill; and
- the average number of pages per bill.

This has practical implications for the implementation of online billing services and therefore the following recommendations are made, which would be valid for any organisation considering the implementation of an online billing service.

Recommendations

1) Server capacity should be maximised by moving as many customers as possible to the online billing option and any excess servers turned off or used elsewhere.
2) Consideration should be given to how to best reduce the amount of energy required to cool the online billing servers (such as targeted air-conditioning of servers).
3) Customers should be encouraged not to print their online bill. Consideration could be given to providing a summarised bill fitting on one sheet of paper, regardless of how long the bill is, which could be the only thing customer could print.
4) Review the bill content and structure with the aim of reducing the number of pages, graphics and ink. This would help reduce the environmental impacts of online billing and paper billing.
5) In its communications with clients, Telstra could highlight how they can reduce their environmental impacts, for example, through the use of energy efficient equipment, turning off this equipment when not in use, and by not printing their online bills or recycling any paper associated with the billing processes.
6) Communicate the outcomes to suppliers, in particular the print contractor and server supplier and encourage them to focus on reducing the environmental impact of their product and services, in particular energy usage.
7) Telstra may consider buying green energy to offset the servers' energy use and further reduce the impact of online billing.

Further Research

It is recommended that the model be reviewed once the online billing server is running at capacity to test a number of the assumptions including customer numbers, the length of bills, the apportionment of capacity / energy use for the various activities performed by the servers, and aspects such as method of payment. As online billing matures and there is increasing trust in the electronic system, it is likely that customers will move increasingly to online methods of payment.

Section 7 Conclusions and Recommendations

To enhance the results it is also recommended that energy meters be used to obtain data for the amount of energy consumed by the servers and the server air conditioners.

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Section 9 Limitations

URS Australia Pty Ltd (URS) has prepared this report in accordance with the usual care and thoroughness of the consulting profession for the use of Telstra and only those third parties who have been authorised in writing by URS to rely on the report. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report. It is prepared in accordance with the scope of work and for the purpose outlined in the Proposal dated 16 February 2007.

The methodology adopted and sources of information used by URS are outlined in this report. URS has made no independent verification of this information beyond the agreed scope of works and URS assumes no responsibility for any inaccuracies or omissions. No indications were found during our investigations that information contained in this report as provided to URS was false.

This report was prepared between 1 August, 2007 and 17 January 2008 and is based on the conditions encountered and information reviewed at the time of preparation. URS disclaims responsibility for any changes that may have occurred after this time.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

Appendix A Life Cycle Impact Data for Equipment

Appendix A Life Cycle Impact Data for Equipment

Table A-1 Materials used in servers

Material	% weight	Material	% weight
Silica	24	Nickel	0.8
Plastics - ABS	22	Manganese	0.03
Plastics - HIPS	1	Chromium	0.006
Iron	20	Selenium	0.002
Aluminium	14	Palladium	0.0003
Copper	7	Titanium	0.02
Lead	6	Cadmium	0.009
Zinc	2	Vanadium	0.0002
Tin	1		

Source: Mineheart, 2001

Table A - 2 Materials content of a Konica 7085 printer

Aspect	Amount
Resources	
Water	1099 kg
Electricity	98.2 kWh
Gas	0.401 MJ
Oil	534 MJ
Materials	
Steel	210 kg
Aluminium	8.1 kg
Flat glass	2.5 kg
Polystyrene	41 kg
Wood	1.3 cm^3
Acrylonitrile-butadiene-styrene copolymer (ABS)	1.8 kg
Glass fibre	5.3 kg
GX12Cr14 (CA15) I	9 kg
Packaging	22.9 kg
Light Commercial Vehicle Freight	48.1 km
Emissions	
Sulfur oxides	0.00297 kg
Nitrogen oxides	0.00752 kg
Biological Oxygen Demand	0.0209 kg
Waste water	34.7 kg

Source: Konica, 2002

Appendix B Data Output Tables from SIMAPRO

B.1 Inventory

Inventory - Simapro output

SimaPro 7.0 Inventory Date: 17/12/2007 Time: 18:36:10
Project Online billing v7

Title: Analyzing 1 p assembly 'Benefit of online billing - capacity'
Method: CML 2 baseline 2001- Australian Toxicity Factors V1.00 / World, 1995
Compartment: All compartments
Per sub-compartment: No
Default units: No
Indicator: Inventory
Relative mode: Non

No	Substance	Compartment	Unit	Total	Online Bill	Paper Bill
1	Additives	Raw	µg	0.187955	-1.233963627	1.42191885
2	Air	Raw	pg	312.8615	-239.0541314	551.9156745
3	Aluminium, 24% in bauxite, 11% in crude ore, in ground	Raw	mg	10.19651	-3.668439742	13.86494723
4	Aluminum hydroxide	Raw	ng	1.023148	-0.834474427	1.857622188
5	Anhydrite, in ground	Raw	µg	17.90155	-0.608183412	18.50973394
6	bagasse	Raw	mg	155.6941	-104.088028	259.7821027
7	Barite, 15% in crude ore, in ground	Raw	mg	6.836633	-3.577797848	10.41443111
8	Baryte, in ground	Raw	µg	754.6139	-23.72045336	778.3343845
9	Basalt, in ground	Raw	mg	4.498555	-2.326276873	6.824831934
10	Bauxite, in ground	Raw	mg	-29.4476	-32.79888019	3.351325699
11	Borax, in ground	Raw	ng	599.2206	-284.3703336	883.590933
12	Cadmium, in ground	Raw	µg	-3.59488	-3.598610483	0.003735419
13	Calcite, in ground	Raw	g	2.343051	-1.796733714	4.139784755
14	Calcium sulfate, in ground	Raw	pg	0.004222	-0.003226042	0.007448116
15	Carbon	Raw	µg	-36.4002	-38.80923031	2.409017881
16	Carbon dioxide, in air	Raw	g	1.506921	-0.523426399	2.030347103
17	Chromium, 25.5 in chromite, 11.6% in crude ore, in ground	Raw	mg	2.842756	-1.552439371	4.395195171
18	Chromium, in ground	Raw	µg	0.757467	-2.564431349	3.321897912
19	Chrysotile, in ground	Raw	µg	6.620963	-1.861855413	8.482818345
20	Cinnabar, in ground	Raw	ng	609.1219	-171.3254766	780.447346
21	Clay, bentonite, in ground	Raw	mg	2.318914	-2.040509914	4.359424403
22	Clay, unspecified, in ground	Raw	mg	157.5579	-69.70917198	227.2671095
23	Coal, 13.3 MJ per kg, in ground	Raw	g	0.68735	-0.467501886	1.154852382
24	Coal, 18 MJ per kg, in ground	Raw	mg	46.45722	-2.786251779	49.24347395
25	Coal, 18.5 MJ per kg, in ground	Raw	g	0.998849	-0.667229234	1.666078079
26	Coal, 20.5 MJ per kg, in ground	Raw	g	4.582188	-3.127133883	7.709321693
27	Coal, 21.5 MJ per kg, in ground	Raw	g	6.034272	-4.114167299	10.14843919
28	Coal, 28.0 MJ per kg, in ground	Raw	mg	0.296799	-3.492782503	3.789581347
29	Coal, 29.3 MJ per kg, in ground	Raw	mg	-15.4261	-15.45005021	0.023963852
30	Coal, brown, 10 MJ per kg, in ground	Raw	µg	-416.549	-416.9818496	0.432834297
31	Coal, brown, 8 MJ per kg, in ground	Raw	mg	1.455952	-0.06346904	1.519420646
32	Coal, brown, 8.1 MJ per kg, in ground	Raw	g	-25.1412	-50.39799443	25.25681401
33	Coal, brown, in ground	Raw	mg	559.0535	-311.0471165	870.1006034
34	Coal, hard, unspecified, in ground	Raw	g	0.780896	-0.327006161	1.107901692
35	Cobalt, in ground	Raw	ng	15.71338	-8.997997303	24.71137806
36	Colemanite, in ground	Raw	µg	8.052281	-2.035863964	10.08814452
37	Copper, 0.99% in sulfide, Cu 0.36% and Mo 8.2E-3% in crude ore, in ground	Raw	µg	88.72814	-48.00587634	136.7340197
38	Copper, 1.18% in sulfide, Cu 0.39% and Mo 8.2E-3% in crude ore, in ground	Raw	µg	490.9943	-265.357128	756.3514517
39	Copper, 1.42% in sulfide, Cu 0.81% and Mo 8.2E-3% in crude ore, in ground	Raw	µg	130.0658	-70.29394625	200.3597042
40	Copper, 2.19% in sulfide, Cu 1.83% and Mo 8.2E-3% in crude ore, in ground	Raw	µg	646.0318	-349.1471445	995.17899
41	Copper, in ground	Raw	mg	-3.91639	-4.41378683	0.497393531
42	Diatomite, in ground	Raw	µg	245.402	-200.1409609	445.5429413
43	Dolomite, in ground	Raw	mg	0.801216	-2.809498214	3.610714534
44	Energy, from biomass	Raw	kJ	-49.0429	30.97099654	-80.01384739
45	Energy, from coal	Raw	J	3.95E-06	-3.01863E-06	6.96925E-06
46	Energy, from coal, brown	Raw	J	7.03E-07	-5.37098E-07	1.24002E-06
47	Energy, from gas, natural	Raw	J	3.16E-05	-2.41744E-05	5.58127E-05
48	Energy, from hydro power	Raw	kJ	7.235951	-13.44234653	20.67829795
49	Energy, from hydrogen	Raw	J	7.77E-07	-5.93512E-07	1.37027E-06
50	Energy, from oil	Raw	J	2E-05	-1.52655E-05	3.52442E-05
51	Energy, from peat	Raw	J	1.93E-09	-1.47166E-09	3.3977E-09
52	Energy, from solar	Raw	J	4.433838	-3.38784767	7.82168601
53	Energy, from sulfur	Raw	J	1.38E-07	-1.05163E-07	2.42795E-07
54	Energy, from uranium	Raw	J	-89.3427	-89.45261354	0.10989911
55	Energy, from wood	Raw	J	0.019957	-0.016276193	0.036233154
56	Energy, gross calorific value, in biomass	Raw	kJ	19.9126	-7.057094397	26.96969444
57	Energy, kinetic, flow, in wind	Raw	J	383.4327	-501.5186208	884.9513128
58	Energy, potential, stock, in barrage water	Raw	kJ	3.917241	-2.349763539	6.26700418
59	Energy, recovered	Raw	J	-1.4E-06	1.04692E-06	-2.41707E-06
60	Energy, solar	Raw	J	5.50388	-3.096928487	8.600808899
61	Energy, unspecified	Raw	J	-138.163	-138.3098037	0.146824761
62	Feldspar, in ground	Raw	ng	61.22303	-154.0949057	215.3179375
63	Ferromanganese	Raw	µg	41.09373	-206.8745885	247.968322
64	Fluorine, 4.5% in apatite, 1% in crude ore, in ground	Raw	mg	1.479905	-1.136968122	2.616872773
65	Fluorine, 4.5% in apatite, 3% in crude ore, in ground	Raw	mg	0.712297	-0.53870938	1.251006148
66	Fluorine, in ground	Raw	µg	225.5373	-183.9402786	409.4775892
67	Fluorspar, 92%, in ground	Raw	mg	37.4435	-28.77190925	66.21540899
68	Fluorspar, in ground	Raw	pg	0.002922	-0.002232535	0.005154359
69	Gas, mine, off-gas, process, coal mining/kg	Raw	µg	4.379234	-22.81123544	27.19046971
70	Gas, mine, off-gas, process, coal mining/m3	Raw	cm3	6.751231	-2.642843133	9.394074094
71	Gas, natural, 30.3 MJ per kg, in ground	Raw	mg	11.75287	-7.455209751	19.20808243
72	Gas, natural, 35 MJ per m3, in ground	Raw	cm3	361.8119	-11.12272735	372.934623
73	Gas, natural, 35.9 MJ per m3, in ground	Raw	cu.in	61.42636	-50.53872796	111.9650854
74	Gas, natural, 51.3 MJ per kg, in ground	Raw	mg	-5.37864	-5.384227695	0.005587357
75	Gas, natural, in ground	Raw	cu.in	158.3449	-76.08632756	234.4312386
76	Gas, off-gas, oil production, in ground	Raw	mm3	167.1898	-4.69219765	171.8820145
77	Gas, petroleum, 35 MJ per m3, in ground	Raw	mm3	392.1567	-14.39421685	406.550953
78	Granite, in ground	Raw	µg	3.80063	-1.695094635	5.495724916
79	Graphite, from technosphere	Raw	µg	-34.0936	25.04025193	-59.1338558
80	Gravel, in ground	Raw	g	3.302411	-2.208337983	5.510749062
81	Gypsum, in ground	Raw	mg	0.556065	-1.540543698	2.096609167
82	Iron ore, in ground	Raw	mg	-4.50908	-39.9866419	35.47756433
83	Iron, 46% in ore, 25% in crude ore, in ground	Raw	mg	133.7654	-85.30822831	219.0736454

No	Substance	Compartment	Unit	Total	Online Bill	Paper Bill
84	Iron, in ground	Raw	mg	3.120743	-0.109027971	3.229771008
85	Kaolinite, 24% in crude ore, in ground	Raw	g	2.543455	-1.821181719	4.364636339
86	Kieserite, 25% in crude ore, in ground	Raw	ng	350.6887	-166.2459352	516.9345884
87	Land use II-III	Raw	m2s	35.27069	-1.715959106	36.98664839
88	Land use II-III, sea floor	Raw	m2s	364.2136	-11.91896889	376.1325206
89	Land use II-IV	Raw	m2s	8.701135	-0.579207967	9.280342518
90	Land use II-IV, sea floor	Raw	m2s	37.54376	-1.228634522	38.77239626
91	Land use III-IV	Raw	m2s	30.26536	-1.031792128	31.29714763
92	Land use IV-IV	Raw	m2s	0.006849	-0.000794139	0.007642658
93	Landfill cover, m3	Raw	mm3	0.000611	-0.000498443	0.001109606
94	Lead, 5%, in sulfide, Pb 2.97% and Zn 5.34% in crude ore, in ground	Raw	mg	-0.23734	-2.737303389	2.49996144
95	Lead, in ground	Raw	ng	280.1636	-33.80899773	313.9725494
96	Limestone, in ground	Raw	mg	-39.7178	-11.65300403	-28.06476781
97	Magnesite, 60% in crude ore, in ground	Raw	mg	1.845531	-1.064469797	2.910000995
98	Magnesium, 0.13% in water	Raw	ng	62.7253	-8.912122225	71.63742397
99	Magnesium, in ground	Raw	µg	-139.39	-139.5346935	0.1448394
100	Manganese, 35.7% in sedimentary deposit, 14.2% in crude ore, in ground	Raw	µg	439.3303	-287.8254778	727.1557475
101	Manganese, in ground	Raw	µg	-1.56705	-2.074049592	0.50699558
102	Marl, in ground	Raw	mg	2.059084	-0.061272162	2.120355834
103	Methane	Raw	µg	319.9752	-3.945508556	323.92073
104	Molybdenum, 0.010% in sulfide, Mo 8.2E-3% and Cu 1.83% in crude ore, in ground	Raw	µg	12.00567	-6.488446966	18.49411739
105	Molybdenum, 0.014% in sulfide, Mo 8.2E-3% and Cu 0.81% in crude ore, in ground	Raw	µg	1.70842	-0.923316228	2.63173594
106	Molybdenum, 0.022% in sulfide, Mo 8.2E-3% and Cu 0.36% in crude ore, in ground	Raw	µg	154.0176	-100.9418043	254.9594301
107	Molybdenum, 0.025% in sulfide, Mo 8.2E-3% and Cu 0.39% in crude ore, in ground	Raw	µg	6.268734	-3.387929691	9.656663747
108	Molybdenum, 0.11% in sulfide, Mo 4.1E-2% and Cu 0.36% in crude ore, in ground	Raw	µg	310.8421	-203.723259	514.5653354
109	Molybdenum, in ground	Raw	pg	1.549662	-0.080374316	1.630036746
110	Nickel, 1.13% in sulfide, Ni 0.76% and Cu 0.76% in crude ore, in ground	Raw	µg	26.70935	-18.80946695	45.51881492
111	Nickel, 1.98% in silicates, 1.04% in crude ore, in ground	Raw	mg	7.740683	-4.423280217	12.16396352
112	Nickel, in ground	Raw	mg	-3.10332	-3.107401902	0.004085481
113	Nitrogen, in air	Raw	pg	31.19973	-23.83937525	55.0391026
114	Occupation, arable	Raw	m2s	69.42437	-0.365183761	69.78955626
115	Occupation, arable, non-irrigated	Raw	cm2a	14.64562	-10.41814622	25.06376494
116	Occupation, construction site	Raw	m2s	234.4546	-192.4734901	426.9281263
117	Occupation, dump site	Raw	m2s	263.0595	-116.9532052	380.0127006
118	Occupation, dump site, benthos	Raw	m2s	25.02895	-13.54377436	38.57272525
119	Occupation, forest	Raw	cm2a	-50.1771	40.92268923	-91.09980583
120	Occupation, forest, intensive	Raw	cm2a	10.1683	-0.018404726	10.18670843
121	Occupation, forest, intensive, normal	Raw	mm2a	570.658	-89.77463842	660.4325931
122	Occupation, forest, intensive, short-cycle	Raw	m2s	0.59707	-0.486949595	1.08402003
123	Occupation, industrial area	Raw	m2s	199.4897	-280.4975271	479.9872183
124	Occupation, industrial area, benthos	Raw	m2s	0.22738	-0.122917223	0.350297516
125	Occupation, industrial area, built up	Raw	m2s	268.7857	-145.2325963	414.0182562
126	Occupation, industrial area, vegetation	Raw	mm2a	8.027136	-23.87325396	31.90038981
127	Occupation, mineral extraction site	Raw	m2s	167.3243	-112.9167114	280.2410271
128	Occupation, permanent crop, fruit, intensive	Raw	mm2a	289.0661	-132.8778141	421.9439057
129	Occupation, shrub land, sclerophyllous	Raw	m2s	11.97371	-3.70036286	15.67406814
130	Occupation, traffic area	Raw	mm2a	89.528	-72.74926643	162.277266
131	Occupation, traffic area, rail embankment	Raw	m2s	314.7344	-240.2766301	555.0110618
132	Occupation, traffic area, rail network	Raw	m2s	348.0236	-265.6904861	613.7140412
133	Occupation, traffic area, road embankment	Raw	m2s	766.2476	-67.31125141	833.5588919
134	Occupation, traffic area, road network	Raw	m2s	401.4238	-222.105323	623.5290997
135	Occupation, urban, continuously built	Raw	m2s	5.689617	-0.029906899	5.719524262
136	Occupation, urban, discontinuously built	Raw	m2s	69.56772	-41.40847089	110.9761895
137	Occupation, urban, green areas	Raw	mm2a	34.66461	-149.0808352	183.7454475
138	Occupation, water bodies, artificial	Raw	m2s	169.4464	-94.92813269	264.3745412
139	Occupation, water courses, artificial	Raw	cm2a	5.946687	-10.78115739	16.72784431
140	Oil, crude, 41 MJ per kg, in ground	Raw	mg	-5.37836	-5.384970593	0.006613342
141	Oil, crude, 41.0 MJ per kg, in ground	Raw	mg	-2.24048	-3.31728876	1.076813703
142	Oil, crude, 42.0 MJ per kg, in ground	Raw	g	1.553158	-0.136507906	1.689666085
143	Oil, crude, 42.6 MJ per kg, in ground	Raw	mg	9.272695	-0.229610382	9.502305244
144	Oil, crude, 42.7 MJ per kg, in ground	Raw	mg	-5.92203	-5.929352929	0.007325944
145	Oil, crude, 42.8 MJ per kg, in ground	Raw	mg	1.216211	-0.317669191	1.533880573
146	Oil, crude, 43.4 MJ per kg, in ground	Raw	g	0.971673	-0.085379168	1.05705227
147	Oil, crude, in ground	Raw	g	1.226737	-0.60398905	1.830726042
148	Olivine, in ground	Raw	µg	2.0515	-0.201075276	2.252575372
149	Oxygen, in air	Raw	mg	138.2905	-114.226624	252.5171739
150	Palladium, in ground	Raw	ng	-114.122	-114.2416551	0.119621252
151	Paper waste, feedstock	Raw	µg	7.469773	-6.092083581	13.56185669
152	Pd, Pd 2.0E-4%, Pt 4.8E-4%, Rh 2.4E-5%, Ni 3.7E-2%, Cu 5.2E-2% in ore, in ground	Raw	ng	1.042534	-0.577277747	1.619811305
153	Pd, Pd 7.3E-4%, Pt 2.5E-4%, Rh 2.0E-5%, Ni 2.3E+0%, Cu 3.2E+0% in ore, in ground	Raw	ng	2.505507	-1.387366712	3.892873282
154	Peat, in ground	Raw	µg	662.1882	-12.60163726	674.7898802
155	Phosphorus pentoxide	Raw	mg	0.902149	-0.735761114	1.637910357
156	Phosphorus, 18% in apatite, 12% in crude ore, in ground	Raw	mg	49.65958	-40.33233076	89.99191211
157	Phosphorus, 18% in apatite, 4% in crude ore, in ground	Raw	mg	5.919619	-4.547872496	10.4674911
158	Platinum, in ground	Raw	pg	1.154866	-0.059708638	1.2145749
159	Potassium chloride	Raw	pg	9.415596	-7.194355728	16.60995219
160	Pt, Pt 2.5E-4%, Pd 7.3E-4%, Rh 2.0E-5%, Ni 2.3E+0%, Cu 3.2E+0% in ore, in ground	Raw	pg	32.49711	-18.15522276	50.65232854
161	Pt, Pt 4.8E-4%, Pd 2.0E-4%, Rh 2.4E-5%, Ni 3.7E-2%, Cu 5.2E-2% in ore, in ground	Raw	pg	116.4974	-65.08383989	181.5812337
162	Refractories, from technosphere	Raw	µg	11.51108	-121.3937156	132.9048005
163	Rh, Rh 2.0E-5%, Pt 2.5E-4%, Pd 7.3E-4%, Ni 2.3E+0%, Cu 3.2E+0% in ore, in ground	Raw	pg	23.80334	-13.17942038	36.98275973
164	Rh, Rh 2.4E-5%, Pt 4.8E-4%, Pd 2.0E-4%, Ni 3.7E-2%, Cu 5.2E-2% in ore, in ground	Raw	pg	74.5551	-41.27962626	115.8347218
165	Rhenium, in crude ore, in ground	Raw	pg	37.28749	-20.21972161	57.50720678
166	Rhenium, in ground	Raw	pg	0.920042	-0.048040977	0.968083391
167	Rhodium, in ground	Raw	pg	1.038134	-0.055807895	1.093942305
168	Rutile, in ground	Raw	ng	37.86824	-1.556716826	39.42495457
169	Salt, unspecified	Raw	mg	5.038454	-4.10918508	9.14763864
170	Sand, river, in ground	Raw	mg	32.0344	-94.59526449	126.6296613
171	Sand, unspecified, in ground	Raw	mg	9.68398	-1.473308511	11.15728863
172	Secondary glass	Raw	mg	-9.123	-9.184254943	0.061256542
173	Shale, in ground	Raw	µg	50.75649	-1.725792262	52.48228423
174	Silicon, in ground	Raw	ng	140.1353	-2.38524E-10	140.1353029
175	Silver, 0.01% in crude ore, in ground	Raw	ng	2.335052	-1.31710174	3.652153977
176	Silver, in ground	Raw	ng	28.27014	-0.948254526	29.21839797
177	Sodium chloride, in ground	Raw	mg	425.3736	-222.1454156	647.5190206
178	Sodium sulphate, various forms, in ground	Raw	mg	12.40299	-9.533461061	21.93644939
179	Stibnite, in ground	Raw	µg	25.50256	-20.79896261	46.30152135
180	Sulfur dioxide, secondary	Raw	mg	71.22366	-58.0876883	129.3113485

No	Substance	Compartment	Unit	Total	Online Bill	Paper Bill
181	Sulfur, bonded	Raw	pg	7.424369	-5.672879918	13.09724842
182	Sulfur, in ground	Raw	mg	0.986498	-0.018704377	1.005202032
183	Sylvite, 25 % in sylvinite, in ground	Raw	mg	10.74737	-6.059757599	16.80712424
184	Talc, in ground	Raw	mg	0.685713	-0.505427387	1.191140446
185	Tin, 79% in cassiterite, 0.1% in crude ore, in ground	Raw	µg	3.779399	-2.078451117	5.857850411
186	Tin, in ground	Raw	ng	15.70786	-0.526564591	16.23442882
187	TiO2, 45-60% in Ilmenite, in ground	Raw	mg	22.86703	-17.5416348	40.40866176
188	Titanium, in ground	Raw	µg	-77.6037	-77.68428979	0.080637623
189	Transformation, from arable	Raw	mm2	0.004982	-0.001989536	0.006971668
190	Transformation, from arable, non-irrigated	Raw	cm2	13.56603	-8.263598901	21.82962883
191	Transformation, from arable, non-irrigated, fallow	Raw	mm2	0.001218	-0.000435023	0.001652691
192	Transformation, from dump site, inert material landfill	Raw	mm2	0.021525	-0.013009696	0.034534674
193	Transformation, from dump site, residual material landfill	Raw	mm2	0.04007	-0.007268664	0.047339112
194	Transformation, from dump site, sanitary landfill	Raw	mm2	0.013164	-0.003060344	0.016224148
195	Transformation, from dump site, slag compartment	Raw	mm2	0.00109	-0.000109975	0.001199942
196	Transformation, from forest	Raw	mm2	1.562643	-0.861763887	2.424406891
197	Transformation, from forest, extensive	Raw	mm2	16.19063	-2.795330004	18.98596207
198	Transformation, from forest, intensive, short-cycle	Raw	mm2	0.000433	-0.00035283	0.00078545
199	Transformation, from industrial area	Raw	mm2	0.012706	-0.006767637	0.019473499
200	Transformation, from industrial area, benthos	Raw	mm2	6.33E-05	-3.33144E-05	9.65882E-05
201	Transformation, from industrial area, built up	Raw	mm2	0.002113	-0.001623686	0.00373622
202	Transformation, from industrial area, vegetation	Raw	mm2	0.003604	-0.002769817	0.006373552
203	Transformation, from mineral extraction site	Raw	mm2	0.185377	-0.137144941	0.322521862
204	Transformation, from pasture and meadow	Raw	mm2	0.206547	-0.093204078	0.299751317
205	Transformation, from pasture and meadow, intensive	Raw	mm2	1.093224	-0.665925296	1.759149039
206	Transformation, from sea and ocean	Raw	mm2	0.793843	-0.42957024	1.223412756
207	Transformation, from shrub land, sclerophyllous	Raw	mm2	0.087295	-0.029941686	0.117236575
208	Transformation, from unknown	Raw	mm2	13.60559	-23.46904522	37.07463387
209	Transformation, to arable	Raw	mm2	0.132218	-0.068901261	0.201118883
210	Transformation, to arable, non-irrigated	Raw	cm2	13.57695	-8.270250928	21.84720127
211	Transformation, to arable, non-irrigated, fallow	Raw	mm2	0.00189	-0.000724788	0.002615079
212	Transformation, to dump site	Raw	mm2	0.052179	-0.025979592	0.078158637
213	Transformation, to dump site, benthos	Raw	mm2	0.793418	-0.429337647	1.22275539
214	Transformation, to dump site, inert material landfill	Raw	mm2	0.021525	-0.013009696	0.034534674
215	Transformation, to dump site, residual material landfill	Raw	mm2	0.040071	-0.007268719	0.047339251
216	Transformation, to dump site, sanitary landfill	Raw	mm2	0.013164	-0.003060344	0.016224148
217	Transformation, to dump site, slag compartment	Raw	mm2	0.00109	-0.000109975	0.001199942
218	Transformation, to forest	Raw	mm2	0.20629	-0.103752953	0.310043256
219	Transformation, to forest, intensive	Raw	mm2	6.771062	-0.012259298	6.783321517
220	Transformation, to forest, intensive, normal	Raw	mm2	4.691676	-0.727624398	5.419300303
221	Transformation, to forest, intensive, short-cycle	Raw	mm2	0.000541	-0.000441037	0.000981812
222	Transformation, to heterogeneous, agricultural	Raw	mm2	0.072682	-0.039770412	0.112452486
223	Transformation, to industrial area	Raw	mm2	0.104069	-0.232178754	0.336247759
224	Transformation, to industrial area, benthos	Raw	mm2	0.000425	-0.000232621	0.000658111
225	Transformation, to industrial area, built up	Raw	mm2	0.166307	-0.088555002	0.254861653
226	Transformation, to industrial area, vegetation	Raw	mm2	0.206605	-0.763337976	0.969942547
227	Transformation, to mineral extraction site	Raw	mm2	2.357077	-1.421583678	3.778660992
228	Transformation, to pasture and meadow	Raw	mm2	0.031654	-0.02200148	0.053655021
229	Transformation, to pasture and meadow, extensive	Raw	mm2	0.000108	-8.82074E-05	0.000196362
230	Transformation, to permanent crop, fruit, intensive	Raw	mm2	4.568948	-2.047692374	6.616640478
231	Transformation, to sea and ocean	Raw	mm2	6.33E-05	-3.33144E-05	9.65882E-05
232	Transformation, to shrub land, sclerophyllous	Raw	mm2	0.07415	-0.046181806	0.120331916
233	Transformation, to traffic area, rail embankment	Raw	mm2	0.023216	-0.017723635	0.040939543
234	Transformation, to traffic area, rail network	Raw	mm2	0.025518	-0.019481351	0.04499966
235	Transformation, to traffic area, road embankment	Raw	mm2	0.162685	-0.01042702	0.173112148
236	Transformation, to traffic area, road network	Raw	mm2	0.06701	-0.029152218	0.096161885
237	Transformation, to unknown	Raw	mm2	0.014586	-0.00865062	0.023236437
238	Transformation, to urban, continuously built	Raw	mm2	-0.001	-0.000998766	3.21801E-06
239	Transformation, to urban, discontinuously built	Raw	mm2	0.043928	-0.026147112	0.070075199
240	Transformation, to water bodies, artificial	Raw	mm2	12.06599	-21.67474048	33.74073514
241	Transformation, to water courses, artificial	Raw	mm2	0.02751	-0.015488945	0.042998563
242	Ulexite, in ground	Raw	mg	3.195946	-0.000101437	3.196047909
243	Uranium, 451 GJ per kg, in ground	Raw	ng	269.1802	-29.89672619	299.0769534
244	Uranium, 560 GJ per kg, in ground	Raw	ng	54.51729	-4.118344845	58.63563841
245	Uranium, in ground	Raw	µg	33.11271	-19.06939086	52.18209609
246	Vanadium, in ground	Raw	ng	-83.6902	-83.77717526	0.086962142
247	Vermiculite, in ground	Raw	ng	515.8565	-280.8341822	796.6907162
248	Volume occupied, final repository for low-active radioactive waste	Raw	mm3	0.056793	-0.031428913	0.088222346
249	Volume occupied, final repository for radioactive waste	Raw	mm3	0.013973	-0.007700479	0.021673678
250	Volume occupied, reservoir	Raw	cm3y	43.7863	-22.30587859	66.09217717
251	Volume occupied, underground deposit	Raw	mm3	2.407118	-0.914024503	3.321142323
252	Water, cooling, river	Raw	g	-4.20523	-8.429806069	4.224573744
253	Water, cooling, salt, ocean	Raw	ng	40.64261	-31.05457682	71.6971826
254	Water, cooling, surface	Raw	ng	0.725726	-0.554519579	1.280245798
255	Water, cooling, unspecified natural origin/kg	Raw	mg	142.6861	-364.2979175	506.9840403
256	Water, cooling, unspecified natural origin/m3	Raw	cm3	275.4941	-144.1213995	419.6154575
257	Water, cooling, well, in ground	Raw	g	20.30569	-78.51075041	98.81644096
258	Water, fresh	Raw	mm3	7.937343	3.46555E-26	7.937342677
259	Water, lake	Raw	mm3	540.7874	-294.318313	835.1056728
260	Water, process, drinking	Raw	ng	5.280761	-4.034972327	9.315733052
261	Water, process, river	Raw	g	3.358132	-2.287218915	5.645351152
262	Water, process, salt, ocean	Raw	pg	162.4882	-124.1554945	286.6437116
263	Water, process, surface	Raw	ng	0.636501	-0.486343508	1.122844453
264	Water, process, unspecified natural origin/kg	Raw	g	-0.86519	-1.132936821	0.267744979
265	Water, process, unspecified natural origin/m3	Raw	mm3	10.33545	-52.03083294	62.36628002
266	Water, process, well, in ground	Raw	pg	264.109	-201.8028769	465.9119265
267	Water, river	Raw	cm3	14.52395	-7.714156373	22.23810629
268	Water, salt, ocean	Raw	cm3	3.38981	-1.776600203	5.166410318
269	Water, salt, sole	Raw	cm3	0.666013	-0.370118276	1.036131665
270	Water, turbine use, unspecified natural origin	Raw	dm3	19.03436	-10.74702508	29.78138671
271	Water, unspecified natural origin /kg	Raw	g	35.72625	-29.67552277	65.4017715
272	Water, unspecified natural origin/kg	Raw	g	3.460938	-0.171603697	3.632541561
273	Water, unspecified natural origin/m3	Raw	cm3	-67.4154	67.28441835	-134.6997948
274	Water, well, in ground	Raw	cm3	50.84544	-2.238453168	53.08389437
275	Water, well, in ground /kg	Raw	ng	126.0171	-2.14494E-10	126.0171413
276	Wood, dry matter	Raw	µg	13.20028	-21.77656263	34.97684272
277	Wood, hard, standing	Raw	mm3	35.19954	-6.599229052	41.79877018

No	Substance	Compartment	Unit	Total	Online Bill	Paper Bill
278	Wood, soft, standing	Raw	mm3	821.872	-46.06133257	867.9333449
279	Wood, unspecified, standing/kg	Raw	µg	477.2284	-8.263880512	485.4922848
280	Wood, unspecified, standing/m3	Raw	mm3	1.081835	-0.627108674	1.708943832
281	Zeolite, in ground	Raw	ng	191.5045	-6.290073297	197.7945605
282	Zinc 9%, in sulfide, Zn 5.34% and Pb 2.97% in crude ore, in ground	Raw	mg	1.006697	-1.175005045	2.181702149
283	Zinc, in ground	Raw	ng	24.7132	-0.647575678	25.36077734
284	2-Propanol	Air	pg	419.8711	-342.43209	762.30322
285	Acenaphthene	Air	pg	3.494828	-1.95486886	5.449696458
286	Acetaldehyde	Air	ng	-170.869	757.8201646	-928.6888123
287	Acetic acid	Air	µg	161.3158	-38.37413348	199.6899536
288	Acetone	Air	ng	18.14727	477.3818443	-459.2345702
289	Acrolein	Air	ng	1.739928	-0.836684886	2.576613367
290	Acrylonitrile	Air	ng	-321.537	-321.8705494	0.334013682
291	Actinides, radioactive, unspecified	Air	nBq	0.596678	-0.328819015	0.925496993
292	Aerosols, radioactive, unspecified	Air	µBq	10.82517	-5.893706445	16.71887383
293	Aldehydes, unspecified	Air	ng	390.246	-275.4056452	665.6516674
294	Aluminum	Air	µg	204.3251	-86.75773669	291.0828627
295	Americium-241	Air	nBq	0.419711	-0.031708643	0.451419785
296	Ammonia	Air	mg	2.143802	-1.493686846	3.63748925
297	Ammonium carbonate	Air	ng	3.076143	-1.519815927	4.595958732
298	Antimony	Air	ng	63.28165	-29.82150428	93.10315192
299	Antimony-124	Air	nBq	0.135118	-0.078597239	0.213714991
300	Antimony-125	Air	nBq	1.3463	-0.815422889	2.161723055
301	Argon-41	Air	mBq	7.754302	-4.330359272	12.0846613
302	Arsenic	Air	µg	1.583166	-1.053285187	2.636451542
303	Barium	Air	µg	0.901213	-0.138709423	1.039922895
304	Barium-140	Air	nBq	87.6115	-53.04474649	140.6562457
305	Benzaldehyde	Air	ng	0.764399	-0.357660104	1.122059179
306	Benzene	Air	µg	163.0175	-47.56327675	210.5808069
307	Benzene, ethyl-	Air	µg	4.476859	-0.915390105	5.392248617
308	Benzene, hexachloro-	Air	ng	1.438672	-0.742805968	2.181478247
309	Benzene, pentachloro-	Air	pg	853.8116	-67.64161757	921.4532116
310	Benzo(a)pyrene	Air	ng	54.29422	-30.05881362	84.35303017
311	Beryllium	Air	µg	0.640104	-0.626872438	1.266976445
312	Biphenyl	Air	pg	-0.73523	-61.72226531	60.98703535
313	Boron	Air	µg	84.11219	-257.7764383	341.8886311
314	Bromine	Air	µg	1.348184	-0.563083965	1.911267973
315	Butadiene	Air	ng	70.64018	-6.079972581	76.72015063
316	Butane	Air	µg	121.1544	-62.22333243	183.3777376
317	Butene	Air	µg	1.196403	-0.642246536	1.838649916
318	Cadmium	Air	ng	491.7082	-392.0233995	883.7316299
319	Calcium	Air	µg	25.94935	-1.910001462	27.85935568
320	Caprolactam	Air	pg	-6.7972	-570.6223428	563.8251418
321	Carbon-14	Air	mBq	48.16668	-26.55868084	74.7253641
322	Carbon dioxide	Air	g	4.195831	-0.918473833	5.114304892
323	Carbon dioxide, biogenic	Air	g	5.05816	-4.202441444	9.260601429
324	Carbon dioxide, fossil	Air	g	13.10418	-69.57166992	82.67585125
325	Carbon disulfide	Air	µg	16.41761	-12.02494456	28.44255756
326	Carbon monoxide	Air	mg	18.21576	-26.24099815	44.45675968
327	Carbon monoxide, biogenic	Air	µg	410.5149	-159.287057	569.8019817
328	Carbon monoxide, fossil	Air	mg	11.68625	-5.960902928	17.64715786
329	Cerium-141	Air	nBq	21.21965	-12.85777071	34.07741792
330	Cerium-144	Air	nBq	4.463641	-0.337222361	4.800862985
331	Cesium-134	Air	nBq	16.96706	-1.82071547	18.78777112
332	Cesium-137	Air	nBq	48.79791	-13.24170644	62.03961373
333	Chlorinated fluorocarbons, soft	Air	pg	0.011125	-0.008500149	0.0196247
334	Chlorine	Air	µg	97.19729	-11.26231088	108.4596004
335	Chloroform	Air	ng	0.686151	-0.526468988	1.212620351
336	Chromium	Air	µg	11.38323	-6.757327825	18.14055585
337	Chromium-51	Air	nBq	1.438841	-0.829892003	2.268732995
338	Chromium VI	Air	ng	427.1271	-521.9901327	949.1171999
339	Cobalt	Air	µg	0.833601	-0.46363854	1.297239136
340	Cobalt-57	Air	nBq	3.87E-05	-2.9109E-06	4.15764E-05
341	Cobalt-58	Air	nBq	2.532972	-1.195502183	3.728474183
342	Cobalt-60	Air	nBq	17.6782	-10.20748448	27.88567963
343	Copper	Air	µg	8.743484	-4.906127723	13.64961191
344	Cumene	Air	µg	34.68126	-8.587278794	43.2685381
345	Curium-242	Air	nBq	2.21E-06	-1.66647E-07	2.38055E-06
346	Curium-244	Air	nBq	2.01E-05	-1.51292E-06	2.16121E-05
347	Curium alpha	Air	nBq	0.666208	-0.050331179	0.716539341
348	Cyanide	Air	µg	12.03576	-6.702915195	18.73867303
349	Cyclohexane	Air	µg	4.728757	-0.368739447	5.097496093
350	Dinitrogen monoxide	Air	mg	2.415135	-1.759798573	4.174933792
351	Dioxins, measured as 2,3,7,8-tetrachlorodibenzo-p-dioxin	Air	pg	4.745228	-1.021626296	5.766854365
352	Ethane	Air	µg	450.7945	-189.3763672	640.1708172
353	Ethane, 1,1-dichloro-	Air	ng	147.7273	x	147.7272727
354	Ethane, 1,1,1,2-tetrafluoro-, HFC-134a	Air	µg	2.95656	-1.986921777	4.943481372
355	Ethane, 1,2-dichloro-	Air	ng	596.5402	-396.2010569	992.7412606
356	Ethane, 1,2-dichloro-1,1,2,2-tetrafluoro-, CFC-114	Air	ng	13.45503	-7.38566181	20.84068933
357	Ethane, dichloro-	Air	pg	116.5579	-6.861362032	123.4192739
358	Ethane, hexafluoro-, HFC-116	Air	ng	-7.89931	-126.8219532	118.9226409
359	Ethanol	Air	µg	2.696738	-1.324916224	4.021654689
360	Ethene	Air	µg	31.41078	-8.937388454	40.34816705
361	Ethene, chloro-	Air	ng	371.8078	-202.7372429	574.5450373
362	Ethene, tetrachloro-	Air	pg	8.251643	-103.274335	111.5259785
363	Ethylene diamine	Air	pg	5.2686	-3.168559843	8.437160021
364	Ethylene oxide	Air	ng	481.0069	-105.7701163	586.7770598
365	Ethyne	Air	µg	2.741165	-0.237602333	2.978767523
366	Fluoranthene	Air	pg	5.813067	-9.89443E-12	5.813067155
367	Fluoride	Air	mg	0.7828	-0.587236575	1.370036345
368	Fluorine	Air	µg	6.903241	-0.078821672	6.982062883
369	Fluosilicic acid	Air	µg	4.118351	-3.343467248	7.461818011
370	Formaldehyde	Air	µg	23.22105	-8.622995959	31.84404865
371	Formaldehyde (methyl aldehyde)	Air	µg	-9.99096	11.65574332	-21.64670285
372	furans	Air	pg	2.01E-05	-1.63576E-05	3.64143E-05
373	Heat, waste	Air	kJ	194.1279	-90.79377501	284.9217138
374	Helium	Air	µg	3.095561	-1.484734828	4.580296314

No	Substance	Compartment	Unit	Total	Online Bill	Paper Bill
375	Heptane	Air	µg	11.74321	-6.413902812	18.15710889
376	Hexane	Air	µg	70.13063	-27.85559564	97.986229
377	Hydrocarbons, aliphatic, alkanes, cyclic	Air	mg	1.248703	-1.018368793	2.267072274
378	Hydrocarbons, aliphatic, alkanes, unspecified	Air	µg	59.02379	-31.02880343	90.05259386
379	Hydrocarbons, aliphatic, alkenes, unspecified	Air	ng	154.687	-5.078993701	159.7660049
380	Hydrocarbons, aliphatic, unsaturated	Air	µg	14.17319	-1.945091486	16.11827954
381	Hydrocarbons, aromatic	Air	µg	99.97526	-10.85777038	110.8330272
382	Hydrocarbons, chlorinated	Air	ng	341.5304	-133.93631	475.4666922
383	Hydrocarbons, unspecified	Air	mg	0.748174	-0.336418241	1.084592532
384	Hydrogen	Air	mg	1.274885	-0.919099756	2.193984488
385	Hydrogen-3, Tritium	Air	mBq	268.45	-146.9684821	415.4184594
386	Hydrogen chloride	Air	mg	-3.28477	-20.48126878	17.19649865
387	Hydrogen cyanide	Air	pg	1.36E-22	-1.0427E-22	2.40734E-22
388	Hydrogen fluoride	Air	µg	35.97194	-16.47933437	52.45127695
389	Hydrogen sulfide	Air	µg	72.33322	-29.99271856	102.3259359
390	Iodine	Air	ng	616.462	-293.9583873	910.4204113
391	Iodine-129	Air	µBq	47.33042	-25.90454483	73.23496542
392	Iodine-131	Air	mBq	3.042265	-1.70752749	4.74979236
393	Iodine-133	Air	nBq	112.1055	-63.97862507	176.0840826
394	Iodine-135	Air	nBq	11.16175	-0.840535805	12.00228168
395	Iron	Air	µg	27.21444	-3.095008849	30.30944385
396	Iron-59	Air	nBq	0.000876	-6.59426E-05	0.00094197
397	Isocyanic acid	Air	ng	90.9027	-65.67709974	156.5797989
398	Krypton-85	Air	Bq	2.089507	-0.169597236	2.259104168
399	Krypton-85m	Air	mBq	1.647792	-0.979952596	2.627745035
400	Krypton-87	Air	µBq	573.5533	-333.8697216	907.4230336
401	Krypton-88	Air	mBq	0.696427	-0.360057906	1.056484518
402	Krypton-89	Air	µBq	177.4602	-106.2767854	283.7370323
403	Lanthanum	Air	pg	860.1956	-26.82843382	887.0240497
404	Lanthanum-140	Air	nBq	7.536008	-4.537164288	12.07317261
405	Lead	Air	µg	5.785493	-3.648843555	9.43433636
406	Lead-210	Air	µBq	488.3182	-159.6623786	647.980553
407	m-Xylene	Air	ng	353.9313	-17.5586617	371.4899153
408	Magnesium	Air	µg	22.7751	-1.7511806	24.5262788
409	Magnesium oxide	Air	ng	-3.9834	-4.901304121	0.917906922
410	Manganese	Air	µg	-1.29769	-12.50117611	11.20348874
411	Manganese-54	Air	nBq	0.719161	-0.423659475	1.142820724
412	Mercaptans, unspecified	Air	pg	3.31E-05	-2.53222E-05	5.84626E-05
413	Mercury	Air	µg	0.723409	-0.423948	1.147356528
414	Metals, unspecified	Air	ng	-118.335	-118.4668586	0.131600272
415	Methacrylic acid, methyl ester	Air	pg	3.745419	-46.91605814	50.66147733
416	Methane	Air	mg	69.4973	-49.76195115	119.2592478
417	Methane, biogenic	Air	mg	3.815234	-4.484415287	8.299649423
418	Methane, bromochlorodifluoro-, Halon 1211	Air	ng	101.2738	-53.24250262	154.5163389
419	Methane, bromotrifluoro-, Halon 1301	Air	ng	34.88621	-17.69923923	52.58545003
420	Methane, chlorodifluoro-, HCFC-22	Air	ng	364.4378	-192.1360047	556.5737979
421	Methane, chlorotrifluoro-, CFC-13	Air	pg	2.332888	-0.176142312	2.509030185
422	Methane, dichloro-, HCC-30	Air	pg	71.60636	-739.9255476	811.5319042
423	Methane, dichlorodifluoro-, CFC-12	Air	ng	-20.6063	-22.51342313	1.907169349
424	Methane, dichlorofluoro-, HCFC-21	Air	ng	3.429141	-0.166108935	3.595250375
425	Methane, fossil	Air	mg	19.87367	-9.263500873	29.13717569
426	Methane, monochloro-, R-40	Air	pg	0.517137	-0.116465645	0.633602235
427	Methane, tetrachloro-, CFC-10	Air	ng	171.8996	-62.3581675	234.2577211
428	Methane, tetrafluoro-, FC-14	Air	µg	-0.14966	-1.22451979	1.074859052
429	Methane, trichlorofluoro-, CFC-11	Air	ng	-23.765	-23.80829973	0.043295257
430	Methane, trifluoro-, HFC-23	Air	pg	0.592302	-0.327734512	0.920036724
431	Methanol	Air	µg	73.86755	-23.24460712	97.11216128
432	Methyl acetate	Air	ng	1.088306	-0.887583977	1.975889946
433	Methyl ethyl ketone	Air	ng	0.076197	-0.950418702	1.026615346
434	Molybdenum	Air	ng	160.0535	-67.97337771	228.0269253
435	Monoethanolamine	Air	ng	85.91158	-44.47638874	130.3879684
436	Naphthalene	Air	pg	-43.166	-43.43451935	0.26851019
437	Neptunium-237	Air	nBq	2.2E-05	-1.66093E-06	2.36458E-05
438	Nickel	Air	µg	8.57599	-6.285400745	14.86139094
439	Niobium-95	Air	nBq	0.0867	-0.050392414	0.137092454
440	Nitrate	Air	ng	6.465521	-3.712962233	10.17848299
441	Nitric oxide	Air	ng	-0.0441	-3.702410084	3.658307316
442	Nitrogen	Air	µg	120.3611	-3.923010476	124.2841591
443	Nitrogen dioxide	Air	µg	-137.734	-165.0375256	27.30317752
444	Nitrogen oxides	Air	mg	122.446	-132.9798051	255.4257807
445	NMVOC, non-methane volatile organic compounds, unspecified origin	Air	mg	12.18402	-5.684756758	17.86877208
446	Noble gases, radioactive, unspecified	Air	Bq	453.6478	-248.8291889	702.4769638
447	o-Xylene	Air	ng	12.7049	-0.521902255	13.22680244
448	Organic substances, unspecified	Air	pg	0.017935	-0.013704266	0.031639693
449	Ozone	Air	µg	15.44852	-8.494091291	23.94260743
450	PAH, polycyclic aromatic hydrocarbons	Air	µg	-2.00251	1.748484116	-3.75099535
451	Paraffins	Air	pg	19.06954	-9.878646433	28.94818345
452	Particulates	Air	µg	76.82802	-909.3437478	986.1717666
453	particulates (>10um)	Air	µg	0.831735	-0.678333921	1.510069142
454	Particulates (>2.5um & <10um)	Air	µg	1.189543	-0.97014935	2.159692374
455	Particulates, < 10 um	Air	mg	3.446534	-13.40307057	16.84960474
456	Particulates, < 10 um (mobile)	Air	ng	403.882	-17.03776654	420.9197488
457	Particulates, < 10 um (stationary)	Air	µg	7.278835	-0.318938772	7.597774222
458	Particulates, < 2.5 um	Air	mg	2.259803	-1.130791302	3.390594218
459	Particulates, > 10 um	Air	mg	5.105005	-2.853895493	7.958900436
460	Particulates, > 10 um (process)	Air	µg	20.97977	-2.742340876	23.72210807
461	Particulates, > 2.5 um, and < 10um	Air	mg	2.440134	-1.402772754	3.842906911
462	Particulates, SPM	Air	µg	-17.7923	-18.51963113	0.727342869
463	Pentane	Air	µg	152.8378	-81.71286079	234.5506579
464	Phenol	Air	µg	18.08225	-0.389683252	18.47193277
465	Phenol, pentachloro-	Air	ng	17.92206	-9.956922638	27.87897986
466	Phosphorus	Air	µg	1.29575	-0.090685021	1.386434562
467	Phosphorus, total	Air	ng	0.995951	-0.205122612	1.201073971
468	Platinum	Air	pg	1.360086	-0.156964229	1.517050561
469	Plutonium-238	Air	nBq	0.00649	-0.003536325	0.010026583
470	Plutonium-241	Air	nBq	36.64145	-2.768214869	39.40966373
471	Plutonium-alpha	Air	nBq	1.347196	-0.108761559	1.455957984

No	Substance	Compartment	Unit	Total	Online Bill	Paper Bill
472	Polonium-210	Air	mBq	0.842861	-0.257447123	1.100307628
473	Polychlorinated biphenyls	Air	ng	1.929533	-1.24263466	3.172167204
474	Polychlorinated dioxins and furans	Air	pg	-2.8307	-16.38080395	13.5501089
475	Potassium	Air	µg	76.97117	-4.035383165	81.00654887
476	Potassium-40	Air	µBq	113.0393	-28.07559549	141.1148474
477	Promethium-147	Air	nBq	11.32554	-0.855630051	12.18116879
478	Propanal	Air	ng	0.759568	-0.357610613	1.117178219
479	Propane	Air	µg	194.1016	-90.949207	285.0508425
480	Propene	Air	µg	62.79518	-7.172162638	69.96734639
481	Propionic acid	Air	µg	1.299488	-0.681465531	1.98095304
482	Propylene oxide	Air	µg	61.21876	-0.095066598	61.31383015
483	Protactinium-234	Air	µBq	6.740053	-3.723443499	10.46349699
484	Radioactive species, other beta emitters	Air	Bq	393.6055	-321.0104042	714.6159339
485	Radioactive species, unspecified	Air	Bq	25.90077	-0.136242362	26.03701205
486	Radium-226	Air	µBq	423.4388	-222.6822736	646.1210462
487	Radium-228	Air	µBq	359.8392	-32.27710219	392.1163204
488	Radon-220	Air	µBq	8.360011	-0.631511109	8.991522052
489	Radon-222	Air	Bq	895.8703	-494.3352984	1390.205572
490	Ruthenium-103	Air	nBq	0.018389	-0.01102192	0.029410559
491	Ruthenium-106	Air	nBq	133.2416	-10.06623589	143.3078681
492	Scandium	Air	ng	7.24391	-0.595471029	7.839380975
493	Selenium	Air	µg	9.247051	-6.394354538	15.64140599
494	Silicates, unspecified	Air	µg	3.551453	-0.069211674	3.620664576
495	Silicon	Air	µg	89.35292	-7.248173135	96.60109802
496	Silicon tetrafluoride	Air	ng	44.73602	-34.38393406	79.11995179
497	Silver	Air	pg	5.122812	-3.466315094	8.58912723
498	Silver-110	Air	nBq	0.20252	-0.110761063	0.313281239
499	Sodium	Air	µg	16.34482	-3.470342719	19.815162
500	Sodium carbonate	Air	ng	1.324612	-1.080306725	2.404918588
501	Sodium chlorate	Air	ng	488.8923	-375.6325661	864.5248212
502	Sodium dichromate	Air	ng	145.959	-4.507997191	150.4670368
503	Sodium formate	Air	ng	211.6692	-0.307072169	211.976255
504	Soot	Air	µg	-111.848	-115.9262981	4.077881707
505	Strontium	Air	µg	1.201117	-0.157305266	1.358422358
506	Strontium-89	Air	nBq	0.040012	-0.003015815	0.043027344
507	Strontium-90	Air	nBq	21.99243	-1.661498461	23.65392874
508	Styrene	Air	ng	157.5951	-17.69309756	175.2881997
509	Sulfate	Air	mg	0.903796	-0.605567837	1.509363424
510	Sulfur dioxide	Air	mg	51.03432	-38.08632509	89.12064682
511	Sulfur hexafluoride	Air	ng	246.1971	-133.5915066	379.7886269
512	Sulfur oxides	Air	mg	54.19282	-313.791126	367.9839476
513	Sulfuric acid	Air	mg	0.932166	-0.741910639	1.674076979
514	t-Butyl methyl ether	Air	ng	26.97515	-7.933687033	34.90884011
515	Technetium-99	Air	nBq	0.000933	-7.04637E-05	0.001003155
516	Tellurium-123m	Air	nBq	0.100582	-0.007572245	0.108154566
517	Thallium	Air	ng	10.67824	-1.301145519	11.97938543
518	Thorium	Air	ng	12.32031	-0.857711002	13.17802115
519	Thorium-228	Air	µBq	37.30527	-6.533032641	43.83829834
520	Thorium-230	Air	µBq	109.3886	-78.24283154	187.6314307
521	Thorium-232	Air	µBq	32.34526	-9.160989427	41.50625048
522	Thorium-234	Air	µBq	6.74151	-3.724269911	10.46577967
523	Tin	Air	ng	142.2511	-73.58444428	215.8355284
524	Titanium	Air	µg	2.365987	-0.18053831	2.546525335
525	Toluene	Air	µg	59.57771	-22.88735931	82.46506756
526	Uranium	Air	ng	14.45756	-1.016015865	15.47357861
527	Uranium-234	Air	µBq	162.9591	-107.8822815	270.8414299
528	Uranium-235	Air	µBq	3.819548	-2.109965582	5.929513358
529	Uranium-238	Air	µBq	248.5601	-129.5618683	378.1219937
530	Uranium alpha	Air	µBq	367.5001	-203.1214241	570.6214786
531	Urea	Air	ng	145.1002	-118.3385974	263.4387853
532	Vanadium	Air	µg	18.39201	-8.790813731	27.18282328
533	VOC, volatile organic compounds	Air	µg	61.15294	-0.122877643	61.27582192
534	water	Air	µg	219.5029	-126.1346397	345.6375141
535	Xenon-131m	Air	mBq	2.706437	-1.582172389	4.288609232
536	Xenon-133	Air	mBq	90.20983	-52.3189312	142.5287653
537	Xenon-133m	Air	µBq	310.9962	-176.4293735	487.4256004
538	Xenon-135	Air	mBq	36.41883	-21.28046345	57.69929242
539	Xenon-135m	Air	mBq	21.69761	-12.77370281	34.47131578
540	Xenon-137	Air	µBq	484.7527	-291.0647619	775.8174233
541	Xenon-138	Air	mBq	4.049476	-2.413205294	6.462681646
542	Xylene	Air	µg	44.72604	-17.20195253	61.92798796
543	Zinc	Air	µg	10.4221	-10.04025214	20.46235685
544	Zinc-65	Air	nBq	3.574987	-2.114277048	5.689264181
545	Zirconium	Air	ng	2.431499	-1.503489461	3.934988641
546	Zirconium-95	Air	nBq	3.399787	-2.059450626	5.459237769
547	Acenaphthene	Water	pg	335.9461	-186.5902708	522.5363642
548	Acenaphthylene	Water	ng	56.4074	-10.62731201	67.03471308
549	Acetic acid	Water	µg	2.232058	-1.775731039	4.007788709
550	Acetone	Water	pg	0.000108	-8.83352E-05	0.000196647
551	Acidity, unspecified	Water	µg	105.451	-47.84319796	153.294194
552	Acids, unspecified	Water	ng	-6.25902	-15.30418979	9.045173428
553	Actinides, radioactive, unspecified	Water	µBq	76.68287	-42.06145763	118.744324
554	Aluminum	Water	mg	17.03161	-1.905566344	18.93717838
555	Americium-241	Water	nBq	55.29528	-4.177487894	59.47276527
556	Ammonia	Water	µg	29.39923	-21.98095348	51.38017904
557	Ammonia, as N	Water	ng	318.1302	-35.57159482	353.7018436
558	Ammonium, ion	Water	mg	0.934949	-0.667864338	1.602813597
559	Antimony	Water	µg	17.16188	-4.977192837	22.13907204
560	Antimony-122	Water	nBq	52.26162	-31.52239048	83.78400746
561	Antimony-124	Water	µBq	13.36536	-7.42396448	20.78932506
562	Antimony-125	Water	µBq	11.94426	-6.6686783	18.61293546
563	AOX, Adsorbable Organic Halogen as Cl	Water	µg	12.16545	11.79880769	0.36664043
564	Arsenic	Water	ng	169.5391	-121.0507858	290.589879
565	Arsenic, ion	Water	µg	7.266911	-2.563893349	9.830804533
566	Barite	Water	µg	649.2039	-272.3692973	921.5732445
567	Barium	Water	µg	136.7793	-56.77991548	193.559178
568	Barium-140	Water	nBq	227.982	-138.0071004	365.9891042

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569	Benzene	Water	µg	67.17398	-22.36862673	89.54261065
570	Benzene, chloro-	Water	pg	0.005244	-0.000327305	0.005571082
571	Benzene, ethyl-	Water	µg	1.31125	-0.720732535	2.031982837
572	Beryllium	Water	ng	314.9698	-117.2220012	432.1918477
573	Bis(2-ehtylhexyl)phthalate	Water	pg	1.44E-07	-1.17134E-07	2.60758E-07
574	BOD5, Biological Oxygen Demand	Water	mg	29.32556	-12.35121055	41.67676949
575	Boron	Water	µg	37.92099	-22.98934082	60.91032654
576	Bromate	Water	µg	34.91148	-9.819585812	44.73106629
577	Bromine	Water	µg	61.61852	-26.73696036	88.35547948
578	Butene	Water	ng	23.44937	-0.807448219	24.25682037
579	Cadmium	Water	ng	18.69477	-28.03508635	46.72985951
580	Cadmium-109	Water	nBq	0.001627	-0.000132902	0.001759683
581	Cadmium, ion	Water	µg	4.354599	-1.039267585	5.393866223
582	Calcium compounds, unspecified	Water	µg	67.24952	-0.929101635	68.17862106
583	Calcium, ion	Water	mg	80.09637	-13.7906642	93.88703142
584	Carbon-14	Water	µBq	2.798074	-0.211390954	3.009465231
585	Carbonate	Water	µg	66.70936	-14.00040987	80.70976968
586	Carboxylic acids, unspecified	Water	µg	235.64	-130.8619122	366.5018989
587	Cerium-141	Water	nBq	91.08076	-55.17174201	146.2524977
588	Cerium-144	Water	µBq	1.293523	-0.112425254	1.405947855
589	Cesium	Water	ng	54.46989	-30.01380246	84.48369252
590	Cesium-134	Water	µBq	12.8234	-5.701199443	18.5245956
591	Cesium-136	Water	nBq	16.15909	-9.791420723	25.95051234
592	Cesium-137	Water	mBq	8.860591	-4.849328614	13.70991953
593	Chlorate	Water	µg	291.7192	-94.24474142	385.9638991
594	Chloride	Water	mg	188.9525	-67.1763338	256.128879
595	Chlorinated solvents, unspecified	Water	ng	185.3694	-59.93588928	245.3052905
596	Chlorine	Water	ng	529.1288	-273.9542886	803.0830779
597	Chloroform	Water	pg	36.63983	-2.15828115	38.79811453
598	Chromate	Water	pg	6.07E-08	-4.635E-08	1.07011E-07
599	Chromium	Water	µg	0.89967	-0.191445155	1.091115286
600	Chromium-51	Water	µBq	21.75512	-12.88395717	34.6390787
601	Chromium VI	Water	µg	35.39772	-19.44602658	54.84374398
602	Chromium, ion	Water	µg	3.052704	-1.395540636	4.448244973
603	Cobalt	Water	µg	21.55467	-7.591386814	29.14605294
604	Cobalt-57	Water	nBq	513.1916	-310.8363027	824.0278647
605	Cobalt-58	Water	µBq	132.1021	-76.14359764	208.2457451
606	Cobalt-60	Water	µBq	120.4468	-63.76768254	184.2145103
607	COD, Chemical Oxygen Demand	Water	mg	39.71039	-4.267359812	43.97774724
608	Copper	Water	ng	33.86447	-677.58111	711.445582
609	Copper, ion	Water	µg	446.1599	-49.32275853	495.4826328
610	Crude oil	Water	ng	-411.666	-518.6744108	107.008703
611	Cumene	Water	µg	81.058	-20.31651973	101.3745232
612	Curium alpha	Water	nBq	73.2829	-5.536429739	78.81932747
613	Cyanide	Water	µg	11.2758	-6.221468376	17.49727165
614	Cyanide (inorganic) compounds	Water	pg	153.548	-772.9933516	926.5413684
615	Detergent, anionic	Water	pg	0.053184	-0.040637003	0.093820588
616	Dichromate	Water	ng	16.45623	-7.762085376	24.21831654
617	DOC, Dissolved Organic Carbon	Water	mg	15.46099	-7.710725306	23.17171254
618	Ethane, 1,1,1-trichloro-, HCFC-140	Water	pg	0.25542	-0.011039822	0.26645944
619	Ethane, 1,1,2-trichloro-	Water	pg	1.91E-06	-9.08082E-06	1.09858E-05
620	Ethane, 1,2-dichloro-	Water	ng	317.8743	-215.1717299	533.0460715
621	Ethane, dichloro-	Water	pg	290.3312	-19.03497165	309.3661764
622	Ethane, hexachloro-	Water	pg	0.001332	-7.84134E-05	0.001410466
623	Ethene	Water	µg	10.44211	-8.362989858	18.80509674
624	Ethene, chloro-	Water	ng	42.77794	-4.311359561	47.08930286
625	Ethene, dichloro- (trans)	Water	pg	1.34E-07	-1.09381E-07	2.43497E-07
626	Ethene, tetrachloro-	Water	pg	0.158181	-0.009311588	0.167492894
627	Ethene, trichloro-	Water	pg	49.15578	-3.194312595	52.35009261
628	Ethylene diamine	Water	pg	12.77236	-7.681355598	20.45371365
629	Ethylene oxide	Water	pg	126.2897	-65.38029194	191.6700046
630	Fatty acids as C	Water	µg	2.910875	-0.100729617	3.011604314
631	Fluoride	Water	µg	512.3692	-374.0254174	886.3946298
632	Fluorine	Water	ng	357.2314	-1.63935E-17	357.231405
633	Fluosilicic acid	Water	ng	146.2457	-91.71400243	237.9596756
634	Formaldehyde	Water	µg	2.740695	-1.066245339	3.80694044
635	Glutaraldehyde	Water	ng	80.14805	-33.62582649	113.7738801
636	Heat, waste	Water	kJ	2.986312	-1.005813366	3.992125436
637	Hydrocarbons, aliphatic, alkanes, unspecified	Water	µg	7.13434	-3.903421211	11.03776163
638	Hydrocarbons, aliphatic, alkenes, unspecified	Water	ng	10.31795	-0.331333325	10.64928655
639	Hydrocarbons, aliphatic, unsaturated	Water	µg	0.648127	-0.359981206	1.008108028
640	Hydrocarbons, aromatic	Water	µg	32.50462	-18.12218873	50.62680542
641	Hydrocarbons, chlorinated	Water	µg	2.902204	-2.366781807	5.26898596
642	Hydrocarbons, unspecified	Water	µg	120.5504	-74.60185826	195.1522132
643	Hydrogen	Water	ng	-846.707	-847.6212826	0.914140099
644	Hydrogen-3, Tritium	Water	Bq	20.32901	-11.115971	31.44498079
645	Hydrogen peroxide	Water	µg	35.68004	-0.609787837	36.28982861
646	Hydrogen sulfide	Water	µg	130.6691	-10.20594095	140.875001
647	Hydroxide	Water	ng	37.48373	-20.96617604	58.44990649
648	Hypochlorite	Water	µg	1.200564	-0.631271462	1.831835789
649	Hypochlorous acid	Water	ng	292.8104	-6.87174053	299.6821582
650	Iodide	Water	µg	5.578567	-3.048668321	8.627235436
651	Iodine-129	Water	µBq	7.994498	-0.603974153	8.598472087
652	Iodine-131	Water	µBq	2.60943	-1.468631884	4.07806217
653	Iodine-133	Water	nBq	144.2334	-86.7285703	230.9619653
654	Iron	Water	µg	25.99222	-2.357465296	28.34968716
655	Iron-59	Water	nBq	39.30377	-23.81501689	63.11878601
656	Iron, ion	Water	mg	7.48128	-1.395733636	8.877014136
657	Kjeldahl-N	Water	ng	495.3415	-4.96554E-12	495.3415409
658	Kjeldahl N	Water	ng	0.62544	-0.510086841	1.135526877
659	Lanthanum-140	Water	nBq	242.5787	-146.9692841	389.5480293
660	Lead	Water	µg	53.34258	-16.75728744	70.09987029
661	Lead-210	Water	mBq	17.83673	-13.55640654	31.39313503
662	Magnesium	Water	mg	7.916463	-1.034638619	8.951101321
663	Manganese	Water	mg	3.561294	-0.039299451	3.600593664
664	Manganese-54	Water	µBq	9.918779	-4.783498823	14.70227812
665	Mercury	Water	ng	304.6711	-151.2483606	455.9194497

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666	Metallic ions, unspecified	Water	µg	-9.32425	-9.333943968	0.009692016
667	Methane, dichloro-, HCC-30	Water	µg	0.906158	-0.464090419	1.370248678
668	Methane, tetrachloro-, CFC-10	Water	pg	0.241435	-0.014212423	0.255647049
669	Methanol	Water	µg	2.023845	-1.042898515	3.066743464
670	Methyl ethyl ketone	Water	pg	0.000197	-0.000160333	0.000356923
671	Molybdenum	Water	µg	2.65369	-1.065200295	3.718889969
672	Molybdenum-99	Water	nBq	83.63553	-50.67181293	134.3073442
673	Neptunium-237	Water	nBq	3.530903	-0.266755251	3.797658505
674	Nickel	Water	ng	-39.3104	-185.8414735	146.5311081
675	Nickel, ion	Water	µg	102.1385	-37.74141314	139.8799467
676	Niobium-95	Water	µBq	1.004467	-0.569268489	1.573735848
677	Nitrate	Water	mg	29.69165	-18.59996359	48.29161435
678	Nitrite	Water	µg	15.90491	-11.96005303	27.86496774
679	Nitrogen	Water	mg	1.54799	-0.71642463	2.264414568
680	Nitrogen, organic bound	Water	µg	42.97457	-27.67009219	70.64466324
681	Nitrogen, total	Water	µg	166.6411	-110.553366	277.1944299
682	non-filtrable residue	Water	ng	19.85697	-37.94533979	57.80230928
683	Non-prescribed liquids	Water	pg	0.000534	-0.000407713	0.000941306
684	Oils, unspecified	Water	mg	3.761673	-2.078469351	5.840142199
685	Organic substances, unspecified	Water	pg	0.003257	-0.002488451	0.005745206
686	p-Cresol	Water	pg	7.33E-05	-5.98132E-05	0.000133153
687	PAH, polycyclic aromatic hydrocarbons	Water	ng	599.5314	-325.5216445	925.053055
688	Paraffins	Water	pg	55.34162	-28.66880439	84.01042049
689	Pentanone, methyl-	Water	pg	4.04E-06	-3.29526E-06	7.33573E-06
690	Pesticides, unspecified	Water	ng	3.627504	-2.958464019	6.585967595
691	Phenol	Water	µg	22.88133	-3.497570187	26.37889948
692	Phenols, unspecified	Water	ng	95.78737	-3.349830134	99.13720163
693	Phosphate	Water	mg	2.200736	-1.619632403	3.82036833
694	Phosphorus	Water	µg	95.13488	-57.61882571	152.7537027
695	Phosphorus compounds, unspecified	Water	ng	3.570058	-0.15519342	3.72525141
696	Phosphorus pentoxide	Water	pg	0.000588	-0.000449207	0.001037105
697	Phosphorus, total	Water	µg	-4.69837	-11.06314127	6.364771067
698	Phthalate, diethyl-	Water	pg	1.26E-07	-1.03012E-07	2.29319E-07
699	Phthalate, dioctyl-	Water	pg	0.007242	-0.000396019	0.007638368
700	Phthalate, p-dibutyl-	Water	pg	5.709122	-1.074833815	6.783955898
701	Phthalate, p-dimethyl-	Water	pg	35.94632	-6.767472171	42.7137964
702	Plutonium-241	Water	µBq	5.462907	-0.412715671	5.875622593
703	Plutonium-alpha	Water	nBq	219.8487	-16.60928922	236.4579824
704	Polonium-210	Water	mBq	27.16696	-20.65783511	47.82479823
705	Potassium	Water	µg	25.51196	-1.611479209	27.12344249
706	Potassium-40	Water	mBq	2.270705	-1.703817998	3.974522701
707	Potassium, ion	Water	mg	11.15728	-0.839395499	11.99667659
708	Propane, 1,2,3-trichloro-	Water	pg	9.03E-07	-7.36588E-07	1.63975E-06
709	Propene	Water	µg	144.0568	-8.035000061	152.0918369
710	Propylene oxide	Water	µg	147.3046	-0.228753994	147.5333823
711	Protactinium-234	Water	µBq	124.8157	-68.95267238	193.7683754
712	Radioactive species, unspecified	Water	mBq	238.1687	-1.252807253	239.4215502
713	Radioactive species, alpha emitters	Water	µBq	51.24777	-39.2525258	90.50029528
714	Radioactive species, from fission and activation	Water	nBq	165.5416	-12.45685132	177.9984075
715	Radioactive species, Nuclides, unspecified	Water	Bq	3.650021	-2.964544999	6.614565965
716	Radium-224	Water	mBq	2.714887	-1.500447928	4.215334713
717	Radium-226	Water	mBq	102.8834	-60.59126219	163.4747001
718	Radium-228	Water	mBq	5.429772	-3.000895246	8.430666774
719	Rubidium	Water	ng	544.9207	-302.6486575	847.5693435
720	Ruthenium	Water	ng	2.872586	-0.105317892	2.977904223
721	Ruthenium-103	Water	nBq	17.73803	-10.69957535	28.43760666
722	Ruthenium-106	Water	µBq	13.32416	-1.006623589	14.33078681
723	Salts, unspecified	Water	µg	6.00948	-2.558458259	8.567937938
724	Scandium	Water	ng	586.3022	-172.1817086	758.4839286
725	Selenium	Water	µg	1.437493	-0.26437074	1.701863962
726	Silicon	Water	mg	79.98041	-15.819893	95.80030463
727	Silver	Water	pg	450.7284	-16.0098245	466.7382689
728	Silver-110	Water	µBq	102.6634	-59.56453041	162.2279181
729	Silver, ion	Water	ng	85.49099	-46.69206726	132.1830536
730	Sodium-24	Water	µBq	0.641326	-0.384092298	1.025418655
731	Sodium formate	Water	ng	508.5223	-0.737722767	509.2600295
732	Sodium, ion	Water	mg	55.28299	-17.11069641	72.39368839
733	Solids, inorganic	Water	mg	37.28515	-29.94732635	67.23247681
734	Solved organics	Water	ng	85.25996	-277.0872809	362.347237
735	Solved solids	Water	mg	3.12686	-1.543092968	4.669953357
736	Solved substances	Water	µg	31.31907	-1.994171019	33.31324304
737	Strontium	Water	µg	372.8723	-192.1800979	565.0524023
738	Strontium-89	Water	µBq	1.972603	-1.163742402	3.13634516
739	Strontium-90	Water	mBq	83.78556	-47.00872175	130.7942773
740	Styrene	Water	pg	3.81E-06	-1.81626E-05	2.19728E-05
741	Sulfate	Water	mg	60.65322	-32.76517155	93.41838907
742	Sulfate and sulfides	Water	pg	45.42255	-171.5150798	216.9376273
743	Sulfide	Water	µg	51.35843	-41.59400142	92.95243541
744	Sulfite	Water	µg	3.173571	-1.688900969	4.862472285
745	Sulfur	Water	µg	94.62792	-44.87175317	139.4996761
746	Sulfur trioxide	Water	µg	-36.3055	29.63450282	-65.94000859
747	Suspended solids, unspecified	Water	mg	18.0013	-9.644797173	27.64609327
748	Suspended substances, unspecified	Water	µg	35.35358	-0.554608271	35.90819313
749	t-Butyl methyl ether	Water	ng	116.7008	-65.63380648	182.3345948
750	Technetium-99	Water	µBq	1.399037	-0.105695477	1.504732615
751	Technetium-99m	Water	µBq	1.930743	-1.169508816	3.100251899
752	Tellurium-123m	Water	µBq	1.315935	-0.723035053	2.038969888
753	Tellurium-132	Water	nBq	4.846386	-2.934302359	7.780688412
754	Thallium	Water	ng	162.3885	-15.99557599	178.3841024
755	Thorium-228	Water	mBq	11.07699	-6.167296589	17.24428608
756	Thorium-230	Water	mBq	17.03486	-9.408289119	26.44314971
757	Thorium-232	Water	µBq	23.67463	-13.45873549	37.13336975
758	Thorium-234	Water	µBq	124.8332	-68.9616138	193.7948005
759	Tin, ion	Water	µg	20.59715	-2.687783952	23.28492966
760	Titanium, ion	Water	mg	0.927897	-0.40179055	1.329687965
761	TOC, Total Organic Carbon	Water	mg	44.68106	-7.882610019	52.56367059
762	Toluene	Water	µg	7.210698	-4.039221836	11.24991991

No	Substance	Compartment	Unit	Total	Online Bill	Paper Bill
763	Toluene (methylbenzene)	Water	ng	25.09001	-2.159456194	27.24946829
764	Tributyltin	Water	ng	2.161239	-0.045469712	2.206708858
765	Tributyltin compounds	Water	ng	256.9919	-66.12673142	323.1186542
766	Triethylene glycol	Water	µg	6.118452	-0.763373232	6.881825002
767	Tungsten	Water	ng	395.5355	-175.138549	570.6740913
768	Undissolved substances	Water	µg	445.1714	-14.61017692	459.7815737
769	Uranium-234	Water	µBq	149.8123	-82.74573909	232.5579996
770	Uranium-235	Water	µBq	247.1378	-136.5264382	383.6642302
771	Uranium-238	Water	mBq	9.52589	-7.162140859	16.68803088
772	Uranium alpha	Water	mBq	7.192601	-3.972512602	11.16511398
773	Vanadium, ion	Water	µg	37.39252	-12.07011226	49.46263239
774	VOC, volatile organic compounds as C	Water	ng	100.4865	-3.680802728	104.1673406
775	VOC, volatile organic compounds, unspecified origin	Water	µg	19.2137	-10.67082475	29.88452586
776	waste water	Water	mg	-48.4226	-51.89408845	3.471534522
777	Waste water/m3	Water	cm3	25.88872	-21.11393019	47.00265344
778	Water	Water	mg	-5.40803	-5.765942789	0.357911228
779	Xylene	Water	µg	5.640409	-3.072847288	8.71325589
780	Yttrium-90	Water	nBq	0.032497	-0.002656468	0.035153342
781	Zinc	Water	µg	-0.06071	-1.064801842	1.004087563
782	Zinc-65	Water	µBq	8.595734	-5.199318829	13.7950524
783	Zinc, ion	Water	µg	411.5804	-101.3607017	512.9410773
784	Zirconium-95	Water	nBq	212.6233	-68.75172505	281.3750514
785	ash	Waste	mg	158.6641	-270.7028807	429.3669625
786	bauxite residue	Waste	mg	-15.5143	-16.54104838	1.026757835
787	Chemical waste, inert	Waste	pg	7.58345	-5.794432377	13.37788238
788	Chemical waste, regulated	Waste	pg	6.023392	-4.602409021	10.62580121
789	Chemical waste, unspecified	Waste	µg	-33.4896	-33.52443659	0.034789205
790	Dross	Waste	µg	-78.0005	-83.16263638	5.162181173
791	Dust, unspecified	Waste	ng	3.229482	-5.49691E-12	3.229481753
792	Metal waste	Waste	pg	0.018556	-0.01417876	0.032735179
793	Mineral waste	Waste	mg	3.062107	-13.13445652	16.19656399
794	Oil waste	Waste	ng	-86.0624	-97.86166221	11.79930681
795	Packaging waste, paper and board	Waste	pg	1.42E-16	-1.08346E-16	2.50144E-16
796	Packaging waste, plastic	Waste	pg	0.049936	-0.038155535	0.088091503
797	Packaging waste, wood	Waste	pg	0.002237	-0.00170934	0.003946436
798	Prescribed liquid waste	Waste	mm3	8.61E-11	-6.579E-11	1.51893E-10
799	Production waste	Waste	ng	-141.961	-151.3559982	9.395169736
800	Production waste, not inert	Waste	mg	0.972575	-0.044743803	1.017319046
801	Slags	Waste	µg	-720.765	-721.5151744	0.749737995
802	Slags and ashes	Waste	pg	9.238903	-7.059345844	16.29824843
803	Sodium hydroxide	Waste	ng	-0.04958	-4.162110953	4.112532269
804	spent potliner	Waste	µg	-112.321	-119.7541964	7.43354089
805	waste - CCA sludge	Waste	mm3	1.09E-14	-8.87954E-15	1.97671E-14
806	Waste to recycling	Waste	pg	0.018746	-0.014323292	0.033068866
807	Waste, final, inert	Waste	g	5.370588	-4.435321326	9.805909482
808	Waste, fly ash	Waste	g	0.856508	-1.458396388	2.314904532
809	Waste, from construction	Waste	pg	0.029641	-0.022648386	0.052289408
810	Waste, industrial	Waste	µg	-3.80516	-3.809123983	0.003964496
811	Waste, inorganic	Waste	µg	-280.407	-280.732065	0.324909786
812	Waste, mining	Waste	µg	0.534439	-2.418759659	2.953198636
813	waste, non-prescribed/m3	Waste	mm3	2.43E-08	-1.85324E-08	4.27866E-08
814	Waste, nuclear, high active/m3	Waste	mm3	4.57E-05	-5.07515E-06	5.07584E-05
815	Waste, nuclear, low and medium active/m3	Waste	mm3	0.011063	-0.000369416	0.011432738
816	Waste, nuclear, medium active	Waste	pg	1.160565	-0.886774989	2.04734012
817	Waste, Shedder dust	Waste	ng	32.08122	-161.5037029	193.5849274
818	Waste, solid	Waste	mg	0.588208	-0.753783396	1.341991778
819	Waste, to incineration	Waste	pg	0.040252	-0.030756182	0.071008263
820	Waste, unspecified	Waste	mg	-333.986	268.8819322	-602.8683286
821	Waste, unspecified/m3	Waste	mm3	4.61E-08	-3.75604E-08	8.3615E-08
822	Aclonifen	Soil	ng	183.1557	-145.4918282	328.6475234
823	Aluminum	Soil	µg	44.43396	-19.37258427	63.80654047
824	Antimony	Soil	pg	4.26988	-1.409589351	5.679469743
825	Arsenic	Soil	µg	-14.0446	-28.19564315	14.15103408
826	Atrazine	Soil	pg	129.4147	-13.06604788	142.4807045
827	Barium	Soil	µg	16.65844	-9.125752589	25.78419255
828	Bentazone	Soil	ng	93.27823	-74.09663399	167.3748655
829	Beryllium	Soil	µg	-13.4476	-26.95702196	13.50943619
830	Boron	Soil	ng	439.453	-235.1822398	674.6352522
831	Cadmium	Soil	µg	-1.6253	-3.489631594	1.864334084
832	Calcium	Soil	µg	186.6444	-80.94911948	267.5935504
833	Carbetamide	Soil	ng	240.9155	-150.2604666	391.1759463
834	Carbon	Soil	µg	435.4902	-236.6210375	672.1112136
835	Carbon dioxide, biogenic	Soil	g	0.669089	-0.545685265	1.214774102
836	Chloride	Soil	mg	2.337391	-1.487972097	3.825362606
837	Chlorothalonil	Soil	µg	208.1911	-124.2298224	332.4209477
838	Chromium	Soil	µg	1.899257	-1.130779343	3.030036171
839	Chromium (III) compounds	Soil	pg	26.07919	-19.1657761	45.24497044
840	Chromium VI	Soil	µg	0.098306	-1.301375304	1.399681394
841	Cobalt	Soil	ng	1.495553	-0.570728823	2.066282273
842	Cobalt & compounds	Soil	ng	15.78657	-10.69558745	26.48215793
843	Copper	Soil	µg	-21.7669	-57.60807607	35.84122147
844	Cypermethrin	Soil	ng	11.30021	-6.883397199	18.18360353
845	Dinoseb	Soil	µg	56.58552	-33.76517434	90.35069871
846	Fenpiclonil	Soil	µg	8.197534	-4.892802571	13.09033652
847	Fluoride	Soil	µg	1.34355	-2.567093197	3.910643375
848	Glyphosate	Soil	µg	0.722644	-0.545517188	1.268161625
849	Heat, waste	Soil	J	151.3588	-93.22017113	244.5789551
850	Iron	Soil	mg	1.370098	-1.012425683	2.382523468
851	Lead	Soil	µg	-34.634	-70.97706205	36.34306308
852	Linuron	Soil	µg	1.417398	-1.12592614	2.543323852
853	Magnesium	Soil	µg	28.63055	-15.36313391	43.99368648
854	Mancozeb	Soil	µg	271.0434	-161.7344248	432.7778124
855	Manganese	Soil	µg	2.680593	-1.126126811	3.806719379
856	Mercury	Soil	µg	-0.48182	-1.09178673	0.609964384
857	Metaldehyde	Soil	ng	97.92721	-59.65128875	157.578497
858	Metolachlor	Soil	µg	10.24899	-8.141323756	18.39031513
859	Metribuzin	Soil	µg	9.526432	-5.684521366	15.21095292

No	Substance	Compartment	Unit	Total	Online Bill	Paper Bill
860	Molybdenum	Soil	pg	548.9435	-209.319083	758.2626128
861	Napropamide	Soil	ng	173.3015	-105.5647049	278.8661886
862	Nickel	Soil	µg	-125.241	-254.050622	128.8094487
863	Nitrogen	Soil	pg	228.0716	-189.2565746	417.3281398
864	Oils, biogenic	Soil	µg	17.33007	-6.744656836	24.07473154
865	Oils, unspecified	Soil	mg	3.705863	-2.079216975	5.785080431
866	Orbencarb	Soil	µg	51.4089	-30.67622579	82.08512139
867	Phosphorus	Soil	µg	2.581228	-1.109133046	3.690360553
868	Pirimicarb	Soil	ng	8.841999	-7.023743435	15.86574251
869	Potassium	Soil	µg	14.26127	-7.394107041	21.65537883
870	Selenium	Soil	pg	458.3377	-311.7387587	770.0764683
871	Silicon	Soil	µg	9.593867	-4.228947556	13.82281449
872	Silver	Soil	ng	2.505842	-1.251526066	3.757368482
873	Sodium	Soil	µg	122.3656	-69.43398541	191.7995421
874	Strontium	Soil	ng	335.1798	-183.6558618	518.8356882
875	Sulfur	Soil	µg	27.01798	-11.75657682	38.77455602
876	Tebutam	Soil	ng	410.7008	-250.1738898	660.8746663
877	Teflubenzuron	Soil	µg	0.634391	-0.378547475	1.01293802
878	Tin	Soil	ng	1.566481	-0.592765663	2.159246773
879	Titanium	Soil	ng	65.85533	-25.48105235	91.33637818
880	Vanadium	Soil	ng	1.884992	-0.729349045	2.614340549
881	Zinc	Soil	µg	56.85883	-34.76691801	91.62574638
882	Hardwood Regrowth Indicator	Non mat.	g	-2.33537	1.904646744	-4.240018352
883	show on tree	Non mat.	µg	-56.9175	41.80342559	-98.72096127
884	Softwood Plantation Indicator	Non mat.	µg	27.57954	-22.49289745	50.07243377
885	Truck travel distance, urban	Non mat.	mm	340.3863	-255.2401891	595.6264967
886	waste to landfill	Non mat.	g	5.784086	-4.786386874	10.57047283
887	AU database, energy end use indicator, electricity delivered	Economic	kJ	44.91286	-215.1313363	260.0441915
888	AU database, energy end use indicator, energy in capital equipment	Economic	J	416.0969	-251.3535966	667.4504876
889	AU database, energy end use indicator, energy losses in electricty transmission	Economic	kJ	1.330845	-5.728713086	7.059558496
890	AU database, energy end use indicator, feedstock energy	Economic	kJ	-7.51552	5.876209616	-13.39172731
891	AU database, energy end use indicator, fuel extraction and delivery	Economic	kJ	9.8421	-14.43162725	24.27372679
892	AU database, energy end use indicator, powerplant conversion losses	Economic	kJ	10.08857	-534.2547399	544.34331
893	AU database, energy end use indicator, process heat	Economic	kJ	27.35992	1.429584037	25.93033192
894	AU database, energy end use indicator, transport energy	Economic	kJ	10.16664	-7.321259687	17.48789542

Appendix B Data Output Tables from SIMAPRO

B.2 Process Contribution

Process Contribution - Simapro Output

SimaPro 7.0 Process contribution Date: 17/12/2007 Time: 18:35:22
Project Online billing v7

Title: Analyzing 1 p assembly 'Benefit of online billing - capacity'
Method: CML 2 baseline 2001- Australian Toxicity Factors V1.00 / World, 1995
Indicator: Amount
Relative mode: Non

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
1	Natural gas, at long-distance pipeline/RER U		m3	0.001636496	-0.000875011	0.002511507
2	Drying, natural gas/NO U		m3	0.001165284	-0.000627343	0.001792627
3	Natural gas, high pressure, 2001-02 /AU U	--	m3	0.000745325	-0.000715375	0.0014607
4	Natural gas, 2001-02/AU U	--	m3	0.000745325	-0.000715375	0.0014607
5	Natural gas, at production onshore/RU U		m3	0.00067134	-0.000360264	0.001031604
6	Natural gas, production RU, at long-distance pipeline/RER U		m3	0.000573114	-0.000307552	0.000880666
7	Natural gas, production NL, at long-distance pipeline/RER U		m3	0.000413873	-0.000222788	0.000636662
8	Natural gas, at production onshore/DZ U		m3	0.000310893	-0.00016869	0.000479583
9	Natural gas, at production offshore/NO U		m3	0.000307426	-0.000165241	0.000472667
10	Natural gas, at production onshore/NL U		m3	0.00029642	-0.000159563	0.000455983
11	Natural gas, production NO, at long-distance pipeline/RER U		m3	0.000290216	-0.000155958	0.000446174
12	Natural gas, production DZ, at long-distance pipeline/RER U		m3	0.000275704	-0.000148359	0.000424063
13	Raw natural gas GUS U	--	m3	0.000258763	-8.43045E-06	0.000267193
14	Infra raw natural gas GUS U	-	m3	0.000258763	-8.43045E-06	0.000267193
15	Produced natural gas GUS U	--	m3	0.000258116	-8.40938E-06	0.000266525
16	Infra produced natural gas GUS U	-	m3	0.000258116	-8.40938E-06	0.000266525
17	Natural gas to CH from GUS U	--	m3	0.000215143	-7.00934E-06	0.000222153
18	Natural gas to UCPTE from GUS U	--	m3	0.000215143	-7.00931E-06	0.000222152
19	Sweetening, natural gas/DE U		m3	0.000183474	-9.87266E-05	0.0002822
20	Natural gas, at production offshore/NL U		m3	0.000123243	-6.63449E-05	0.000189588
21	Natural gas, production DZ, at evaporation plant/RER U		m3	0.000115796	-6.23106E-05	0.000178106
22	Natural gas, liquefied, at liquefaction plant/DZ U		m3	0.000115796	-6.23106E-05	0.000178106
23	Natural gas, liquefied, at freight ship/DZ U		m3	0.000115796	-6.23106E-05	0.000178106
24	Natural gas, at production onshore/DE U		m3	9.84117E-05	-5.33476E-05	0.000151759
25	Natural gas, production DE, at long-distance pipeline/RER U		m3	9.1137E-05	-4.94113E-05	0.000140548
26	Natural gas, at production offshore/GB U		m3	8.08444E-05	-4.6011E-05	0.000126855
27	Natural gas, production GB, at long-distance pipeline/RER U		m3	8.08368E-05	-4.60069E-05	0.000126844
28	Natural gas to UCPTE U	--	m3	6.26005E-05	-2.04085E-06	6.46413E-05
29	Paper Coll&Tran (Melb Met)/AU U	--	m3	2.73397E-05	-2.22973E-05	4.9637E-05
30	Raw natural gas NL U	--	m3	2.4791E-05	-8.10079E-07	2.56011E-05
31	Infra raw natural gas NL U	-	m3	2.4791E-05	-8.10079E-07	2.56011E-05
32	Produced natural gas NL U	--	m3	2.47762E-05	-8.09593E-07	2.55858E-05
33	Infra produced natural gas NL U	-	m3	2.47762E-05	-8.09593E-07	2.55858E-05
34	Natural gas to UCPTE from NL U	--	m3	2.44566E-05	-7.99148E-07	2.52557E-05
35	Raw natural gas D U	--	m3	2.22507E-05	-7.25395E-07	2.29761E-05
36	Infra raw natural gas D U	-	m3	2.22507E-05	-7.25395E-07	2.29761E-05
37	Produced natural gas D U	--	m3	2.22373E-05	-7.2496E-07	2.29623E-05
38	Infra produced natural gas D U	-	m3	2.22373E-05	-7.2496E-07	2.29623E-05
39	Natural gas to UCPTE from D U	--	m3	2.20195E-05	-7.17859E-07	2.27374E-05
40	Raw natural gas N U	--	m3	1.86477E-05	-6.07901E-07	1.92556E-05
41	Infra raw natural gas N U	-	m3	1.86477E-05	-6.07901E-07	1.92556E-05
42	Produced natural gas N U	--	m3	1.86365E-05	-6.07536E-07	1.9244E-05
43	Infra produced natural gas N U	-	m3	1.86365E-05	-6.07536E-07	1.9244E-05
44	Natural gas to CH from N U	--	m3	1.80321E-05	-5.87832E-07	1.86199E-05
45	Natural gas to UCPTE from N U	--	m3	1.80318E-05	-5.87825E-07	1.86197E-05
46	Sweet gas, burned in gas turbine, production/m3/NO U		m3	1.69863E-05	-9.24403E-06	2.62303E-05
47	Raw natural gas Alg. U	--	m3	7.83286E-06	-2.5572E-07	8.08858E-06
48	Infra raw natural gas Alg. U	-	m3	7.83286E-06	-2.5572E-07	8.08858E-06
49	Produced natural gas Alg. U	--	m3	7.82816E-06	-2.55567E-07	8.08373E-06
50	Infra produced natural gas Alg U	-	m3	7.82816E-06	-2.55567E-07	8.08373E-06
51	Excavation, skid-steer loader/RER U		m3	6.32303E-06	-4.21287E-06	1.05359E-05
52	Garbage coll+trans -no gw sep (urban)/AU U	--	m3	4.68192E-06	-3.81841E-06	8.50033E-06
53	Natural gas to UCPTE from Alg. LNG U	--	m3	4.38508E-06	-1.43087E-07	4.52816E-06
54	LNG Tanker ETH U	--	m3	4.38508E-06	-1.43087E-07	4.52816E-06
55	MRF sorting recyclables/AU U		m3	4.10095E-06	-3.34459E-06	7.44554E-06
56	Leakage production natural gas GUS U	--	m3	3.87244E-06	-1.26163E-07	3.9986E-06
57	Natural gas, sweet, burned in production flare/m3/GLO U		m3	3.57927E-06	-1.94889E-06	5.52816E-06
58	Treatment, potato starch production effluent, to wastewater treatment, class 2/CH U		m3	3.13424E-06	-1.87024E-06	5.00448E-06
59	Output gas turbine production sweet gas U	-	m3	2.68475E-06	-8.75037E-08	2.77225E-06
60	Natural gas, vented/GLO U		m3	2.57041E-06	-1.43371E-06	4.00412E-06
61	Natural gas to UCPTE from Alg. U	--	m3	2.50853E-06	-8.19764E-08	2.59051E-06
62	Crude oil, 2001-02 AU/GLO U	--	m3	1.80181E-06	-1.58362E-07	1.96017E-06
63	Treatment, black chrome coating effluent, to wastewater treatment, class 2/CH U		m3	1.49173E-06	-8.59304E-07	2.35103E-06
64	Output flare production sweet gas U	-	m3	1.45218E-06	-4.73321E-08	1.49951E-06
65	Diesel, automotive, 2001-02, - energy allocation/AU U	--	m3	1.43375E-06	-2.44208E-07	1.67796E-06
66	Sour gas, burned in gas turbine, production/m3/NO U		m3	1.34268E-06	-7.20528E-07	2.06321E-06
67	Crude oil, 2001-02 AU, - energy allocation/AU U	--	m3	1.21611E-06	-1.06858E-07	1.32297E-06
68	Fuel oil, 2001-02, - energy allocation/AU U	--	m3	9.3197E-07	-7.03147E-09	9.39002E-07
69	Natural gas, at long-distance pipeline/CH U		m3	9.3035E-07	-5.89385E-07	1.51973E-06
70	Slurry spreading, by vacuum tanker/CH U		m3	8.83696E-07	-5.3501E-07	1.41871E-06
71	Treatment, sewage, to wastewater treatment, class 4/CH U		m3	7.94789E-07	-3.85489E-07	1.18028E-06
72	Leakage raw natural gas GUS U	-	m3	6.46907E-07	-2.10761E-08	6.67983E-07
73	Output gas turbine production sour gas U	-	m3	6.38103E-07	-2.07918E-08	6.58895E-07
74	Excavation, hydraulic digger/RER U		m3	5.97687E-07	-2.27263E-07	8.2495E-07
75	Petrol, unleaded, 2001-02, - energy allocation/AU U	--	m3	5.86455E-07	9.77741E-20	5.86455E-07
76	Softwood, standing, under bark, in forest/RER U		m3	5.27357E-07	-7.83313E-08	6.05688E-07
77	Softwood, stand establishment / tending / site development, under bark/RER U		m3	5.27357E-07	-7.83313E-08	6.05688E-07
78	Excavation skid steer loader U	--	m3	3.89485E-07	-1.27697E-08	4.02254E-07
79	Natural gas, sour, burned in production flare/m3/GLO U		m3	3.3567E-07	-1.80132E-07	5.15802E-07
80	Round wood, softwood, debarked, u=70% at forest road/RER U		m3	3.21157E-07	-5.97777E-08	3.80934E-07
81	Round wood, softwood, under bark, u=70% at forest road/RER U		m3	3.17303E-07	-5.90604E-08	3.76363E-07
82	Industrial wood, softwood, under bark, u=140%, at forest road/RER U		m3	2.80781E-07	-4.92324E-10	2.81274E-07
83	Output flare production sour gas U	-	m3	2.69115E-07	-8.76792E-09	2.77883E-07
84	Treatment, sewage, unpolluted, to wastewater treatment, class 3/CH U		m3	2.64704E-07	-1.4989E-07	4.14594E-07
85	Softwood, Scandinavian, standing, under bark, in forest/NORDEL U		m3	2.39176E-07	-3.46224E-10	2.39522E-07
86	Industrial wood, Scandinavian softwood, under bark, u=140%, at forest road/NORDEL U		m3	2.39172E-07	-3.43991E-10	2.39516E-07
87	Building, multi-storey/RER/I U		m3	2.38374E-07	-1.39351E-07	3.77724E-07
88	Petroleum gas flaring U	-	m3	2.38289E-07	-8.74646E-09	2.47035E-07
89	Softwood, allocation correction, 2/RER U		m3	2.27397E-07	-9.25466E-09	2.36652E-07
90	Sawn timber, softwood, raw, forest-debarked, u=70%, at plant/RER U		m3	1.91402E-07	-3.54325E-08	2.26834E-07
91	Sawn timber, softwood, raw, air dried, u=20%, at plant/RER U		m3	1.28354E-07	-5.54167E-09	1.33895E-07
92	Leakage natural gas UCPTE U	-	m3	1.05818E-07	-3.44958E-09	1.09268E-07
93	Wood chips, softwood, from industry, u=40%, at plant/RER U		m3	9.54898E-08	-4.05837E-08	1.36074E-07
94	Concrete, exacting, at plant/CH U		m3	8.75199E-08	-6.67579E-08	1.54278E-07
95	Wood chips, mixed, from industry, u=40%, at plant/RER U		m3	7.93678E-08	-4.16677E-08	1.21036E-07

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
96	Industrial residue wood, mix, softwood, u=40%, at plant/RER U		m3	7.07946E-08	-1.55538E-08	8.63484E-08
97	Industrial residue wood, softwood, forest-debarked, u=70%, at plant/RER U		m3	6.95658E-08	-1.53011E-08	8.48669E-08
98	Leakage production natural gas Alg. U	-	m3	5.98226E-08	-1.95226E-09	6.17748E-08
99	Concrete, exacting, with de-icing salt contact, at plant/CH U		m3	5.0552E-08	-3.4312E-08	8.4864E-08
100	Treatment, rainwater mineral oil storage, to wastewater treatment, class 2/CH U		m3	4.91051E-08	-2.84942E-08	7.75993E-08
101	Sawn timber, softwood, raw, kiln dried, u=10%, at plant/RER U		m3	4.53816E-08	-2.65113E-08	7.18929E-08
102	Particle board, outdoor use, at plant/RER U		m3	4.24631E-08	-3.80969E-10	4.2844E-08
103	Excavation hydraulic digger U	--	m3	4.12812E-08	-1.50202E-09	4.27832E-08
104	Sawn timber, softwood, planed, kiln dried, at plant/RER U		m3	3.98178E-08	-2.32767E-08	6.30946E-08
105	Concrete, sole plate and foundation, at plant/CH U		m3	3.57091E-08	-1.98698E-08	5.55789E-08
106	Leakage production natural gas NL U	-	m3	3.4195E-08	-1.11737E-09	3.53124E-08
107	Leakage production natural gas D U	-	m3	3.0339E-08	-9.89082E-10	3.1328E-08
108	Leakage production natural gas N U	-	m3	2.78411E-08	-9.07599E-10	2.87487E-08
109	Treatment, sewage, to wastewater treatment, class 1/CH U		m3	2.55068E-08	-1.68101E-08	4.2317E-08
110	Concrete, normal, at plant/CH U		m3	2.34554E-08	-1.32587E-08	3.67141E-08
111	Wood chips, hardwood, from industry, u=40%, at plant/RER U		m3	2.22571E-08	-1.16853E-08	3.39424E-08
112	Hardwood, allocation correction, 2/RER U		m3	2.02533E-08	-4.19025E-09	2.44435E-08
113	Industrial residue wood, mix, hardwood, u=40%, at plant/RER U		m3	1.74153E-08	-4.38849E-09	2.18038E-08
114	Petroleum gas blow off U	-	m3	1.71843E-08	-6.30754E-10	1.7815E-08
115	Industrial residue wood, hardwood, including bark, u=70%, at plant/RER U		m3	1.64923E-08	-4.1559E-09	2.06482E-08
116	Hardwood, standing, under bark, in forest/RER U		m3	1.62847E-08	-5.61938E-09	2.19041E-08
117	Hardwood, stand establishment / tending / site development, under bark/RER U		m3	1.62847E-08	-5.61938E-09	2.19041E-08
118	Leakage raw natural gas NL U	-	m3	1.48746E-08	-4.86048E-10	1.53607E-08
119	Leakage raw natural gas D U	-	m3	1.33504E-08	-4.35237E-10	1.37856E-08
120	Leakage raw natural gas N U	-	m3	1.11886E-08	-3.64741E-10	1.15534E-08
121	Treatment, sewage, to wastewater treatment, class 3/CH U		m3	9.20197E-09	-5.49998E-09	1.47019E-08
122	Other refinery products, including naptha, 2001-02, - energy allocation/AU U	--	m3	9.09233E-09	-3.47086E-11	9.12704E-09
123	Round wood, hardwood, under bark, u=70%, at forest road/RER U		m3	8.85863E-09	-3.45299E-09	1.23116E-08
124	Treatment, particle board production effluent, to wastewater treatment, class 3/CH U		m3	8.06968E-09	-7.33199E-11	8.143E-09
125	Synthesis gas/AU U		m3	7.07903E-09	-5.77341E-09	1.28524E-08
126	Industrial wood, hardwood, under bark, u=80%, at forest road/RER U		m3	5.56912E-09	-1.30758E-10	5.69988E-09
127	Tailings, uranium milling/GLO U		m3	5.46446E-09	-3.36923E-09	8.83369E-09
128	Industrial wood, Scandinavian hardwood, under bark, u=80%, at forest road/NORDEL U		m3	5.04191E-09	-6.21497E-11	5.10406E-09
129	Hardwood, Scandinavian, standing, under bark, in forest/NORDEL U		m3	5.04191E-09	-6.21497E-11	5.10406E-09
130	Sawn timber, hardwood, raw, plant-debarked, u=70%, at plant/RER U		m3	4.9971E-09	-2.01757E-09	7.01467E-09
131	Leakage raw natural gas Alg. U	-	m3	4.69972E-09	-1.53432E-10	4.85315E-09
132	Emission process water petroleum gas U	-	m3	4.44719E-09	-1.44946E-10	4.59214E-09
133	Sawn timber, hardwood, raw, air dried, u=20%, at plant/RER U		m3	4.37056E-09	-1.76655E-09	6.13712E-09
134	Sawn timber, softwood, planed, air dried, at plant/RER U		m3	3.71694E-09	-2.21244E-09	5.92938E-09
135	Treatment, lorry production effluent, to wastewater treatment, class 1/CH U		m3	3.49716E-09	-2.30478E-09	5.80195E-09
136	Treatment, concrete production effluent, to wastewater treatment, class 3/CH U		m3	2.91361E-09	-1.97899E-09	4.89259E-09
137	Natural gas to CH U	--	m3	2.1913E-09	-7.19343E-11	2.26324E-09
138	Glued laminated timber, outdoor use, at plant/RER U		m3	1.83207E-09	-1.41631E-09	3.24838E-09
139	Treatment, pig iron production effluent, to wastewater treatment, class 3/CH U		m3	1.15361E-09	-6.18275E-10	1.77189E-09
140	Natural gas to CH from NL U	--	m3	8.32695E-10	-2.7335E-11	8.6003E-10
141	Emission process water natural gas U	-	m3	7.2472E-10	-2.36163E-11	7.48337E-10
142	Treatment, sewage, to wastewater treatment, class 2/CH U		m3	7.1577E-10	-3.9675E-10	1.11252E-09
143	Industrial residue wood, from planing, softwood, kiln dried, u=10%, at plant/RER U		m3	6.39275E-10	-1.40451E-10	7.79726E-10
144	Industrial residue wood, from planing, softwood, air dried, u=20%, at plant/RER U		m3	6.39275E-10	-1.40451E-10	7.79726E-10
145	Treatment, sewage, from residence, to wastewater treatment, class 2/CH U		m3	5.86161E-10	-3.4073E-10	9.2689E-10
146	Industrial residue wood, plywood prod., outdoor use, hardwood, u=20%, at plant/RER U		m3	2.97802E-10	-7.50431E-11	3.72845E-10
147	Industrial residue wood, plywood prod., indoor use, hardwood, u=20%, at plant/RER U		m3	2.97802E-10	-7.50431E-11	3.72845E-10
148	Sawn timber, softwood, raw, kiln dried, u=20%, at plant/RER U		m3	2.66342E-10	-1.58399E-10	4.24741E-10
149	Natural gas to CH from D U	--	m3	2.62956E-10	-8.63212E-12	2.71588E-10
150	Preservative treatment, logs, pressure vessel/RER U		m3	2.4956E-10	-1.37555E-10	3.87115E-10
151	Low active radioactive waste/CH U		m3	1.78924E-10	-1.03528E-10	2.82452E-10
152	Industrial residue wood, from planing, hardwood, kiln dried, u=10%, at plant/RER U		m3	1.6771E-10	-4.22611E-11	2.09971E-10
153	Industrial residue wood, from planing, hard, air/kiln dried, u=10%, at plant/RER U		m3	1.6771E-10	-4.22611E-11	2.09971E-10
154	Poor concrete, at plant/CH U		m3	1.50579E-10	-8.95204E-11	2.40099E-10
155	Wood chips, mixed, u=120%, at forest/RER U		m3	1.26498E-10	-8.24459E-11	2.08944E-10
156	Massive building U	-	m3	1.09793E-10	-3.63791E-12	1.13431E-10
157	Treatment, plywood production effluent, to wastewater treatment, class 3/CH U		m3	9.83506E-11	-5.96117E-11	1.57962E-10
158	Residual wood, hardwood, under bark, u=80%, at forest road/RER U		m3	9.14349E-11	-5.37481E-11	1.45183E-10
159	Wood chips, softwood, u=140%, at forest/RER U		m3	9.10784E-11	-5.93611E-11	1.50439E-10
160	Logs, hardwood, at forest/RER U		m3	8.98164E-11	-5.27967E-11	1.42613E-10
161	Lubricants (00-01)/AU U EnAll	--	m3	8.98112E-11	-4.28114E-10	5.17925E-10
162	Residual wood, hardwood, under bark, air dried, u=20%, at forest road/RER U		m3	8.02061E-11	-4.71474E-11	1.27354E-10
163	Glued laminated timber, indoor use, at plant/RER U		m3	7.96817E-11	-4.39114E-11	1.23593E-10
164	Treatment, glass production effluent, to wastewater treatment, class 2/CH U		m3	6.98459E-11	-2.43933E-11	9.42393E-11
165	Plywood, outdoor use, at plant/RER U		m3	5.34499E-11	-3.23967E-11	8.58466E-11
166	Radioactive waste, in final repository for nuclear waste LLW/CH U		m3	4.98205E-11	-3.07217E-11	8.05422E-11
167	Chips, Scandinavian softwood (plant-debarked), u=70%, at plant/NORDEL U		m3	4.94395E-11	-2.92428E-11	7.86823E-11
168	Particle board, indoor use, at plant/RER U		m3	4.7128E-11	-2.59908E-11	7.31188E-11
169	Wood chips, hardwood, u=80%, at forest/RER U		m3	4.02901E-11	-2.5948E-11	6.62381E-11
170	Sawn timber, hardwood, raw, plant-debarked, u=70%, at plant/RER S		m3	2.25876E-11	-6.90696E-23	2.25876E-11
171	Sawn timber, hardwood, raw, kiln dried, u=10%, at plant/RER U		m3	1.28578E-11	-3.24003E-12	1.60978E-11
172	Sawn timber, hardwood, raw, air / kiln dried, u=10%, at plant/RER U		m3	1.28578E-11	-3.24003E-12	1.60978E-11
173	Radioactive waste, in interim storage, for final repository LLW/CH U		m3	1.25634E-11	-7.74569E-12	2.03091E-11
174	Radioactive waste, in final repository for nuclear waste SF, HLW, and ILW/CH U		m3	1.22255E-11	-7.52281E-12	1.97483E-11
175	Radioactive waste, in interim storage, for final repository SF, HLW, and ILW/CH U		m3	1.06379E-11	-6.53192E-12	1.71699E-11
176	Sorting comingle paper+cont./AU U		m3	7.46977E-12	-6.09208E-12	1.35619E-11
177	Infra WWTP size 2 U	--	m3	6.81754E-12	-2.56026E-12	9.3778E-12
178	Infra sewage system size 2 U	--	m3	6.81754E-12	-2.56026E-12	9.3778E-12
179	Round wood, Scandinavian softwood, under bark, u=70% at forest road/NORDEL U		m3	3.77411E-12	-2.23233E-12	6.00645E-12
180	Treatment, ceramic production effluent, to wastewater treatment, class 3/CH U		m3	1.48739E-12	-8.56729E-13	2.34412E-12
181	Low radioactive waste U	--	m3	1.20417E-12	-4.64728E-14	1.25064E-12
182	Metal construction building U	-	m3	1.04451E-12	-4.45241E-14	1.08904E-12
183	Treatment, maize starch production effluent, to wastewater treatment, class 2/CH U		m3	1.57729E-13	-9.78294E-14	2.55559E-13
184	Radioactive waste in final storage B U	--	m3	1.14172E-13	-8.62745E-15	1.22799E-13
185	Radioactive waste, in interim storage conditioning/CH U		m3	1.05128E-13	-6.54579E-14	1.70586E-13
186	RA waste interim storage B U	--	m3	4.35654E-14	-3.29338E-15	4.68588E-14
187	Radioactive waste in final storage C U	--	m3	9.32691E-15	-7.04637E-16	1.00316E-14
188	RA waste interim storage C U	--	m3	9.32691E-15	-7.04636E-16	1.00316E-14
189	Lubricants, 2001-02, - energy allocation/AU U	--	m3	1.90515E-15	-1.55377E-15	3.45892E-15
190	Plywood, indoor use, at plant/RER U		m3	1.48347E-15	-9.43723E-16	2.42719E-15
191	Leakage natural gas LP CH U	-	m3	1.16801E-15	-3.58639E-15	4.7544E-15
192	Treatment, condensate from light oil boiler, to wastewater treatment, class 2/CH U		m3	7.34134E-16	-3.83819E-16	1.11795E-15
193	Leakage natural gas HP CH U	-	m3	3.81344E-16	-1.17093E-15	1.55227E-15
194	RA waste interim storage conditioning ZWILAG U	--	m3	1.9958E-16	-1.51381E-17	2.14718E-16
195	LPG from refineries, 2001-02, - energy allocation/AU U	--	m3	-3.99423E-12	-7.02535E-12	3.03112E-12
196	LPG from natural gas, 2001-02/AU U	--	m3	-9.1195E-12	-1.60401E-11	6.92055E-12
197	LPG, Australian average, 2001-02/ AU U	--	m3	-1.31137E-11	-2.30654E-11	9.95166E-12
198	Crude Oil AU (00-01)/AU U EnAll	--	m3	-2.48284E-09	-3.67615E-09	1.1933E-09
199	Hardwood, allocation correction, 1/RER U		m3	-4.2483E-09	1.72008E-09	-5.96838E-09
200	Hardwood, allocation correction, 3/RER U		m3	-6.02732E-09	2.34938E-09	-8.3767E-09
201	Softwood, allocation correction, 3/RER U		m3	-1.12763E-07	2.09889E-08	-1.33752E-07

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
202	Softwood, allocation correction, 1/RER U		m3	-1.46219E-07	2.95347E-08	-1.75754E-07
203	Transport, freight, rail/RER U		tkm	0.020661036	-0.015974799	0.036635835
204	Operation, freight train/RER U		tkm	0.020661036	-0.015974799	0.036635835
205	Truck 28t - paper billing	-	tkm	0.017825771	1.09188E-22	0.017825771
206	Shipping, oil transport/AU U	--	tkm	0.016260684	-0.001446388	0.017707072
207	Transport, lorry 32t/RER U		tkm	0.00772026	-0.005298991	0.01301925
208	Transport, transoceanic tanker/OCE U		tkm	0.004926977	-0.002839836	0.007766813
209	Operation, transoceanic tanker/OCE U		tkm	0.004926977	-0.002839836	0.007766813
210	Operation, transoceanic freight ship/OCE U		tkm	0.003421525	-0.001799479	0.005221004
211	Transport, transoceanic freight ship/OCE U		tkm	0.003421519	-0.001799475	0.005220993
212	Transport, natural gas, pipeline, long distance/RU U		tkm	0.002750946	-0.00147625	0.004227196
213	Transport, crude oil pipeline, onshore/RER U		tkm	0.001530035	-0.000880491	0.002410526
214	Pipeline transport gas GUS U	--	tkm	0.001032688	-3.36448E-05	0.001066333
215	Infra natural gas pipeline GUS U	-	tkm	0.001032688	-3.36448E-05	0.001066333
216	Rail - bulk transport/AU U	--	tkm	0.000725311	-0.00050904	0.00123435
217	Articulated Truck, 7 tonne load on 30 tonne truck, (freight task)/AU U	--	tkm	0.000634605	-0.000405405	0.001040011
218	Transport, natural gas, pipeline, long distance/RER U		tkm	0.000596692	-0.000320825	0.000917518
219	Transport, natural gas, onshore pipeline, long distance/DZ U		tkm	0.000330845	-0.00017803	0.000508875
220	Transport, natural gas, pipeline, long distance/NL U		tkm	0.00023407	-0.000126138	0.000360208
221	Transport, lorry 28t/CH U		tkm	0.000215911	-0.000136977	0.000352889
222	Transport, natural gas, onshore pipeline, long distance/NO U		tkm	0.000201906	-0.000109014	0.00031092
223	Transport, natural gas, offshore pipeline, long distance/NO U		tkm	0.000155471	-8.4061E-05	0.000239532
224	Transport, liquefied natural gas, freight ship/OCE U		tkm	0.000120428	-6.48031E-05	0.000185231
225	Transport, municipal waste collection, lorry 21t/CH U		tkm	9.27023E-05	-4.22771E-08	9.27446E-05
226	Transport, barge/RER U		tkm	6.27799E-05	-3.80132E-05	0.000100793
227	Operation, barge/RER U		tkm	6.27799E-05	-3.80132E-05	0.000100793
228	Transport, tractor and trailer/CH U		tkm	6.02114E-05	-3.50069E-05	9.52183E-05
229	Transport, natural gas, pipeline, long distance/DE U		tkm	5.32042E-05	-2.95973E-05	8.28016E-05
230	Transport, barge tanker/RER U		tkm	4.95357E-05	-2.49596E-05	7.44953E-05
231	Operation, barge tanker/RER U		tkm	4.95357E-05	-2.49596E-05	7.44953E-05
232	Freighter oceanic ETH U	--	tkm	2.82318E-05	-1.16931E-06	2.94011E-05
233	Transport, freight, rail/CH U		tkm	2.60984E-05	-1.81411E-05	4.42395E-05
234	Operation, freight train/CH U		tkm	2.60984E-05	-1.81411E-05	4.42395E-05
235	Tanker oceanic ETH U	--	tkm	2.45512E-05	-8.9919E-07	2.54504E-05
236	Pipeline transport gas N U	--	tkm	2.16385E-05	-7.05398E-07	2.23439E-05
237	Infra natural gas pipeline N U	-	tkm	2.16385E-05	-7.05398E-07	2.23439E-05
238	Transport, natural gas, offshore pipeline, long distance/DZ U		tkm	1.27927E-05	-6.88384E-06	1.96765E-05
239	Pipeline onshore U	--	tkm	1.04033E-05	-3.82235E-07	1.07856E-05
240	Pipeline transport gas NL U	--	tkm	9.78317E-06	-3.19677E-07	1.01028E-05
241	Infra natural gas pipeline NL U	-	tkm	9.78317E-06	-3.19677E-07	1.01028E-05
242	Pipeline transport gas D U	--	tkm	7.04642E-06	-2.2972E-07	7.27614E-06
243	Infra natural gas pipeline D U	-	tkm	7.04642E-06	-2.2972E-07	7.27614E-06
244	Pipeline transport gas Alg. U	--	tkm	6.9465E-06	-2.26911E-07	7.17341E-06
245	Infra pipeline gas Alg. U	-	tkm	6.9465E-06	-2.26911E-07	7.17341E-06
246	Articulated Truck, 30 tonne load on 30 tonne truck, (freight task)/AU U	--	tkm	6.59625E-06	-1.95415E-05	2.61377E-05
247	Transport, lorry 16t/RER U		tkm	5.85155E-06	-4.15023E-07	6.26657E-06
248	Transport, lorry 40t/CH U		tkm	4.94938E-06	-2.77148E-06	7.72086E-06
249	Transport, van <3.5t/RER U		tkm	3.38263E-06	-3.90197E-09	3.38653E-06
250	Transport, lorry 16t/CH U		tkm	2.9412E-06	-1.19914E-06	4.14034E-06
251	Transport, van <3.5t/CH U		tkm	2.56476E-06	-1.53238E-06	4.09713E-06
252	Rail transport ETH U	--	tkm	1.90376E-06	-1.56668E-07	2.06043E-06
253	Infra rail transport U	-	tkm	1.90376E-06	-1.56668E-07	2.06043E-06
254	Infra freight train U	--	tkm	1.90376E-06	-1.56668E-07	2.06043E-06
255	Infra road delivery van U	-	tkm	1.81852E-06	-7.44422E-08	1.89296E-06
256	Truck 40t ETH U	--	tkm	1.50196E-06	-6.03964E-08	1.56236E-06
257	Infra truck 40t U	--	tkm	1.50196E-06	-6.03964E-08	1.56236E-06
258	Pipeline transport gas U	--	tkm	1.40322E-06	-4.57879E-08	1.44901E-06
259	Infra natural gas pipeline U	-	tkm	1.40322E-06	-4.57879E-08	1.44901E-06
260	Transport, crude oil pipeline, offshore/OCE U		tkm	8.95471E-07	-5.15776E-07	1.41125E-06
261	Rigid truck transport, freight task/AU U	--	tkm	7.54523E-07	-6.15362E-07	1.36988E-06
262	Pipeline offshore U	--	tkm	7.3945E-07	-2.70009E-08	7.66451E-07
263	Freighter inland ETH U	--	tkm	6.33508E-07	-2.57358E-08	6.59244E-07
264	Truck 28t ETH U	--	tkm	2.16411E-07	-7.73077E-09	2.24142E-07
265	Infra truck 28t U	--	tkm	2.16411E-07	-7.73077E-09	2.24142E-07
266	Tanker inland ETH U	--	tkm	1.56025E-07	-7.07182E-09	1.63097E-07
267	Truck 16t ETH U	--	tkm	1.00143E-07	-6.31507E-09	1.06458E-07
268	Infra truck 16t U	--	tkm	1.00143E-07	-6.31507E-09	1.06458E-07
269	Light Commercial Vehicles (freight task)/AU U	--	tkm	8.5013E-08	-6.05733E-19	8.5013E-08
270	Barge I	--	tkm	8.7196E-10	-1.48416E-21	8.7196E-10
271	Truck I	--	tkm	1.27396E-10	-2.1684E-22	1.27396E-10
272	Transport, aircraft, freight/RER U		tkm	3.20427E-11	-1.82779E-11	5.03206E-11
273	Operation, aircraft, freight/RER U		tkm	3.20427E-11	-1.82779E-11	5.03206E-11
274	Infra delivery van <3.5 t U	--	tkm	2.64971E-13	-1.24326E-14	2.77403E-13
275	Delivery van <3.5t ETH U	--	tkm	2.64971E-13	-1.24326E-14	2.77403E-13
276	Trailer I	--	tkm	-1.08307E-07	-1.08981E-07	6.73716E-10
277	Bulk carrier I	--	tkm	-8.36348E-07	-9.49245E-07	1.12897E-07
278	Train I	--	tkm	-8.69881E-06	-8.7175E-06	1.8696E-08
279	Articulated Truck, 28 tonne load on 30 tonne truck, (freight task)/AU U	--	tkm	-1.16692E-05	7.11468E-06	-1.87839E-05
280	Coaster I	--	tkm	-2.92521E-05	-2.93021E-05	4.9991E-08
281	Shipping, domestic freight/AU U	--	tkm	-8.25441E-05	-8.6233E-05	3.68895E-06
282	Articulated Truck, 30 tonne load on 30 tonne truck, 90% rural operation, (freight task)/AU U	--	tkm	-0.000246363	0.000200925	-0.000447288
283	Shipping, international freight/AU U	--	tkm	-0.015313822	0.01184046	-0.027154282
284	Refuse truck (packwaste)/AU U	--	s	0.038274525	-0.031215353	0.069489878
285	Collecting Paper/AU U		s	0.035153393	-0.028669868	0.06382326
286	Conveyor/AU U	--	s	0.003936915	-0.003210809	0.007147724
287	Collecting Garbage/AU U		s	0.002474863	-0.002018411	0.004493273
288	Trommel Screen/AU U	--	s	0.000787383	-0.000642162	0.001429545
289	Magnetic Separator/AU U	--	s	0.000787383	-0.000642162	0.001429545
290	Power sawing, without catalytic converter/RER U		s	0.000654671	-8.07438E-05	0.000735415
291	Unloading Paper/AU U		s	0.000606941	-0.000495	0.001101941
292	Front end loader/AU U		s	0.00056469	-0.000829297	0.001393986
293	Glass breaker/AU U	--	s	0.000393692	-0.000321081	0.000714772
294	Eddie current separator/AU U	--	s	0.000393692	-0.000321081	0.000714772
295	Unloading Garbage/AU U		s	3.93281E-05	-3.20746E-05	7.14028E-05
296	Transport, helicopter/GLO U		s	2.91259E-06	-1.56989E-06	4.48248E-06
297	Power saw (per hour) U	--	s	7.42686E-09	-1.2377E-08	1.98039E-08
298	Transport, passenger car/CH U		personkm	1.09884E-06	-7.11461E-07	1.8103E-06
299	Transport, passenger car/RER U		personkm	9.72868E-07	-5.63111E-07	1.53598E-06
300	Paper, woodfree, coated, at regional storage/RER U - modified for online billing contractor		kg	0.0099417	-0.0081081	0.0180498
301	Paper, woodfree, coated, at non-integrated mill/RER U - online billing contractor		kg	0.0099417	-0.0081081	0.0180498
302	Bill paper CB		kg	0.0081081	-0.0081081	0.0162162
303	Black coal, NSW (2001-02)/AU U	-	kg	0.006034272	-0.004114167	0.010148439
304	Water, decarbonised, at plant/RER U		kg	0.005630188	-0.003278694	0.008908882
305	Hardwood kraftpulp bleachedAU U	--	kg	0.005398343	-0.004402698	0.009801041
306	Recycling Paper &board (Melb)/AU U - online billing	--	kg	0.00497085	-0.00405405	0.0090249
307	Landfill inert waste/AU U	--	kg	0.004932828	-0.004092131	0.009024958

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
308	Paperboard & ONP reprocessing at Paperboard Facility/AU U	--	kg	0.004846579	-0.003952699	0.008799277
309	Envelope paper		kg	0.004584	x	0.004584
310	Black coal, QLD (2001-02)/AU U	-	kg	0.004582188	-0.003127134	0.007709322
311	Waste paper, mixed, from public collection, for further treatment/RER U		kg	0.003508855	-1.2671E-08	0.003508868
312	Paper, recycling, with deinking, at plant/RER U - online billing		kg	0.0027504	2.12963E-19	0.0027504
313	Tap water, at user/RER U		kg	0.002573566	-0.001412733	0.003986299
314	Gravel, crushed, at mine/CH U		kg	0.002344492	-0.001622987	0.003967479
315	Limestone, at mine/CH U		kg	0.002310387	-0.001780693	0.00409108
316	Kaolin, at plant/RER U		kg	0.002291398	-0.001640704	0.003932103
317	Potato grading/CH U		kg	0.002278523	-0.001359623	0.003638146
318	Limestone, crushed, for mill/CH U		kg	0.002184945	-0.00171297	0.003897915
319	Limestone, milled, loose, at plant/CH U		kg	0.002184922	-0.001712957	0.003897879
320	Potatoes IP, at farm/CH U		kg	0.002114666	-0.001261848	0.003376515
321	Waste paper, sorted, for further treatment/RER U		kg	0.001619113	-6.64349E-09	0.00161912
322	Fly ash processing//AU U		kg	0.001427514	-0.002430661	0.003858174
323	Diesel, at consumer/AU U	--	kg	0.001184069	-0.000177628	0.001361697
324	Black coal, WA (2001-02)/AU U	--	kg	0.000998849	-0.000667229	0.001666078
325	Solid manure loading and spreading, by hydraulic loader and spreader/CH U		kg	0.000881494	-0.000527865	0.001409359
326	Landfill of paperboard waste/AU U		kg	0.000851258	-0.000694256	0.001545514
327	Fuel oil, at consumer/AU U	--	kg	0.000839705	-6.33536E-06	0.00084604
328	Brown coal, SA (2001-02)/AU U	-	kg	0.00068735	-0.000467502	0.001154852
329	Carbon Sequestration (landfill)/AU U		kg	0.000669089	-0.000545685	0.001214774
330	Gravel, round, at mine/CH U		kg	0.000611154	-0.000327646	0.0009388
331	Process-specific burdens, residual material landfill/CH U		kg	0.000606804	-0.00010089	0.000707693
332	Natural gas, high pressure/AU U	-	kg	0.000545436	-0.000548389	0.001093825
333	Potato starch, at plant/DE U		kg	0.000539456	-0.0003219	0.000861356
334	Process-specific burdens, inert material landfill/CH U		kg	0.000458308	-0.000290966	0.000749273
335	Petrol, unleaded, at consumer/AU U	--	kg	0.000431044	-1.99569E-19	0.000431044
336	Lignite, at mine/RER U		kg	0.000425659	-0.000261753	0.000687413
337	Diesel, at refinery/RER U		kg	0.000420094	-0.000272616	0.000692711
338	Disposal, inert waste, 5% water, to inert material landfill/CH U		kg	0.000418245	-0.000268256	0.000686501
339	Chemicals inorganic, at plant/GLO U		kg	0.000393495	-0.000302615	0.00069611
340	Diesel, at regional storage/RER U		kg	0.000385466	-0.000263265	0.000648731
341	Disposal, sulfidic tailings, off-site/GLO U		kg	0.000383417	-0.000270921	0.000654339
342	Discharge, produced water, onshore/GLO U		kg	0.000354221	-0.000202307	0.000556528
343	Process-specific burdens, municipal waste incineration/CH U		kg	0.00034413	-2.75398E-05	0.000371669
344	Iron ore, 46% Fe, at mine/GLO U		kg	0.000265063	-0.000171147	0.000436209
345	Process-specific burdens, sanitary landfill/CH U		kg	0.000262838	-6.11587E-05	0.000323997
346	Hard coal mix, at regional storage/UCTE U		kg	0.000242607	-6.05322E-05	0.00030314
347	Disposal, cement, hydrated, 0% water, to residual material landfill/CH U		kg	0.000234921	-1.2958E-05	0.000247879
348	Disposal, ash from deinking sludge, 0% water, to residual material landfill/CH U		kg	0.000213981	1.47113E-20	0.000213981
349	Crude oil, at production onshore/RME U		kg	0.000210513	-0.000121459	0.000331972
350	Sodium chloride, powder, at plant/RER U		kg	0.00020806	-0.000100913	0.000308974
351	Heavy fuel oil, at refinery/RER U		kg	0.000207422	-0.00010997	0.000317392
352	Black Ink		kg	0.00019697	x	0.00019697
353	Heavy fuel oil, at regional storage/RER U		kg	0.00019243	-0.000100771	0.000293201
354	Crude oil, production RME, at long distance transport/RER U		kg	0.000190379	-0.000109655	0.000300034
355	Sulphuric acid, liquid, at plant/RER U		kg	0.000188665	-0.000125197	0.000313862
356	Disposal, plastics, mixture, 15.3% water, to municipal incineration/CH U		kg	0.000186952	-8.5252E-07	0.000187804
357	Disposal, wood ash mixture, pure, 0% water, to sanitary landfill/CH U		kg	0.000177465	-6.04143E-07	0.000178069
358	Crude oil, production NO, at long distance transport/RER U		kg	0.000169309	-9.75193E-05	0.000266828
359	Crude oil, at production offshore/NO U		kg	0.000169309	-9.75193E-05	0.000266828
360	Potato seed IP, at regional storehouse/CH U		kg	0.000163856	-9.77752E-05	0.000261632
361	Potato seed IP, at farm/CH U		kg	0.000163856	-9.77752E-05	0.000261632
362	Discharge, produced water, offshore/OCE U		kg	0.000162143	-9.3392E-05	0.000255535
363	Iron ore, 65% Fe, at beneficiation/GLO U		kg	0.000159542	-0.000103034	0.000262575
364	Acrylonitrile-butadiene-styrene copolymer, ABS, at plant/RER S		kg	0.00015364	-2.31346E-20	0.00015364
365	Disposal, hard coal mining waste tailings, in surface backfill/kg/GLO U		kg	0.000150913	-6.45388E-05	0.000215451
366	Steam, for chemical processes, at plant/RER U		kg	0.000150239	-1.77083E-05	0.000167947
367	Sodium hydroxide, 50% in H2O, production mix, at plant/RER U		kg	0.000147972	-4.43259E-05	0.000192298
368	Coloured Ink		kg	0.000147727	x	0.000147727
369	Clinker, at plant/CH U		kg	0.000145673	-5.03971E-05	0.00019607
370	Clay, at mine/CH U		kg	0.000144392	-6.83929E-05	0.000212785
371	Crude oil, production RU, at long distance transport/RER U		kg	0.000138457	-7.97489E-05	0.000218206
372	Crude oil, at production onshore/RU U		kg	0.000138457	-7.97489E-05	0.000218206
373	Oxygen, liquid/AU U	--	kg	0.000138291	-0.000114227	0.000252517
374	Chlorine/AU U	--	kg	0.000137958	-0.000112513	0.000250471
375	Disposal, building, reinforced concrete, to final disposal/CH U		kg	0.000137367	-7.80225E-05	0.000215389
376	Hard coal, at regional storage/WEU U		kg	0.000136719	-6.45635E-05	0.000201282
377	Hard coal, at mine/WEU U		kg	0.000136719	-6.45635E-05	0.000201282
378	Crude oil, production GB, at long distance transport/RER U		kg	0.000135447	-7.80152E-05	0.000213462
379	Crude oil, at production offshore/GB U		kg	0.000135447	-7.80152E-05	0.000213462
380	Fresh fruit bunch harvesting, at farm/MY U		kg	0.000134429	-4.76557E-05	0.000182084
381	Sand, at mine/CH U		kg	0.000129319	-6.97126E-05	0.000199031
382	Polyester resin, unsaturated, at plant/RER S		kg	0.000125568	x	0.000125568
383	Limestone, crushed, washed/CH U		kg	0.0001245	-6.71145E-05	0.000191614
384	Hard coal, at regional storage/EEU U		kg	0.000122834	-3.75898E-05	0.000160424
385	Hard coal, at mine/EEU U		kg	0.000122834	-3.75898E-05	0.000160424
386	Flaring - oil & gas production 2001-02/AU U	-	kg	0.000122317	-3.19486E-05	0.000154265
387	Hot rolling, steel/RER U		kg	0.000121782	-8.1165E-05	0.000202947
388	Water, completely softened, at plant/RER U		kg	0.000121565	-5.54922E-05	0.000177057
389	Crude oil, at production onshore/RAF U		kg	0.000121227	-6.73466E-05	0.000188573
390	Wheat/AU U	--	kg	0.000118257	-9.64459E-05	0.000214703
391	Starch from wheat/AU U	--	kg	0.000118257	-9.64459E-05	0.000214703
392	Sulphuric acid/AU U	--	kg	0.000104924	-8.55728E-05	0.000190497
393	Hard coal supply mix/DE U		kg	0.000101268	-6.31924E-05	0.000164461
394	Solid unbleached board, SUB, at plant/RER U		kg	0.00010094	-2.5848E-13	0.00010094
395	Portland cement, strength class Z 42.5, at plant/CH U		kg	9.96097E-05	-4.55107E-05	0.00014512
396	Sinter, iron, at plant/GLO U		kg	9.88349E-05	-6.3837E-05	0.000162672
397	Sodium Chlorate NaCL03/AU U		kg	9.65704E-05	-7.87594E-05	0.00017533
398	Cement, unspecified, at plant/CH U		kg	9.48131E-05	-5.44261E-06	0.000100256
399	Pig iron, at plant/GLO U		kg	9.41285E-05	-6.07971E-05	0.000154926
400	Light fuel oil, at refinery/RER U		kg	8.53729E-05	-2.79203E-05	0.000113293
401	Sodium hydroxide, 50% in H2O, mercury cell, at plant/RER U		kg	8.15328E-05	-2.44236E-05	0.000105956
402	Crude oil, production RAF, at long distance transport/RER U		kg	8.12687E-05	-4.68095E-05	0.000128078
403	Reinforcing steel, at plant/RER U		kg	7.94563E-05	-5.30161E-05	0.000132472
404	Light fuel oil, at regional storage/RER U		kg	7.77727E-05	-2.34062E-05	0.000101179
405	Chemicals organic, at plant/GLO U		kg	7.5694E-05	-6.10852E-05	0.000136779
406	Concrete, readymix/AU U	--	kg	7.27306E-05	-0.000216146	0.000288877
407	Venting - gas processing plant 2001-02/AU U	-	kg	7.19499E-05	-6.90603E-05	0.00014101
408	Nitric acid, 50% in H2O, at plant/RER U		kg	7.15021E-05	-5.37413E-05	0.000125243
409	Iron scrap, at plant/RER U		kg	6.86563E-05	-4.54583E-05	0.000114115
410	Calcareous marl, at plant/CH U		kg	6.78835E-05	-2.3485E-05	9.13685E-05
411	Steel, converter, unalloyed, at plant/RER U		kg	6.76413E-05	-4.25632E-05	0.000110204
412	Rosin size, in paper production, at plant/RER U		kg	6.7491E-05	-4.58478E-10	6.74914E-05
413	waste water treatment plant/AU U		kg	6.68828E-05	-5.45472E-05	0.00012143

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
414	Methane generated in landfill/AU U		kg	6.55469E-05	-5.34577E-05	0.000119005
415	Methane generated in landfill - BaselineAU U		kg	6.55469E-05	-5.34577E-05	0.000119005
416	Aluminium sulphate, powder, at plant/RER U		kg	6.38319E-05	-1.51801E-05	7.9012E-05
417	Hydrogen peroxide/AU U		kg	6.29807E-05	-5.13648E-05	0.000114345
418	Hard coal, at regional storage/ZA U		kg	6.09601E-05	-2.75353E-05	8.84954E-05
419	Hard coal, at mine/ZA U		kg	6.09601E-05	-2.75353E-05	8.84954E-05
420	Hydrogen peroxide, 50% in H2O, at plant/RER U		kg	5.94661E-05	-1.01621E-06	6.04823E-05
421	Disposal, paper, 11.2% water, to municipal incineration/CH U		kg	5.94384E-05	-2.89801E-07	5.97282E-05
422	Disposal, building, brick, to final disposal/CH U		kg	5.91918E-05	-3.42621E-05	9.34539E-05
423	Brick, at plant/RER U		kg	5.84075E-05	-3.3796E-05	9.22034E-05
424	Husked nuts harvesting, at farm/PH U		kg	5.62637E-05	-2.83213E-05	8.4585E-05
425	Sodium silicate, hydrothermal liquor, 48% in H2O, at plant/RER U		kg	5.62428E-05	-1.57558E-05	7.19986E-05
426	Diesel, at regional storage/CH U		kg	5.55841E-05	-1.50094E-05	7.05935E-05
427	Ammonia, steam reforming, liquid, at plant/RER U		kg	5.5293E-05	-4.15397E-05	9.68327E-05
428	Sodium silicate, spray powder 80%, at plant/RER U		kg	5.40796E-05	-1.51498E-05	6.92294E-05
429	Disposal, nickel smelter slag, 0% water, to residual material landfill/CH U		kg	5.36532E-05	-3.27056E-05	8.63588E-05
430	Crude oil, at production/NG U		kg	5.27326E-05	-2.86942E-05	8.14268E-05
431	Hydro processing/AU U	--	kg	5.09542E-05	-3.22839E-05	8.32381E-05
432	Diesel, low sulphur, at consumer/AU U	-	kg	5.09542E-05	-3.22839E-05	8.32381E-05
433	Diesel, low sulfur, 2001-02, - energy allocation/AU U	--	kg	5.09542E-05	-3.22839E-05	8.32381E-05
434	Portland calcareous cement, at plant/CH U		kg	5.06886E-05	-5.36093E-06	5.60495E-05
435	Soap, at plant/RER U		kg	5.06536E-05	-2.10227E-08	5.06746E-05
436	Silica sand, at plant/DE U		kg	5.02291E-05	-1.78424E-05	6.80715E-05
437	Disposal, sludge from pulp and paper production, 25% water, to sanitary landfill/CH U		kg	4.83221E-05	-3.83531E-05	8.66753E-05
438	Optical brighteners, in paper production, at plant/RER U		kg	4.8118E-05	-3.92433E-05	8.73613E-05
439	Fatty acids, from vegetarian oil, at plant/RER U		kg	4.61362E-05	-3.69491E-05	8.30854E-05
440	AKD sizer, in paper production, at plant/RER U		kg	4.31674E-05	-3.51893E-05	7.83567E-05
441	Crude palm oil, at plant/MY U		kg	4.30862E-05	-9.60838E-06	5.26946E-05
442	Chlorine dioxide/AU U	--	kg	4.19871E-05	-3.42432E-05	7.62303E-05
443	Steel, electric, un- and low-alloyed, at plant/RER U		kg	4.17289E-05	-2.80877E-05	6.98166E-05
444	Quicklime, in pieces, loose, at plant/CH U		kg	4.13471E-05	-2.7896E-05	6.92431E-05
445	Ammonia, liquid, at regional storehouse/RER U		kg	4.13426E-05	-3.13199E-05	7.26625E-05
446	Secondary sulphur, at refinery/RER U		kg	4.08978E-05	-2.67942E-05	6.7692E-05
447	Crude oil, production RAF, at long distance transport/CH U		kg	3.99579E-05	-2.05371E-05	6.0495E-05
448	Bitumen, at refinery/CH U		kg	3.81546E-05	-2.44311E-05	6.25858E-05
449	Oxygen, liquid, at plant/RER U		kg	3.81365E-05	-2.63195E-05	6.44561E-05
450	Pellets, iron, at plant/GLO U		kg	3.76514E-05	-2.43188E-05	6.19702E-05
451	Fluorspar, 97%, at plant/GLO U		kg	3.74128E-05	-2.87675E-05	6.61803E-05
452	Methane not capt. but under cap- baseline/AU U		kg	3.60508E-05	-2.94017E-05	6.54525E-05
453	Water, deionised, at plant/CH U		kg	3.58812E-05	-2.68946E-05	6.27758E-05
454	Bauxite, at mine/GLO U		kg	3.50574E-05	-1.27044E-05	4.77618E-05
455	Sodium hydroxide, 50% in H2O, diaphragm cell, at plant/RER U		kg	3.4794E-05	-1.04306E-05	4.52246E-05
456	Packing, lime products/CH U		kg	3.47586E-05	-2.39655E-05	5.87242E-05
457	Sulphur/AU U	--	kg	3.4625E-05	-2.8239E-05	6.2864E-05
458	Hard coal, at regional storage/AU U		kg	3.43342E-05	-1.53667E-05	4.9701E-05
459	Hard coal, at mine/AU U		kg	3.43342E-05	-1.53667E-05	4.9701E-05
460	Disposal, wood untreated, 20% water, to municipal incineration/CH U		kg	3.41882E-05	-1.40409E-05	4.82292E-05
461	Hard coal, at regional storage/RNA U		kg	3.40672E-05	-1.51832E-05	4.92504E-05
462	Hard coal, at mine/RNA U		kg	3.40672E-05	-1.51832E-05	4.92504E-05
463	Limestone, milled, packed, at plant/CH U		kg	3.39884E-05	-2.38699E-05	5.78583E-05
464	Chlorine, liquid, production mix, at plant/RER U		kg	3.39183E-05	-2.56732E-05	5.95915E-05
465	Iron sulphate, at plant/RER S		kg	3.34848E-05	x	3.34848E-05
466	Steel, low-alloyed, at plant/RER U		kg	3.32798E-05	-2.28679E-05	5.61477E-05
467	Tap water, at user/CH U		kg	3.24666E-05	-2.16824E-05	5.4149E-05
468	Sodium hydroxide, 50% in H2O, membrane cell, at plant/RER U		kg	3.16661E-05	-9.48573E-06	4.11518E-05
469	Disposal, municipal solid waste, 22.9% water, to sanitary landfill/CH U		kg	3.07014E-05	-1.95099E-05	5.02113E-05
470	Hard coal supply mix/ES U		kg	3.06928E-05	-1.92639E-05	4.99566E-05
471	Refinery gas, at refinery/RER U		kg	3.06907E-05	-1.7975E-05	4.86657E-05
472	Naphtha, at refinery/RER U		kg	3.03239E-05	-1.75012E-05	4.78251E-05
473	Gravel/AU U	--	kg	3.03044E-05	-9.00616E-05	0.000120366
474	Hard coal, at regional storage/RLA U		kg	2.97949E-05	-1.35736E-05	4.33686E-05
475	Hard coal, at mine/RLA U		kg	2.97949E-05	-1.35736E-05	4.33686E-05
476	Naphtha, at regional storage/RER U		kg	2.97944E-05	-1.71611E-05	4.69555E-05
477	Sand, river/AU U	--	kg	2.96615E-05	-8.75882E-05	0.00011725
478	Methane Combustion from landfill - baseline/AU U		kg	2.94961E-05	-2.4056E-05	5.35521E-05
479	Quicklime, milled, loose, at plant/CH U		kg	2.89909E-05	-2.00034E-05	4.89943E-05
480	Crude oil, production NG, at long distance transport/CH U		kg	2.70728E-05	-1.39146E-05	4.09874E-05
481	Crude oil, production NG, at long distance transport/RER U		kg	2.56598E-05	-1.47796E-05	4.04394E-05
482	Soda, powder, at plant/RER U		kg	2.46328E-05	-1.76887E-05	4.23215E-05
483	Fluorescent whitening agent distyrylbiphenyl type, at plant/RER U		kg	2.4059E-05	-1.96217E-05	4.36807E-05
484	DAS-1, fluorescent whitening agent triazinylaminostilben type, at plant/RER U		kg	2.4059E-05	-1.96217E-05	4.36807E-05
485	Disposal, salt tailings potash mining, 0% water, to residual material landfill/CH U		kg	2.4025E-05	-1.44295E-05	3.84545E-05
486	Process-specific burdens, slag compartment/CH U		kg	2.39242E-05	-2.46803E-06	2.63922E-05
487	Nitrogen, liquid, at plant/RER U		kg	2.38684E-05	-1.58371E-05	3.97054E-05
488	Aluminium hydroxide, at plant/RER U		kg	2.38633E-05	-8.39211E-06	3.22554E-05
489	Disposal, building, waste wood, untreated, to final disposal/CH U		kg	2.32152E-05	-1.35817E-05	3.67969E-05
490	Hydrochloric acid, 30% in H2O, at plant/RER U		kg	2.30597E-05	-1.67186E-05	3.97783E-05
491	Ammonium nitrate, as N, at regional storehouse/RER U		kg	2.19249E-05	-1.64892E-05	3.8414E-05
492	Industrial residual wood chopping, stationary electric chopper, at plant/RER U		kg	2.14572E-05	-9.65143E-06	3.11087E-05
493	Calcium chloride, CaCl2, at plant/RER U		kg	2.12069E-05	-1.57278E-05	3.69346E-05
494	Steel, converter, low-alloyed, at plant/RER U		kg	2.09663E-05	-1.44068E-05	3.53731E-05
495	Diesel, at refinery/CH U		kg	2.09552E-05	-5.65856E-06	2.66138E-05
496	Disposal, steel, 0% water, to municipal incineration/CH U		kg	2.06672E-05	-1.39024E-08	2.06811E-05
497	Ammonium sulphate, as N, at regional storehouse/RER U		kg	2.01429E-05	-1.52289E-05	3.53717E-05
498	Phosphoric acid, fertiliser grade, 70% in H2O, at plant/GLO U		kg	2.00745E-05	-1.54374E-05	3.55118E-05
499	Titanium dioxide, production mix, at plant/RER U		kg	1.98514E-05	-1.52441E-05	3.50955E-05
500	Sodium chlorate, powder, at plant/RER U		kg	1.96981E-05	-1.51452E-05	3.48433E-05
501	Hydrogen fluoride, at plant/GLO U		kg	1.96909E-05	-1.51408E-05	3.48317E-05
502	Sodium sulphate, powder, production mix, at plant/RER U		kg	1.96759E-05	-1.51315E-05	3.48074E-05
503	Phosphoric acid, industrial grade, 85% in H2O, at plant/RER U		kg	1.96748E-05	-1.51307E-05	3.48055E-05
504	Kraft paper, unbleached, at plant/RER U		kg	1.9179E-05	-1.32212E-07	1.93112E-05
505	Disposal, textiles, soiled, 25% water, to municipal incineration/CH U		kg	1.90866E-05	-1.75942E-10	1.90868E-05
506	Fugitives - crude refining and storage 2001-02/AU U	-	kg	1.90491E-05	-1.63952E-06	2.06886E-05
507	Natural gas I	--	kg	1.9032E-05	-2.50189E-11	1.9032E-05
508	Crude coco nut oil, at plant/PH U		kg	1.8944E-05	-9.53579E-06	2.84798E-05
509	Chlorine, gaseous, mercury cell, at plant/RER U		kg	1.87921E-05	-1.42032E-05	3.29954E-05
510	Disposal, lignite ash, 0% water, to opencast refill/DE U		kg	1.67269E-05	-1.03768E-05	2.71037E-05
511	Hard coal supply mix/FR U		kg	1.66561E-05	-1.04696E-05	2.71256E-05
512	Hard coal, at regional storage/CPA U		kg	1.55525E-05	-6.79675E-06	2.23493E-05
513	Hard coal, at mine/CPA U		kg	1.55525E-05	-6.79675E-06	2.23493E-05
514	Pigments (general) I	--	kg	1.47727E-05	-6.77927E-25	1.47727E-05
515	Disposal, natural gas pipeline, 0% water, to inert material landfill/CH U		kg	1.4645E-05	-7.87269E-06	2.25177E-05
516	Disposal, hard coal ash, 0% water, to residual material landfill/PL U		kg	1.42484E-05	-1.15697E-06	1.54054E-05
517	Disposal, non-sulfidic overburden, off-site/GLO U		kg	1.38169E-05	-8.39777E-06	2.22147E-05
518	Disposal, ash from paper prod. sludge, 0% water, to residual material landfill/CH U		kg	1.36872E-05	-1.08654E-05	2.45526E-05
519	Methanol, at plant/GLO U		kg	1.36561E-05	-1.05947E-05	2.42508E-05

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
520	Blast furnace slag cement, at plant/CH U		kg	1.35017E-05	-6.56653E-06	2.00682E-05
521	Disposal, municipal solid waste, 22.9% water, to municipal incineration/CH U		kg	1.34226E-05	-6.65374E-06	2.00763E-05
522	Hard coal supply mix/IT U		kg	1.32747E-05	-8.21823E-06	2.14929E-05
523	Wire drawing, steel/RER U		kg	1.28157E-05	-7.50373E-06	2.03194E-05
524	Ethylene, average, at plant/RER U		kg	1.26822E-05	-1.02053E-05	2.28875E-05
525	Disposal, building, cement (in concrete) and mortar, to final disposal/CH U		kg	1.26799E-05	-7.35125E-06	2.00312E-05
526	Phosphoric acid, fertiliser grade, 70% in H2O, at plant/US U		kg	1.26469E-05	-9.72553E-06	2.23725E-05
527	Hard coal supply mix/NL U		kg	1.26373E-05	-7.80153E-06	2.04388E-05
528	Disposal, lignite ash, 0% water, to opencast refill/GR U		kg	1.26128E-05	-7.56627E-06	2.0179E-05
529	Benzene, at plant/RER U		kg	1.22668E-05	-8.26153E-06	2.05283E-05
530	Soy beans IP, at farm/CH U		kg	1.21102E-05	-9.62287E-06	2.1733E-05
531	Soya oil, at plant/RER U		kg	1.20812E-05	-9.59983E-06	2.1681E-05
532	Packing, cement/CH U		kg	1.20542E-05	-6.98003E-06	1.90342E-05
533	Cement mortar, at plant/CH U		kg	1.20542E-05	-6.98003E-06	1.90342E-05
534	Crude palm kernel oil, at plant/MY U		kg	1.19032E-05	-9.53287E-06	2.1436E-05
535	Sodium sulphate, from natural sources, at plant/RER U		kg	1.18055E-05	-9.07892E-06	2.08844E-05
536	Disposal, facilities, chemical production/RER U		kg	1.15588E-05	-6.28749E-06	1.78463E-05
537	Facilities, chemical production/RER/I U		kg	1.15549E-05	-6.28506E-06	1.784E-05
538	Hydrochloric acid, from the reaction of hydrogen with chlorine, at plant/RER U		kg	1.15298E-05	-8.35931E-06	1.98892E-05
539	Hydrochloric acid, from Mannheim process, at plant/RER U		kg	1.15298E-05	-8.35931E-06	1.98892E-05
540	Disposal, building, reinforced concrete, to sorting plant/CH U		kg	1.12206E-05	-4.75608E-06	1.59766E-05
541	Disposal, redmud from bauxite digestion, 0% water, to residual material landfill/CH U		kg	1.12158E-05	-3.94429E-06	1.51601E-05
542	Light fuel oil, at regional storage/CH U		kg	1.09671E-05	-6.51384E-06	1.74809E-05
543	Fugitives - oil & gas exploration 2001-02/AU U	-	kg	1.01711E-05	-2.65665E-06	1.28278E-05
544	Titanium dioxide, chloride process, at plant/RER U		kg	9.93996E-06	-7.63024E-06	1.75702E-05
545	Titanium dioxide at plant, sulphate process, at plant/RER U		kg	9.92572E-06	-7.62203E-06	1.75478E-05
546	Cement, portland/AU U	--	kg	9.91646E-06	-2.79223E-05	3.78387E-05
547	Carbon black I	--	kg	9.84848E-06	1.61559E-27	9.84848E-06
548	Phosphate rock, as P2O5, beneficiated, wet, at plant/US U		kg	9.5421E-06	-7.3348E-06	1.68769E-05
549	Disposal, steel, 0% water, to inert material landfill/CH U		kg	9.35608E-06	-5.18943E-06	1.45455E-05
550	Disposal, lignite ash, 0% water, to opencast refill/ES U		kg	9.06147E-06	-5.54381E-06	1.46053E-05
551	Chromium steel 18/8, at plant/RER U		kg	9.046E-06	-5.28098E-06	1.4327E-05
552	Portland cement, strength class Z 52.5, at plant/CH U		kg	8.96233E-06	-2.16894E-06	1.11313E-05
553	Crude oil, production RLA, at long distance transport/RER U		kg	8.95471E-06	-5.15776E-06	1.41125E-05
554	Hard coal, at regional storage/RU U		kg	8.72341E-06	-3.35768E-06	1.20811E-05
555	Hard coal, at mine/RU U		kg	8.72341E-06	-3.35768E-06	1.20811E-05
556	Synthetic rubber, at plant/RER U		kg	8.71845E-06	-5.82927E-06	1.45477E-05
557	Extrusion, plastic pipes/RER U		kg	8.71845E-06	-5.82927E-06	1.45477E-05
558	Disposal, concrete, 5% water, to inert material landfill/CH U		kg	8.61354E-06	-5.34461E-06	1.39582E-05
559	Drawing of pipes, steel/RER U		kg	8.44425E-06	-4.67313E-06	1.31174E-05
560	Heavy fuel oil, at refinery/CH U		kg	8.33009E-06	-4.3269E-06	1.2657E-05
561	Sand ETH U	-	kg	8.1793E-06	-2.6665E-07	8.44596E-06
562	Hard coal supply mix/BE U		kg	8.06477E-06	-5.12866E-06	1.31934E-05
563	Cumene, at plant/RER U		kg	8.02292E-06	-4.22486E-06	1.22478E-05
564	Cast iron, at plant/RER U		kg	7.98255E-06	-5.53199E-06	1.35145E-05
565	Chlorine, gaseous, diaphragm cell, at plant/RER U		kg	7.9708E-06	-6.03319E-06	1.4004E-05
566	Pigments, paper production, unspecified, at plant/RER U		kg	7.95363E-06	-6.48653E-06	1.44402E-05
567	Heavy fuel oil, at regional storage/CH U		kg	7.90218E-06	-4.11761E-06	1.20198E-05
568	Phosphoric acid, fertiliser grade, 70% in H2O, at plant/MA U		kg	7.84169E-06	-5.97143E-06	1.38131E-05
569	Biogas from landfill/AU U		kg	7.73809E-06	-0.000367376	0.000375114
570	Rock wool, at plant/CH U		kg	7.49458E-06	-4.34308E-06	1.18377E-05
571	Disposal, mineral wool, 0% water, to inert material landfill/CH U		kg	7.43688E-06	-4.29654E-06	1.17334E-05
572	Disposal, building, mineral wool, to final disposal/CH U		kg	7.4051E-06	-4.2813E-06	1.16864E-05
573	Rock wool, packed, at plant/CH U		kg	7.38813E-06	-4.2842E-06	1.16723E-05
574	Propene fr.Gasoil-Kemcor/AU U		kg	7.38636E-06	x	7.38636E-06
575	Atactic wax-Kemcor/AU U	--	kg	7.38636E-06	x	7.38636E-06
576	Refinery products, at consumer/AU U	--	kg	7.34661E-06	-2.80446E-08	7.37465E-06
577	Hard coal supply mix/PT U		kg	7.3278E-06	-4.54167E-06	1.18695E-05
578	Chlorine, gaseous, membrane cell, at plant/RER U		kg	7.28074E-06	-5.50641E-06	1.27871E-05
579	Section bar rolling, steel/RER U		kg	7.00502E-06	-4.69896E-06	1.1704E-05
580	Disposal, lignite ash, 0% water, to opencast refill/CS U		kg	6.99247E-06	-4.19466E-06	1.11871E-05
581	Disposal, H3PO4 purification residue, 0% water, to residual material landfill/CH U		kg	6.92552E-06	-5.32602E-06	1.22515E-05
582	Propylene, at plant/RER U		kg	6.9118E-06	-4.72935E-06	1.16411E-05
583	Chromite, ore concentrate, at beneficiation/GLO U		kg	6.80445E-06	-4.05623E-06	1.08607E-05
584	Ethylene oxide, at plant/RER U		kg	6.57246E-06	-5.28376E-06	1.18562E-05
585	Acetic acid, 98% in H2O, at plant/RER U		kg	6.52086E-06	-5.24604E-06	1.17669E-05
586	Butadiene, at plant/RER U		kg	6.2756E-06	-5.05505E-06	1.13307E-05
587	Ammonia, partial oxidation, liquid, at plant/RER U		kg	6.26903E-06	-4.70768E-06	1.09767E-05
588	Disposal, decarbonising waste, 30% water, to residual material landfill/CH U		kg	6.25336E-06	-3.03396E-06	9.28732E-06
589	Lubricating oil, at plant/RER U		kg	6.23102E-06	-3.96322E-06	1.01942E-05
590	Core board, at plant/RER U		kg	6.0644E-06	-7.70868E-09	6.07211E-06
591	Phosphate rock, as P2O5, beneficiated, dry, at plant/MA U		kg	6.0331E-06	-4.56506E-06	1.05982E-05
592	Phenol, at plant/RER U		kg	5.98279E-06	-3.15273E-06	9.13552E-06
593	Polyethylene, HDPE, granulate, at plant/RER U		kg	5.96692E-06	-2.71497E-06	8.68188E-06
594	Steel, converter, chromium steel 18/8, at plant/RER U		kg	5.69898E-06	-3.32702E-06	9.026E-06
595	Disposal, inert material, 0% water, to sanitary landfill/CH U		kg	5.55617E-06	-2.35168E-06	7.90786E-06
596	Crude oil, production RME, at long distance transport/CH U		kg	5.35667E-06	-2.75316E-06	8.10982E-06
597	Potassium chloride, as K2O, at regional storehouse/RER U		kg	5.24564E-06	-3.15054E-06	8.39618E-06
598	Aluminium oxide, at plant/RER U		kg	5.16689E-06	-3.00463E-06	8.17152E-06
599	Disposal, slag, unalloyed electr. steel, 0% water, to residual material landfill/CH U		kg	4.87027E-06	-3.26997E-06	8.14024E-06
600	Disposal, hard coal ash, 0% water, to residual material landfill/ES U		kg	4.72364E-06	-2.96472E-06	7.68836E-06
601	Barite, at plant/RER U		kg	4.71469E-06	-2.6009E-06	7.31559E-06
602	Sheet rolling, steel/RER U		kg	4.68928E-06	-1.36733E-06	6.05661E-06
603	Urea, as N, at regional storehouse/RER U		kg	4.64598E-06	-3.57578E-06	8.22176E-06
604	Process-specific burdens, hazardous waste incineration plant/CH U		kg	4.61319E-06	-3.03063E-06	7.64382E-06
605	Formaldehyde, production mix, at plant/RER U		kg	4.55891E-06	-3.32204E-06	7.88094E-06
606	Disposal, building, concrete, not reinforced, to final disposal/CH U		kg	4.43628E-06	-2.40812E-06	6.84441E-06
607	Disposal, building, bulk iron (excluding reinforcement), to sorting plant/CH U		kg	4.31995E-06	-2.4166E-06	6.73655E-06
608	Hydrogen, liquid, at plant/RER U		kg	4.227E-06	-3.01087E-07	4.52808E-06
609	Ferronickel, 25% Ni, at plant/GLO U		kg	4.13922E-06	-2.52157E-06	6.66079E-06
610	Packing, fibre cement products/CH U		kg	4.12529E-06	-2.31299E-06	6.43828E-06
611	Waste (inert) to landfill U	--	kg	4.06844E-06	-1.68922E-07	4.23737E-06
612	Bitumen refinery Europe U	--	kg	4.0474E-06	-1.32243E-07	4.17964E-06
613	Hydrogen, cracking, APME, at plant/RER U		kg	4.01565E-06	-2.86033E-07	4.30168E-06
614	Metal input to BOS furnace/AU U	--	kg	4.01015E-06	-2.0188E-05	2.41981E-05
615	Basalt, at mine/RER U		kg	3.95714E-06	-2.29315E-06	6.25029E-06
616	Vinyl acetate, at plant/RER U		kg	3.88081E-06	-3.10874E-06	6.98955E-06
617	Ethylene glycol, at plant/RER U		kg	3.84883E-06	-3.0781E-06	6.92693E-06
618	Ethylene dichloride, at plant/RER U		kg	3.84182E-06	-3.09797E-06	6.93978E-06
619	Xylene, at plant/RER U		kg	3.83009E-06	-3.0815E-06	6.91159E-06
620	Methyl tert-butyl ether, at plant/RER U		kg	3.81456E-06	-3.06401E-06	6.87856E-06
621	Acetone, liquid, at plant/RER U		kg	3.79067E-06	-3.05446E-06	6.84514E-06
622	Toluene, liquid, at plant/RER U		kg	3.79067E-06	-3.05446E-06	6.84513E-06
623	Styrene, at plant/RER U		kg	3.79067E-06	-3.05446E-06	6.84513E-06
624	Ethyl benzene, at plant/RER U		kg	3.79067E-06	-3.05446E-06	6.84513E-06
625	Disposal, non-sulfidic tailings, off-site/GLO U		kg	3.78928E-06	-2.30273E-06	6.09201E-06

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
626	Vinyl chloride, at plant/RER U		kg	3.7847E-06	-3.05426E-06	6.83896E-06
627	Disposal, used mineral oil, 10% water, to hazardous waste incineration/CH U		kg	3.76976E-06	-2.54452E-06	6.31429E-06
628	Steel, slab 20% recyceld, BOS route/AU U	--	kg	3.76302E-06	-2.08123E-05	2.45754E-05
629	Rolled steel, blast furnace, 20% recycled content/AU U	--	kg	3.76302E-06	-2.08123E-05	2.45754E-05
630	Rolled steel, 20% recycled BOS route/AU U	--	kg	3.76302E-06	-2.08123E-05	2.45754E-05
631	Iron ore sinter, Bluescope Port Kembla/AU U	--	kg	3.44873E-06	-1.73616E-05	2.08104E-05
632	Fibre cement corrugated slab, at plant/CH U		kg	3.42397E-06	-1.89513E-06	5.31909E-06
633	Aluminium, production mix, at plant/RER U		kg	3.40569E-06	-2.22599E-06	5.63168E-06
634	Light fuel oil, at refinery/CH U		kg	3.36689E-06	-1.99975E-06	5.36664E-06
635	Steel, electric, chromium steel 18/8, at plant/RER U		kg	3.34702E-06	-1.95396E-06	5.30099E-06
636	Disposal, cement-fibre slab, 0% water, to municipal incineration/CH U		kg	3.30428E-06	-1.82388E-06	5.12816E-06
637	Disposal, building, cement-fibre slab, to final disposal/CH U		kg	3.30428E-06	-1.82388E-06	5.12816E-06
638	Carbon monoxide, CO, at plant/RER U		kg	3.22839E-06	-2.52347E-06	5.75186E-06
639	Carbon black, at plant/GLO U		kg	3.21711E-06	-2.151E-06	5.36811E-06
640	Pig iron, Bluescope Port Kembla/AU U	--	kg	3.20812E-06	-1.61504E-05	1.93585E-05
641	Diammonium phosphate/AU U	--	kg	3.19221E-06	-2.60345E-06	5.79566E-06
642	Diammonium phosphate, at regional store/AU U	--	kg	3.1922E-06	-2.60345E-06	5.79565E-06
643	Disposal, drilling waste, 71.5% water, to landfarming/CH U		kg	3.18514E-06	-1.79782E-06	4.98296E-06
644	Crude oil production onshore U	--	kg	3.1745E-06	-1.16762E-07	3.29127E-06
645	Disposal, basic oxygen furnace wastes, 0% water, to residual material landfill/CH U		kg	3.12746E-06	-1.99871E-06	5.12618E-06
646	Agricultural machinery, general, production/CH/I U		kg	3.10193E-06	-1.85484E-06	4.95677E-06
647	Disposal, average incineration residue, 0% water, to residual material landfill/CH U		kg	3.01659E-06	-2.42497E-06	5.44156E-06
648	Sodium sulphate, from Mannheim process, at plant/RER U		kg	2.95138E-06	-2.26973E-06	5.22111E-06
649	Phosphoric acid 70%/AU U	--	kg	2.90012E-06	-2.36524E-06	5.26536E-06
650	SOx retained, in lignite flue gas desulphurisation/GLO U		kg	2.78052E-06	-1.72691E-06	4.50743E-06
651	Ferrochromium, high-carbon, 68% Cr, at plant/GLO U		kg	2.71482E-06	-1.61667E-06	4.33149E-06
652	Crude oil production offshore U	--	kg	2.55359E-06	-9.34896E-08	2.64708E-06
653	Disposal, sludge from steel rolling, 20% water, to residual material landfill/CH U		kg	2.53323E-06	-1.61608E-06	4.14932E-06
654	Crude oil, production NL, at long distance transport/RER U		kg	2.52834E-06	-1.45629E-06	3.98463E-06
655	Crude oil, at production onshore/NL U		kg	2.52834E-06	-1.45629E-06	3.98463E-06
656	Hard coal supply mix/AT U		kg	2.52059E-06	-1.57826E-06	4.09885E-06
657	Iron ore from mine ETH U	-	kg	2.48874E-06	-9.51383E-08	2.58388E-06
658	Disposal, building, concrete, not reinforced, to sorting plant/CH U		kg	2.48838E-06	-9.56851E-07	3.44523E-06
659	Aluminium, primary, liquid, at plant/RER U		kg	2.37612E-06	-1.54839E-06	3.92452E-06
660	Aluminium, primary, at plant/RER U		kg	2.37612E-06	-1.54839E-06	3.92452E-06
661	Steel ETH U	-	kg	2.2876E-06	-8.68689E-08	2.37447E-06
662	Disposal, drilling waste, 71.5% water, to residual material landfill/CH U		kg	2.21128E-06	-1.24733E-06	3.45861E-06
663	Phenolic resin, at plant/RER U		kg	2.16562E-06	-1.94294E-08	2.18505E-06
664	Disposal, hazardous waste, 0% water, to underground deposit/DE U		kg	2.15309E-06	-1.43432E-06	3.58741E-06
665	Copper, concentrate, at beneficiation/RER U		kg	2.10821E-06	-1.27301E-06	3.38121E-06
666	Crude oil transport Europe U	--	kg	1.93899E-06	-7.07252E-08	2.00971E-06
667	Bentonite, at processing/DE U		kg	1.9349E-06	-1.21944E-06	3.15435E-06
668	Bentonite, at mine/DE U		kg	1.9349E-06	-1.21944E-06	3.15435E-06
669	SOx retained, in hard coal flue gas desulphurisation/RER U		kg	1.91687E-06	-1.19958E-06	3.11645E-06
670	Portland slag sand cement, at plant/CH U		kg	1.89626E-06	-1.08852E-07	2.00511E-06
671	Extrusion, plastic film/RER U		kg	1.8444E-06	-1.05143E-06	2.89583E-06
672	Converter steel ETH U	-	kg	1.83889E-06	-7.04344E-08	1.90932E-06
673	Coke for steelmaking/AU U		kg	1.82863E-06	-9.20571E-06	1.10343E-05
674	Trailer, production/CH/I U		kg	1.78075E-06	-8.47883E-07	2.62864E-06
675	Copper, at regional storage/RER U		kg	1.72059E-06	-1.03895E-06	2.75953E-06
676	Crude iron ETH U	-	kg	1.65928E-06	-6.34299E-08	1.72271E-06
677	Petroleum coke, at refinery/RER U		kg	1.64366E-06	-8.881E-07	2.53176E-06
678	Sinter ETH U	-	kg	1.64269E-06	-6.27956E-08	1.70548E-06
679	LA chemical landfill per kg (process specific) U	-	kg	1.59527E-06	-6.97644E-08	1.66503E-06
680	Infra LA chemical landfill per kg U	-	kg	1.59527E-06	-6.97641E-08	1.66503E-06
681	Blast furnace slag - credit to steel production/AU U		kg	1.59024E-06	-3.00578E-06	4.59602E-06
682	Tractor, production/CH/I U		kg	1.57153E-06	-9.40002E-07	2.51153E-06
683	Crude oil transport GUS U	--	kg	1.56785E-06	-5.74615E-08	1.62531E-06
684	LT drilling waste to LA chemical landfill U	--	kg	1.55494E-06	-5.09096E-08	1.60585E-06
685	Drilling waste to LA chemical landfill U	--	kg	1.55494E-06	-5.09096E-08	1.60585E-06
686	Phosphate rock beneficiated (imported)/AU U	--	kg	1.53166E-06	-1.24917E-06	2.78083E-06
687	Refinery gas, at refinery/CH U		kg	1.51605E-06	-7.41466E-07	2.25752E-06
688	Calcium chloride, CaCl2, at regional storage/CH U		kg	1.51486E-06	-5.86425E-07	2.10129E-06
689	Disposal, lignite ash, 0% water, to opencast refill/BA U		kg	1.46444E-06	-8.78499E-07	2.34294E-06
690	Methanol, at regional storage/CH U		kg	1.4298E-06	-1.14362E-06	2.57342E-06
691	Zinc, concentrate, at beneficiation/GLO U		kg	1.4259E-06	-1.87204E-06	3.29794E-06
692	Anode, aluminium electrolysis/RER U		kg	1.28353E-06	-8.36492E-07	2.12002E-06
693	NOx retained, in SCR/GLO U		kg	1.2601E-06	-7.85322E-07	2.04543E-06
694	Flat glass, uncoated, at plant/RER U		kg	1.25034E-06	-7.32409E-07	1.98275E-06
695	Latex, at plant/RER U		kg	1.21307E-06	-1.07067E-09	1.21414E-06
696	Rape seed IP, at farm/CH U		kg	1.18696E-06	-7.23043E-07	1.91001E-06
697	Water - reticulated/AU U	--	kg	1.16931E-06	-9.53685E-07	2.123E-06
698	Hydrogen chloride, HCL, 100%/AU U	--	kg	1.15885E-06	-9.45119E-07	2.10397E-06
699	Gravel ETH U	-	kg	1.1248E-06	-8.98542E-08	1.21466E-06
700	Copper, concentrate, at beneficiation/RLA U		kg	1.1008E-06	-6.64697E-07	1.76549E-06
701	Infra transport Europe U	--	kg	1.08481E-06	-6.17896E-08	1.1466E-06
702	Disposal, lignite ash, 0% water, to opencast refill/MK U		kg	1.077E-06	-6.46085E-07	1.72308E-06
703	Iron ore pellets/AU U	--	kg	1.06189E-06	-5.34577E-06	6.40766E-06
704	Calcium ammonium nitrate, as N, at regional storehouse/RER U		kg	1.05522E-06	-6.36356E-07	1.69157E-06
705	Polyethylene, LDPE, granulate, at plant/RER U		kg	1.03167E-06	-6.00666E-07	1.63234E-06
706	Ammonia/AU U	--	kg	1.03128E-06	-8.41108E-07	1.87239E-06
707	Packing, clay products/CH U		kg	1.0216E-06	-6.57608E-07	1.67921E-06
708	Industrial machine, heavy, unspecified, at plant/RER/I U		kg	1.00833E-06	-7.2436E-07	1.73269E-06
709	Gravel, unspecified, at mine/CH U		kg	9.86006E-07	-5.21992E-07	1.508E-06
710	Polyvinylchloride, at regional storage/RER U		kg	9.75076E-07	-5.78162E-07	1.55324E-06
711	Petrol, unleaded, at refinery/RER U		kg	9.69074E-07	-2.53334E-07	1.22241E-06
712	Disposal, building, glass sheet, to final disposal/CH U		kg	9.53638E-07	-5.42887E-07	1.49652E-06
713	Sulphur dioxide, liquid, at plant/RER U		kg	9.51433E-07	-3.7711E-09	9.55204E-07
714	Drilling waste to land farming U	--	kg	9.32966E-07	-3.05458E-08	9.63511E-07
715	Limestone ETH U	-	kg	9.32243E-07	-4.22528E-08	9.74496E-07
716	Disposal, lignite ash, 0% water, to opencast refill/SI U		kg	9.25948E-07	-5.55468E-07	1.48142E-06
717	Diesel stock Europe U	--	kg	9.24345E-07	-3.77575E-08	9.62102E-07
718	Diesel refinery Europe U	--	kg	9.24345E-07	-3.77575E-08	9.62102E-07
719	Disposal, polyvinylchloride, 0.2% water, to municipal incineration/CH U		kg	9.06056E-07	-5.31157E-07	1.43721E-06
720	Packaging film, LDPE, at plant/RER U		kg	9.02957E-07	-5.2851E-07	1.43147E-06
721	Explosives, tovex, at plant/CH U		kg	8.81843E-07	-5.40937E-07	1.42278E-06
722	Blasting/RER U		kg	8.76583E-07	-5.37986E-07	1.41457E-06
723	Hard coal supply mix/HR U		kg	8.64872E-07	-5.35463E-07	1.40033E-06
724	Iron pellets ETH U	-	kg	8.51748E-07	-3.25605E-08	8.84309E-07
725	Hard coal supply mix/PL U		kg	8.45946E-07	-5.29645E-07	1.37559E-06
726	Disposal, PE sealing sheet, 4% water, to municipal incineration/CH U		kg	8.34308E-07	-4.87727E-07	1.32203E-06
727	Disposal, building, polyvinylchloride products, to final disposal/CH U		kg	8.34308E-07	-4.87727E-07	1.32203E-06
728	Disposal, building, PE sealing sheet, to final disposal/CH U		kg	8.34308E-07	-4.87727E-07	1.32203E-06
729	Use of blast furnace slag/AU U		kg	8.34112E-07	-4.1991E-06	5.03321E-06
730	Coal mix D U	--	kg	8.18995E-07	-3.79685E-08	8.56964E-07
731	Grain drying, low temperature/CH U		kg	8.18845E-07	-6.35649E-07	1.45449E-06

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
732	Crude oil transport N-Africa U	--	kg	8.16599E-07	-3.06604E-08	8.47259E-07
733	Transported coal Europe to UCPTE U	--	kg	8.1376E-07	-4.24159E-08	8.56176E-07
734	Infra lignite mine UCPTE U	-	kg	8.02475E-07	-6.00316E-08	8.62506E-07
735	Crude lignite mine UCPTE U	--	kg	8.02475E-07	-6.00316E-08	8.62506E-07
736	Steel scrap from external sources external/AU U	--	kg	8.02031E-07	-4.03759E-06	4.83962E-06
737	Reprocessing steel cans, Bluescope, Port Kembla/AU U	--	kg	8.02031E-07	-4.03759E-06	4.83962E-06
738	Agricultural machinery, tillage, production/CH/I U		kg	8.01007E-07	-4.82344E-07	1.28335E-06
739	Polyvinylchloride, suspension polymerised, at plant/RER U		kg	7.99653E-07	-4.74144E-07	1.2738E-06
740	Zinc for coating, at regional storage/RER U		kg	7.98651E-07	-3.95012E-07	1.19366E-06
741	Aluminium scrap, new, at plant/RER U		kg	7.50384E-07	-4.89663E-07	1.24005E-06
742	Disposal, dust, unalloyed EAF steel, 15.4% water, to residual material landfill/CH U		kg	7.47615E-07	-4.99386E-07	1.247E-06
743	Electronics for control units/RER U		kg	7.45864E-07	-4.29652E-07	1.17552E-06
744	Refractory, basic, packed, at plant/DE U		kg	7.44816E-07	-4.90366E-07	1.23518E-06
745	Aluminium, secondary, from new scrap, at plant/RER U		kg	7.42955E-07	-4.84815E-07	1.22777E-06
746	Calcined Lime/AU U	--	kg	7.26363E-07	-4.3091E-06	5.03546E-06
747	Crude oil transport M-East U	--	kg	7.20949E-07	-2.62065E-08	7.47155E-07
748	Quicklime, milled, packed, at plant/CH U		kg	7.13525E-07	-6.17297E-08	7.75255E-07
749	Disposal, sludge, NaCl electrolysis Hg, 0% water, to residual material landfill/CH U		kg	7.11594E-07	-2.73841E-07	9.85436E-07
750	Magnesium oxide, at plant/RER U		kg	7.07575E-07	-4.65848E-07	1.17342E-06
751	Fibre cement facing tile, at plant/CH U		kg	7.01318E-07	-4.17867E-07	1.11919E-06
752	Manganese, concentrate, at beneficiation/GLO U		kg	6.79323E-07	-4.66761E-07	1.14608E-06
753	Rape seed IP, at regional storehouse/CH U		kg	6.78264E-07	-4.13167E-07	1.09143E-06
754	Petrol, unleaded, at regional storage/RER U		kg	6.62536E-07	-6.86365E-08	7.31172E-07
755	Peat, at mine/NORDEL U		kg	6.3885E-07	-2.21174E-09	6.41062E-07
756	Lime, hydrated, loose, at plant/CH U		kg	6.34846E-07	-2.36068E-07	8.70914E-07
757	Disposal, electronics for control units/RER U		kg	6.27547E-07	-3.4982E-07	9.77367E-07
758	Disposal, hard coal ash, 0% water, to residual material landfill/DE U		kg	6.26086E-07	-3.96381E-07	1.02247E-06
759	Polypropylene, granulate, at plant/RER U		kg	6.22512E-07	-4.09843E-07	1.03235E-06
760	Polystyrene, expandable, at plant/RER U		kg	5.92101E-07	-3.27382E-07	9.19482E-07
761	Concrete not reinforced ETH U	-	kg	5.91944E-07	-7.35233E-08	6.65468E-07
762	Lead, at regional storage/RER U		kg	5.84525E-07	-3.77197E-07	9.61722E-07
763	Urea compounds/AU U	-	kg	5.80401E-07	-4.73354E-07	1.05376E-06
764	Urea (granulated)/AU U		kg	5.80401E-07	-4.73354E-07	1.05376E-06
765	Urea, at regional store/AU U		kg	5.80401E-07	-4.73354E-07	1.05375E-06
766	Disposal, sludge, NaCl electrolysis, 0% water, to residual material landfill/CH U		kg	5.79572E-07	-2.23004E-07	8.02576E-07
767	Brazing solder, cadmium free, at plant/RER U		kg	5.76574E-07	-3.13805E-07	8.90379E-07
768	Sodium silicate, furnace process, pieces, at plant/RER U		kg	5.7285E-07	-4.10176E-07	9.83026E-07
769	Disposal, expanded polystyrene, 5% water, to municipal incineration/CH U		kg	5.49559E-07	-3.03351E-07	8.52911E-07
770	Disposal, building, polystyrene isolation, flame-retardant, to final disposal/CH U		kg	5.49559E-07	-3.03351E-07	8.52911E-07
771	Polystyrene foam slab, at plant/RER U		kg	5.49559E-07	-3.03351E-07	8.5291E-07
772	Foaming, expanding/RER U		kg	5.49559E-07	-3.03351E-07	8.5291E-07
773	Gypsum/AU U	--	kg	5.45405E-07	-1.53572E-06	2.08113E-06
774	Malusil, at plant/RER U		kg	5.37827E-07	-3.90296E-07	9.28122E-07
775	Baryte ETH U	-	kg	5.19682E-07	-1.7011E-08	5.36693E-07
776	Crude oil, used in drilling tests/GLO U		kg	5.1722E-07	-2.91096E-07	8.08316E-07
777	Sodium dithionite, anhydrous, at plant/RER U		kg	5.16067E-07	-6.71457E-10	5.16738E-07
778	Coal from stock UCPTE U	--	kg	5.09951E-07	-7.78715E-07	1.28867E-06
779	Protein peas, IP, at farm/CH U		kg	4.8565E-07	-3.85903E-07	8.71553E-07
780	Pea seed IP, at regional storehouse/CH U		kg	4.8565E-07	-3.85903E-07	8.71553E-07
781	Cement ETH U	-	kg	4.83866E-07	-2.2807E-08	5.06673E-07
782	Flat glass, coated, at plant/RER U		kg	4.8223E-07	-2.82077E-07	7.64307E-07
783	Paraffin, at plant/RER U		kg	4.6763E-07	-4.48739E-09	4.72117E-07
784	Disposal, waste, Si waferprod., inorg, 9.4% water, to residual material landfill/CH U		kg	4.62865E-07	-2.66652E-07	7.29517E-07
785	Electro steel ETH U	-	kg	4.57925E-07	-1.74207E-08	4.75345E-07
786	Ammonia, liquid, at regional storehouse/CH U		kg	4.50949E-07	-6.46659E-08	5.15615E-07
787	Residual oil refinery Europe U	--	kg	4.45217E-07	-2.21178E-08	4.67335E-07
788	Bitumen, at refinery/RER U		kg	4.2212E-07	-2.60334E-07	6.82454E-07
789	Petrol, unleaded, at regional storage/CH U		kg	4.20491E-07	-2.53357E-07	6.73848E-07
790	Crude oil transport C-Africa U	--	kg	4.1938E-07	-1.56508E-08	4.35031E-07
791	Copper, primary, at refinery/RER U		kg	4.1122E-07	-2.48308E-07	6.59528E-07
792	Water - reticulated Sydney/AU U	--	kg	4.09259E-07	-3.3379E-07	7.43049E-07
793	Trasmission fugitives from natural gas, 2001-02/AU U	-	kg	4.06267E-07	-3.89942E-07	7.96209E-07
794	Disposal, sludge, pig iron production, 8.6% water, to residual material landfill/CH U		kg	4.00987E-07	-2.58996E-07	6.59983E-07
795	Alkyd paint, white, 60% in solvent, at plant/RER U		kg	3.94616E-07	-2.72514E-07	6.6713E-07
796	Petrol, two-stroke blend, at regional storage/RER U		kg	3.87347E-07	-4.77734E-08	4.3512E-07
797	Copper, secondary, at refinery/RER U		kg	3.78529E-07	-2.28568E-07	6.07097E-07
798	Steel, Bluescope Port Kembla, 20% recycled content/AU U	--	kg	3.71158E-07	-1.02907E-18	3.71158E-07
799	Aluminium scrap, old, at plant/RER U		kg	3.70072E-07	-2.41315E-07	6.11387E-07
800	Molybdenite, at plant/GLO U		kg	3.67279E-07	-2.52399E-07	6.19678E-07
801	Dolomite/AU U		kg	3.63808E-07	-1.83149E-06	2.19529E-06
802	Aluminium, secondary, from old scrap, at plant/RER U		kg	3.59293E-07	-2.34287E-07	5.9358E-07
803	Infra coal underground mine U	-	kg	3.39477E-07	-1.46579E-06	1.80527E-06
804	Construction waste (inert) to landfill U	--	kg	3.32285E-07	-1.08295E-08	3.43115E-07
805	Disposal, lignite ash, 0% water, to opencast refill/CZ U		kg	3.25415E-07	-2.16326E-07	5.41741E-07
806	Potassium sulphate, as K2O, at regional storehouse/RER U		kg	3.2176E-07	-1.93252E-07	5.15012E-07
807	Copper, concentrate, at beneficiation/ID U		kg	3.00001E-07	-1.81151E-07	4.81152E-07
808	Thermal coal 2001-02/AU U	-	kg	2.96799E-07	-3.49278E-06	3.78958E-06
809	Water - reticulated Vict/AU U	--	kg	2.92328E-07	-2.38421E-07	5.30749E-07
810	Ferromanganese, high-coal, 74.5% Mn, at regional storage/RER U		kg	2.91529E-07	-2.00311E-07	4.91839E-07
811	Bill production - Sorter Telstra subcontractor		kg	2.90947E-07	1.27031E-33	2.90947E-07
812	Copper, primary, at refinery/RLA U		kg	2.90779E-07	-1.75582E-07	4.66361E-07
813	Bill production - printer Telstra subcontractor		kg	2.84349E-07	-9.79211E-19	2.84349E-07
814	Disposal, hazardous waste, 25% water, to hazardous waste incineration/CH U		kg	2.77479E-07	-1.60441E-07	4.37919E-07
815	Dithiocarbamate-compounds, at regional storehouse/CH U		kg	2.71042E-07	-1.61734E-07	4.32777E-07
816	Infra transport overseas U	--	kg	2.70507E-07	-1.93261E-08	2.89833E-07
817	Disposal, pollutants from rail ballast, 0% water, to residual material landfill/CH U		kg	2.69346E-07	-2.08228E-07	4.77575E-07
818	Dolomite, at plant/RER U		kg	2.63687E-07	-1.68801E-07	4.32488E-07
819	Refractory, fireclay, packed, at plant/DE U		kg	2.56828E-07	-1.60337E-07	4.17165E-07
820	Triple superphosphate, as P2O5, at regional storehouse/RER U		kg	2.49071E-07	-1.61515E-07	4.10586E-07
821	Coal tailings in landfill U	--	kg	2.42184E-07	-8.21002E-07	1.06319E-06
822	Residual oil stock Europe ETH U	--	kg	2.41029E-07	-9.74066E-09	2.5077E-07
823	Disposal, building, cement (in concrete) and mortar, to sorting plant/CH U		kg	2.37674E-07	-1.42181E-07	3.79856E-07
824	Disposal, polyethylene, 0.4% water, to municipal incineration/CH U		kg	2.35815E-07	-1.28905E-07	3.6472E-07
825	Disposal, lignite ash, 0% water, to opencast refill/AT U		kg	2.33605E-07	-1.4291E-07	3.76515E-07
826	Copper, from imported concentrates, at refinery/DE U		kg	2.25397E-07	-1.36102E-07	3.61499E-07
827	Disposal, catalyst base CH2O production, 0% water, to residual material landfill/CH U		kg	2.14269E-07	-1.56136E-07	3.70404E-07
828	Molybdenum, molybdenite concentrate, couple production Cu/GLO U		kg	2.12654E-07	-1.46139E-07	3.58794E-07
829	Hydrogen, liquid, from chlorine electrolysis, production mix, at plant/RER U		kg	2.1135E-07	-1.50543E-08	2.26404E-07
830	Iron (III) chloride, 40% in H2O, at plant/CH U		kg	2.09624E-07	-1.16533E-07	3.26157E-07
831	Phtalamide-compounds, at regional storehouse/CH U		kg	2.0819E-07	-1.2423E-07	3.3242E-07
832	Coal from mine UCPTE U	--	kg	2.05327E-07	-1.51497E-06	1.7203E-06
833	Disposal, plastic, industr. electronics, 15.3% water, to municipal incineration/CH U		kg	2.00877E-07	-1.11981E-07	3.12857E-07
834	Wire drawing, copper/RER U		kg	1.98895E-07	-1.01161E-07	3.00056E-07
835	Coal from underground mine UCPTE U	--	kg	1.97319E-07	-1.45589E-06	1.65321E-06
836	Carbon dioxide, from ammonia production/AU U	--	kg	1.96052E-07	-1.59893E-07	3.55946E-07
837	Disposal, building, waste wood, chrome preserved, to final disposal/CH U		kg	1.95628E-07	-1.16444E-07	3.12073E-07

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
838	Disposal, building wood, chrome preserved, 20% water, to municipal incineration/CH U		kg	1.95628E-07	-1.16444E-07	3.12073E-07
839	Water (delivered)/AU U	--	kg	1.92494E-07	-9.69028E-07	1.16152E-06
840	Disposal, glass, 0% water, to municipal incineration/CH U		kg	1.89397E-07	-1.2649E-07	3.15887E-07
841	Disposal, residue from cooling tower, 30% water, to sanitary landfill/CH U		kg	1.88685E-07	-6.76353E-08	2.5632E-07
842	Crude oil transport S-America U	--	kg	1.88663E-07	-6.82032E-09	1.95483E-07
843	Ethene from Ethane/AU U		kg	1.80116E-07	-2.43507E-07	4.23623E-07
844	Hard coal supply mix/CZ U		kg	1.75495E-07	-1.16664E-07	2.9216E-07
845	Water - reticulated WA/AU U	--	kg	1.75397E-07	-1.43053E-07	3.1845E-07
846	Water - reticulated QLD/AU U	--	kg	1.75397E-07	-1.43053E-07	3.1845E-07
847	Iron sulphate, at plant/RER U		kg	1.73584E-07	-1.06406E-07	2.79989E-07
848	Disposal, aluminium, 0% water, to sanitary landfill/CH U		kg	1.67694E-07	-2.86573E-09	1.7056E-07
849	Disposal, refinery sludge, 89.5% water, to hazardous waste incineration/CH U		kg	1.6549E-07	-9.5398E-08	2.60888E-07
850	Disposal, emulsion paint, 0% water, to municipal incineration/CH U		kg	1.63438E-07	-1.10762E-07	2.742E-07
851	White spirit, at plant/RER U		kg	1.61531E-07	-1.11496E-07	2.73027E-07
852	Disposal, bilge oil, 90% water, to hazardous waste incineration/CH U		kg	1.5727E-07	-5.98464E-08	2.17117E-07
853	Molybdenum, molybdenite concentrate, main product/GLO U		kg	1.54624E-07	-1.0626E-07	2.60884E-07
854	Disposal, refinery sludge, 89.5% water, to sanitary landfill/CH U		kg	1.4737E-07	-8.54656E-08	2.32836E-07
855	Active pesticide/AU U		kg	1.451E-07	-1.18339E-07	2.63439E-07
856	Isopropanol, at plant/RER U		kg	1.43695E-07	-1.06121E-07	2.49816E-07
857	Refinery gas refinery Europe U	--	kg	1.39216E-07	-5.46981E-09	1.44686E-07
858	Refinery gas in furnace Europe U	--	kg	1.38913E-07	-5.38779E-09	1.44301E-07
859	Disposal, solvents mixture, 16.5% water, to hazardous waste incineration/CH U		kg	1.38771E-07	-1.06494E-07	2.45266E-07
860	Infra coal open mine U	-	kg	1.36898E-07	-6.85457E-08	2.05444E-07
861	Coal from open mine U	--	kg	1.36898E-07	-6.85457E-08	2.05444E-07
862	Gravel from pit ETH U	-	kg	1.35499E-07	-6.38671E-09	1.41885E-07
863	Disposal, wood pole, chrome preserved, 20% water, to municipal incineration/CH U		kg	1.34676E-07	-7.42351E-08	2.08911E-07
864	Diammonium phosphate, as P2O5, at regional storehouse/RER U		kg	1.25507E-07	-7.4922E-08	2.00429E-07
865	Iron scrap/AU U		kg	1.21909E-07	-6.13714E-07	7.35623E-07
866	Disposal, bitumen, 1.4% water, to sanitary landfill/CH U		kg	1.19887E-07	-6.76944E-08	1.87582E-07
867	Brass, at plant/CH U		kg	1.17817E-07	-7.51532E-08	1.9297E-07
868	Polyvinylchloride, emulsion polymerised, at plant/RER U		kg	1.17009E-07	-6.93794E-08	1.86389E-07
869	Water - reticulated SA/AU U	--	kg	1.16931E-07	-9.53685E-08	2.123E-07
870	Hydrogen, liquid, mercury cell, at plant/RER U		kg	1.16454E-07	-8.29495E-09	1.24749E-07
871	Alkyd resin, long oil, 70% in white spirit, at plant/RER U		kg	1.16017E-07	-8.01192E-08	1.96136E-07
872	Heating oil petro refinery Europe U	--	kg	1.15838E-07	-3.80082E-09	1.19639E-07
873	Petrol, unleaded, at refinery/CH U		kg	1.13953E-07	-6.86599E-08	1.82613E-07
874	Aluminium, primary/AU U	--	kg	1.11412E-07	-2.12901E-07	3.24313E-07
875	Imported coal D U	--	kg	1.11183E-07	-5.55096E-09	1.16734E-07
876	Disposal, hard coal ash, 0% water, to residual material landfill/FR U		kg	1.10779E-07	-6.96324E-08	1.80411E-07
877	Coal from stock S-Africa U	--	kg	1.05706E-07	-7.45864E-09	1.13165E-07
878	Coal from mine S-Africa U	--	kg	1.05706E-07	-7.45864E-09	1.13165E-07
879	Transported S-African coal U	--	kg	1.05495E-07	-7.44375E-09	1.12939E-07
880	Disposal, plastics, mixture, 15.3% water, to sanitary landfill/CH U		kg	1.00654E-07	-7.73843E-08	1.78039E-07
881	Fugitives - fuel distribution /AU U	-	kg	9.45274E-08	-1.39463E-08	1.08474E-07
882	Disposal, hard coal ash, 0% water, to residual material landfill/IT U		kg	9.4377E-08	-5.8428E-08	1.52805E-07
883	Disposal, building, fibre board, to final disposal/CH U		kg	9.29992E-08	-5.12885E-08	1.44288E-07
884	Fly ash U		kg	9.1247E-08	-6.82775E-09	9.80748E-08
885	Solvents, organic, unspecified, at plant/GLO U		kg	8.95276E-08	-3.08244E-09	9.26101E-08
886	Propylene glycol, liquid, at plant/RER U		kg	8.79561E-08	-5.92252E-08	1.47181E-07
887	Disposal, separator sludge, 90% water, to hazardous waste incineration/CH U		kg	8.70991E-08	-5.38332E-08	1.40932E-07
888	Residual oil in refinery furnace Europe U	-	kg	8.44698E-08	-3.37089E-09	8.78406E-08
889	Chemicals inorganic ETH U	-	kg	8.22836E-08	-2.71206E-09	8.49957E-08
890	Gasoline fr.Gasoil-Kemcor/AU U		kg	8.125E-08	x	8.125E-08
891	Disposal, zinc in car shredder residue, 0% water, to municipal incineration/CH U		kg	7.99699E-08	-5.35605E-08	1.3353E-07
892	Ceramic tiles, at regional storage/CH U		kg	7.43697E-08	-4.28364E-08	1.17206E-07
893	Crude oil transport N-America U	--	kg	7.42791E-08	-2.6767E-09	7.69558E-08
894	Disposal, building, bitumen sheet, to final disposal/CH U		kg	7.24889E-08	-7.78018E-09	8.02691E-08
895	Disposal, bitumen sheet, 1.5% water, to municipal incineration/CH U		kg	7.24889E-08	-7.78018E-09	8.02691E-08
896	Polystyrene, general purpose, GPPS, at plant/RER S		kg	7.24643E-08	-3.25261E-19	7.24643E-08
897	Waste paper, mixed, from public collection, for further treatment/CH U		kg	7.21512E-08	-4.03803E-08	1.12531E-07
898	Coal mix E U	--	kg	7.07784E-08	-5.44848E-09	7.62269E-08
899	Propylene oxide, liquid, at plant/RER U		kg	7.06288E-08	-4.75578E-08	1.18187E-07
900	Sulphate pulp, unbleached, at plant/RER U		kg	7.02758E-08	-3.93374E-08	1.09613E-07
901	Gas pipes (inert) to landfill U	--	kg	6.88965E-08	-2.24619E-09	7.11427E-08
902	Disposal, hard coal ash, 0% water, to residual material landfill/NL U		kg	6.87443E-08	-4.24389E-08	1.11183E-07
903	Propane/ butane, at refinery/RER U		kg	6.46419E-08	-4.30744E-08	1.07716E-07
904	Disposal, refractory SPL, Al elec.lysis, 0% water, to residual material landfill/CH U		kg	6.41403E-08	-4.17972E-08	1.05938E-07
905	Disposal, hard coal ash, 0% water, to residual material landfill/HR U		kg	6.41E-08	-3.96859E-08	1.03786E-07
906	Coal from underground mine S-Africa U	--	kg	6.34236E-08	-4.47519E-09	6.78988E-08
907	Disposal, hard coal ash, 0% water, to residual material landfill/BE U		kg	6.25748E-08	-3.97934E-08	1.02368E-07
908	Sodium hypochlorite, 15% in H2O, at plant/RER U		kg	6.21413E-08	-3.64737E-08	9.8615E-08
909	Coal from stock E-Europe U	--	kg	6.04983E-08	-3.86247E-09	6.43607E-08
910	Coal from mine E-Europe U	--	kg	6.04983E-08	-3.86247E-09	6.43607E-08
911	Transported E-European coal U	--	kg	6.03775E-08	-3.85476E-09	6.42323E-08
912	Bentonite ETH U	-	kg	6.03357E-08	-2.11542E-09	6.24512E-08
913	Polyvinylchloride, bulk polymerised, at plant/RER U		kg	5.95066E-08	-3.52556E-08	9.47622E-08
914	Lime, hydrated, packed, at plant/CH U		kg	5.66822E-08	-3.39239E-08	9.06061E-08
915	Anthraquinone, at plant/RER U		kg	5.66117E-08	-9.67433E-10	5.75791E-08
916	Nitro-compounds, at regional storehouse/CH U		kg	5.65853E-08	-3.37652E-08	9.03504E-08
917	Paper, woodfree, uncoated, at regional storage/RER U		kg	5.57955E-08	-3.70548E-08	9.28503E-08
918	Sodium chloride, brine solution, at plant/RER U		kg	5.46446E-08	-3.36923E-08	8.83369E-08
919	Copper, SX-EW, at refinery/GLO U		kg	5.44968E-08	-3.2907E-08	8.74038E-08
920	Waste to LA chemical landfill U	--	kg	5.23868E-08	-3.12617E-09	5.5513E-08
921	[thio]carbamate-compounds, at regional storehouse/CH U		kg	5.16584E-08	-3.08335E-08	8.24918E-08
922	Disposal, lignite ash, 0% water, to opencast refill/FR U		kg	5.14839E-08	-3.16139E-08	8.30978E-08
923	Epoxy resin, liquid, at plant/RER U		kg	5.06126E-08	-2.96178E-08	8.02303E-08
924	Coal from underground mine E-Europe U	--	kg	5.02136E-08	-3.20585E-09	5.34194E-08
925	Calcium nitrate, as N, at regional storehouse/RER U		kg	4.99123E-08	-3.06171E-08	8.05294E-08
926	Slurry tanker, production/CH/I U		kg	4.97521E-08	-3.01211E-08	7.98732E-08
927	Hydrogen, liquid, diaphragm cell, at plant/RER U		kg	4.96672E-08	-3.53777E-09	5.3205E-08
928	Diammonium phosphate, as N, at regional storehouse/RER U		kg	4.91641E-08	-2.93486E-08	7.85127E-08
929	Alkyd paint, white, 60% in H2O, at plant/RER U		kg	4.83708E-08	-3.132E-08	7.96907E-08
930	Hydrogen, liquid, membrane cell, at plant/RER U		kg	4.52288E-08	-3.22163E-09	4.84505E-08
931	Disposal, hard coal ash, 0% water, to residual material landfill/PT U		kg	4.46565E-08	-2.76775E-08	7.23339E-08
932	Aluminium fluoride, at plant/RER U		kg	4.44335E-08	-2.8955E-08	7.33885E-08
933	Disposal, wood ash mixture, pure, 0% water, to municipal incineration/CH U		kg	4.41395E-08	-1.81329E-08	6.22724E-08
934	Disposal, wood ash mixture, pure, 0% water, to landfarming/CH U		kg	4.41395E-08	-1.81329E-08	6.22724E-08
935	Disposal, asphalt, 0.1% water, to sanitary landfill/CH U		kg	4.37526E-08	-2.60581E-08	6.98108E-08
936	Copper, blister-copper, at primary smelter/RER U		kg	4.31523E-08	-2.60568E-08	6.92091E-08
937	Cathode, aluminium electrolysis/RER U		kg	4.30078E-08	-2.80259E-08	7.10338E-08
938	Coal from stock Australia U	--	kg	4.23865E-08	-3.18314E-09	4.55696E-08
939	Coal from mine Australia U	--	kg	4.23865E-08	-3.18314E-09	4.55696E-08
940	Transported Australian coal U	--	kg	4.23018E-08	-3.17679E-09	4.54786E-08
941	Carboxymethyl cellulose, powder, at plant/RER U		kg	4.05028E-08	-7.60338E-11	4.05788E-08
942	Packaging, corrugated board, mixed fibre, single wall, at plant/CH S		kg	4.04739E-08	-1.92276E-19	4.04739E-08
943	Argon, crude, liquid, at plant/RER U		kg	3.95518E-08	-2.45549E-08	6.41067E-08

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
944	Server - Dell		kg	3.95282E-08	-9.81576E-22	3.95282E-08
945	MG-silicon, at plant/NO U		kg	3.88865E-08	-2.53446E-08	6.42311E-08
946	Argon, liquid, at plant/RER U		kg	3.83998E-08	-2.38397E-08	6.22395E-08
947	Fugitives - gas production 2001-02/AU U	-	kg	3.78838E-08	-3.63623E-08	7.42462E-08
948	Copper, primary, at refinery/ID U		kg	3.78529E-08	-2.28568E-08	6.07097E-08
949	Chromium, at regional storage/RER U		kg	3.77105E-08	-2.16977E-08	5.94082E-08
950	Disposal, steel in car shredder residue, 0% water, to municipal incineration/CH U		kg	3.71417E-08	-1.08598E-08	4.80015E-08
951	HDPE, High density polyethylene/AU U	--	kg	3.60023E-08	-1.45761E-07	1.81764E-07
952	Kerosene, at regional storage/RER U		kg	3.59962E-08	-1.94023E-08	5.53985E-08
953	Kerosene, at refinery/RER U		kg	3.59962E-08	-1.94023E-08	5.53985E-08
954	Coal from stock N-America U	--	kg	3.51219E-08	-2.81551E-09	3.79374E-08
955	Coal from mine N-America U	--	kg	3.51219E-08	-2.81551E-09	3.79374E-08
956	Transported N-American coal U	--	kg	3.50518E-08	-2.80989E-09	3.78616E-08
957	Phthalic anhydride, at plant/RER U		kg	3.49399E-08	-2.3963E-08	5.8903E-08
958	Imported coal I U	--	kg	3.45757E-08	-2.94081E-09	3.75165E-08
959	Coal mix F U	--	kg	3.45265E-08	-2.63383E-09	3.71603E-08
960	Transported imported coal UCPTE U	--	kg	3.3427E-08	-4.36205E-09	3.77891E-08
961	Ethylenediamine, at plant/RER U		kg	3.30157E-08	-2.52658E-08	5.82815E-08
962	Imported coal NL U	--	kg	3.28441E-08	-2.83395E-09	3.56781E-08
963	Acrylic dispersion, 65% in H2O, at plant/RER U		kg	3.26764E-08	-1.89358E-08	5.16122E-08
964	Sulphate pulp, average, at regional storage/RER U		kg	3.26243E-08	-2.09302E-08	5.35545E-08
965	Injection moulding/RER U		kg	3.2521E-08	-4.9387E-09	3.74597E-08
966	Paper, woodcontaining, LWC, at plant/RER U		kg	3.25062E-08	-1.95062E-08	5.20123E-08
967	Naphtha refinery Europe U	--	kg	3.24792E-08	-2.35566E-09	3.48349E-08
968	Disposal, catalytic converter NOx reduction, 0% water, to underground deposit/DE U		kg	3.198E-08	-1.98992E-08	5.18792E-08
969	Pulp wood supply, average AU, mass allocation/AU U		kg	3.16899E-08	-2.58452E-08	5.75351E-08
970	Acrylic binder, 34% in H2O, at plant/RER U		kg	3.15452E-08	-1.81502E-08	4.96954E-08
971	Thomas meal, as P2O5, at regional storehouse/RER U		kg	3.14957E-08	-2.04235E-08	5.19192E-08
972	Ethylene ETH U	-	kg	3.14687E-08	-2.26377E-09	3.37325E-08
973	Disposal, building, electric wiring, to final disposal/CH U		kg	3.08753E-08	-1.72112E-08	4.80865E-08
974	Penta-erythritol, at plant/RER U		kg	3.03749E-08	-2.08023E-08	5.11771E-08
975	Acrylic varnish, 87.5% in H2O, at plant/RER U		kg	3.0218E-08	-1.72509E-08	4.74689E-08
976	Imported coal E U	--	kg	2.94522E-08	-2.51765E-09	3.19699E-08
977	Harvester, production/CH/I U		kg	2.91825E-08	-2.2749E-08	5.19315E-08
978	Coal mix I U	--	kg	2.91271E-08	-2.2298E-09	3.13569E-08
979	Feldspar, at plant/RER U		kg	2.87075E-08	-1.65353E-08	4.52428E-08
980	Paper, woodfree, uncoated, at non-integrated mill/RER U		kg	2.78977E-08	-1.85274E-08	4.64251E-08
981	Paper, woodfree, uncoated, at integrated mill/RER U		kg	2.78977E-08	-1.85274E-08	4.64251E-08
982	Gypsum stone ETH U	-	kg	2.78223E-08	-1.3114E-09	2.91337E-08
983	Disposal, residues Na-dichromate prod., 0% water, to residual material landfill/CH U		kg	2.74691E-08	-1.74125E-08	4.48816E-08
984	Coal from stock S-America U	--	kg	2.73357E-08	-2.04502E-09	2.93807E-08
985	Coal from mine S-America U	--	kg	2.73357E-08	-2.04502E-09	2.93807E-08
986	Transported S-American coal U	--	kg	2.72811E-08	-2.04093E-09	2.93221E-08
987	Coal mix NL U	--	kg	2.7195E-08	-2.09676E-09	2.92917E-08
988	Pentane, at plant/RER U		kg	2.70855E-08	-2.15166E-08	4.86022E-08
989	Sulphate pulp, ECF bleached, at plant/RER U		kg	2.6453E-08	-1.69294E-08	4.33824E-08
990	Melamine formaldehyde resin, at plant/RER U		kg	2.64319E-08	-1.96911E-08	4.6123E-08
991	Crude oil in drill tests U	-	kg	2.59841E-08	-8.5055E-10	2.68347E-08
992	Wood chopping, mobile chopper, in forest/RER U		kg	2.50216E-08	-1.62336E-08	4.12552E-08
993	Chemicals organic ETH U	-	kg	2.45303E-08	-8.12693E-10	2.5343E-08
994	Gypsum ETH U	-	kg	2.41933E-08	-1.14035E-09	2.53337E-08
995	HDPE ETH U	-	kg	2.35576E-08	-8.51132E-10	2.44088E-08
996	Disposal, dust, alloyed EAF steel, 15.4% water, to residual material landfill/CH U		kg	2.31107E-08	-1.34919E-08	3.66026E-08
997	Glass melt 30% cullet/AU U	--	kg	2.29752E-08	-1.5084E-07	1.73815E-07
998	Glass batch 30% cullet/AU U	--	kg	2.29752E-08	-1.5084E-07	1.73815E-07
999	Container glass, average recycled content, /AU U	--	kg	2.29752E-08	-1.5084E-07	1.73815E-07
1000	Container glass 30% cullet/AU U	--	kg	2.29752E-08	-1.5084E-07	1.73815E-07
1001	Glass fibre/AU U	--	kg	2.29532E-08	-1.50823E-07	1.73776E-07
1002	Uranium natural, at mine/GLO U		kg	2.29507E-08	-1.41508E-08	3.71015E-08
1003	Sodium dichromate, at plant/RER U		kg	2.28909E-08	-1.45104E-08	3.74013E-08
1004	Cast iron ETH U	-	kg	2.26666E-08	-7.43276E-10	2.34098E-08
1005	Kraftliner-Brown, mass allocation of wood products/AU U	--	kg	2.26357E-08	-1.84609E-08	4.10965E-08
1006	Disposal, hard coal ash, 0% water, to residual material landfill/CZ U		kg	2.23252E-08	-1.48411E-08	3.71663E-08
1007	Imported coal B U	--	kg	2.18781E-08	-1.91328E-09	2.37914E-08
1008	Uranium natural, in yellowcake, at mill plant/RNA U		kg	2.18578E-08	-1.34769E-08	3.53348E-08
1009	Uranium natural, in uranium hexafluoride, at conversion plant/US U		kg	2.18578E-08	-1.34769E-08	3.53348E-08
1010	Coal mix B U	--	kg	2.14628E-08	-1.65237E-09	2.31151E-08
1011	Imported coal F U	--	kg	2.14421E-08	-1.91838E-09	2.33605E-08
1012	Transported coal UCPTE U	--	kg	2.10612E-08	-9.92732E-10	2.2054E-08
1013	Pine logs, thinnings, mass allocation, u=55%/AU U	--	kg	2.07569E-08	-1.69286E-08	3.76855E-08
1014	Disposal, rubber, unspecified, 0% water, to municipal incineration/CH U		kg	2.05919E-08	-1.23573E-08	3.29492E-08
1015	Melamine, at plant/RER U		kg	2.03526E-08	-1.51621E-08	3.55147E-08
1016	Disposal, lignite ash, 0% water, to opencast refill/HU U		kg	2.02193E-08	-1.21402E-08	3.23594E-08
1017	Refractory, high aluminium oxide, packed, at plant/DE U		kg	1.99572E-08	-6.9044E-09	2.68616E-08
1018	Nickel, 99.5%, at plant/GLO U		kg	1.99502E-08	-1.492E-08	3.48702E-08
1019	Paper, woodfree, coated, at integrated mill/RER U		kg	1.99296E-08	-1.19275E-08	3.18571E-08
1020	Potassium nitrate, as N, at regional storehouse/RER U		kg	1.97037E-08	-1.31742E-08	3.28779E-08
1021	Disposal, wire plastic, 3.55% water, to municipal incineration/CH U		kg	1.89883E-08	-1.05849E-08	2.95732E-08
1022	Disposal, building, reinforcement steel, to sorting plant/CH U		kg	1.84266E-08	-1.01565E-08	2.8583E-08
1023	Disposal, lignite ash, 0% water, to opencast refill/PL U		kg	1.82812E-08	-1.19407E-08	3.02218E-08
1024	Coal ash in landfill U	--	kg	1.79348E-08	-1.7686E-09	1.97034E-08
1025	Charcoal, at plant/GLO U		kg	1.75142E-08	-1.02954E-08	2.78096E-08
1026	Sand/AU U	--	kg	1.724E-08	-7.80245E-08	9.52645E-08
1027	Concrete (inert) to landfill U	--	kg	1.67294E-08	-9.92134E-09	2.66508E-08
1028	Fuel oil lowS stock CH U	--	kg	1.61177E-08	-5.99523E-09	2.21129E-08
1029	Fuel oil lowS refinery CH U	--	kg	1.61177E-08	-5.99523E-09	2.21129E-08
1030	GX12Cr14 (CA15) I	--	kg	1.59245E-08	-2.71051E-20	1.59245E-08
1031	Unbleached kraft pulp AU, mass allocation of wood products/AU U		kg	1.5845E-08	-1.29226E-08	2.87676E-08
1032	Coal from underground mine N-America U	--	kg	1.58048E-08	-1.26698E-09	1.70718E-08
1033	Disposal, building, polyethylene/polypropylene products, to final disposal/CH U		kg	1.56629E-08	-9.40987E-09	2.50728E-08
1034	Aluminium, production mix, cast alloy, at plant/RER U		kg	1.54597E-08	-8.43451E-09	2.38942E-08
1035	Glass fibre, at plant/RER U		kg	1.5068E-08	-3.3264E-09	1.83944E-08
1036	Bronze, at plant/CH U		kg	1.49247E-08	-1.07212E-08	2.56458E-08
1037	Disposal, wood untreated, 20% water, to sanitary landfill/CH U		kg	1.4116E-08	-8.40379E-09	2.25197E-08
1038	Disposal, hard coal ash, 0% water, to residual material landfill/AT U		kg	1.38046E-08	-8.64369E-09	2.24483E-08
1039	Uranium natural, at underground mine/RNA U		kg	1.37704E-08	-8.49046E-09	2.22609E-08
1040	Disposal, spent activated carbon with mercury, 0% water, to underground deposit/DE U		kg	1.34877E-08	-5.19044E-09	1.86781E-08
1041	Imported coal P U	--	kg	1.33291E-08	-1.12572E-09	1.44548E-08
1042	Wood in forest U	--	kg	1.32003E-08	-2.17766E-08	3.49768E-08
1043	Disposal, building, concrete gravel, to sorting plant/CH U		kg	1.3061E-08	-6.8285E-09	1.98895E-08
1044	Coal from underground mine Australia U	--	kg	1.27159E-08	-9.54942E-10	1.36709E-08
1045	Sheet rolling, chromium steel/RER U		kg	1.21993E-08	-7.33032E-09	1.95296E-08
1046	Disposal, building, mineral wool, to sorting plant/CH U		kg	1.21261E-08	-7.61678E-09	1.97428E-08
1047	Coal mix P U	--	kg	1.20042E-08	-9.27256E-10	1.29314E-08
1048	Disposal, copper, 0% water, to municipal incineration/CH U		kg	1.1887E-08	-6.62629E-09	1.85133E-08
1049	Thin wood spruce to road U	--	kg	1.15899E-08	-1.9315E-08	3.09049E-08

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
1050	Nylon 66, glass-filled, at plant/RER U		kg	1.15048E-08	-5.16255E-09	1.66674E-08
1051	Glass fibre reinforced plastic, polyamide, injection moulding, at plant/RER U		kg	1.0957E-08	-4.91672E-09	1.58737E-08
1052	Pine saw logs, mass allocation u=55%/AU U	--	kg	1.08876E-08	-8.87954E-09	1.97671E-08
1053	Disposal, paper, 11.2% water, to sanitary landfill/CH U		kg	1.08332E-08	-4.16807E-09	1.50013E-08
1054	Steel I	--	kg	1.07649E-08	-1.8323E-20	1.07649E-08
1055	Wood massive ETH U	-	kg	1.05232E-08	-1.75583E-08	2.80815E-08
1056	Metolachlor, at regional storehouse/CH U		kg	1.02452E-08	-8.14096E-09	1.83862E-08
1057	Paper, woodfree, coated, at regional storage/RER U		kg	1.00692E-08	-5.8003E-09	1.58695E-08
1058	Single superphosphate, as P2O5, at regional storehouse/RER U		kg	1.004E-08	-6.51162E-09	1.65516E-08
1059	Acetaldehyde, at plant/RER U		kg	9.84145E-09	-6.73994E-09	1.65814E-08
1060	Triazine-compounds, at regional storehouse/CH U		kg	9.52639E-09	-5.68452E-09	1.52109E-08
1061	Disposal, glass, 0% water, to inert material landfill/CH U		kg	9.45196E-09	-5.52886E-09	1.49808E-08
1062	Disposal, filter dust Al electrolysis, 0% water, to residual material landfill/CH U		kg	9.42607E-09	-6.14448E-09	1.55706E-08
1063	Ammonium bicarbonate, at plant/RER U		kg	9.36823E-09	-5.42885E-09	1.47971E-08
1064	Uranium natural, at open pit mine/RNA U		kg	9.18029E-09	-5.6603E-09	1.48406E-08
1065	EPDM rubber ETH U	--	kg	8.99191E-09	-3.75987E-10	9.3679E-09
1066	Corrugated board, mixed fibre, single wall, at plant/RER U		kg	8.71231E-09	-5.40369E-09	1.4116E-08
1067	Ozone, liquid, at plant/RER U		kg	8.7016E-09	-4.79088E-09	1.34925E-08
1068	Ethene fr.Gasoil-Kemcor/AU U		kg	8.53619E-09	-2.67497E-08	3.52859E-08
1069	Sulphite, at plant/RER U		kg	8.43899E-09	-3.24735E-09	1.16863E-08
1070	Methanol/AU U		kg	8.39742E-09	-6.84864E-09	1.52461E-08
1071	Nitrile-compounds, at regional storehouse/CH U		kg	8.19282E-09	-4.88876E-09	1.30816E-08
1072	Steel low alloy ETH U	-	kg	8.08846E-09	-9.38724E-10	9.02718E-09
1073	Uranium, enriched 3.8%, at EURODIF enrichment plant/FR U		kg	7.88376E-09	-4.85059E-09	1.27344E-08
1074	Butanol, 1-, at plant/RER U		kg	7.65661E-09	-1.17663E-09	8.83324E-09
1075	Uranium, enriched 3.8% for pressure water reactor/FR U		kg	7.56232E-09	-4.64194E-09	1.22043E-08
1076	LDPE, Low density polyethylene/AU U	--	kg	7.54936E-09	-6.15699E-09	1.37064E-08
1077	LDPE film/AU U		kg	7.54523E-09	-6.15362E-09	1.36988E-08
1078	LDPE Film production/AU U		kg	7.54523E-09	-6.15362E-09	1.36988E-08
1079	Disposal, polyurethane, 0.2% water, to municipal incineration/CH U		kg	7.49968E-09	-4.13553E-09	1.16352E-08
1080	Recycled Fibre/AU U		kg	7.46977E-09	-6.09208E-09	1.35619E-08
1081	Infra special waste incinerator U		kg	7.4644E-09	-3.99002E-10	7.8634E-09
1082	Sheet rolling, aluminium/RER U		kg	7.13454E-09	-4.14368E-09	1.12782E-08
1083	LDPE ETH U	-	kg	7.0483E-09	-1.32696E-09	8.37525E-09
1084	Water only (m3) to WWTP size 2 U	-	kg	6.81754E-09	-2.56026E-09	9.3778E-09
1085	Fibre pulp - recycled/AU U		kg	6.7907E-09	-5.53826E-09	1.2329E-08
1086	Wood Chips-Pine, mass allocation, u=55%/AU U	--	kg	6.65489E-09	-5.42749E-09	1.20824E-08
1087	Disposal, emulsion paint remains, 0% water, to hazardous waste incineration/CH U		kg	6.64251E-09	-3.59389E-09	1.02364E-08
1088	Bitumen refinery CH U	--	kg	6.37904E-09	-2.82485E-10	6.66153E-09
1089	Disposal, lignite ash, 0% water, to opencast refill/SK U		kg	6.35967E-09	-3.81082E-09	1.01705E-08
1090	Cyclohexanol, at plant/RER U		kg	5.97184E-09	-2.05812E-10	6.17765E-09
1091	Tetrachloroethylene, at plant/WEU U		kg	5.97149E-09	-2.05599E-10	6.17709E-09
1092	Nitrobenzene, at plant/RER U		kg	5.97149E-09	-2.05599E-10	6.17709E-09
1093	Methyl ethyl ketone, at plant/RER U		kg	5.97149E-09	-2.05599E-10	6.17709E-09
1094	Dichloromethane, at plant/RER U		kg	5.97149E-09	-2.05599E-10	6.17709E-09
1095	Carbon dioxide liquid, at plant/RER U		kg	5.79559E-09	-3.37155E-09	9.16715E-09
1096	Disposal, paint remains, 0% water, to hazardous waste incineration/CH U		kg	5.79499E-09	-3.86968E-09	9.66467E-09
1097	Calcium borates, at plant/TR U		kg	5.72777E-09	-1.32254E-09	7.05031E-09
1098	Gypsum, mineral, at mine/CH U		kg	5.69099E-09	-3.30404E-09	8.99502E-09
1099	Imported coal A U	--	kg	5.47673E-09	-4.83493E-10	5.96023E-09
1100	Soda Ash/AU U	--	kg	5.4726E-09	-2.06645E-08	2.61371E-08
1101	Paper, woodfree, coated, at non-integrated mill/RER U		kg	5.03458E-09	-2.90015E-09	7.93473E-09
1102	Sodium cyanide, at plant/RER U		kg	4.99825E-09	-3.23276E-09	8.23101E-09
1103	Sulphate pulp, TCF bleached, at plant/RER U		kg	4.97143E-09	-3.18029E-09	8.15172E-09
1104	Disposal, antifreezer liquid, 51.8% water, to hazardous waste incineration/CH U		kg	4.88096E-09	-2.6284E-09	7.50937E-09
1105	Butene, mixed, at plant/RER U		kg	4.87871E-09	-1.67974E-10	5.04668E-09
1106	Cryolite, at plant/RER U		kg	4.75225E-09	-3.09679E-09	7.84903E-09
1107	Zeolite, powder, at plant/RER U		kg	4.73708E-09	-2.6404E-09	7.37748E-09
1108	Waste to special waste incinerator U	--	kg	4.65309E-09	-2.90389E-10	4.94348E-09
1109	Explosives ETH U	-	kg	4.6506E-09	-5.33946E-10	5.18454E-09
1110	Stucco, at plant/CH U		kg	4.63323E-09	-2.66871E-09	7.30194E-09
1111	Crude oil transported U	--	kg	4.54991E-09	-1.90249E-10	4.74016E-09
1112	Carbon black ETH U	-	kg	4.54991E-09	-1.90249E-10	4.74016E-09
1113	Wood preservative, inorganic salt, containing Cr, at plant/RER U		kg	4.44902E-09	-2.45233E-09	6.90134E-09
1114	Flat glass, coated, at plant/RER S		kg	4.3832E-09	-1.90582E-20	4.3832E-09
1115	Pulp logs-pine, mass allocation u=55%/AU U	--	kg	4.27814E-09	-3.4891E-09	7.76725E-09
1116	Coal mix A U	--	kg	4.27336E-09	-3.26459E-10	4.59982E-09
1117	Asbestos, crysotile type, at plant/GLO U		kg	3.96505E-09	-1.52573E-09	5.49078E-09
1118	Nitric acid ETH U	-	kg	3.95757E-09	-4.44562E-10	4.40213E-09
1119	Disposal, packaging cardboard, 19.6% water, to municipal incineration/CH U		kg	3.94458E-09	-2.32345E-09	6.26803E-09
1120	Esters of versatic acid, at plant/RER U		kg	3.94315E-09	-2.26877E-09	6.21192E-09
1121	Steel (inert) to landfill U	--	kg	3.83863E-09	-1.51527E-10	3.99015E-09
1122	Corrugated board base paper, wellenstoff, at plant/RER U		kg	3.77243E-09	-2.3398E-09	6.11223E-09
1123	MWI 95 per kg (process specific) U	-	kg	3.646E-09	-2.01744E-10	3.84774E-09
1124	Infra MWI per kg U	-	kg	3.64479E-09	-1.92793E-10	3.83758E-09
1125	NaCl ETH U	-	kg	3.60208E-09	-3.03926E-09	6.64134E-09
1126	Plaster mixing/CH U		kg	3.49836E-09	-2.32194E-09	5.8203E-09
1127	Desulphurisation unit U	-	kg	3.40169E-09	-2.61656E-10	3.66335E-09
1128	Urea formaldehyde resin, at plant/RER U		kg	3.35983E-09	-1.85255E-09	5.21238E-09
1129	Disposal, catalyst base Eth.oxide prod., 0% water, to residual material landfill/CH U		kg	3.28623E-09	-2.64188E-09	5.92811E-09
1130	Wooden poles to MWI U	--	kg	3.20966E-09	-1.73294E-10	3.38296E-09
1131	LT wooden poles to MWI U	--	kg	3.20966E-09	-1.73294E-10	3.38296E-09
1132	Uranium, enriched 4.0% for pressure water reactor/DE U		kg	3.19455E-09	-1.98581E-09	5.18036E-09
1133	Scrap (Stainless st) I	--	kg	3.18489E-09	-5.42101E-21	3.18489E-09
1134	Hydrogen cyanide, at plant/RER U		kg	3.14553E-09	-2.8303E-09	5.97583E-09
1135	Sodium silicate/AU U	--	kg	3.05567E-09	-2.49209E-09	5.54776E-09
1136	Copper ETH U	-	kg	2.91053E-09	-6.67001E-10	3.57753E-09
1137	Boric acid, anhydrous, powder, at plant/RER U		kg	2.90718E-09	-6.7114E-10	3.57832E-09
1138	Ammonia ETH U	-	kg	2.87031E-09	-3.10201E-10	3.18051E-09
1139	Tin, at regional storage/RER U		kg	2.85117E-09	-1.7498E-09	4.60097E-09
1140	Butyl acrylate, at plant/RER U		kg	2.66111E-09	-1.53247E-09	4.19358E-09
1141	Corrugated board base paper, kraftliner, at plant/RER U		kg	2.60588E-09	-1.61619E-09	4.22207E-09
1142	Corrugated board base paper, testliner, at plant/RER U		kg	2.60498E-09	-1.6157E-09	4.22068E-09
1143	Uranium, enriched 3.9% for pressure water reactor/UCTE U		kg	2.45883E-09	-1.48126E-09	3.94009E-09
1144	Nuclear spent fuel, in reprocessing, at plant/RER U		kg	2.37985E-09	-1.46128E-09	3.84113E-09
1145	Anhydrite, at plant/CH U		kg	2.35425E-09	-1.56257E-09	3.91683E-09
1146	Infra HA chemical landfill per kg U	-	kg	2.27251E-09	-8.5342E-10	3.12593E-09
1147	HA chemical landfill per kg (process specific) U	-	kg	2.27251E-09	-8.5342E-10	3.12593E-09
1148	NOx retained in SCR U	-	kg	2.25511E-09	-1.71322E-10	2.42643E-09
1149	Anhydrite rock, at mine/CH U		kg	2.11883E-09	-1.40631E-09	3.52514E-09
1150	Uranium, enriched 4.0%, at URENCO enrichment plant/RER U		kg	2.09942E-09	-1.30339E-09	3.40281E-09
1151	Refinery sludge to special waste incinerator U	--	kg	2.00433E-09	-7.34166E-11	2.07774E-09
1152	Solid bleached board, SBB, at plant/RER U		kg	1.96421E-09	-1.02919E-09	2.99341E-09
1153	Steel high alloy ETH U	-	kg	1.83927E-09	-9.65404E-11	1.93581E-09
1154	Polyethylene terephthalate, granulate, amorphous, at plant/RER U		kg	1.73605E-09	-1.16069E-09	2.89674E-09
1155	Desulphurisation lignite U	-	kg	1.69657E-09	-1.26946E-10	1.82352E-09

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
1156	Ferrochromium I	--	kg	1.65614E-09	-3.88774E-21	1.65614E-09
1157	Blow moulding/RER U		kg	1.6331E-09	-1.69407E-21	1.6331E-09
1158	Fuel elements PWR, UO2 3.8% & MOX, at nuclear fuel fabrication plant/FR U		kg	1.58241E-09	-9.71321E-10	2.55373E-09
1159	Acrylic acid, at plant/RER U		kg	1.57005E-09	-9.04158E-10	2.47421E-09
1160	Purified terephthalic acid, at plant/RER U		kg	1.51904E-09	-1.01561E-09	2.53465E-09
1161	Uranium, enriched 3.9%, at EURODIF enrichment plant/FR U		kg	1.49989E-09	-9.0357E-10	2.40346E-09
1162	U enriched 3.8%, in fuel element for LWR, at nuclear fuel fabrication plant/FR U		kg	1.42417E-09	-8.74189E-10	2.29836E-09
1163	Linuron, at regional storehouse/CH U		kg	1.41689E-09	-1.12588E-09	2.54277E-09
1164	Plastics to HA chemical landfill U	--	kg	1.31509E-09	-6.50866E-11	1.38017E-09
1165	LT plastics to HA chemical landfill U	--	kg	1.31509E-09	-6.50866E-11	1.38017E-09
1166	Disposal, sludge from FeCl3 production, 30% water, to underground deposit/DE U		kg	1.25775E-09	-6.99197E-10	1.95694E-09
1167	Copper oxide, at plant/RER U		kg	1.22905E-09	-9.53521E-10	2.18257E-09
1168	Refinery sludge to HA chemical landfill U	--	kg	1.2026E-09	-4.405E-11	1.24665E-09
1169	LT refinery sludge to HA chemical landfill U	--	kg	1.2026E-09	-4.405E-11	1.24665E-09
1170	Scrap (iron) I	--	kg	1.16261E-09	-1.97889E-21	1.16261E-09
1171	Wood waste in forest U	--	kg	1.159E-09	-1.9315E-09	3.0905E-09
1172	Phosphorus, white, liquid, at plant/RER U		kg	1.00942E-09	-1.02945E-14	1.00943E-09
1173	Disposal, slag from MG silicon production, 0% water, to inert material landfill/CH U		kg	9.72163E-10	-6.33614E-10	1.60578E-09
1174	Lime (burnt) ETH U	-	kg	9.50781E-10	-1.18242E-10	1.06902E-09
1175	Pesticide unspecified, at regional storehouse/CH U		kg	8.74965E-10	-6.77095E-10	1.55206E-09
1176	Imported coal Ex-Ju U	--	kg	8.36117E-10	-8.50349E-11	9.21152E-10
1177	Hard coal supply mix/SK U		kg	7.64639E-10	-4.53923E-10	1.21856E-09
1178	Uranium, enriched 3.9% at URENCO enrichment plant/RER U		kg	7.62237E-10	-4.59191E-10	1.22143E-09
1179	H2SO4 ETH U	-	kg	7.396E-10	-2.22279E-09	2.96239E-09
1180	Uranium, enriched 4.2% for pressure water reactor/CH U		kg	7.3535E-10	-4.77315E-10	1.21267E-09
1181	Glyphosate, at regional storehouse/CH U		kg	7.12357E-10	-5.44361E-10	1.25672E-09
1182	N2 ETH U	-	kg	6.76238E-10	-3.10516E-11	7.0729E-10
1183	Nuclear spent fuel, in conditioning, at plant/CH U		kg	6.61482E-10	-4.12874E-10	1.07436E-09
1184	Disposal, green liquor dregs, 25% water, to residual material landfill/CH U		kg	6.49127E-10	-3.74494E-10	1.02362E-09
1185	[sulfonyl]urea-compounds, at regional storehouse/CH U		kg	6.34388E-10	-3.78547E-10	1.01294E-09
1186	Residual oil refinery CH U	--	kg	6.27906E-10	-6.69005E-11	6.94806E-10
1187	Uranium enriched 3.8%, for boiling water reactor/CH U		kg	6.18157E-10	-4.01245E-10	1.0194E-09
1188	Aluminium, production mix, wrought alloy, at plant/RER U		kg	6.06365E-10	-3.57181E-10	9.63546E-10
1189	Uranium, enriched 4.0%, at EURODIF enrichment plant/FR U		kg	5.8621E-10	-3.61122E-10	9.47332E-10
1190	Acetamide-anillide-compounds, at regional storehouse/CH U		kg	5.83985E-10	-3.55737E-10	9.39723E-10
1191	Bilge oil to special waste incinerator U	--	kg	5.75202E-10	-2.26535E-11	5.97856E-10
1192	U enriched 4.0%, in fuel element for LWR, at nuclear fuel fabrication plant/DE U		kg	5.58487E-10	-3.4717E-10	9.05657E-10
1193	Tempering, flat glass/RER U		kg	5.44861E-10	-3.39989E-10	8.8485E-10
1194	Solar glass, low-iron, at regional storage/RER U		kg	5.44861E-10	-3.39989E-10	8.8485E-10
1195	Fugitives - crude refining and storage 00-01/AU U	-	kg	5.37751E-10	-2.56336E-09	3.10111E-09
1196	Lead ETH U	-	kg	5.36605E-10	-2.43127E-11	5.60918E-10
1197	Coal mix Ex-Ju U	--	kg	5.30479E-10	-3.98662E-11	5.70345E-10
1198	Disposal, limestone residue, 5% water, to inert material landfill/CH U		kg	5.30152E-10	-3.13999E-10	8.44151E-10
1199	Fuel elements PWR, UO2 3.9% & MOX, at nuclear fuel fabrication plant/UCTE U		kg	5.12E-10	-3.08442E-10	8.20442E-10
1200	Vermiculite, at mine/ZA U		kg	5.09389E-10	-2.80378E-10	7.89767E-10
1201	Refinery gas in furnace CH U	--	kg	4.80744E-10	-1.30196E-10	6.10941E-10
1202	Sulphur hexafluoride, liquid, at plant/RER U		kg	4.7157E-10	-2.62884E-10	7.34454E-10
1203	Sodium perborate, tetrahydrate, powder, at plant/RER U		kg	4.54399E-10	-2.61731E-10	7.1613E-10
1204	Fuel elements PWR, UO2 4.0% & MOX, at nuclear fuel fabrication plant/DE U		kg	4.53268E-10	-2.81763E-10	7.35031E-10
1205	Wood chips saw mill to stock U	--	kg	4.51285E-10	-5.30095E-10	9.8138E-10
1206	Expanded vermiculite, at plant/CH U		kg	4.46832E-10	-2.45946E-10	6.92778E-10
1207	U enriched 3.9%, in fuel element for LWR, at nuclear fuel fabrication plant/UCTE U		kg	4.4544E-10	-2.68345E-10	7.13785E-10
1208	Uranium, enriched 4.2%, at EURODIF enrichment plant/FR U		kg	4.4121E-10	-2.86389E-10	7.27599E-10
1209	Polyurethane, rigid foam, at plant/RER U		kg	4.38354E-10	-2.41286E-10	6.79641E-10
1210	Bitumen sealing, at plant/RER U		kg	4.38354E-10	-2.41286E-10	6.79641E-10
1211	Plastics to MWI U	--	kg	4.3405E-10	-1.82621E-11	4.52312E-10
1212	LT plastics to MWI U	--	kg	4.3405E-10	-1.82621E-11	4.52312E-10
1213	Nylon 6, at plant/RER U		kg	4.27069E-10	-9.45397E-11	5.21609E-10
1214	Uranium, enriched 4.0%, at TENEX enrichment plant/RU U		kg	4.26499E-10	-2.64908E-10	6.91407E-10
1215	Aluminium 0% recycled ETH U	-	kg	4.22013E-10	-5.91002E-10	1.01302E-09
1216	Refinery sludge to landfarming U	--	kg	4.00865E-10	-1.46833E-11	4.15549E-10
1217	Uranium, enriched 4.0%, at USEC enrichment plant/US U		kg	3.94553E-10	-2.4505E-10	6.39603E-10
1218	Wood board ETH U	-	kg	3.81178E-10	-2.1099E-11	4.02277E-10
1219	Ceramics ETH U	-	kg	3.80753E-10	-3.13337E-11	4.12086E-10
1220	Chromium ETH U	-	kg	3.75242E-10	-2.48397E-11	4.00082E-10
1221	Fluorine, liquid, at plant/RER U		kg	3.68296E-10	-2.05312E-10	5.73608E-10
1222	Fuel oil lowS stock Europe U	--	kg	3.58142E-10	-7.19933E-11	4.30135E-10
1223	Fuel oil lowS refinery Europe U	--	kg	3.58142E-10	-7.19933E-11	4.30135E-10
1224	Carbon tetrachloride, at plant/RER U		kg	3.40437E-10	-2.57429E-10	5.97865E-10
1225	Landfill plastics/AU U	--	kg	3.39535E-10	-2.76913E-10	6.16448E-10
1226	Waste collection municipality per kg U	--	kg	3.30696E-10	-1.48189E-11	3.45515E-10
1227	Infra municipal waste collection per kg U		kg	3.30696E-10	-1.48189E-11	3.45515E-10
1228	MOX fuel element for LWR, at nuclear fuel fabrication plant/UCTE U		kg	3.26744E-10	-2.00806E-10	5.2755E-10
1229	Mercury, liquid, at plant/GLO U		kg	3.13938E-10	-1.20812E-10	4.34751E-10
1230	Silicon carbide, at plant/RER U		kg	3.01273E-10	-1.17711E-10	4.18984E-10
1231	Uranium, enriched 4.2%, at URENCO enrichment plant/RER U		kg	2.9414E-10	-1.90926E-10	4.85066E-10
1232	Disposal, anion exchange resin f. water, 50% water, to municipal incineration/CH U		kg	2.90968E-10	-1.84442E-10	4.7541E-10
1233	Cationic resin, at plant/CH U		kg	2.87616E-10	-1.87546E-10	4.75162E-10
1234	Grain maize IP, at farm/CH U		kg	2.87611E-10	-1.78387E-10	4.65997E-10
1235	Uranium, enriched 4.0% for boiling water reactor/UCTE U		kg	2.80195E-10	-1.68797E-10	4.48992E-10
1236	Methylene diphenyl diisocyanate, at plant/RER U		kg	2.70026E-10	-1.48632E-10	4.18659E-10
1237	Disposal, dross from Al electrolysis, 0% water, to residual material landfill/CH U		kg	2.61373E-10	-1.70323E-10	4.31697E-10
1238	Anionic resin, at plant/CH U		kg	2.51577E-10	-1.60534E-10	4.1211E-10
1239	Lime (hydrated) ETH U	-	kg	2.49945E-10	-9.20277E-12	2.59148E-10
1240	Nickel enriched ETH U	-	kg	2.39474E-10	-1.25781E-11	2.52052E-10
1241	Anhydrite, burned, at plant/CH U		kg	2.35425E-10	-1.56257E-10	3.91683E-10
1242	Magnesium sulphate, at plant/RER U		kg	2.33828E-10	-1.48693E-10	3.82521E-10
1243	Oil sludge to special waste incinerator U	--	kg	2.31776E-10	-1.25429E-11	2.44319E-10
1244	Maize starch, at plant/DE U		kg	2.28263E-10	-1.41577E-10	3.69839E-10
1245	Residual oil in refinery furnace CH U	-	kg	2.26156E-10	-6.11977E-11	2.87354E-10
1246	Fuel elements BWR, UO2 4.0% & MOX, at nuclear fuel fabrication plant/DE U		kg	1.92455E-10	-1.19635E-10	3.1209E-10
1247	Polystyrene, general purpose, GPPS, at plant/RER U		kg	1.87196E-10	-1.17998E-10	3.05194E-10
1248	Dinitroaniline-compounds, at regional storehouse/CH U		kg	1.8309E-10	-1.45485E-10	3.28576E-10
1249	Refinery gas refinery CH U	--	kg	1.77875E-10	-4.81726E-11	2.26048E-10
1250	Polyols, at plant/RER U		kg	1.69715E-10	-9.34674E-11	2.63182E-10
1251	Molybdenum, at regional storage/RER U		kg	1.51893E-10	-1.1539E-10	2.67283E-10
1252	Acetylene, at regional storehouse/CH U		kg	1.42506E-10	-8.47539E-11	2.2726E-10
1253	Fuel elements PWR, UO2 4.2% & MOX, at nuclear fuel fabrication plant/CH U		kg	1.30603E-10	-8.47747E-11	2.15378E-10
1254	Silicon I	--	kg	1.27396E-10	-2.1684E-22	1.27396E-10
1255	Disposal, polyethylene, 0.4% water, to sanitary landfill/CH U		kg	1.2577E-10	-9.63564E-11	2.22127E-10
1256	Uranium, enriched 3.8%, at URENCO enrichment plant/RER U		kg	1.23631E-10	-8.02491E-11	2.0388E-10
1257	LT asphalt to HA chemical landfill U	--	kg	1.21118E-10	-5.54879E-12	1.26667E-10
1258	Asphalt to HA chemical landfill U	--	kg	1.21118E-10	-5.54879E-12	1.26667E-10
1259	U enriched 4.2%, in fuel element for LWR, at nuclear fuel fabrication plant/CH U		kg	1.20155E-10	-7.79927E-11	1.98148E-10
1260	Grain drying, high temperature/CH U		kg	1.1792E-10	-7.31385E-11	1.91059E-10
1261	Petrol leaded refinery Europe U	--	kg	1.17326E-10	-4.6669E-12	1.21993E-10

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
1262	Petrol leaded stock Europe U	--	kg	1.16858E-10	-4.64831E-12	1.21507E-10
1263	U enriched 3.8%, in fuel element for LWR, at nuclear fuel fabrication plant/CH U		kg	1.16414E-10	-7.55641E-11	1.91978E-10
1264	Aluminium alloy, AlMg3, at plant/RER U		kg	1.11909E-10	-6.97849E-11	1.81693E-10
1265	LT bitumen to HA chemical landfill U	--	kg	1.11613E-10	-4.3367E-12	1.1595E-10
1266	Bitumen to HA chemical landfill U	--	kg	1.11613E-10	-4.3367E-12	1.1595E-10
1267	Manganese ETH U	-	kg	1.01227E-10	-1.17432E-11	1.1297E-10
1268	Silicate (waterglass) ETH U	--	kg	9.96814E-11	-4.69794E-12	1.04379E-10
1269	Uranium, enriched 3.9%, at USEC enrichment plant/US U		kg	9.83532E-11	-5.92505E-11	1.57604E-10
1270	Uranium, enriched 3.9%, at TENEX enrichment plant/RU U		kg	9.83532E-11	-5.92505E-11	1.57604E-10
1271	Disposal, paint, 0% water, to municipal incineration/CH U		kg	9.6688E-11	-3.41196E-11	1.30808E-10
1272	Benzo[thia]diazole-compounds, at regional storehouse/CH U		kg	9.32449E-11	-7.40933E-11	1.67338E-10
1273	Uranium, enriched 3.8%, at USEC enrichment plant/US U		kg	8.6542E-11	-5.61744E-11	1.42716E-10
1274	Uranium, enriched 3.8%, at TENEX enrichment plant/RU U		kg	8.6542E-11	-5.61744E-11	1.42716E-10
1275	Magnesium-alloy, AZ91, at plant/RER U		kg	8.50345E-11	-1.04877E-11	9.55222E-11
1276	Chromium oxide, flakes, at plant/RER U		kg	8.37508E-11	-2.22653E-12	8.59773E-11
1277	Vinyl chloride ETH U	-	kg	8.32533E-11	-4.90084E-12	8.81542E-11
1278	PVC high impact ETH U	-	kg	8.16209E-11	-4.80474E-12	8.64256E-11
1279	Zeolite ETH U	-	kg	8.10418E-11	-3.81946E-12	8.48613E-11
1280	Zeolite (inert) to landfill U	--	kg	8.10418E-11	-3.81946E-12	8.48613E-11
1281	Magnesium, at plant/RER U		kg	8.07096E-11	-1.16618E-11	9.23713E-11
1282	Monoethanolamine, at plant/RER U		kg	7.53427E-11	-4.38302E-11	1.19173E-10
1283	Disposal, aluminium, 0% water, to municipal incineration/CH U		kg	7.49665E-11	-4.39984E-11	1.18965E-10
1284	Disposal, hard coal ash, 0% water, to residual material landfill/SK U		kg	7.39151E-11	-4.38792E-11	1.17794E-10
1285	Argon ETH U	-	kg	6.72478E-11	-5.07719E-12	7.2325E-11
1286	Packaging, corrugated board, mixed fibre, single wall, at plant/RER U		kg	6.63494E-11	-3.3798E-11	1.00147E-10
1287	Disposal, cation exchange resin f. water, 50% water, to municipal incineration/CH U		kg	6.58779E-11	-4.93784E-11	1.15256E-10
1288	Manganese, at regional storage/RER U		kg	6.16104E-11	-3.78604E-11	9.94708E-11
1289	Propylene ETH U	-	kg	6.0582E-11	-1.60722E-11	7.66542E-11
1290	Trichloromethane, at plant/RER U		kg	5.93746E-11	-3.78736E-11	9.72482E-11
1291	Catalyst waste in special landfill U		kg	5.63777E-11	-4.28304E-12	6.06607E-11
1292	CZ-monocrystalline-silicon, at plant/RER U		kg	5.58771E-11	-3.46963E-11	9.05735E-11
1293	O2 ETH U	-	kg	5.45709E-11	-3.94007E-12	5.8511E-11
1294	Ethylene vinyl acetate copolymer, at plant/RER U		kg	5.36427E-11	-3.34727E-11	8.71154E-11
1295	Fuel elements BWR, UO2 4.0% & MOX, at nuclear fuel fabrication plant/UCTE U		kg	5.32448E-11	-3.2076E-11	8.53208E-11
1296	Ethylvinylacetate, foil, at plant/RER U		kg	5.25909E-11	-3.28163E-11	8.54072E-11
1297	Uranium from mine U	--	kg	5.19212E-11	-3.92223E-12	5.58435E-11
1298	Magnesium-alloy, AZ91, diecasting, at plant/RER U		kg	5.09189E-11	-6.28007E-12	5.71989E-11
1299	Uranium natural in concentrate U	--	kg	4.94488E-11	-3.73546E-12	5.31843E-11
1300	Uranium natural in UF6 U	--	kg	4.93994E-11	-3.73173E-12	5.31311E-11
1301	U enriched 4.0%, in fuel element for LWR, at nuclear fuel fabrication plant/UCTE U		kg	4.89852E-11	-2.95099E-11	7.84952E-11
1302	Chloromethyl methyl ether, at plant/RER U		kg	4.83027E-11	-3.08224E-11	7.91251E-11
1303	Soda ETH U	-	kg	4.82869E-11	-2.33082E-12	5.06178E-11
1304	Silicon, electronic grade, off-grade, at plant/DE U		kg	4.82399E-11	-3.01022E-11	7.83421E-11
1305	Silicon, electronic grade, at plant/DE U		kg	4.82399E-11	-3.01022E-11	7.83421E-11
1306	PP ETH U	-	kg	4.35031E-11	-1.87194E-12	4.5375E-11
1307	Disposal, building, paint on wood, to final disposal/CH U		kg	4.22925E-11	-2.21113E-11	6.44038E-11
1308	Infra slags compartment per kg U	-	kg	4.2057E-11	-3.25315E-12	4.53102E-11
1309	Slags per kg (process specific) U	-	kg	4.19827E-11	-5.50674E-12	4.74894E-11
1310	Alkyd varnish ETH U	-	kg	4.06411E-11	-2.31024E-12	4.29513E-11
1311	Cadmium free brazing ETH U	-	kg	4.01149E-11	-1.47227E-12	4.15872E-11
1312	Petrol unleaded refinery Europe U	--	kg	3.82177E-11	-1.52033E-12	3.9738E-11
1313	Petrol unleaded stock Europe U	--	kg	3.80654E-11	-1.51427E-12	3.95797E-11
1314	Float glass uncoated ETH U	--	kg	3.70878E-11	-2.02332E-12	3.91111E-11
1315	Disposal, packaging cardboard, 19.6% water, to inert material landfill/CH U		kg	3.60708E-11	-2.10993E-11	5.71702E-11
1316	Trimethylamine, at plant/RER U		kg	3.54723E-11	-2.26352E-11	5.81075E-11
1317	Propylene glycol ETH U	-	kg	3.44019E-11	-1.26314E-12	3.56651E-11
1318	Imported coal CH U	--	kg	3.3427E-11	-4.36205E-12	3.77891E-11
1319	Uranium in ore (open mine) U	--	kg	3.11527E-11	-2.35334E-12	3.35061E-11
1320	HF ETH U	-	kg	2.91456E-11	-2.20172E-12	3.13474E-11
1321	H2 ETH U	-	kg	2.69334E-11	-2.0335E-12	2.89669E-11
1322	Fleece, polyethylene, at plant/RER U		kg	2.63013E-11	-1.44772E-11	4.07784E-11
1323	Silicone product, at plant/RER U		kg	2.1636E-11	-4.93365E-12	2.65696E-11
1324	Uranium in ore (underground mine) U	--	kg	2.07685E-11	-1.56889E-12	2.23374E-11
1325	Disposal, polypropylene, 15.9% water, to municipal incineration/CH U		kg	2.04848E-11	-1.2882E-11	3.33668E-11
1326	Paper ETH U	-	kg	2.04455E-11	-1.18239E-12	2.16279E-11
1327	Disposal, building, glass pane (in burnable frame), to final disposal/CH U		kg	1.81943E-11	-1.00145E-11	2.82089E-11
1328	Alkylbenzene sulfonate, linear, petrochemical, at plant/RER U		kg	1.74214E-11	-1.08726E-11	2.82941E-11
1329	Uranium enriched 3.4% EURODIF U	--	kg	1.66659E-11	-1.25513E-12	1.79211E-11
1330	Uranium enriched 3.4% for PWR F U	--	kg	1.63975E-11	-1.23493E-12	1.76325E-11
1331	Polymethyl methacrylate, beads, at plant/RER U		kg	1.54314E-11	-9.02646E-12	2.44578E-11
1332	EDTA, ethylenediaminetetraacetic acid, at plant/RER U		kg	1.49143E-11	-9.54088E-12	2.44552E-11
1333	Sodium borates, at plant/US U		kg	1.33255E-11	-8.31373E-12	2.16392E-11
1334	Alkylbenzene, linear, at plant/RER U		kg	1.17471E-11	-6.81187E-12	1.8559E-11
1335	MTBE U	-	kg	1.13861E-11	-6.41419E-13	1.20275E-11
1336	Pyretroid-compounds, at regional storehouse/CH U		kg	1.12999E-11	-6.88337E-12	1.81832E-11
1337	Fertiliser, NPKS 19 10/AU U	--	kg	8.97687E-12	-7.32122E-12	1.62981E-11
1338	Fertiliser, NPKS 19 10, at regional store/AU U	--	kg	8.97685E-12	-7.32123E-12	1.62981E-11
1339	Disposal, zeolite, 5% water, to inert material landfill/CH U		kg	7.84108E-12	-4.86332E-12	1.27044E-11
1340	Zinc for plating ETH U	--	kg	7.77704E-12	-3.96562E-13	8.1736E-12
1341	Borax, anhydrous, powder, at plant/RER U		kg	7.60336E-12	-4.74369E-12	1.23471E-11
1342	Disposal, polystyrene, 0.2% water, to municipal incineration/CH U		kg	7.58473E-12	-4.90013E-12	1.24849E-11
1343	Kraft paper, bleached, at plant/RER U		kg	7.52237E-12	-2.19945E-12	9.72182E-12
1344	Silicon, pc, casted, at plant/RER U		kg	7.06481E-12	-4.58546E-12	1.16503E-11
1345	Spent fuel processing U	--	kg	6.66208E-12	-5.03312E-13	7.16539E-12
1346	Glass wool mat, at plant/CH U		kg	5.61982E-12	-3.5073E-12	9.12712E-12
1347	Uranium enriched 3.7% for PWR D U	--	kg	5.24299E-12	-3.94859E-13	5.63785E-12
1348	Glass, from public collection, unsorted/RER U		kg	4.83731E-12	-3.01895E-12	7.85626E-12
1349	Glass, cullets, sorted, at sorting plant/RER U		kg	4.47899E-12	-2.79532E-12	7.27431E-12
1350	Uranium enriched 3.5% PWR rest UCPTE U	--	kg	4.46008E-12	-3.35631E-13	4.79571E-12
1351	Disposal, paint, 0% water, to inert material landfill/CH U		kg	4.11255E-12	-3.19924E-12	7.31178E-12
1352	Disposal, building, paint on metal, to final disposal/CH U		kg	4.11255E-12	-3.19924E-12	7.31178E-12
1353	Aluminium sulphate/AU U	-	kg	4.09259E-12	-3.3379E-12	7.43049E-12
1354	Ammonium sulphate/AU U		kg	3.86005E-12	-3.14812E-12	7.00818E-12
1355	Uranium 3.4% in fuel element PWR F U	--	kg	3.78696E-12	-2.85204E-13	4.07216E-12
1356	Disposal, waste, silicon wafer production, 0% water, to underground deposit/DE U		kg	3.46743E-12	-2.16401E-12	5.63143E-12
1357	Aluminium 100% recycled ETH U	-	kg	3.29179E-12	-1.09678E-13	3.40147E-12
1358	Ethoxylated alcohols (AE3), petrochemical, at plant/RER U		kg	3.27921E-12	-2.03384E-12	5.31305E-12
1359	Methylchloride, at regional storage/CH U		kg	3.17291E-12	-7.2352E-13	3.89643E-12
1360	Methylchloride, at plant/WEU U		kg	3.17291E-12	-7.2352E-13	3.89643E-12
1361	Palladium, at regional storage/RER U		kg	3.14596E-12	-1.79382E-12	4.93978E-12
1362	Polyester resin, unsaturated, at plant/RER U		kg	3.12892E-12	-1.95242E-12	5.08135E-12
1363	Uranium enriched 3.7% URENCO U	--	kg	3.09336E-12	-2.32967E-13	3.32633E-12
1364	Hydrofluosilicic acid/AU U	--	kg	3.03553E-12	-2.47577E-12	5.5113E-12
1365	Polyvinylidenchloride, granulate, at plant/RER U		kg	2.58406E-12	-1.61244E-12	4.1965E-12
1366	Disposal, polyvinylfluoride, 0.2% water, to municipal incineration/CH U		kg	2.58406E-12	-1.61244E-12	4.1965E-12
1367	Uranium enriched 3.5% USEC U	--	kg	2.40844E-12	-1.81241E-13	2.58968E-12

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
1368	MG-silicon/AU U	-	kg	2.31468E-12	-1.76862E-12	4.08331E-12
1369	Silicon, solar grade/AU U	-	kg	2.22566E-12	-1.7006E-12	3.92626E-12
1370	Palladium, primary, at refinery/RU U		kg	2.15498E-12	-1.22877E-12	3.38375E-12
1371	Fatty alcohol, petrochemical, at plant/RER U		kg	2.01671E-12	-1.25081E-12	3.26753E-12
1372	Uranium enriched 3.4% for BWR D U	--	kg	1.90022E-12	-1.43072E-13	2.0433E-12
1373	Lubricants, from refinery production/AU U	--	kg	1.7013E-12	-1.38752E-12	3.08881E-12
1374	Petrol leaded refinery CH U	--	kg	1.65536E-12	-2.7587E-12	4.41407E-12
1375	Petrol leaded stock CH U	--	kg	1.65041E-12	-2.75045E-12	4.40086E-12
1376	Uranium enriched 3.5% EURODIF U	--	kg	1.64716E-12	-1.26232E-13	1.7734E-12
1377	N-olefins, at plant/RER U		kg	1.569E-12	-9.73132E-13	2.54213E-12
1378	Ammonium carbonate, at plant/RER U		kg	1.48715E-12	-1.15376E-12	2.64091E-12
1379	Polycrystalline ribbon wafer cells/AU U	-	kg	1.33441E-12	-1.01961E-12	2.35401E-12
1380	Vinylchloride Monomer APME/AU S	--	kg	1.21514E-12	-9.28473E-13	2.14361E-12
1381	PVC, Polyvinyl chloride/AU U	--	kg	1.21271E-12	-9.2662E-13	2.13933E-12
1382	Paint ETH U	--	kg	1.18126E-12	-1.00657E-13	1.28192E-12
1383	Uranium enriched 3.4% URENCO U	--	kg	1.1797E-12	-8.88169E-14	1.26852E-12
1384	Diesel stock CH U	--	kg	1.11114E-12	-4.97914E-14	1.16093E-12
1385	Diesel refinery CH U	--	kg	1.11114E-12	-4.97914E-14	1.16093E-12
1386	Uranium enriched 3.7% TENEX U	--	kg	1.10103E-12	-8.29203E-14	1.18395E-12
1387	Uranium 3.7% in fuel element PWR D U	--	kg	1.06782E-12	-8.04193E-14	1.14824E-12
1388	Wood ash mixed to MWI U	--	kg	1.05105E-12	-1.2346E-12	2.28565E-12
1389	LT wood ashes mixed to MWI U	--	kg	1.05105E-12	-1.2346E-12	2.28565E-12
1390	Uranium 3.5% in fuel element PWR rest UCPTE U	--	kg	9.86743E-13	-7.42547E-14	1.061E-12
1391	Limestone (inert) to landfill U	--	kg	9.65739E-13	-4.66164E-14	1.01236E-12
1392	Palladium, primary, at refinery/ZA U		kg	8.96599E-13	-5.11238E-13	1.40784E-12
1393	Maize seed IP, at regional storehouse/CH U		kg	7.89123E-13	-4.89442E-13	1.27857E-12
1394	Maize seed IP, at farm/CH U		kg	7.89123E-13	-4.89442E-13	1.27857E-12
1395	Uranium enriched 3.7% USEC U	--	kg	7.34018E-13	-5.52802E-14	7.89299E-13
1396	Uranium enriched 3.5% URENCO U	--	kg	7.26436E-13	-5.61856E-14	7.82622E-13
1397	Fuel oil lowS 2000 stock CH U	--	kg	7.18489E-13	-5.4497E-14	7.72986E-13
1398	Fuel oil lowS 2000 refinery CH U	--	kg	7.18489E-13	-5.4497E-14	7.72986E-13
1399	Polyurethane, flexible foam, at plant/RER U		kg	7.15252E-13	-4.64239E-13	1.17949E-12
1400	Uranium enriched 3.5% for PWR CH U	--	kg	5.89569E-13	-4.81656E-14	6.37735E-13
1401	Polycarbonate, at plant/RER U		kg	5.61156E-13	-3.5E-13	9.11156E-13
1402	Uranium enriched 3.4% USEC U	--	kg	5.53555E-13	-4.16524E-14	5.95208E-13
1403	Uranium enriched 3.4% BWR rest UCPTE U	--	kg	5.32452E-13	-4.00415E-14	5.72494E-13
1404	Uranium enriched 3.25% for BWR CH U	--	kg	5.1965E-13	-4.2479E-14	5.62129E-13
1405	Biocides, for paper production, unspecified, at plant/RER U		kg	4.78225E-13	-2.96577E-13	7.74802E-13
1406	Adipic acid, at plant/RER U		kg	4.56823E-13	-2.85054E-13	7.41877E-13
1407	Uranium 3.4% in fuel element BWR D U	--	kg	4.38851E-13	-3.3042E-14	4.71893E-13
1408	Uranium enriched 3.4% TENEX U	--	kg	4.30994E-13	-3.24475E-14	4.63442E-13
1409	Silicon film/AU U	-	kg	4.25372E-13	-3.25022E-13	7.50394E-13
1410	Paint (inert) to landfill U	--	kg	4.11471E-13	-1.37024E-14	4.25174E-13
1411	Uranium enriched 3.7% EURODIF U	--	kg	3.14579E-13	-2.36915E-14	3.38271E-13
1412	Acetic anhydride, at plant/RER U		kg	3.12892E-13	-1.95242E-13	5.08135E-13
1413	Uranium enriched 3.5% TENEX U	--	kg	2.67605E-13	-2.01379E-14	2.87742E-13
1414	Uranium enriched 3.25% EURODIF U	--	kg	2.49432E-13	-2.03899E-14	2.69822E-13
1415	Uranium enriched 3.25% USEC U	--	kg	2.39039E-13	-1.95403E-14	2.58579E-13
1416	Toluene diisocyanate, at plant/RER U		kg	2.03847E-13	-1.32308E-13	3.36155E-13
1417	Chlorodifluoromethane, at plant/NL U		kg	1.58832E-13	-9.26292E-14	2.51461E-13
1418	Printing colour, offset, 47.5% solvent, at plant/RER U		kg	1.53477E-13	-7.84698E-14	2.31947E-13
1419	Uranium 3.5% in fuel element PWR CH U	--	kg	1.30436E-13	-1.06561E-14	1.41092E-13
1420	Platinum, at regional storage/RER U		kg	1.29711E-13	-7.438E-14	2.04092E-13
1421	Uranium 3.25% in fuel element BWR CH U	--	kg	1.28309E-13	-1.04886E-14	1.38797E-13
1422	Uranium 3.4% in fuel element BWR rest UCPTE U	--	kg	1.22968E-13	-9.24745E-15	1.32216E-13
1423	Dithiocarbamate-compounds, at regional storehouse/RER U		kg	1.19556E-13	-7.41442E-14	1.937E-13
1424	Cyanazine, at regional storehouse/RER U		kg	1.19556E-13	-7.41442E-14	1.937E-13
1425	Chlorine dioxide, at plant/RER U		kg	1.19556E-13	-7.41442E-14	1.937E-13
1426	Rhodium, at regional storage/RER U		kg	9.94783E-14	-5.67152E-14	1.56194E-13
1427	Fluosilicic acid, 22% in H2O, at plant/RER U		kg	9.93805E-14	-2.26617E-14	1.22042E-13
1428	Platinum, primary, at refinery/ZA U		kg	9.63756E-14	-5.52644E-14	1.5164E-13
1429	Palladium, secondary, at refinery/RER U		kg	9.43788E-14	-5.38146E-14	1.48193E-13
1430	Tetrafluoroethylene, at plant/RER U		kg	8.77283E-14	-5.11622E-14	1.38891E-13
1431	Pitch despergents, in paper production, at plant/RER U		kg	7.81763E-14	-4.84858E-14	1.26662E-13
1432	Rhodium, primary, at refinery/ZA U		kg	6.4064E-14	-3.65246E-14	1.00589E-13
1433	Fluosilicic acid, 22% in H2O, at plant/US U		kg	6.26097E-14	-1.42769E-14	7.68866E-14
1434	Tetra ethyl lead ETH U	-	kg	5.75313E-14	-3.58101E-15	6.11124E-14
1435	Thin wood beech to road U	--	kg	5.15494E-14	-1.71755E-15	5.3267E-14
1436	Copper (inert) to landfill U	--	kg	4.63423E-14	-1.99887E-15	4.83412E-14
1437	MG-Silicium ETH U	-	kg	4.44392E-14	-1.48065E-15	4.59198E-14
1438	Packaging carton ETH U	-	kg	3.97056E-14	-2.25576E-15	4.19614E-14
1439	Fluosilicic acid, 22% in H2O, at plant/MA U		kg	3.67708E-14	-8.38484E-15	4.51556E-14
1440	Platinum, primary, at refinery/RU U		kg	2.68503E-14	-1.53967E-14	4.22469E-14
1441	Silicon tetrachloride, at plant/DE U		kg	2.52124E-14	-5.74918E-15	3.09616E-14
1442	LT carton to MWI U	--	kg	2.5049E-14	-1.14847E-15	2.61975E-14
1443	Carton to MWI U	--	kg	2.5049E-14	-1.14847E-15	2.61975E-14
1444	Uranium enriched 3.25% URENCO U	--	kg	2.0786E-14	-1.69916E-15	2.24852E-14
1445	Atrazine, at regional storehouse/CH U		kg	2.0708E-14	-1.28438E-14	3.35518E-14
1446	Rhodium, primary, at refinery/RU U		kg	2.04925E-14	-1.16833E-14	3.21759E-14
1447	Charcoal ETH U	-	kg	1.77757E-14	-5.9226E-16	1.83679E-14
1448	Rhodium, secondary, at refinery/RER U		kg	1.49217E-14	-8.50728E-15	2.3429E-14
1449	Disposal, building, brick, to sorting plant/CH U		kg	1.07886E-14	-6.73194E-15	1.75205E-14
1450	Uranium enriched 3.25% TENEX U	--	kg	1.0393E-14	-8.4958E-16	1.12426E-14
1451	Platinum, secondary, at refinery/RER U		kg	6.48557E-15	-3.719E-15	1.02046E-14
1452	Platinum ETH U	-	kg	1.06765E-15	-5.92499E-17	1.1269E-15
1453	Rhodium enriched ETH U	-	kg	1.00007E-15	-5.56077E-17	1.05568E-15
1454	Palladium enriched ETH U	-	kg	9.39441E-16	-5.22463E-17	9.91688E-16
1455	Welding dust to special waste treatment U		kg	8.37197E-16	-3.91711E-17	8.76368E-16
1456	PE to MWI U	--	kg	5.49805E-16	-6.68129E-16	1.21793E-15
1457	LT PE to MWI U	--	kg	5.49805E-16	-6.68129E-16	1.21793E-15
1458	Glas (inert) to landfill U	--	kg	3.17697E-16	-1.19308E-16	4.37006E-16
1459	Triazine-compounds, at regional storehouse/RER U		kg	1.73607E-16	-1.07677E-16	2.81284E-16
1460	Acetamide-anillide-compounds, at regional storehouse/RER U		kg	1.55457E-16	-9.64202E-17	2.51877E-16
1461	Cobalt, at plant/GLO U		kg	7.48144E-17	-4.686E-17	1.21674E-16
1462	Organophosphorus-compounds, at regional storehouse/RER U		kg	6.5734E-17	-4.07706E-17	1.06505E-16
1463	Paraxylene ETH U	-	kg	-3.37747E-12	-7.00339E-12	3.62592E-12
1464	Ureum ETH U	-	kg	-5.17846E-12	-1.03611E-11	5.18262E-12
1465	Phenol ETH U	-	kg	-8.23774E-12	-1.70814E-11	8.84371E-12
1466	Interm. benzene/AU U		kg	-1.1002E-11	-9.23612E-10	9.1261E-10
1467	Benzene/AU U		kg	-1.1002E-11	-9.23612E-10	9.1261E-10
1468	Cyclohexane/AU U		kg	-1.37525E-11	-1.15451E-09	1.14076E-09
1469	Caprolactam/AU U		kg	-1.58074E-11	-1.32703E-09	1.31122E-09
1470	Formaldehyde ETH U	-	kg	-1.68567E-11	-3.41418E-11	1.72851E-11
1471	Polyamides (Nylon) PA 6/AU U		kg	-1.83807E-11	-1.54306E-09	1.52468E-09
1472	PA 6 30% glass fibre(disagg)/AU U	--	kg	-2.62582E-11	-2.20437E-09	2.17811E-09
1473	Mineral wool (inert) to landfill U	--	kg	-5.73507E-11	-1.64875E-10	1.07524E-10

No	Process	DQI	Unit	Total	Online Bill	Paper Bill	
1474	Phosphoric acid ETH U	-	kg	-6.32973E-11	-1.52988E-10	8.96911E-11	
1475	Vanadium I	--	kg	-7.6082E-11	-7.61611E-11	7.90565E-14	
1476	Sludge to HA chemical landfill U	--	kg	-1.01277E-10	-2.44781E-10	1.43504E-10	
1477	LT sludge to HA chemical landfill U	--	kg	-1.01277E-10	-2.44781E-10	1.43504E-10	
1478	Palladium I	--	kg	-1.14123E-10	-1.14242E-10	1.18585E-13	
1479	Waste from cooling U	--	kg	-3.76624E-10	-4.89617E-10	1.12993E-10	
1480	LT waste to HA chemical landfill U	--	kg	-3.76624E-10	-4.89617E-10	1.12993E-10	
1481	Chlorine ETH U	--	kg	-6.77922E-10	-1.12391E-09	4.45987E-10	
1482	HCl ETH U	-	kg	-7.13199E-10	-1.09901E-09	3.85815E-10	
1483	Selenium, at plant/RER U		kg	-7.6082E-10	-7.61611E-10	7.90565E-13	
1484	Mineral wool ETH U	-	kg	-8.33453E-10	-1.20654E-09	3.73086E-10	
1485	NaOH ETH U	--	kg	-1.15471E-09	-2.65578E-09	1.50108E-09	
1486	Iron sulfate ETH U	-	kg	-1.1575E-09	-1.9231E-09	7.65598E-10	
1487	Manganese I	--	kg	-1.64815E-09	-1.71362E-09	6.54766E-11	
1488	Chromium I	--	kg	-2.28246E-09	-2.28483E-09	2.37169E-12	
1489	Cadmium I	--	kg	-3.42369E-09	-3.42725E-09	3.55754E-12	
1490	Fugitive emission oil & gas exploration 00-01/AU U	-	kg	-5.65574E-09	-8.374E-09	2.71825E-09	
1491	Heavy fuel oil I	--	kg	-6.14715E-09	-6.97695E-09	8.29796E-10	
1492	Crude oil I	--	kg	-6.23321E-09	-7.07463E-09	8.41413E-10	
1493	LPG, at consumer/AU U	--	kg	-6.80173E-09	-1.19634E-08	5.16165E-09	
1494	LT decarbonizing waste to LA chemical landfill U	--	kg	-1.20964E-08	-1.57265E-08	3.63016E-09	
1495	Decarbonizing waste to LA chemical landfill U	--	kg	-1.20964E-08	-1.57265E-08	3.63016E-09	
1496	Scrap (Mg) I	--	kg	-2.58546E-08	-2.58814E-08	2.68654E-11	
1497	Cathodes/AU U		kg	-3.64002E-08	-3.88092E-08	2.40902E-09	
1498	H2SiF6/AU U		kg	-5.81363E-08	-6.19839E-08	3.84755E-09	
1499	Aluminium fluoride/AU U	--	kg	-6.76004E-08	-7.20743E-08	4.47389E-09	
1500	Titanium I	--	kg	-7.6082E-08	-7.61611E-08	7.90565E-11	
1501	Flaring in oil & gas production 00-01/AU U	-	kg	-9.48306E-08	-1.40408E-07	4.55773E-08	
1502	Server - 420R		kg	-1.06551E-07	-1.06551E-07	-2.06795E-25	
1503	Server - V250 (100% energy)		kg	-1.11968E-07	-1.11968E-07	-5.39844E-25	
1504	Magnesium I	--	kg	-1.12411E-07	-1.12528E-07	1.16806E-10	
1505	MgMn1.5 I	--	kg	-1.14123E-07	-1.14242E-07	1.18585E-10	
1506	Server - E220R		kg	-2.13101E-07	-2.13101E-07	-1.24077E-24	
1507	Server - V210		kg	-2.70891E-07	-2.70891E-07	-1.30607E-24	
1508	Server - V440		kg	-3.12067E-07	-3.12067E-07	x	
1509	Diesel I	--	kg	-3.1278E-07	-3.13423E-07	6.42536E-10	
1510	Server - 4E450		kg	-3.43129E-07	-3.43129E-07	-1.65436E-24	
1511	Lead, concentrate, at beneficiation/GLO U		kg	-3.47684E-07	-3.53336E-06	3.18567E-06	
1512	Polystyrene, high impact, HIPS, at plant/RER U		kg	-3.80395E-07	-3.80815E-07	4.20004E-10	
1513	Pitch/AU U	--	kg	-4.78403E-07	-5.10064E-07	3.16614E-08	
1514	Server - V100		kg	-7.36825E-07	-7.36825E-07	-8.76216E-20	
1515	Server - V240		kg	-8.45181E-07	-8.45181E-07	-3.30872E-24	
1516	PB, Polybutadiene/AU U	--	kg	-1.52207E-06	-1.52365E-06	1.58113E-09	
1517	Acrylonitril/AU U	--	kg	-1.90258E-06	-1.90456E-06	1.97641E-09	
1518	Petroleum coke/AU U	--	kg	-1.93783E-06	-2.42544E-06	4.87607E-07	
1519	Water demineralized ETH U	-	kg	-2.08953E-06	-2.25974E-06	1.70212E-07	
1520	Copper/AU U	-	kg	-2.61524E-06	-2.94186E-06	3.26621E-07	
1521	Copper (Leach SX/EW)/AU U	--	kg	-2.61524E-06	-2.94186E-06	3.26621E-07	
1522	Nickel I	--	kg	-3.04315E-06	-3.04644E-06	3.28966E-09	
1523	Ni 99.6 I	--	kg	-3.04328E-06	-3.04644E-06	3.16226E-09	
1524	Iron orE/AU U	--	kg	-3.2899E-06	-2.91859E-05	2.5896E-05	
1525	Crude oil, Australian average/AU U	--	kg	-3.99818E-06	-4.0335E-06	3.53177E-08	
1526	Polystyrene, general purpose/AU U	--	kg	-4.18568E-06	-4.19003E-06	4.34811E-09	
1527	Aluminium, primary, including NPI emission estimates/AU U	--	kg	-5.31144E-06	-5.33127E-06	1.98324E-08	
1528	ABS, Acryloniril butastyrene/AU U	--	kg	-7.61033E-06	-7.61824E-06	7.90565E-09	
1529	Glass cullet/AU U	--	kg	-9.123E-06	-9.18425E-06	6.12565E-08	
1530	Alumina/AU U	--	kg	-1.01401E-05	-1.08111E-05	6.71084E-07	
1531	Lime (CaO)/AU U	--	kg	-2.52751E-05	1.99419E-05	-4.5217E-05	
1532	Bauxite/AU U	--	kg	-2.93471E-05	-3.26733E-05	3.32619E-06	
1533	Server - E25K		kg	-3.51408E-05	-3.51408E-05	3.97047E-23	
1534	Limestone (calcilte)/AU U	--	kg	-3.53401E-05	-8.11345E-06	-2.72266E-05	
1535	Caustic soda, 50% in H2O/AU U		kg	-3.99504E-05	3.25821E-05	-7.25324E-05	
1536	Sodium sulphate/AU U	--	kg	-6.06823E-05	4.94898E-05	-0.000110172	
1537	Water decarbonized ETH U	-	kg	-6.14029E-05	-7.98301E-05	1.84272E-05	
1538	Copper ore, crushed/AU U	--	kg	-0.000130762	-0.000147093	1.6331E-05	
1539	Copper Ore Mining 3% Cu in ore/AU U	--	kg	-0.000130762	-0.000147093	1.6331E-05	
1540	Caustic soda/AU U	--	kg	-0.000164489	0.000131949	-0.000296439	
1541	Cement, replacement for flyash - No credit/AU U		kg	-0.000571005	0.000972264	-0.00154327	
1542	Hardwood kraft pulp/AU U	--	kg	-0.001269224	0.001035134	-0.002304358	
1543	Pulp logs, Hardwood, Victoria/AU U	--	kg	-0.002335372	0.001904647	-0.004240018	
1544	Steam, from natural gas, in kg/AU U		kg	-0.003197608	0.002606688	-0.005804296	
1545	Pulp log & residue transport/AU U		kg	-0.003633676	0.002963498	-0.006597173	
1546	Unbleached kraft pulp AU, mass allocation of wood products/AU U modified for online billing		kg	-0.003633691	0.002963511	-0.006597202	
1547	Brown coal, Victoria (2001-02)/AU U	-	kg	-0.02514118	-0.050397994	0.025256814	
1548	Road/CH/I U		my	1.05735E-05	-7.17696E-06	1.77504E-05	
1549	Disposal, road/RER/I U		my	1.05735E-05	-7.17696E-06	1.77504E-05	
1550	Railway track/CH/I U		my	1.9239E-06	-1.48734E-06	3.41125E-06	
1551	Disposal, railway track/CH/I U		my	1.9239E-06	-1.48734E-06	3.41125E-06	
1552	Operation, maintenance, road/CH/I U		my	1.37412E-06	-8.89739E-07	2.26386E-06	
1553	Operation, maintenance, railway track/CH/I U		my	9.45402E-07	-7.30877E-07	1.67628E-06	
1554	Maintenance, operation, canal/RER/I U		my	1.30286E-08	-7.30484E-09	2.03335E-08	
1555	Canal/RER/I U		my	1.30286E-08	-7.30484E-09	2.03335E-08	
1556	Operation, lorry 32t/RER U		m	1.096276877	-0.752456679	1.848733556	
1557	Rigid truck, gross distance travelled/AU U		m	0.053468594	-0.0436071	0.097075695	
1558	Paper transit/AU U		m	0.045930704	-0.037459463	0.083390167	
1559	Operation, lorry 28t/CH U		m	0.037136777	-0.023560069	0.060696847	
1560	Operation, van < 3,5t/RER U		m	0.008456577	-9.75493E-06	0.008466332	
1561	Garbage transit/AU U		m	0.00753789	-0.006147637	0.013685528	
1562	Operation, van < 3,5t/CH U		m	0.006258007	-0.003738999	0.009997007	
1563	Operation, lorry 16t/RER U		m	0.003481673	-0.000246939	0.003728612	
1564	Operation, lorry 16t/CH U		m	0.00100295	-0.000408906	0.001411856	
1565	Operation, passenger car/CH U		m	0.000691172	-0.000447509	0.001138681	
1566	Operation, passenger car/RER U		m	0.000687489	-0.000401766	0.001089254	
1567	Operation, lorry 40t/CH U		m	0.000509786	-0.000285463	0.000795249	
1568	Passenger car W-Europe ETH U	--	m	2.71688E-06	-1.08065E-07	2.82494E-06	
1569	Infra road passenger car U	-	m	2.71688E-06	-1.08065E-07	2.82494E-06	
1570	Infra passenger car W- Europe U	-	m	2.71688E-06	-1.08065E-07	2.82494E-06	
1571	Transport electricity long distance UCPTE U	--	m	9.22911E-07	-7.09375E-08	9.93848E-07	
1572	Infra UCPTE electricity transport U	--	m	9.22911E-07	-7.09375E-08	9.93848E-07	
1573	Transmission network, electricity, medium voltage/CH/I U		m	6.72477E-08	-3.69221E-08	1.0417E-07	
1574	Pipeline, natural gas, high pressure distribution network/RER/I U		m	4.99107E-08	-2.69398E-08	7.68505E-08	
1575	Distribution network, electricity, low voltage/CH/I U		m	3.5062E-08	-1.95289E-08	5.45909E-08	
1576	Transmission network, electricity, high voltage/CH/I U		m	2.54644E-08	-1.556E-08	4.10244E-08	
1577	Pipeline, crude oil, onshore/RER/I U		m	2.36933E-08	-1.36104E-08	3.73037E-08	
1578	Well for exploration and production, onshore/GLO/I U		m	1.34394E-08	-7.58573E-09	2.10251E-08	
1579	Operation, lorry 28t, empty/CH U		m	1.24392E-08	-8.07372E-09	2.05129E-08	

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
1580	Pipeline, natural gas, long distance, high capacity, onshore/GLO/I U		m	7.98184E-09	-4.28459E-09	1.22664E-08
1581	Pipeline, natural gas, long distance, low capacity, onshore/GLO/I U		m	3.1665E-09	-1.70872E-09	4.87522E-09
1582	Well for exploration and production, offshore/OCE/I U		m	2.92831E-09	-1.62618E-09	4.55449E-09
1583	Drilled metres (mix) U	-	m	1.85601E-09	-6.04807E-11	1.91649E-09
1584	Drilled metres onshore U	-	m	1.03663E-09	-3.39397E-11	1.07057E-09
1585	Transmission network, long-distance/UCTE/I U		m	9.56423E-10	-5.84422E-10	1.54084E-09
1586	Drilled metres offshore U	-	m	8.88121E-10	-2.90639E-11	9.17185E-10
1587	Conveyor belt, at plant/RER/I U		m	8.27532E-10	-4.66434E-10	1.29397E-09
1588	Water supply network/CH/I U		m	8.19216E-10	-4.50926E-10	1.27014E-09
1589	Sewer grid, class 2/CH/I U		m	7.85643E-10	-4.63478E-10	1.24912E-09
1590	Pipeline, crude oil, offshore/OCE/I U		m	6.86058E-10	-3.93604E-10	1.07966E-09
1591	Pipeline, natural gas, long distance, high capacity, offshore/GLO/I U		m	6.54542E-10	-3.52773E-10	1.00731E-09
1592	Welding, arc, steel/RER U		m	6.33676E-10	-3.88083E-10	1.02176E-09
1593	Chimney/CH/I U		m	3.50192E-10	-1.52084E-10	5.02276E-10
1594	Sewer grid, class 4/CH/I U		m	2.24131E-10	-1.08708E-10	3.32839E-10
1595	Sewer grid, class 3/CH/I U		m	2.05626E-10	-6.7802E-11	2.73428E-10
1596	Pipeline, natural gas, low pressure distribution network/CH/I U		m	7.36151E-11	-4.7784E-11	1.21399E-10
1597	Pipeline, natural gas, high pressure distribution network/CH/I U		m	2.60063E-11	-1.66114E-11	4.26176E-11
1598	Sewer grid, class 1/CH/I U		m	3.59648E-12	-2.37026E-12	5.96674E-12
1599	Welding, arc, aluminium/RER U		m	1.65622E-12	-9.9473E-13	2.65095E-12
1600	Residential sewer grid/CH/I U		m	1.68226E-13	-9.779E-14	2.66016E-13
1601	Roads, company, internal/CH/I U		m2a	4.76115E-07	-2.81423E-07	7.57538E-07
1602	Australian average electricity mix, high voltage/AU U	--	MJ	0.143632677	-0.096003484	0.239636161
1603	Electricity, high voltage, Australian average/AU U	--	MJ	0.143245629	-0.095687822	0.238933451
1604	Natural gas, high pressure, at consumer/RER U		MJ	0.059679977	-0.031907937	0.091587914
1605	Natural gas, burned in industrial furnace >100kW/RER U		MJ	0.057684479	-0.030527732	0.088212211
1606	Electrictiy black coal NSW, sent out/AU U	--	MJ	0.047966297	-0.032624315	0.080590611
1607	Electrictiy black coal QLD, sent out/AU U	--	MJ	0.035200947	-0.024023038	0.059223985
1608	Energy, from diesel, low population area/AU U	-	MJ	0.034225446	-5.26393E-08	0.034225498
1609	Natural gas HP user in A U	--	MJ	0.010325867	-0.000336364	0.010662232
1610	Infra natural gas HP user A U	-	MJ	0.010325867	-0.000336364	0.010662232
1611	Electricity, high voltage, eastern Australian average/AU U	--	MJ	0.00831598	-0.007159728	0.015475708
1612	East Australain average electricity mix, high voltage/AU U	--	MJ	0.00831598	-0.007159728	0.015475708
1613	Electricity, production mix UCTE/UCTE U		MJ	0.007475614	-0.00448152	0.011957134
1614	Electricity, high voltage, production UCTE, at grid/UCTE U		MJ	0.007386607	-0.004427034	0.011813641
1615	Electricity, hydropower/AU U	--	MJ	0.007336088	-0.013337329	0.020673417
1616	Oil & gas production 2001-02/AU U	--	MJ	0.007329771	-0.001914505	0.009244276
1617	Electrictiy black coal WA, sent out/AU U	-	MJ	0.006435657	-0.004299007	0.010734664
1618	Electricity, natural gas cogeneration cogeneration/AU U	--	MJ	0.005505493	-0.003724541	0.009230034
1619	Hard coal, burned in industrial furnace 1-10MW/RER U		MJ	0.004862823	-0.000369375	0.005232198
1620	Heavy fuel oil, burned in industrial furnace 1MW, non-modulating/RER U		MJ	0.004847677	-0.002350099	0.007197776
1621	Electricity, medium voltage, production UCTE, at grid/UCTE U		MJ	0.004197808	-0.002017612	0.006215419
1622	Heat, natural gas, at industrial furnace >100kW/RER U		MJ	0.004170284	-0.00265509	0.006825373
1623	Electrictiy natural gas (steam) , sent out/AU U	--	MJ	0.003459126	-0.002542135	0.006001262
1624	Light fuel oil, burned in industrial furnace 1MW, non-modulating/RER U		MJ	0.003256684	-0.000984741	0.004241425
1625	Natural gas, burned in gas turbine, for compressor station/RU U		MJ	0.003246116	-0.001741975	0.004988091
1626	Electrictiy brown coal SA (2001-02) sent out/AU U	--	MJ	0.003223617	-0.002192545	0.005416162
1627	Hard coal, burned in power plant/DE U		MJ	0.002380554	-0.001507151	0.003887705
1628	Lignite, burned in power plant/DE U		MJ	0.002340329	-0.001455282	0.00379561
1629	Articulated truck operation AU	--	MJ	0.002315846	-0.001490479	0.003806325
1630	Electricity, production mix FR/FR U		MJ	0.002265813	-0.001380604	0.003646417
1631	Electricity, production mix DE/DE U		MJ	0.00214205	-0.001292168	0.003434218
1632	Energy, from diesel/AU U	-	MJ	0.002052542	-0.001422588	0.00347513
1633	Electricity, nuclear, at power plant pressure water reactor/FR U		MJ	0.001931073	-0.001185341	0.003116414
1634	Refinery gas, burned in furnace/MJ/RER U		MJ	0.001542247	-0.000903268	0.002445515
1635	Infra output gas turbine U	-	MJ	0.001477403	-4.81359E-05	0.001525538
1636	Bagasse combustion/AU U	--	MJ	0.001454183	-0.000972182	0.002426365
1637	Output gas turbine pipeline GUS U	--	MJ	0.001404456	-4.5757E-05	0.001450213
1638	Electrictiy natural gas (turbine), sent out/AU U	--	MJ	0.001164206	-0.003086639	0.004250845
1639	Hard coal coke, at plant/RER U		MJ	0.001098432	-0.000706793	0.001805225
1640	Electricity mix/CH U		MJ	0.001018579	-0.00068698	0.001705558
1641	Electricity, production mix IT/IT U		MJ	0.001014181	-0.000608361	0.001622542
1642	Electricity, high voltage, at grid/CH U		MJ	0.001008494	-0.000680178	0.001688672
1643	Natural gas, high pressure, at consumer/IT U		MJ	0.000993784	-0.000596125	0.001589909
1644	Natural gas, burned in power plant/IT U		MJ	0.000993784	-0.000596125	0.001589909
1645	Electricity, medium voltage, at grid/CH U		MJ	0.000981971	-0.000662706	0.001644677
1646	Electricity, hydropower, at run-of-river power plant/RER U		MJ	0.000933864	-0.00055387	0.001487734
1647	Electricity mix/DE U		MJ	0.00092859	-0.000620461	0.001549051
1648	Diesel, burned in building machine/GLO U		MJ	0.000926984	-0.000517755	0.001444739
1649	Electricity, high voltage, at grid/DE U		MJ	0.000919396	-0.000614318	0.001533714
1650	Electricity, nuclear, at power plant/DE U		MJ	0.000908403	-0.000564687	0.001473089
1651	Electricity, medium voltage, at grid/DE U		MJ	0.000888234	-0.000594522	0.001482757
1652	Electricity, hard coal, at power plant/DE U		MJ	0.000856999	-0.000542574	0.001399574
1653	Heavy fuel oil, burned in power plant/IT U		MJ	0.000850145	-0.000510535	0.00136068
1654	Heat, light fuel oil, at industrial furnace 1MW/RER U		MJ	0.000799063	-0.000544657	0.00134372
1655	Electricity, lignite, at power plant/DE U		MJ	0.000772953	-0.000480644	0.001253596
1656	Electricity, production mix ES/ES U		MJ	0.000747937	-0.000448391	0.001196328
1657	Electricity, nuclear, at power plant/UCTE U		MJ	0.000728826	-0.000439063	0.00116789
1658	Hard coal, burned in power plant/ES U		MJ	0.000725597	-0.000455411	0.001181008
1659	Natural gas, sweet, burned in production flare/MJ/GLO U		MJ	0.000720581	-0.00039837	0.001118951
1660	Sweet gas, burned in gas turbine, production/MJ/NO U		MJ	0.000705055	-0.000383939	0.001088994
1661	Electricity mix/GB U		MJ	0.00070396	-0.000504053	0.001208013
1662	Electricity, high voltage, at grid/GB U		MJ	0.00069699	-0.000499063	0.001196053
1663	Natural gas, burned in gas motor, for storage/DZ U		MJ	0.000684573	-0.000368375	0.001052948
1664	Electricity, medium voltage, at grid/GB U		MJ	0.000683182	-0.000489176	0.001172358
1665	Electricity Netherlands ETH I	--	MJ	0.000667982	-3.51369E-06	0.000671495
1666	Electricity, nuclear, at power plant pressure water reactor/UCTE U		MJ	0.000655944	-0.000395157	0.001051101
1667	Electricity, nuclear, at power plant pressure water reactor/DE U		MJ	0.000644966	-0.000400928	0.001045893
1668	Natural gas, high pressure, at consumer/GB U		MJ	0.000625731	-0.000448039	0.00107377
1669	Natural gas, burned in power plant/GB U		MJ	0.000625731	-0.000448039	0.00107377
1670	Natural gas, high pressure, at consumer/DE U		MJ	0.000606312	-0.000376917	0.00098323
1671	Natural gas, burned in power plant/DE U		MJ	0.000606312	-0.000376917	0.00098323
1672	Electricity, bagasse/AU U	--	MJ	0.000581673	-0.000388873	0.000970546
1673	Natural gas, high pressure, at consumer/NL U		MJ	0.000533898	-0.00031932	0.000853218
1674	Natural gas, burned in power plant/NL U		MJ	0.000533898	-0.00031932	0.000853218
1675	Heavy fuel oil, burned in refinery furnace/MJ/RER U		MJ	0.000529296	-0.000309999	0.000839295
1676	Electricity, hydropower, at power plant/CH U		MJ	0.000516055	-0.000334969	0.000851023
1677	Natural gas, burned in gas turbine, for compressor station/UCTE U		MJ	0.000470194	-0.00025281	0.000723004
1678	Diesel, burned in diesel-electric generating set/GLO U		MJ	0.000426261	-0.000240484	0.000666744
1679	Electrictiy landfill gas, sent out/AU U	--	MJ	0.000414361	-0.001351733	0.001766094
1680	Electricity, hydropower, at reservoir power plant, alpine region/RER U		MJ	0.00039974	-0.000190729	0.000590469
1681	Hard coal, burned in power plant/FR U		MJ	0.000392832	-0.000246924	0.000639756
1682	Electricity, hydropower, at power plant/FR U		MJ	0.000381733	-0.000237012	0.000618745
1683	Electricity, hydropower, at run-of-river power plant/CH U		MJ	0.000376844	-0.000262208	0.000639052
1684	Electricity, natural gas, at power plant/IT U		MJ	0.000372669	-0.000223547	0.000596216
1685	Electricity UCPTE gas I	--	MJ	0.000368845	-1.94019E-06	0.000370785

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
1686	Electrictiy oil (internal combustion) sent out/AU U	--	MJ	0.000359882	-0.00024059	0.000600471
1687	Lignite, burned in power plant/GR U		MJ	0.000353299	-0.00021194	0.000565239
1688	Electricity, nuclear, at power plant/CH U		MJ	0.000347504	-0.000225564	0.000573068
1689	Natural gas, burned in gas turbine, for compressor station/DZ U		MJ	0.0003354	-0.000180482	0.000515882
1690	Light fuel oil, burned in industrial furnace 1MW, non-modulating/CH U		MJ	0.000331609	-0.000212939	0.000544548
1691	Natural gas, sour, burned in production flare/MJ/GLO U		MJ	0.000330886	-0.000190039	0.000520925
1692	Electricity, oil, at power plant/IT U		MJ	0.000325588	-0.000195524	0.000521111
1693	Electricity, production mix NL/NL U		MJ	0.000321396	-0.000192771	0.000514166
1694	Blast furnace gas, burned in power plant/RER U		MJ	0.000320056	-0.000196623	0.00051668
1695	Electricity, low voltage, production UCTE, at grid/UCTE U		MJ	0.000312384	-0.000164324	0.000476708
1696	Hard coal, burned in power plant/IT U		MJ	0.000309433	-0.000191567	0.000501
1697	Heat, light fuel oil, at industrial furnace 1MW/CH U		MJ	0.000304419	-0.000194961	0.00049938
1698	Electricity, production mix BE/BE U		MJ	0.00030394	-0.0001822	0.00048614
1699	Hard coal, burned in power plant/NL U		MJ	0.000292529	-0.000180591	0.00047312
1700	Lignite, burned in power plant/CS U		MJ	0.000291353	-0.000174778	0.00046613
1701	Electricity, hydropower, at reservoir power plant/CH U		MJ	0.000281937	-0.000183155	0.000465092
1702	Natural gas, burned in gas turbine, for compressor station/NO U		MJ	0.000281613	-0.000152143	0.000433756
1703	Electricity, production mix CH/CH U		MJ	0.000281088	-0.000166381	0.000447469
1704	Heat, at hard coal industrial furnace 1-10MW/RER U		MJ	0.000278217	-0.000191002	0.000469219
1705	Electricity, natural gas, at power plant/GB U		MJ	0.000271729	-0.000194565	0.000466293
1706	Lignite, burned in power plant/ES U		MJ	0.000268091	-0.000164018	0.000432109
1707	Electricity, natural gas, at power plant/DE U		MJ	0.000265216	-0.000164873	0.000430088
1708	Electricity, nuclear, at power plant boiling water reactor/DE U		MJ	0.000263437	-0.000163759	0.000427196
1709	Electricity, hard coal, at power plant/ES U		MJ	0.000261215	-0.000163948	0.000425163
1710	Electricity, hard coal, at power plant/UCTE U		MJ	0.000242665	-0.000172	0.000414665
1711	Electricity, production mix AT/AT U		MJ	0.000242479	-0.000148279	0.000390758
1712	Electricity UCPTE coal I	--	MJ	0.000236196	-1.24243E-06	0.000237439
1713	Sour gas, burned in gas turbine, production/MJ/NO U		MJ	0.000235358	-0.000127047	0.000362405
1714	Transport infrast. pub sect/AU U	--	MJ	0.000221839	-0.000140737	0.000362576
1715	Heat, unspecific, in chemical plant/RER U		MJ	0.0002102	-8.80088E-06	0.000219001
1716	Electricity, production mix NORDEL/NORDEL U		MJ	0.00020848	-3.42748E-07	0.000208823
1717	Electricity, high voltage, production NORDEL, at grid/NORDEL U		MJ	0.000206416	-3.39354E-07	0.000206755
1718	Electricity, medium voltage, production NORDEL, at grid/NORDEL U		MJ	0.000204372	-3.35994E-07	0.000204708
1719	Natural gas, burned in industrial furnace low-NOx >100kW/RER U		MJ	0.000201582	-0.000123597	0.000325179
1720	Electricity, natural gas, at power plant/NL U		MJ	0.000194932	-0.000116587	0.00031152
1721	Hard coal, burned in power plant/BE U		MJ	0.000194332	-0.000123582	0.000317914
1722	Transport infrast. priv. sect/AU U	--	MJ	0.000194258	-0.000110616	0.000304875
1723	Electricity, production mix GR/GR U		MJ	0.000192871	-0.000115623	0.000308494
1724	Electricity, hydropower, at power plant/AT U		MJ	0.000192345	-0.000117621	0.000309966
1725	Electricity, hydropower, at power plant/IT U		MJ	0.000191578	-0.000114919	0.000306497
1726	Electricity, nuclear, at power plant pressure water reactor/CH U		MJ	0.000191127	-0.00012406	0.000315188
1727	Tractor, low population area, per MJ fuel input/AU U	--	MJ	0.000190444	-0.000155319	0.000345763
1728	Tractor tailpipe, low population area per MJ fuel input/AU U	--	MJ	0.000190444	-0.000155319	0.000345763
1729	Heat, heavy fuel oil, at industrial furnace 1MW/RER U		MJ	0.000189547	-0.000129084	0.00031863
1730	Natural gas, burned in gas turbine, for compressor station/NL U		MJ	0.000184447	-9.93966E-05	0.000283844
1731	Natural gas, high pressure, at consumer/BE U		MJ	0.000180031	-0.000112265	0.000292296
1732	Natural gas, burned in power plant/BE U		MJ	0.000180031	-0.000112265	0.000292296
1733	Hard coal, burned in power plant/PT U		MJ	0.000172419	-0.000106863	0.000279282
1734	Electricity, hydropower, at power plant/NO U		MJ	0.000164149	-4.74835E-05	0.000211633
1735	Electricity, production mix PT/PT U		MJ	0.000159646	-9.5824E-05	0.00025547
1736	Electricity, nuclear, at power plant boiling water reactor/CH U		MJ	0.000156377	-0.000101504	0.000257881
1737	Natural gas, burned in power plant/UCTE U		MJ	0.000150745	-9.12809E-05	0.000242026
1738	Electricity, hydropower, at reservoir power plant, non alpine regions/RER U		MJ	0.000139247	-7.94225E-05	0.00021867
1739	Electricity mix/FR U		MJ	0.000138809	-9.53639E-05	0.000234173
1740	Electricity, hard coal, at power plant/FR U		MJ	0.000138647	-8.71495E-05	0.000225796
1741	Natural gas, high pressure, at consumer/ES U		MJ	0.000136959	-8.37561E-05	0.000220715
1742	Natural gas, burned in power plant/ES U		MJ	0.000136959	-8.37561E-05	0.000220715
1743	Wood chips, from industry, softwood, burned in furnace 300kW/CH U		MJ	0.000136876	-2.99434E-05	0.00016682
1744	Electricity mix, aluminium industry/GLO U		MJ	0.000136266	-8.87971E-05	0.000225063
1745	Electricity, high voltage, aluminium industry, at grid/GLO U		MJ	0.000134916	-8.79175E-05	0.000222833
1746	Electricity, medium voltage, aluminium industry, at grid/GLO U		MJ	0.00013358	-8.7047E-05	0.000220627
1747	Coke oven gas, burned in power plant/RER U		MJ	0.000133085	-8.26014E-05	0.000215686
1748	Coke oven gas, at plant/GLO U		MJ	0.000133085	-8.26014E-05	0.000215686
1749	Electricity, production mix CS/CS U		MJ	0.000130839	-7.84359E-05	0.000209275
1750	Electricity, hydropower, at power plant/DE U		MJ	0.000129123	-8.02678E-05	0.000209391
1751	Electricity, high voltage, at grid/FR U		MJ	0.000128241	-8.79124E-05	0.000216154
1752	Electricity, hydropower, at power plant/ES U		MJ	0.000125604	-7.68186E-05	0.000202423
1753	Electricity, lignite, at power plant/GR U		MJ	0.000124694	-7.48024E-05	0.000199496
1754	Heavy fuel oil, burned in power plant/ES U		MJ	0.00012088	-7.39236E-05	0.000194804
1755	Electricity, low voltage, at grid/CH U		MJ	0.000116947	-7.48061E-05	0.000191753
1756	Rigid truck operation, diesel/AU U	--	MJ	0.000116037	-9.46361E-05	0.000210674
1757	Electricity, hard coal, at power plant/IT U		MJ	0.000115436	-7.14654E-05	0.000186902
1758	Heavy fuel oil, burned in power plant/DE U		MJ	0.000110955	-6.89697E-05	0.000179925
1759	Light fuel oil, burned in boiler 100kW, non-modulating/CH U		MJ	0.000106575	-4.86396E-05	0.000155215
1760	Electricity mix/ES U		MJ	0.000105742	-7.41615E-05	0.000179903
1761	Electricity, high voltage, at grid/ES U		MJ	0.000104695	-7.34272E-05	0.000178122
1762	Electricity, hard coal, at power plant/NL U		MJ	0.000103246	-6.3738E-05	0.000166984
1763	Electricity mix/BE U		MJ	9.97346E-05	-7.0594E-05	0.000170329
1764	Electricity, high voltage, at grid/BE U		MJ	9.87471E-05	-6.98951E-05	0.000168642
1765	Electricity, lignite, at power plant/ES U		MJ	9.65126E-05	-5.90465E-05	0.000155559
1766	Natural gas, high pressure, at consumer/FR U		MJ	9.58775E-05	-5.88461E-05	0.000154724
1767	Natural gas, burned in power plant/FR U		MJ	9.58775E-05	-5.88461E-05	0.000154724
1768	Electricity, medium voltage, at grid/FR U		MJ	9.29999E-05	-6.61908E-05	0.000159191
1769	Electricity mix/NO U		MJ	8.99171E-05	-4.8325E-05	0.000138242
1770	Electricity, medium voltage, at grid/BE U		MJ	8.91358E-05	-6.38194E-05	0.000152955
1771	Electricity, medium voltage, at grid/ES U		MJ	8.9123E-05	-6.3811E-05	0.000152934
1772	Electricity, high voltage, at grid/NO U		MJ	8.90268E-05	-4.78465E-05	0.000136873
1773	Electricity, medium voltage, at grid/NO U		MJ	8.71183E-05	-4.70757E-05	0.000134194
1774	Electricity, lignite, at power plant/CS U		MJ	8.66835E-05	-5.2E-05	0.000138683
1775	Heavy fuel oil, burned in power plant/PT U		MJ	8.56955E-05	-5.14368E-05	0.000137132
1776	Diesel used in industrial machinery/AU U		MJ	8.50077E-05	-0.000142523	0.000227531
1777	Electricity, at wind power plant/RER U		MJ	8.46778E-05	-5.08759E-05	0.000135554
1778	Heavy fuel oil, burned in power plant/GR U		MJ	8.44421E-05	-5.06218E-05	0.000135064
1779	Electricity, at wind power plant 800kW/RER U		MJ	8.29842E-05	-4.98584E-05	0.000132843
1780	Electricity, production mix SE/SE U		MJ	7.85556E-05	-1.13751E-06	7.96931E-05
1781	Electricity, production mix NO/NO U		MJ	7.67212E-05	-1.26192E-07	7.68474E-05
1782	Refinery gas, burned in furnace/MJ/CH U		MJ	7.61837E-05	-3.72596E-05	0.000113443
1783	Heavy fuel oil, burned in power plant/FR U		MJ	7.46316E-05	-4.58069E-05	0.000120438
1784	Electricity, natural gas, at power plant/BE U		MJ	7.39009E-05	-4.60838E-05	0.000119985
1785	Electricity, nuclear, at power plant boiling water reactor/UCTE U		MJ	7.28826E-05	-4.39063E-05	0.000116789
1786	Lignite, burned in power plant/BA U		MJ	7.28578E-05	-4.37064E-05	0.000116564
1787	Operation, Diesel Train/AU U		MJ	7.25311E-05	-5.0904E-05	0.000123435
1788	Electricity, hard coal, at power plant/BE U		MJ	6.99594E-05	-4.44896E-05	0.000114449
1789	Refinery gas, burned in flare/GLO U		MJ	6.78463E-05	-3.94683E-05	0.000107315
1790	Lignite, burned in power plant/MK U		MJ	6.48793E-05	-3.89208E-05	0.0001038
1791	Electricity, hard coal, at power plant/PT U		MJ	6.46571E-05	-4.00735E-05	0.000104731

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1792	Electricity, natural gas, at power plant/ES U		MJ	6.37842E-05	-3.90067E-05	0.000102791
1793	Electricity, industrial gas, at power plant/DE U		MJ	6.34261E-05	-3.94309E-05	0.000102857
1794	Natural gas, high pressure, at consumer/AT U		MJ	5.91706E-05	-3.61835E-05	9.53541E-05
1795	Natural gas, burned in power plant/AT U		MJ	5.91706E-05	-3.61835E-05	9.53541E-05
1796	Electricity, natural gas, at power plant/UCTE U		MJ	5.72449E-05	-3.46636E-05	9.19086E-05
1797	Hard coal, burned in power plant/AT U		MJ	5.5889E-05	-3.49947E-05	9.08836E-05
1798	Electricity, production mix SI/SI U		MJ	4.98997E-05	-2.99144E-05	7.9814E-05
1799	Lignite, burned in power plant/SI U		MJ	4.97822E-05	-2.98639E-05	7.9646E-05
1800	Electricity, natural gas, at power plant/FR U		MJ	4.85456E-05	-2.97955E-05	7.83411E-05
1801	Hard coal, burned in power plant/NORDEL U		MJ	4.6386E-05	-7.98558E-06	5.43716E-05
1802	Electricity, hydropower, at power plant/CS U		MJ	4.4606E-05	-2.67407E-05	7.13467E-05
1803	Electricity, hydropower, at power plant/PT U		MJ	4.39596E-05	-2.63858E-05	7.03454E-05
1804	Electricity, hydropower, at power plant/SE U		MJ	4.31272E-05	-6.24519E-07	4.37517E-05
1805	Natural gas HP user in Europe U	--	MJ	4.22905E-05	-1.42253E-06	4.3713E-05
1806	Infra natural gas HP user Europe U	-	MJ	4.22905E-05	-1.42253E-06	4.3713E-05
1807	Natural gas, burned in gas turbine, for compressor station/DE U		MJ	4.19249E-05	-2.33227E-05	6.52476E-05
1808	Electricity, production mix BA/BA U		MJ	4.14149E-05	-2.48276E-05	6.62425E-05
1809	Infra industrial furnace U	-	MJ	4.11468E-05	-1.36921E-06	4.2516E-05
1810	Natural gas furnace >100kW Europe U	--	MJ	4.11467E-05	-1.36921E-06	4.25159E-05
1811	Electricity, oil, at power plant/ES U		MJ	4.10537E-05	-2.51061E-05	6.61598E-05
1812	Electricity, at cogen ORC 1400kWth, wood, allocation exergy/CH U		MJ	4.03124E-05	-2.10761E-05	6.13885E-05
1813	Heavy fuel oil, burned in power plant/GB U		MJ	3.8929E-05	-2.78741E-05	6.68031E-05
1814	Electricity mix/IT U		MJ	3.83511E-05	-2.30051E-05	6.13562E-05
1815	Electricity, high voltage, at grid/IT U		MJ	3.79714E-05	-2.27773E-05	6.07488E-05
1816	Electricity, production mix HR/HR U		MJ	3.678E-05	-2.20491E-05	5.88291E-05
1817	Electricity, production mix FI/FI U		MJ	3.65929E-05	-1.18454E-07	3.67113E-05
1818	Infra output gasmotor U	-	MJ	3.42774E-05	-1.11809E-06	3.53955E-05
1819	Heat, softwood chips from industry, at furnace 300kW/CH U		MJ	3.38394E-05	-4.30144E-08	3.38824E-05
1820	Electricity, oil, at power plant/FR U		MJ	3.24485E-05	-1.9916E-05	5.23645E-05
1821	Electricity, oil, at power plant/GR U		MJ	3.19991E-05	-1.9183E-05	5.11821E-05
1822	Electricity, oil, at power plant/DE U		MJ	3.19551E-05	-1.98633E-05	5.18184E-05
1823	Electricity UCPTE nuclear I	--	MJ	3.18087E-05	-1.67319E-07	3.1976E-05
1824	Natural gas, burned in gas motor, for storage/RU U		MJ	3.1292E-05	-1.67923E-05	4.80844E-05
1825	Electricity, oil, at power plant/PT U		MJ	3.05449E-05	-1.83339E-05	4.88788E-05
1826	Electricity, industrial gas, at power plant/IT U		MJ	3.03585E-05	-1.82107E-05	4.85692E-05
1827	Lignite, burned in power plant/CZ U		MJ	2.93166E-05	-1.94888E-05	4.88055E-05
1828	Electricity UCPTE oil I	--	MJ	2.91015E-05	-1.53079E-07	2.92546E-05
1829	Natural gas, high pressure, at consumer/CH U		MJ	2.90248E-05	-1.85395E-05	4.75643E-05
1830	Electricity, production mix DK/DK U		MJ	2.87264E-05	-6.84276E-06	3.55692E-05
1831	Natural gas, burned in power plant/NORDEL U		MJ	2.83021E-05	-4.08064E-06	3.23828E-05
1832	Natural gas, low pressure, at consumer/CH U		MJ	2.77553E-05	-1.80161E-05	4.57714E-05
1833	Heavy fuel oil, burned in power plant/NL U		MJ	2.67067E-05	-1.5973E-05	4.26796E-05
1834	Electricity, hydropower, at pumped storage power plant/IT U		MJ	2.63781E-05	-1.5823E-05	4.22011E-05
1835	Electricity, production mix MK/MK U		MJ	2.49959E-05	-1.49847E-05	3.99805E-05
1836	Output Gasmotor Alg. U	--	MJ	2.47706E-05	-8.08279E-07	2.55788E-05
1837	Natural gas, burned in gas motor, for storage/NO U		MJ	2.27085E-05	-1.23602E-05	3.50687E-05
1838	Electricity, hard coal, at power plant/AT U		MJ	2.25814E-05	-1.41393E-05	3.67207E-05
1839	Electricity, hydropower, at pumped storage power plant/FR U		MJ	2.24721E-05	-1.37927E-05	3.62648E-05
1840	Energy, from fuel oil/AU U	-	MJ	2.17271E-05	-6.85084E-05	9.02355E-05
1841	Electricity mix/NL U		MJ	2.17004E-05	-1.22819E-05	3.39823E-05
1842	Natural gas, burned in gas motor, for storage/NL U		MJ	2.1687E-05	-1.16741E-05	3.33611E-05
1843	Heavy fuel oil, burned in power plant/HR U		MJ	2.16556E-05	-1.29822E-05	3.46378E-05
1844	Electricity, lignite, at power plant/BA U		MJ	2.1499E-05	-1.2897E-05	3.4396E-05
1845	Electricity, lignite, at power plant/MK U		MJ	2.10419E-05	-1.26229E-05	3.36649E-05
1846	Electricity, hydropower, at power plant/HR U		MJ	2.09082E-05	-1.25341E-05	3.34423E-05
1847	Output gas turbine TJin U	--	MJ	2.07384E-05	-6.75731E-07	2.14141E-05
1848	Electricity, natural gas, at power plant/AT U		MJ	2.04821E-05	-1.2525E-05	3.30072E-05
1849	Heat from waste, at municipal waste incineration plant/CH U		MJ	2.04612E-05	-1.65618E-06	2.21174E-05
1850	Electricity, hydropower, at power plant/BA U		MJ	2.00862E-05	-1.20414E-05	3.21276E-05
1851	Diesel in diesel generator onshore U	--	MJ	1.98551E-05	-6.55107E-07	2.05102E-05
1852	Output gas turbine pipeline N U	--	MJ	1.96477E-05	-6.40502E-07	2.02882E-05
1853	Electricity, hard coal, at power plant/NORDEL U		MJ	1.92829E-05	-3.31964E-06	2.26025E-05
1854	Hard coal, burned in power plant/HR U		MJ	1.91343E-05	-1.18465E-05	3.09809E-05
1855	Light fuel oil, burned in boiler 10kW, non-modulating/CH U		MJ	1.88868E-05	-1.06014E-05	2.94883E-05
1856	Hard coal, burned in power plant/PL U		MJ	1.86743E-05	-1.16919E-05	3.03663E-05
1857	Electricity mix UCPTE U	--	MJ	1.85581E-05	-1.38481E-06	1.99429E-05
1858	Electricity, high voltage, at grid/NL U		MJ	1.8059E-05	-9.73492E-06	2.77939E-05
1859	Electricity, medium voltage, at grid/NL U		MJ	1.78802E-05	-9.63853E-06	2.75187E-05
1860	Heavy fuel oil, burned in refinery furnace/MJ/CH U		MJ	1.76096E-05	-8.61249E-06	2.62221E-05
1861	Infra electricity MV use UCPTE U	-	MJ	1.69627E-05	-8.70449E-07	1.78332E-05
1862	Natural gas, burned in cogen 1MWe lean burn/RER U		MJ	1.69434E-05	-1.01763E-05	2.71197E-05
1863	Electricity MV use in UCPTE U	--	MJ	1.69397E-05	-8.38239E-07	1.77779E-05
1864	Heavy fuel oil, burned in industrial furnace 1MW, non-modulating/CH U		MJ	1.65815E-05	-1.14817E-05	2.80632E-05
1865	Electricity, lignite, at power plant/SI U		MJ	1.61456E-05	-9.68558E-06	2.58311E-05
1866	Electricity, industrial gas, at power plant/FR U		MJ	1.57419E-05	-9.66187E-06	2.54038E-05
1867	Electricity, hydropower, at pumped storage power plant/DE U		MJ	1.55802E-05	-9.68559E-06	2.52658E-05
1868	Electricity, production mix CZ/CZ U		MJ	1.51596E-05	-1.00777E-05	2.52373E-05
1869	Lignite, burned in power plant/AT U		MJ	1.49747E-05	-9.1609E-06	2.41356E-05
1870	Electricity, hydropower, at power plant/SI U		MJ	1.47204E-05	-8.82474E-06	2.35451E-05
1871	Natural gas, high pressure, at consumer/DK U		MJ	1.44341E-05	-2.08113E-06	1.65152E-05
1872	Electricity, industrial gas, at power plant/BE U		MJ	1.43865E-05	-8.97102E-06	2.33575E-05
1873	Electricity, hydropower, at power plant/GR U		MJ	1.4165E-05	-8.49173E-06	2.26568E-05
1874	Electricity from waste, at municipal waste incineration plant/CH U		MJ	1.39091E-05	-1.02503E-06	1.49341E-05
1875	Heat, light fuel oil, at boiler 10kW, non-modulating/CH U		MJ	1.33182E-05	-8.93842E-06	2.22566E-05
1876	Heat, heavy fuel oil, at industrial furnace 1MW/CH U		MJ	1.23802E-05	-9.09689E-06	2.14771E-05
1877	Electricity, at cogen 500kWe lean burn, allocation exergy/CH U		MJ	1.21825E-05	-7.90793E-06	2.00904E-05
1878	Natural gas, high pressure, at consumer/FI U		MJ	1.21699E-05	-1.75468E-06	1.39246E-05
1879	Electricity, oil, at power plant/NL U		MJ	1.18113E-05	-7.06422E-06	1.88755E-05
1880	Electricity, natural gas, at power plant/NORDEL U		MJ	1.17382E-05	-1.69243E-06	1.34306E-05
1881	Electricity, hydropower, at pumped storage power plant/CH U		MJ	1.16803E-05	-7.58383E-06	1.92641E-05
1882	Electricity, oil, at power plant/GB U		MJ	1.11226E-05	-7.96404E-06	1.90866E-05
1883	Electricity, industrial gas, at power plant/NL U		MJ	1.07286E-05	-6.41665E-06	1.71452E-05
1884	Heavy fuel oil, burned in power plant/BE U		MJ	1.04436E-05	-6.51221E-06	1.69558E-05
1885	Electricity, hydropower, at pumped storage power plant/ES U		MJ	1.02661E-05	-6.27839E-06	1.65444E-05
1886	Heavy fuel oil, burned in power plant/AT U		MJ	1.01442E-05	-6.20328E-06	1.63475E-05
1887	Electricity, lignite, at power plant/CZ U		MJ	9.77221E-06	-6.49628E-06	1.62685E-05
1888	Electricity, industrial gas, at power plant/ES U		MJ	9.75386E-06	-5.96486E-06	1.57187E-05
1889	Electricity mix/AT U		MJ	9.52915E-06	-5.82717E-06	1.53563E-05
1890	Electricity, hydropower, at power plant/GB U		MJ	9.50346E-06	-6.80472E-06	1.63082E-05
1891	Electricity, high voltage, at grid/AT U		MJ	9.4348E-06	-5.76948E-06	1.52043E-05
1892	Infra coal power plant U	-	MJ	9.34574E-06	-7.18601E-07	1.00643E-05
1893	Output gas turbine pipeline NL U	--	MJ	8.88312E-06	-2.90266E-07	9.17339E-06
1894	Electricity, industrial gas, at power plant/UCTE U		MJ	8.15173E-06	-5.79773E-06	1.39495E-05
1895	Heavy fuel oil, burned in power plant/DK U		MJ	7.94585E-06	-1.89266E-06	9.83851E-06
1896	Electricity, hydropower, at power plant/FI U		MJ	7.86805E-06	-2.55521E-08	7.8936E-06
1897	Output Gasmotor GUS U	--	MJ	7.81745E-06	-2.54691E-07	8.07214E-06

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
1898	Diesel in diesel generator offshore U	--	MJ	7.68943E-06	-2.56818E-07	7.94625E-06
1899	Output gas turbine GUS U	--	MJ	7.48536E-06	-2.43872E-07	7.72924E-06
1900	Electricity, oil, at power plant/HR U		MJ	7.28598E-06	-4.36784E-06	1.16538E-05
1901	Electricity, lignite, at power plant/UCTE U		MJ	7.09842E-06	-4.61479E-06	1.17132E-05
1902	Energy, from coal/AU U	-	MJ	7.02199E-06	-9.14718E-05	9.84938E-05
1903	Electricity mix, SBB/CH U		MJ	6.76592E-06	-4.70302E-06	1.14689E-05
1904	Electricity, hard coal, at power plant/HR U		MJ	6.75329E-06	-4.18113E-06	1.09344E-05
1905	Electricity, high voltage, SBB, at grid/CH U		MJ	6.69893E-06	-4.65645E-06	1.13554E-05
1906	Electricity, hydropower, at pumped storage power plant/AT U		MJ	6.58631E-06	-4.0276E-06	1.06139E-05
1907	Natural gas, burned in boiler modulating >100kW/RER U		MJ	6.50918E-06	-4.09007E-06	1.05992E-05
1908	Output gas turbine pipeline D U	--	MJ	6.39815E-06	-2.08586E-07	6.60673E-06
1909	Diesel in building equipment U	--	MJ	6.38451E-06	-4.72941E-07	6.85745E-06
1910	Infra lignite power plant U	-	MJ	6.37314E-06	-4.7688E-07	6.85002E-06
1911	Lignite, burned in power plant/FR U		MJ	6.3482E-06	-3.89814E-06	1.02463E-05
1912	Output gas turbine pipeline Alg U	--	MJ	6.30742E-06	-2.06035E-07	6.51346E-06
1913	Electricity, hard coal, at power plant/PL U		MJ	6.22477E-06	-3.89731E-06	1.01221E-05
1914	Electricity, high voltage, production CH, at grid/CH U		MJ	6.17544E-06	-2.5856E-07	6.434E-06
1915	Electricity, medium voltage, production CH, at grid/CH U		MJ	6.1143E-06	-2.56E-07	6.3703E-06
1916	Electricity, hydropower, at pumped storage power plant/BE U		MJ	6.09785E-06	-3.80239E-06	9.90025E-06
1917	Electricity, hydropower, at reservoir power plant/FI U		MJ	5.90104E-06	-1.91641E-08	5.9202E-06
1918	Heat, natural gas, at boiler modulating >100kW/RER U		MJ	5.60741E-06	-3.65753E-06	9.26494E-06
1919	Peat, burned in power plant/NORDEL U		MJ	5.60395E-06	-1.94012E-08	5.62335E-06
1920	Electricity, production mix LU/LU U		MJ	5.57497E-06	-3.42312E-06	8.99809E-06
1921	Electricity mix W-D U	--	MJ	5.54293E-06	-4.13619E-07	5.95655E-06
1922	Electricity, lignite, at power plant/AT U		MJ	5.52345E-06	-3.37902E-06	8.90247E-06
1923	Electricity mix F U	--	MJ	5.05635E-06	-3.77325E-07	5.43367E-06
1924	Electricity, hydropower, at pumped storage power plant/GB U		MJ	4.87844E-06	-3.49309E-06	8.37153E-06
1925	Natural gas, burned in gas motor, for storage/DE U		MJ	4.78469E-06	-2.59409E-06	7.37879E-06
1926	Lignite power plant in D U	--	MJ	4.71486E-06	-3.52802E-07	5.06766E-06
1927	Coal power plant in D U	--	MJ	4.54449E-06	-3.49829E-07	4.89432E-06
1928	Electricity, solar/AU U	--	MJ	4.43384E-06	-3.38785E-06	7.82169E-06
1929	Natural gas, burned in power plant/LU U		MJ	4.25695E-06	-2.61384E-06	6.87079E-06
1930	Electricity, hydropower, at power plant/MK U		MJ	4.12432E-06	-2.47247E-06	6.59679E-06
1931	Electricity, oil, at power plant/AT U		MJ	3.99116E-06	-2.44063E-06	6.43179E-06
1932	Electricity nuclear power plant in F (PWR) U	--	MJ	3.98627E-06	-3.00214E-07	4.28649E-06
1933	Hard coal, burned in power plant/CZ U		MJ	3.88264E-06	-2.58107E-06	6.46371E-06
1934	Electricity, oil, at power plant/BE U		MJ	3.68597E-06	-2.29843E-06	5.9844E-06
1935	Electricity, hydropower, at pumped storage power plant/LU U		MJ	3.57356E-06	-2.19422E-06	5.76778E-06
1936	Electricity, oil, at power plant/DK U		MJ	3.21767E-06	-7.66433E-07	3.9841E-06
1937	Electricity, at cogen 200kWe diesel SCR, allocation exergy/CH U		MJ	2.98406E-06	-1.93697E-06	4.92103E-06
1938	Electricity mix/CS U		MJ	2.91277E-06	-1.74616E-06	4.65893E-06
1939	Electricity, high voltage, at grid/CS U		MJ	2.88393E-06	-1.72887E-06	4.61281E-06
1940	Heavy fuel oil, burned in power plant/CS U		MJ	2.71104E-06	-1.62523E-06	4.33627E-06
1941	Natural gas, burned in power plant/CENTREL U		MJ	2.64308E-06	-1.72477E-06	4.36785E-06
1942	Electricity mix I U	--	MJ	2.44988E-06	-1.82812E-07	2.63269E-06
1943	Residual oil Europe in boiler 1MW U	--	MJ	2.41321E-06	-1.03645E-07	2.51686E-06
1944	Petroleum gas in gas turbine onshore U	--	MJ	2.38405E-06	-8.76881E-08	2.47174E-06
1945	Electricity mix/GR U		MJ	2.31639E-06	-1.38864E-06	3.70503E-06
1946	Electricity, high voltage, at grid/GR U		MJ	2.29345E-06	-1.37489E-06	3.66834E-06
1947	Electricity, hydropower, at power plant/BE U		MJ	2.25944E-06	-1.40891E-06	3.66834E-06
1948	Electricity mix/PT U		MJ	2.18714E-06	-1.31278E-06	3.49991E-06
1949	Electricity, high voltage, at grid/PT U		MJ	2.16548E-06	-1.29978E-06	3.46526E-06
1950	Electricity mix/HR U		MJ	2.02E-06	-1.21096E-06	3.23096E-06
1951	Electricity, hydropower, at pumped storage power plant/CS U		MJ	2.01674E-06	-1.209E-06	3.22574E-06
1952	Light commercial vehicle operation, average/AU U	--	MJ	2.00886E-06	-1.43135E-17	2.00886E-06
1953	Electricity, high voltage, at grid/HR U		MJ	1.98039E-06	-1.18722E-06	3.16761E-06
1954	Electricity, peat, at power plant/NORDEL U		MJ	1.95866E-06	-6.78102E-09	1.96544E-06
1955	Petroleum gas in gas turbine offshore U	--	MJ	1.91775E-06	-7.02107E-08	1.98796E-06
1956	Electricity, lignite, at power plant/FR U		MJ	1.78543E-06	-1.09635E-06	2.88178E-06
1957	Heavy fuel oil, burned in power plant/SE U		MJ	1.78224E-06	-2.58083E-08	1.80805E-06
1958	Natural gas, high pressure, at consumer/SE U		MJ	1.69813E-06	-2.44839E-07	1.94297E-06
1959	Electricity, at wind power plant 2MW, offshore/OCE U		MJ	1.69356E-06	-1.01752E-06	2.71107E-06
1960	Electricity nuclear power plant in D U	--	MJ	1.68444E-06	-1.25695E-07	1.81014E-06
1961	Energy, from natural gas 2001-02 - just fuel, CO2,CH4, & N2O, energy into seperate NPI reporting facilities/AUU	--	MJ	1.67561E-06	-7.49525E-05	7.66281E-05
1962	Electricity mix E U	--	MJ	1.67076E-06	-1.24673E-07	1.79544E-06
1963	Electricity, hydropower, at pumped storage power plant/GR U		MJ	1.60381E-06	-9.61463E-07	2.56528E-06
1964	Electricity coal power plant in D U	--	MJ	1.57685E-06	-1.21384E-07	1.69824E-06
1965	Coal power plant in E U	--	MJ	1.5223E-06	-1.17185E-07	1.63948E-06
1966	Electricity, hydropower, at pumped storage power plant/PT U		MJ	1.51432E-06	-9.08938E-07	2.42326E-06
1967	Lignite, burned in power plant/PL U		MJ	1.48627E-06	-9.70787E-07	2.45706E-06
1968	Electricity lignite power plant in D U	--	MJ	1.457E-06	-1.09024E-07	1.56603E-06
1969	Pulverised lignite, at plant/DE U		MJ	1.43098E-06	-8.28002E-07	2.25898E-06
1970	Natural gas, high pressure, at consumer/HU U		MJ	1.40083E-06	-9.14128E-07	2.31496E-06
1971	Electricity, production mix PL/PL U		MJ	1.38606E-06	-9.05333E-07	2.2914E-06
1972	Electricity, hydropower, at pumped storage power plant/HR U		MJ	1.38489E-06	-8.30222E-07	2.21511E-06
1973	Electricity UCPTE hydro I	--	MJ	1.35356E-06	-7.11995E-09	1.36068E-06
1974	Infra flow through hydropower UCPTE U	-	MJ	1.33412E-06	-1.07953E-07	1.44208E-06
1975	Flow through hydropower UCPTE U	--	MJ	1.33412E-06	-1.07953E-07	1.44208E-06
1976	Energy, from black coal - just fuel, CO2, CH4 N2O2001-02, used for energy into NPI reporting facilities/AU U	--	MJ	1.31212E-06	-6.6055E-06	7.91762E-06
1977	Output gas turbine pipeline UCPTE U	--	MJ	1.27413E-06	-4.15754E-08	1.3157E-06
1978	Electricity oil I U	--	MJ	1.22327E-06	-9.17747E-08	1.31504E-06
1979	Electricity nuclear PWR D U	--	MJ	1.21343E-06	-9.13856E-08	1.30482E-06
1980	Light commercial vehicle operation, petroL/AU U	--	MJ	1.20799E-06	-8.60712E-18	1.20799E-06
1981	Electricity, industrial gas, at power plant/AT U		MJ	1.1575E-06	-7.07825E-07	1.86533E-06
1982	Natural gas HP user in NL U	--	MJ	1.15663E-06	-8.77352E-08	1.24436E-06
1983	Infra natural gas HP user NL U	-	MJ	1.15663E-06	-8.77352E-08	1.24436E-06
1984	Electricity, hard coal, at power plant/CZ U		MJ	1.1457E-06	-7.61626E-07	1.90732E-06
1985	Heavy fuel oil, burned in power plant/FI U		MJ	1.12604E-06	-8.20346E-09	1.13424E-06
1986	Reservoir hydro power plant in UCPTE U	--	MJ	1.09579E-06	-8.94909E-08	1.18528E-06
1987	Infra reservoir hydro power plant UCPTE U	-	MJ	1.09579E-06	-8.94909E-08	1.18528E-06
1988	Electricity, industrial gas, at power plant/NORDEL U		MJ	1.07257E-06	-4.61316E-08	1.1187E-06
1989	Electricity nuclear PWR other UCPTE U	--	MJ	1.06101E-06	-7.98437E-08	1.14086E-06
1990	Electricity, natural gas, at power plant/LU U		MJ	1.04252E-06	-6.40123E-07	1.68264E-06
1991	Natural gas HP user in D U	--	MJ	1.00419E-06	-7.58774E-08	1.08007E-06
1992	Infra natural gas HP user D U	-	MJ	1.00419E-06	-7.58774E-08	1.08007E-06
1993	Electricity, oil, at power plant/SE U		MJ	9.50527E-07	-1.37644E-08	9.64292E-07
1994	Electricity, oil, at power plant/CS U		MJ	9.12125E-07	-5.46805E-07	1.45893E-06
1995	Lignite power plant in Gr U	--	MJ	8.94604E-07	-6.69516E-08	9.61555E-07
1996	Output gas turbine NL U	--	MJ	8.94255E-07	-2.93208E-08	9.23576E-07
1997	Coal power plant in F U	--	MJ	8.78135E-07	-6.69879E-08	9.45122E-07
1998	Electricity mix NL U	--	MJ	8.54354E-07	-6.37522E-08	9.18106E-07
1999	Electricity, natural gas, at power plant/CENTREL U		MJ	8.20265E-07	-5.35274E-07	1.35554E-06
2000	Electricity mix B U	--	MJ	8.00556E-07	-5.97378E-08	8.60294E-07
2001	Electricity, production mix HU/HU U		MJ	7.79649E-07	-4.68106E-07	1.24775E-06
2002	Lignite, burned in power plant/HU U		MJ	7.62991E-07	-4.5812E-07	1.22111E-06
2003	Electricity hydropower in F U	--	MJ	7.4376E-07	-5.55023E-08	7.99262E-07

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2004	Infra electricity HV use UCPTE U	-	MJ	7.412E-07	-5.01505E-07	1.2427E-06
2005	Natural gas HP user in I U	--	MJ	7.38083E-07	-5.59803E-08	7.94064E-07
2006	Infra natural gas HP user I U	-	MJ	7.38083E-07	-5.59803E-08	7.94064E-07
2007	Electricity, hydropower, at pumped storage power plant/NO U		MJ	7.2538E-07	-2.098E-07	9.35179E-07
2008	Infra electricity LV use UCPTE U	-	MJ	7.24327E-07	-4.05139E-08	7.64841E-07
2009	Electricity LV use UCPTE U	--	MJ	7.24327E-07	-4.05139E-08	7.64841E-07
2010	Coal power plant in NL U	--	MJ	7.17233E-07	-5.52995E-08	7.72532E-07
2011	Coal power plant in I U	--	MJ	7.16894E-07	-5.48811E-08	7.71776E-07
2012	Electricity mix CH U	--	MJ	6.95793E-07	-5.64477E-08	7.5224E-07
2013	Electricity, oil, at power plant/FI U		MJ	6.94132E-07	-5.05693E-09	6.99189E-07
2014	Infra industrial coal furnace 1-10MW U	-	MJ	6.88094E-07	-1.87323E-07	8.75418E-07
2015	Industrial coal furnace 1-10MW U	--	MJ	6.88094E-07	-1.87323E-07	8.75418E-07
2016	Natural gas, high pressure, at consumer/SK U		MJ	6.872E-07	-4.4844E-07	1.13564E-06
2017	Fuel oil lowS in boiler 1MW U	--	MJ	6.60646E-07	-2.54839E-07	9.15485E-07
2018	Electricity, photovoltaic, at 3kWp slanted-roof , mc-Si, panel, mounted/CH U		MJ	6.56109E-07	-4.05535E-07	1.06164E-06
2019	Output Gasmotor N U	--	MJ	6.55645E-07	-2.13736E-08	6.77019E-07
2020	Output gas turbine N U	--	MJ	6.33641E-07	-2.06562E-08	6.54297E-07
2021	Electricity, hydropower, at power plant/LU U		MJ	5.79797E-07	-3.56004E-07	9.35801E-07
2022	Electricity mix A U	--	MJ	5.76336E-07	-4.30069E-08	6.19343E-07
2023	Electricity, hydropower, at power plant/NL U		MJ	5.68589E-07	-3.40067E-07	9.08656E-07
2024	Light commercial vehicle operation, diesel/AU U	--	MJ	5.6658E-07	-4.03698E-18	5.6658E-07
2025	Electricity coal power plant in E U	--	MJ	5.61733E-07	-4.32419E-08	6.04975E-07
2026	Natural gas, high pressure, at consumer/CZ U		MJ	5.55046E-07	-3.62202E-07	9.17248E-07
2027	Output Gasmotor NL U	--	MJ	5.54706E-07	-1.81257E-08	5.72832E-07
2028	Coal power plant in B U	--	MJ	5.42032E-07	-4.17298E-08	5.83762E-07
2029	Electricity gas power plant in W-D U	--	MJ	5.28521E-07	-3.99355E-08	5.68456E-07
2030	Electricity, production mix CENTREL/CENTREL U		MJ	5.19514E-07	-3.06377E-07	8.25891E-07
2031	Electricity, lignite, at power plant/PL U		MJ	5.19474E-07	-3.39304E-07	8.58778E-07
2032	Electricity hydropower in I U	--	MJ	5.11599E-07	-3.81758E-08	5.49775E-07
2033	Electricity gas power plant in NL U	--	MJ	4.94285E-07	-3.74937E-08	5.31779E-07
2034	Electricity HV use in UCPTE U	--	MJ	4.83888E-07	-4.82304E-07	9.66191E-07
2035	Electricity nuclear BWR D U	--	MJ	4.71882E-07	-3.5529E-08	5.07411E-07
2036	Heavy fuel oil, burned in power plant/SI U		MJ	4.69057E-07	-2.81195E-07	7.50252E-07
2037	Electricity gas power plant in I U	--	MJ	4.67141E-07	-3.54306E-08	5.02572E-07
2038	Lignite power plant in E U	--	MJ	4.53728E-07	-3.39415E-08	4.8767E-07
2039	Wood chips, from industry, hardwood, burned in furnace 50kW/CH U		MJ	4.33491E-07	-2.62745E-07	6.96236E-07
2040	Electricity hydropower in CH U	--	MJ	4.24455E-07	-3.44348E-08	4.5889E-07
2041	Output gas turbine D U	--	MJ	4.0228E-07	-1.3201E-08	4.15481E-07
2042	Output Gasmotor D U	--	MJ	3.99532E-07	-1.30252E-08	4.12557E-07
2043	Electricity hydropower in A U	--	MJ	3.95051E-07	-2.94792E-08	4.2453E-07
2044	Electricity mix Gr U	--	MJ	3.8972E-07	-2.90811E-08	4.18801E-07
2045	Electricity, hydropower, at power plant/CZ U		MJ	3.89045E-07	-2.58625E-07	6.4767E-07
2046	Electricity, at wind power plant/CH U		MJ	3.58641E-07	-2.20882E-07	5.79523E-07
2047	Heavy fuel oil, burned in power plant/CZ U		MJ	3.51044E-07	-2.32575E-07	5.83619E-07
2048	Electricity mix P U	--	MJ	3.34256E-07	-2.49423E-08	3.59198E-07
2049	Coal power plant in P U	--	MJ	3.10262E-07	-2.3966E-08	3.34228E-07
2050	Electricity coal power plant in F U	--	MJ	3.05544E-07	-2.33083E-08	3.28853E-07
2051	Output gas turbine Alg. U	--	MJ	2.81814E-07	-9.20041E-09	2.91014E-07
2052	Electricity lignite power plant in Gr U	--	MJ	2.78259E-07	-2.08248E-08	2.99084E-07
2053	Electricity coal power plant in NL U	--	MJ	2.74697E-07	-2.11794E-08	2.95876E-07
2054	Electricity nuclear power plant in CH U	--	MJ	2.66352E-07	-2.16084E-08	2.87961E-07
2055	Electricity hydropower in E U	--	MJ	2.65267E-07	-1.97943E-08	2.85061E-07
2056	Electricity coal power plant in I U	--	MJ	2.62406E-07	-2.00883E-08	2.82495E-07
2057	Heavy fuel oil, burned in power plant/HU U		MJ	2.6161E-07	-1.57078E-07	4.18688E-07
2058	Electricity, medium voltage, at grid/IT U		MJ	2.48287E-07	-1.48936E-07	3.97223E-07
2059	Reservoir hydro power plant in CH U	--	MJ	2.41515E-07	-1.95934E-08	2.61109E-07
2060	Infra reservoir hydro power plant CH U	-	MJ	2.41515E-07	-1.95934E-08	2.61109E-07
2061	Light commercial vehicle operation, LPG/AU U	--	MJ	2.34292E-07	-1.66937E-18	2.34292E-07
2062	Electricity mix Ex-Ju U	--	MJ	2.23055E-07	-1.66444E-08	2.39699E-07
2063	Natural gas HP user in B U	--	MJ	2.20356E-07	-1.66751E-08	2.37031E-07
2064	Infra natural gas HP user B U	-	MJ	2.20356E-07	-1.66751E-08	2.37031E-07
2065	Electricity hydropower in W-D U	--	MJ	2.1826E-07	-1.62868E-08	2.34547E-07
2066	Electricity, lignite, at power plant/HU U		MJ	2.12928E-07	-1.27847E-07	3.40775E-07
2067	Refinery Processing 00-01/AU U	--	MJ	2.07937E-07	-9.91199E-07	1.19914E-06
2068	Electricity, at wind power plant 600kW/CH U		MJ	2.05501E-07	-1.26565E-07	3.32067E-07
2069	Electricity coal power plant in B U	--	MJ	1.95116E-07	-1.50215E-08	2.10138E-07
2070	Electricity, oil, at power plant/SI U		MJ	1.87623E-07	-1.12478E-07	3.00101E-07
2071	Infra flow through hydropower CH U	--	MJ	1.8294E-07	-1.48414E-08	1.97782E-07
2072	Flow through hydropower CH U	--	MJ	1.8294E-07	-1.48414E-08	1.97782E-07
2073	Infra pumping storage hydropower UCPTE U	-	MJ	1.79938E-07	-1.34273E-08	1.93366E-07
2074	Electricity, industrial gas, at power plant/CENTREL U		MJ	1.79012E-07	-1.18613E-07	2.97625E-07
2075	Electricity, high voltage, production CENTREL, at grid/CENTREL U		MJ	1.77842E-07	-1.10631E-07	2.88473E-07
2076	Electricity mix/CZ U		MJ	1.77347E-07	-1.17893E-07	2.9524E-07
2077	Electricity, medium voltage, production CENTREL, at grid/CENTREL U		MJ	1.76081E-07	-1.09536E-07	2.85617E-07
2078	Electricity, high voltage, at grid/CZ U		MJ	1.75591E-07	-1.16726E-07	2.92316E-07
2079	Lignite power plant in Ex-Ju U	--	MJ	1.63208E-07	-1.22115E-08	1.75419E-07
2080	Electricity nuclear PWR CH U	--	MJ	1.46557E-07	-1.19731E-08	1.5853E-07
2081	Electricity, at wind power plant 800kW/CH U		MJ	1.42381E-07	-8.76901E-08	2.30071E-07
2082	Electricity lignite power plant in E U	--	MJ	1.37037E-07	-1.02511E-08	1.47288E-07
2083	Electricity, production mix photovoltaic, at plant/CH U		MJ	1.35208E-07	-8.77578E-08	2.22966E-07
2084	Electricity nuclear BWR other UCPTE U	--	MJ	1.28092E-07	-9.63276E-09	1.37725E-07
2085	Electricity, hydropower, at pumped storage power plant/CZ U		MJ	1.22689E-07	-8.15604E-08	2.0425E-07
2086	Electricity nuclear BWR CH U	--	MJ	1.19915E-07	-9.80247E-09	1.29717E-07
2087	Electricity coal power plant in P U	--	MJ	1.15425E-07	-8.91592E-09	1.24341E-07
2088	Electricity oil P U	--	MJ	1.14748E-07	-8.59905E-09	1.23347E-07
2089	Electricity oil W-D U	--	MJ	1.11978E-07	-8.39063E-09	1.20369E-07
2090	Electricity gas power plant in B U	--	MJ	1.11856E-07	-8.46453E-09	1.2032E-07
2091	Coal power plant in A U	--	MJ	1.00145E-07	-7.6505E-09	1.07796E-07
2092	Electricity hydropower in P U	--	MJ	9.7849E-08	-7.30153E-09	1.05151E-07
2093	Electricity gas power plant in F U	--	MJ	9.77117E-08	-7.34051E-09	1.05052E-07
2094	Electricity, oil, at power plant/HU U		MJ	9.74945E-08	-5.85383E-08	1.56033E-07
2095	Electricity, oil, at power plant/CZ U		MJ	9.57393E-08	-6.34296E-08	1.59169E-07
2096	Electricity oil E U	--	MJ	9.29588E-08	-6.96612E-09	9.9925E-08
2097	Lignite power plant in F U	--	MJ	9.04252E-08	-6.76494E-09	9.71902E-08
2098	Electricity hydropower in Ex-Ju U	--	MJ	8.66635E-08	-6.46686E-09	9.31303E-08
2099	Electricity oil Gr U	--	MJ	8.3345E-08	-6.25277E-09	8.95977E-08
2100	Electricity oil F U	--	MJ	8.20912E-08	-6.14223E-09	8.82334E-08
2101	Output gasmotor TJin U	--	MJ	7.95628E-08	-2.59617E-09	8.2159E-08
2102	Electricity mix F + imports U	--	MJ	7.35865E-08	-5.49132E-09	7.90778E-08
2103	Electricity HV use in F + imports U	--	MJ	7.31476E-08	-5.45857E-09	7.86062E-08
2104	Natural gas HP user in F U	--	MJ	6.96684E-08	-5.23378E-09	7.49022E-08
2105	Infra natural gas HP user F U	-	MJ	6.96684E-08	-5.23378E-09	7.49022E-08
2106	Electricity hydropower in UCPTE U	--	MJ	6.16182E-08	-2.07178E-08	8.2336E-08
2107	Electricity, production mix SK/SK U		MJ	5.96249E-08	-3.5387E-08	9.50119E-08
2108	Electricity mix W-D + imports U	--	MJ	5.6369E-08	-4.20632E-09	6.05754E-08
2109	Lignite power plant in A U	--	MJ	5.63143E-08	-4.2092E-09	6.05235E-08

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
2110	Electricity HV use in W-D + imports U	--	MJ	5.60328E-08	-4.18123E-09	6.02141E-08
2111	Electricity mix I + imports U	--	MJ	5.38727E-08	-4.02002E-09	5.78927E-08
2112	Electricity HV use in I + imports U	--	MJ	5.35514E-08	-3.99604E-09	5.75474E-08
2113	Pumping storage hydropower F U	--	MJ	5.11522E-08	-3.81718E-09	5.49694E-08
2114	Natural gas, burned in combined cycle plant, best technology/RER U		MJ	4.74325E-08	-2.95985E-08	7.7031E-08
2115	Electricity lignite power plant in Ex-Ju U	--	MJ	4.40626E-08	-3.29684E-09	4.73594E-08
2116	Electricity coal power plant UCPTE U	--	MJ	4.29586E-08	-1.07777E-08	5.37363E-08
2117	Lignite briquettes, at plant/DE U		MJ	3.95084E-08	-2.38214E-08	6.33298E-08
2118	Pumping storage hydropower W-D U	--	MJ	3.91838E-08	-2.92394E-09	4.21077E-08
2119	Pumping storage hydropower I U	--	MJ	3.74485E-08	-2.79443E-09	4.0243E-08
2120	Electricity coal power plant in A U	--	MJ	3.71596E-08	-2.83877E-09	3.99984E-08
2121	Electricity oil NL U	--	MJ	3.50392E-08	-2.62877E-09	3.7668E-08
2122	Electricity mix/PL U		MJ	3.00528E-08	-1.96296E-08	4.96824E-08
2123	Electricity, high voltage, at grid/PL U		MJ	2.97553E-08	-1.94352E-08	4.91905E-08
2124	Electricity oil A U	--	MJ	2.90732E-08	-2.1789E-09	3.12521E-08
2125	Electricity oil Ex-Ju U	--	MJ	2.80698E-08	-2.10182E-09	3.01716E-08
2126	Electricity hydropower in Gr U	--	MJ	2.75078E-08	-2.05264E-09	2.95604E-08
2127	Electricity, natural gas, at combined cycle plant, best technology/RER U		MJ	2.72775E-08	-1.70215E-08	4.4299E-08
2128	Electricity lignite power plant in F U	--	MJ	2.56817E-08	-1.92131E-09	2.7603E-08
2129	Electricity, hydropower, at power plant/DK U		MJ	2.52242E-08	-6.00829E-09	3.12325E-08
2130	Fuel oil lowS boiler 100kW U	--	MJ	2.49623E-08	-1.01974E-09	2.59821E-08
2131	Electricity mix for aluminium U	--	MJ	2.34137E-08	-3.27894E-08	5.62031E-08
2132	Electricity MV use in aluminium industry U		MJ	2.29997E-08	-3.22096E-08	5.52094E-08
2133	Wood chips, from industry, hardwood, burned in furnace 300kW/CH U		MJ	2.22697E-08	-5.61174E-09	2.78814E-08
2134	Electricity, hydropower, at power plant/PL U		MJ	2.17992E-08	-1.42385E-08	3.60377E-08
2135	Electricity, hydropower, at pumped storage power plant/PL U		MJ	2.08079E-08	-1.35911E-08	3.4399E-08
2136	Electricity mix A + imports U	--	MJ	2.0488E-08	-1.52884E-09	2.20168E-08
2137	Electricity HV use in A + imports U	--	MJ	2.03658E-08	-1.51972E-09	2.18855E-08
2138	Energy, from wood waste, low population area/AU U	--	MJ	1.9957E-08	-1.62762E-08	3.62332E-08
2139	Electricity lignite power plant in A U	--	MJ	1.95944E-08	-1.46458E-09	2.1059E-08
2140	Electricity mix E + imports U	--	MJ	1.94521E-08	-1.45152E-09	2.09036E-08
2141	Electricity HV use in E + imports U	--	MJ	1.93361E-08	-1.44286E-09	2.07789E-08
2142	Electricity mix L U	--	MJ	1.86258E-08	-1.38986E-09	2.00156E-08
2143	Lignite, burned in power plant/SK U		MJ	1.85783E-08	-1.10289E-08	2.96072E-08
2144	Electricity hydropower in NL U	--	MJ	1.70871E-08	-1.27504E-09	1.83621E-08
2145	Hard coal, burned in power plant/SK U		MJ	1.6992E-08	-1.00872E-08	2.70792E-08
2146	New South Wales average electricity mix, high voltage/AU U	--	MJ	1.65331E-08	-1.34838E-08	3.00169E-08
2147	Electricity, high voltage, NSW average /AU U	--	MJ	1.65331E-08	-1.34838E-08	3.00169E-08
2148	Electricity, medium voltage, at grid/AT U		MJ	1.62104E-08	-9.91282E-09	2.61232E-08
2149	Wood chips, from forest, hardwood, burned in furnace 50kW/CH U		MJ	1.57628E-08	-9.26583E-09	2.50286E-08
2150	Electricity oil B U	--	MJ	1.54388E-08	-1.15813E-09	1.6597E-08
2151	Coal power plant in Ex-Ju U	--	MJ	1.42588E-08	-1.07157E-09	1.53303E-08
2152	Pumping storage hydropower A U	--	MJ	1.42418E-08	-1.06274E-09	1.53046E-08
2153	Electricity mix L + imports U	--	MJ	1.38276E-08	-1.03182E-09	1.48594E-08
2154	Electricity HV use in L + imports U	--	MJ	1.37451E-08	-1.02567E-09	1.47708E-08
2155	Infra electricity LV use CH U	-	MJ	1.35963E-08	-4.92289E-09	1.85192E-08
2156	Electricity LV use in CH U	--	MJ	1.35963E-08	-4.92289E-09	1.85192E-08
2157	Pumping storage hydropower E U	--	MJ	1.35217E-08	-1.009E-09	1.45307E-08
2158	Electricity mix B + imports U	--	MJ	1.28551E-08	-9.59251E-10	1.38143E-08
2159	Electricity HV use in B + imports U	--	MJ	1.27784E-08	-9.5353E-10	1.37319E-08
2160	Electricity gas power plant in Ex-Ju U	--	MJ	1.2225E-08	-9.32896E-10	1.31579E-08
2161	Natural gas HP user in E U	--	MJ	1.17782E-08	-8.81784E-10	1.266E-08
2162	Infra natural gas HP user E U	-	MJ	1.17782E-08	-8.81784E-10	1.266E-08
2163	Heat industrial furnace S Europe U	--	MJ	1.16895E-08	-4.88783E-10	1.21783E-08
2164	Natural gas, burned in boiler condensing modulating >100kW/RER U		MJ	1.06746E-08	-6.66108E-09	1.73357E-08
2165	Diesel in generator production U	--	MJ	9.97794E-09	-7.53753E-10	1.07317E-08
2166	Electricity gas power plant in UCPTE U	--	MJ	9.87571E-09	-2.72363E-09	1.25993E-08
2167	Electricity, hydropower, at power plant/SK U		MJ	9.7217E-09	-5.77123E-09	1.54929E-08
2168	Pumping storage hydropower L U	--	MJ	9.61198E-09	-7.1725E-10	1.03292E-08
2169	Electricity mix CH + imports U	--	MJ	9.07385E-09	-7.36135E-10	9.80999E-09
2170	Infra electricity HV use CH U	-	MJ	9.0198E-09	-7.31748E-10	9.75155E-09
2171	Electricity HV use in CH + imports U	--	MJ	9.01973E-09	-7.31745E-10	9.75148E-09
2172	Pumping storage hydropower B U	--	MJ	8.93595E-09	-6.66804E-10	9.60275E-09
2173	Electricity gas power plant in L U	--	MJ	8.5891E-09	-6.41966E-10	9.23106E-09
2174	Electricity oil CH U	--	MJ	8.40247E-09	-6.83299E-10	9.08577E-09
2175	Wood chip furnace 300kW U	--	MJ	8.34168E-09	-9.79843E-09	1.81401E-08
2176	Electricity, at wind power plant Grenchenberg 150kW/CH U		MJ	8.24875E-09	-5.08028E-09	1.3329E-08
2177	Infra electricity MV use CH U	-	MJ	7.36447E-09	-6.27802E-10	7.99227E-09
2178	Electricity MV use in CH U	--	MJ	7.36447E-09	-6.27802E-10	7.99227E-09
2179	Electricity gas power plant in E U	--	MJ	6.76911E-09	-5.06772E-10	7.27588E-09
2180	Heat, light fuel oil, at boiler 100kW, non-modulating/CH U		MJ	6.76643E-09	-1.50974E-09	8.27617E-09
2181	Electricity, hard coal, at power plant/SK U		MJ	6.52144E-09	-3.87141E-09	1.03929E-08
2182	Pumping storage hydropower CH U	--	MJ	6.3075E-09	-5.1171E-10	6.81921E-09
2183	Infra pumping storage hydropower CH U	-	MJ	6.3075E-09	-5.1171E-10	6.81921E-09
2184	Natural gas, burned in boiler atm. low-NOx condensing non-modulating <100kW/RER U		MJ	6.2596E-09	-3.60322E-09	9.86282E-09
2185	Energy Australia I	--	MJ	5.04876E-09	-8.59349E-21	5.04876E-09
2186	Electricity, lignite, at power plant/SK U		MJ	4.28729E-09	-2.54513E-09	6.83242E-09
2187	Electricity coal power plant in Ex-Ju U	--	MJ	4.27805E-09	-3.21502E-10	4.59956E-09
2188	Electricity, hydropower, at power plant/HU U		MJ	4.20396E-09	-2.52417E-09	6.72813E-09
2189	Electricity hydropower in B U	--	MJ	4.05291E-09	-3.0243E-10	4.35534E-09
2190	Electricity nuclear power plant UCPTE U	--	MJ	3.51206E-09	-4.91841E-09	8.43047E-09
2191	Electricity mix/DK U		MJ	3.43486E-09	-4.95244E-10	3.93011E-09
2192	Electricity, high voltage, at grid/DK U		MJ	3.40085E-09	-4.9034E-10	3.89119E-09
2193	Electricity mix P + imports U	--	MJ	3.39676E-09	-2.53468E-10	3.65023E-09
2194	Electricity mix Gr + imports U	--	MJ	3.39315E-09	-2.53198E-10	3.64635E-09
2195	Electricity HV use in P + imports U	--	MJ	3.3765E-09	-2.51956E-10	3.62846E-09
2196	Electricity HV use in Gr + imports U	--	MJ	3.37291E-09	-2.51688E-10	3.6246E-09
2197	Electricity, medium voltage, at grid/DK U		MJ	3.36718E-09	-4.85486E-10	3.85267E-09
2198	Lignite briquette, burned in stove 5-15kW/RER U		MJ	3.31563E-09	-1.98963E-09	5.30526E-09
2199	Electricity mix/FI U		MJ	3.2536E-09	-4.69109E-10	3.72271E-09
2200	Electricity, high voltage, at grid/FI U		MJ	3.22138E-09	-4.64464E-10	3.68585E-09
2201	coke oven gas/AU U		MJ	3.20812E-09	-1.61504E-08	1.93585E-08
2202	Electricity, medium voltage, at grid/FI U		MJ	3.18949E-09	-4.59866E-10	3.64936E-09
2203	Electricity nuclear PWR UCPTE U	--	MJ	3.16085E-09	-4.42657E-09	7.58742E-09
2204	Electricity lignite power plant in UCPTE U	--	MJ	2.66761E-09	-6.02607E-10	3.27022E-09
2205	Fuel oil lowS in boiler 10kW U	--	MJ	2.59303E-09	-1.28387E-10	2.72142E-09
2206	Electricity, at wind power plant Simplon 30kW/CH U		MJ	2.51049E-09	-1.54617E-09	4.05666E-09
2207	Pumping storage hydropower P U	--	MJ	2.36119E-09	-1.76193E-10	2.53738E-09
2208	Pumping storage hydropower Gr U	--	MJ	2.35868E-09	-1.76006E-10	2.53469E-09
2209	Average electricity to pulp and paper production/AU U		MJ	2.11191E-09	-1.7224E-09	3.83431E-09
2210	Electricity mix Ex-Ju + imports U	--	MJ	1.61486E-09	-1.20502E-10	1.73537E-09
2211	Electricity HV use in Ex-Ju + imports U	--	MJ	1.60523E-09	-1.19783E-10	1.72502E-09
2212	Diesel used in industrial machinery, low population area /AU U		MJ	1.55449E-09	-1.26779E-09	2.82228E-09
2213	Electricity hydropower in L U	--	MJ	1.19571E-09	-8.92245E-11	1.28494E-09
2214	Steam natural gas (cogeneration)(2001-02)/AU U	--	MJ	1.15442E-09	-9.41504E-10	2.09592E-09
2215	Pumping storage hydropower Ex-Ju U	--	MJ	1.12254E-09	-8.37643E-11	1.2063E-09

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
2216	Heavy fuel oil, burned in power plant/SK U		MJ	1.09776E-09	-6.51679E-10	1.74944E-09
2217	Electricity mix/SK U		MJ	9.25021E-10	-5.59957E-10	1.48498E-09
2218	Electricity oil L U	--	MJ	9.21264E-10	-6.89301E-11	9.90194E-10
2219	Electricity, high voltage, at grid/SK U		MJ	9.15862E-10	-5.54413E-10	1.47028E-09
2220	Heat, natural gas, at boiler atm. low-NOx condensing non-modulating <100kW/RER U		MJ	7.08552E-10	-1.27055E-21	7.08552E-10
2221	Western Australian average electricity mix, high voltage/AU U	--	MJ	5.58814E-10	-4.55766E-10	1.01458E-09
2222	Electricity, high voltage, Western Australian average/AU U	--	MJ	5.58814E-10	-4.55766E-10	1.01458E-09
2223	Electricity oil UCPTE U	--	MJ	5.15102E-10	-7.21367E-10	1.23647E-09
2224	Electricity, hydropower, at pumped storage power plant/SK U		MJ	5.13259E-10	-3.04693E-10	8.17952E-10
2225	Electricity mix/SE U		MJ	4.04101E-10	-5.8264E-11	4.62365E-10
2226	Electricity, high voltage, at grid/SE U		MJ	4.001E-10	-5.76871E-11	4.57788E-10
2227	Electricity mix/HU U		MJ	3.96401E-10	-2.58676E-10	6.55076E-10
2228	Electricity, medium voltage, at grid/SE U		MJ	3.96139E-10	-5.71159E-11	4.53255E-10
2229	Electricity, high voltage, at grid/HU U		MJ	3.92476E-10	-2.56115E-10	6.4859E-10
2230	Electricity, oil, at power plant/SK U		MJ	3.91281E-10	-2.32281E-10	6.23562E-10
2231	Electricity, medium voltage, at grid/HU U		MJ	3.8478E-10	-2.51093E-10	6.35873E-10
2232	Electricity nuclear BWR UCPTE U	--	MJ	3.51206E-10	-4.91841E-10	8.43047E-10
2233	Electricity, medium voltage, at grid/SK U		MJ	1.80101E-10	-1.17527E-10	2.97629E-10
2234	Electricity, medium voltage, at grid/CZ U		MJ	1.43269E-10	-9.34915E-11	2.3676E-10
2235	Natural gas furnace lowNOx >100KW Europe U	--	MJ	7.96291E-11	-4.30407E-12	8.39332E-11
2236	Light fuel oil, burned in boiler 100kW condensing, non-modulating/CH U		MJ	7.46344E-11	-3.90202E-11	1.13655E-10
2237	Heat, light fuel oil, at boiler 100kW condensing, non-modulating/CH U		MJ	7.46344E-11	-3.90202E-11	1.13655E-10
2238	Queensland average electricity mix, high voltage/AU U	--	MJ	6.66512E-11	-5.43599E-11	1.21011E-10
2239	Electricity, high voltage, Queensland averageAU U	--	MJ	6.66512E-11	-5.43599E-11	1.21011E-10
2240	Natural gas, burned in gas turbine/DE U		MJ	1.2826E-11	-2.92472E-12	1.57507E-11
2241	Natural gas HP user in CH U	--	MJ	5.13639E-12	-1.57712E-11	2.09075E-11
2242	Infra natural gas HP user CH U	-	MJ	5.13629E-12	-1.57712E-11	2.09075E-11
2243	Natural gas boiler blast burner <100KW U	--	MJ	5.0938E-12	-1.56406E-11	2.07344E-11
2244	Infra boiler U	-	MJ	5.0938E-12	-1.56406E-11	2.07344E-11
2245	Infra natural gas LP user CH U	-	MJ	5.0938E-12	-1.56406E-11	2.07344E-11
2246	Natural gas LP user CH U	--	MJ	5.0938E-12	-1.56406E-11	2.07344E-11
2247	Electricity HV use in CH U	--	MJ	7.14303E-14	-3.20087E-15	7.46312E-14
2248	Heat industrial furnace lowNOx >100KW U	--	MJ	6.4155E-14	-2.87486E-15	6.70299E-14
2249	Heat industrial furnace lowS CH U	--	MJ	1.10452E-14	-4.9495E-16	1.15402E-14
2250	Heat industrial coal furnace 1-10MW U	--	MJ	1.10452E-14	-4.9495E-16	1.15402E-14
2251	Output gas turbine CH U	--	MJ	1.02727E-14	-3.15423E-14	4.1815E-14
2252	Energy Africa I	--	MJ	-9.59222E-08	-9.97329E-08	3.81074E-09
2253	Energy from LPG 2001-02- just fuel, CO2, CH4 & N2O, energy into seperate NPI reporting facilities/AU U	--	MJ	-5.84259E-07	-5.8644E-07	2.18156E-09
2254	Energy, from fuel oil 2001-02 - just fuel, CO2,CH4, & N2O, energy into seperate NPI reporting facilities/AU U	--	MJ	-1.81597E-06	-1.68349E-05	1.50189E-05
2255	Electriciy, wind power/AU U	--	MJ	-3.48252E-06	-0.000292356	0.000288874
2256	Energy, from natural gas, low population area/AU U	-	MJ	-4.70953E-06	-6.97302E-06	2.26349E-06
2257	Oil & Gas Production Energy 00-01/AU U	--	MJ	-4.74411E-06	-7.02421E-06	2.2801E-06
2258	Infra coal cokes U	-	MJ	-1.58246E-05	-3.82471E-05	2.24225E-05
2259	Coal cokes U	--	MJ	-1.58246E-05	-3.82471E-05	2.24225E-05
2260	Tasmanian average electricity mix, high voltage/AU U	--	MJ	-2.30319E-05	-2.45562E-05	1.52429E-06
2261	Electricity, high voltage, Tasmania average/AU U	--	MJ	-2.30319E-05	-2.45562E-05	1.52429E-06
2262	Electrictiy wastewater gas AU sent out/AU U	--	MJ	-3.57721E-05	-0.000234511	0.000198739
2263	Infra fuel gas power plant U	-	MJ	-0.000132712	-0.000134677	1.96445E-06
2264	Electricity gas power plant in A U	--	MJ	-0.000134439	-0.000134546	1.06601E-07
2265	Articulated truck operation, low population area AU	--	MJ	-0.000241436	0.000196907	-0.000438343
2266	Electricity mix for aluminium smelting/AU U	--	MJ	-0.000267282	-0.000284971	1.76891E-05
2267	Electrictiy waste, sent out/AU U	--	MJ	-0.00032385	-0.001012558	0.000688707
2268	Credit for electricity production/AU U		MJ	-0.000387048	0.000315662	-0.00070271
2269	Energy Asia I	--	MJ	-0.00052677	-0.000527339	5.69439E-07
2270	Energy US I	--	MJ	-0.00060402	-0.000604802	7.82171E-07
2271	Energy, from natural gas/AU U	-	MJ	-0.000947593	0.000570785	-0.001518378
2272	Energy, from woodwaste and black liquors, based on visy tumut data/AU U		MJ	-0.049236303	0.040155393	-0.089391696
2273	Electrictiy brown coal Victoria, sent out/AU U	--	MJ	-0.063659118	-0.127611028	0.06395191
2274	Victorian average electricity mix, high voltage/AU U	--	MJ	-0.10354148	-0.103547463	5.98295E-06
2275	Electricity, high voltage, Victoria average/AU U	--	MJ	-0.10354148	-0.103547463	5.98295E-06
2276	NPI Emissions from Pt Kembla Steelworks 2002-03 (1 kg production)/AU U	--	n	2.93031E-06	-1.47518E-05	1.76821E-05
2277	Application of plant protection products, by field sprayer/CH U		m2	0.00438063	-0.002624417	0.007005046
2278	Fertilising, by broadcaster/CH U		m2	0.002570542	-0.00155086	0.004121401
2279	Tillage, hoeing and earthing-up, potatoes/CH U		m2	0.001268776	-0.000757095	0.00202587
2280	Tillage, harrowing, by rotary harrow/CH U		m2	0.001268776	-0.000757095	0.00202587
2281	Tillage, harrowing, by spring tine harrow/CH U		m2	0.000769717	-0.000484684	0.001254401
2282	Sowing/CH U		m2	0.000723268	-0.000448474	0.001171742
2283	Tillage, ploughing/CH U		m2	0.000680709	-0.000414657	0.001095366
2284	Mulching/CH U		m2	0.000676947	-0.000412365	0.001089311
2285	Green manure IP, until march/CH U		m2	0.000675684	-0.000411361	0.001087045
2286	Tillage, currying, by weeder/CH U		m2	0.000635651	-0.000379551	0.001015201
2287	Potato planting/CH U		m2	0.000634388	-0.000378547	0.001012935
2288	Potato haulm cutting/CH U		m2	0.000634388	-0.000378547	0.001012935
2289	Harvesting, by complete harvester, potatoes/CH U		m2	0.000634388	-0.000378547	0.001012935
2290	Combine harvesting/CH U		m2	4.63214E-05	-3.61096E-05	8.2431E-05
2291	Green manure IP, until January/CH U		m2	1.26269E-06	-1.00335E-06	2.26604E-06
2292	Zinc coating, coils/RER U		m2	5.4307E-07	-2.99757E-07	8.42827E-07
2293	Recultivation, limestone mine/CH U		m2	1.22576E-07	-7.66192E-08	1.99195E-07
2294	Building, hall, steel construction/CH/I U		m2	1.0013E-07	-5.52692E-08	1.55399E-07
2295	Shed/CH/I U		m2	1.77844E-08	-1.05858E-08	2.83702E-08
2296	Recultivation, bauxite mine/GLO U		m2	8.26593E-09	-3.26379E-09	1.15297E-08
2297	Building, hall/CH/I U		m2	5.23644E-09	-2.88787E-09	8.12431E-09
2298	Building, hall, wood construction/CH/I U		m2	1.57093E-09	-8.6636E-10	2.43729E-09
2299	Zinc coating, pieces/RER U		m2	5.42555E-10	-3.22949E-10	8.65505E-10
2300	Recultivation, iron mine/GLO U		m2	4.54226E-10	-2.93101E-10	7.47328E-10
2301	Pine plantation, mass allocation/AU U	--	m2	3.54321E-10	-2.88972E-10	6.43292E-10
2302	Green manure IP, until April/CH U		m2	3.16124E-10	-1.96071E-10	5.12195E-10
2303	Hoeing/CH U		m2	3.13496E-10	-1.94441E-10	5.07937E-10
2304	Recultivation, bentonite mine/DE U		m2	2.9991E-11	-1.89014E-11	4.88924E-11
2305	Mowing, by rotary mower/CH U		m2	1.57825E-11	-9.78885E-12	2.55713E-11
2306	Zinc coating, pieces, adjustment per um/RER U		m2	2.63166E-12	-1.6208E-12	4.25246E-12
2307	Electricity to produce 1 paper bill		p	1	x	1
2308	Infra oceanic freighter U	-	p	2.82318E-05	-1.16931E-06	2.94011E-05
2309	Infra oceanic tanker U	-	p	2.45512E-05	-8.9919E-07	2.54504E-05
2310	Infra pipeline onshore U	-	p	1.04033E-05	-3.82235E-07	1.07856E-05
2311	EUR-flat pallet/RER U		p	3.62495E-06	-2.99717E-08	3.65492E-06
2312	Infra pipeline offshore U	-	p	7.3945E-07	-2.70009E-08	7.66451E-07
2313	Infra freighter inland U	-	p	6.33508E-07	-2.57358E-08	6.59244E-07
2314	Infra tanker inland U	-	p	1.56025E-07	-7.07182E-09	1.63097E-07
2315	Infra refinery U	-	p	5.72831E-09	-2.10219E-10	5.93853E-09
2316	Infra transport long distance U	-	p	5.72671E-09	-2.10201E-10	5.93691E-09
2317	mc-Si wafer, at plant/RER U		p	4.98903E-09	-3.09789E-09	8.08692E-09
2318	Photovoltaic cell, mc-Si, at plant/RER U		p	4.75146E-09	-2.95037E-09	7.70183E-09
2319	Infra production oil onshore U	-	p	3.1745E-09	-1.16762E-10	3.29127E-09
2320	Infra production oil offshore U	-	p	2.55359E-09	-9.34896E-11	2.64708E-09
2321	Infra exploration U	-	p	1.92475E-09	-6.30037E-11	1.98775E-09

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
2322	Maintenance, lorry 40t/CH/I U		p	1.47551E-09	-1.01264E-09	2.48815E-09
2323	Lorry 40t/RER/I U		p	1.47551E-09	-1.01264E-09	2.48815E-09
2324	Disposal, lorry 40t/CH/I U		p	1.47551E-09	-1.01264E-09	2.48815E-09
2325	Infra regio distribution Europe U	-	p	9.52902E-10	-3.8923E-11	9.91825E-10
2326	Maintenance, goods wagon/RER/I U		p	9.49539E-10	-7.34076E-10	1.68362E-09
2327	Goods wagon/RER/I U		p	9.49539E-10	-7.34076E-10	1.68362E-09
2328	pc-Si wafer, at plant/RER U		p	6.30787E-10	-4.09416E-10	1.0402E-09
2329	Photovoltaic cell, pc-Si , at plant/RER U		p	5.78704E-10	-3.75611E-10	9.54315E-10
2330	Oil storage 3000l/CH/I U		p	3.40181E-10	-1.45077E-10	4.85259E-10
2331	Transport, helicopter, LTO cycle/GLO U		p	3.23621E-10	-1.74432E-10	4.98053E-10
2332	Australia Post Petrol		p	2.18546E-10	3.03427E-27	2.18546E-10
2333	Australia Post Natural gas		p	2.18546E-10	-8.91129E-26	2.18546E-10
2334	Australia Post Electricity		p	2.18546E-10	-9.0159E-24	2.18546E-10
2335	Australia Post Diesel		p	2.18546E-10	-3.06962E-26	2.18546E-10
2336	Industrial furnace 1MW, oil/CH/I U		p	1.87027E-10	-9.6596E-11	2.83623E-10
2337	Industrial furnace, natural gas/RER/I U		p	1.61804E-10	-8.56063E-11	2.47411E-10
2338	Building machine/RER/I U		p	1.29963E-10	-7.32084E-11	2.03171E-10
2339	Power saw, without catalytic converter/RER/I U		p	7.27412E-11	-8.97153E-12	8.17128E-11
2340	Maintenance, lorry 28t/CH/I U		p	6.86599E-11	-4.35587E-11	1.12219E-10
2341	Lorry 28t/RER/I U		p	6.86599E-11	-4.35587E-11	1.12219E-10
2342	Disposal, lorry 28t/CH/I U		p	6.86599E-11	-4.35587E-11	1.12219E-10
2343	Van <3.5t/RER/I U		p	6.48265E-11	-1.67454E-11	8.1572E-11
2344	Maintenance, van < 3.5t/RER/I U		p	6.48265E-11	-1.67454E-11	8.1572E-11
2345	Disposal, van < 3.5t/CH/I U		p	6.48265E-11	-1.67454E-11	8.1572E-11
2346	Lorry 16t/RER/I U		p	6.00289E-11	-1.04499E-12	6.10739E-11
2347	Disposal, lorry 16t/CH/I U		p	6.00289E-11	-1.04499E-12	6.10739E-11
2348	Infra uranium ore processing U	-	p	4.94488E-11	-3.73546E-12	5.31843E-11
2349	Infra conversion U	-	p	4.93994E-11	-3.73173E-12	5.31311E-11
2350	Maintenance, lorry 16t/CH/I U		p	4.74585E-11	-1.03926E-12	4.84977E-11
2351	Photovoltaic panel, mc-Si, at plant/RER/I U		p	4.19115E-11	-2.60154E-11	6.7927E-11
2352	Lorry 21t, municipal waste collection/CH/I U		p	4.19014E-11	-1.91093E-14	4.19206E-11
2353	Infra floatglass U	-	p	3.70878E-11	-2.02332E-12	3.91111E-11
2354	Infra uranium ore mining U	-	p	3.11527E-11	-2.35334E-12	3.35061E-11
2355	Infra diesel generator production U	--	p	2.75446E-11	-9.11924E-13	2.84565E-11
2356	Infra enrichment diffusion U	-	p	2.28122E-11	-1.72316E-12	2.45353E-11
2357	Infra uranium ore deep mining U	-	p	2.07685E-11	-1.56889E-12	2.23374E-11
2358	Maintenance, locomotive/RER/I U		p	1.47086E-11	-1.1371E-11	2.60795E-11
2359	Locomotive/RER/I U		p	1.47086E-11	-1.1371E-11	2.60795E-11
2360	Disposal, locomotive/RER/I U		p	1.47086E-11	-1.1371E-11	2.60795E-11
2361	Infra regio distribution CH U	-	p	1.45092E-11	-5.39855E-12	1.99078E-11
2362	Oil boiler 10kW/CH/I U		p	1.24955E-11	-7.01394E-12	1.95095E-11
2363	Passenger car/RER/I U		p	8.68047E-12	-5.34046E-12	1.40209E-11
2364	Maintenance, passenger car/RER/I U		p	8.68047E-12	-5.34046E-12	1.40209E-11
2365	Disposal, passenger car/RER/I U		p	8.68047E-12	-5.34046E-12	1.40209E-11
2366	Oil boiler 100kW/CH/I U		p	7.04869E-12	-3.21693E-12	1.02656E-11
2367	Infra enrichment centrifuge U	-	p	6.83031E-12	-5.16024E-13	7.34633E-12
2368	Infra reprocessing spent fuel U	--	p	6.66208E-12	-5.03312E-13	7.16539E-12
2369	Infra fuel element production U	-	p	6.66208E-12	-5.03312E-13	7.16539E-12
2370	Infra nuclear power plant PWR UCPTE U	-	p	6.26071E-12	-4.71444E-13	6.73216E-12
2371	Control cabinet cogen unit 160kWe/RER/I U		p	5.76288E-12	-3.03296E-12	8.79584E-12
2372	Inverse rectifier Solcon 3400, at plant/CH/I U		p	5.61156E-12	-3.5E-12	9.11156E-12
2373	Gas motor 206kW/RER/I U		p	5.3482E-12	-2.91153E-12	8.25972E-12
2374	Photovoltaic panel, pc-Si, at plant/RER/I U		p	4.71703E-12	-3.06162E-12	7.77865E-12
2375	Infra petroleum gas turbine U	-	p	4.3018E-12	-1.57899E-13	4.4597E-12
2376	Polycrystalline solar module 60W/AU U	-	p	2.80928E-12	-2.14654E-12	4.95582E-12
2377	Electric installation, photovoltaic plant, at plant/CH/I U		p	2.80578E-12	-1.75E-12	4.55578E-12
2378	Industrial furnace, coal, 1-10 MW/RER/I U		p	2.70373E-12	-2.05372E-13	2.9091E-12
2379	Amorphous solar module 60W/AU U	-	p	2.69223E-12	-2.0571E-12	4.74933E-12
2380	Furnace, wood chips, softwood, 300kW/CH/I U		p	2.47746E-12	-5.41976E-13	3.01944E-12
2381	3kWp slanted-roof installation, mc-Si, panel, mounted, on roof/CH/I U		p	2.43384E-12	-1.50859E-12	3.94244E-12
2382	Generator 200kWe/RER/I U		p	2.19672E-12	-1.18616E-12	3.38288E-12
2383	Cogen unit ORC 1400kWth, wood burning, components for electricity only/CH/I U		p	1.8621E-12	-9.73539E-13	2.83564E-12
2384	Infra power plant oil counties U	-	p	1.82067E-12	-1.36543E-13	1.95722E-12
2385	Paper machine, at paper mill/RER/I U		p	1.39464E-12	-8.82186E-13	2.27683E-12
2386	Residual material landfill facility/CH/I U		p	1.26216E-12	-2.09852E-13	1.47201E-12
2387	Wastewater treatment plant, class 5/CH/I U		p	1.16454E-12	-7.3663E-13	1.90117E-12
2388	Chopper, stationary, electric/RER/I U		p	1.13723E-12	-5.11526E-13	1.64876E-12
2389	Slanted-roof construction, mounted, on roof/CH/I U		p	1.11421E-12	-6.92678E-13	1.80689E-12
2390	Waste paper sorting plant/RER/I U		p	9.81183E-13	-4.02595E-18	9.81187E-13
2391	Plant onshore, natural gas, production/GLO/I U		p	9.18401E-13	-4.94769E-13	1.41317E-12
2392	Gas turbine, 10MWe, at production plant/RER/I U		p	8.41284E-13	-4.53967E-13	1.29525E-12
2393	Technical wood drying, infrastructure/RER/I U		p	8.33149E-13	-4.86385E-13	1.31953E-12
2394	Wind power plant 800kW, moving parts/RER/I U		p	8.22927E-13	-4.94429E-13	1.31736E-12
2395	Chemical plant, organics/RER/I U		p	8.12325E-13	-4.7674E-13	1.28907E-12
2396	Infra building equipment U	--	p	7.85295E-13	-5.81718E-14	8.43466E-13
2397	Production plant crude oil, onshore/GLO/I U		p	7.62941E-13	-4.3892E-13	1.20186E-12
2398	Hydraulic digger/RER/I U		p	7.20859E-13	-3.21361E-13	1.04222E-12
2399	Inert material landfill facility/CH/I U		p	6.78295E-13	-4.30629E-13	1.10892E-12
2400	Infra nuclear power plant BWR UCPTE U	-	p	5.99974E-13	-4.51618E-14	6.45136E-13
2401	Non-integrated paper mill/RER/I U		p	5.40831E-13	-4.41082E-13	9.81913E-13
2402	Infra saw mill to stock U	-	p	4.51285E-13	-5.30095E-13	9.8138E-13
2403	Photovoltaic laminate, pc-Si, at plant/RER/I U		p	4.27003E-13	-2.77149E-13	7.04152E-13
2404	Wind power plant 800kW, fixed parts/RER/I U		p	4.10311E-13	-2.46522E-13	6.56833E-13
2405	Photovoltaic laminate, mc-Si, at plant/RER/I U		p	3.23644E-13	-2.10063E-13	5.33707E-13
2406	Cogen unit ORC 1400kWth, wood burning, common components for heat+electricity/CH/I U		p	3.10977E-13	-1.62584E-13	4.73561E-13
2407	Assembly, generator and motor, cogen unit 160kWe/RER/I U		p	2.67461E-13	-1.69946E-13	4.37407E-13
2408	Infra skid steer loader U	--	p	2.59786E-13	-8.51742E-15	2.68304E-13
2409	Mine, limestone/CH/I U		p	2.41953E-13	-1.79837E-13	4.2179E-13
2410	Rolling mill/RER/I U		p	2.25984E-13	-1.46035E-13	3.7202E-13
2411	Electric parts of cogen unit 160kWe/RER/I U		p	2.03531E-13	-1.29842E-13	3.33373E-13
2412	Maintenance, cogen unit 160kWe/RER U		p	1.87159E-13	-1.1897E-13	3.0613E-13
2413	Catalytic converter, oxidation, 20 litre/RER/I U		p	1.76793E-13	-1.14757E-13	2.91551E-13
2414	Sound insulation cogen unit 160kWe/RER/I U		p	1.76581E-13	-1.12348E-13	2.88928E-13
2415	Planning, cogen unit 160kWe/RER/I U		p	1.76581E-13	-1.12348E-13	2.88928E-13
2416	Operation start, cogen unit 160kWe/RER/I U		p	1.76581E-13	-1.12348E-13	2.88928E-13
2417	Construction work, cogen unit 160kWe/RER/I U		p	1.76581E-13	-1.12348E-13	2.88928E-13
2418	Assembly, module cogen unit 160kWe/RER/I U		p	1.76581E-13	-1.12348E-13	2.88928E-13
2419	Supply air input/spent air output cogen unit 160kWe/RER/I U		p	1.76581E-13	-1.12348E-13	2.88928E-13
2420	3kWp slanted-roof installation, pc-Si, panel, mounted, on roof/CH/I U		p	1.63377E-13	-1.06041E-13	2.69417E-13
2421	Integrated paper mill/RER/I U		p	1.56491E-13	-1.06721E-17	1.56502E-13
2422	Flat roof construction, on roof/CH/I U		p	1.5549E-13	-1.00921E-13	2.56411E-13
2423	Infra nuclear power plant PWR U	--	p	1.46557E-13	-1.19731E-14	1.5853E-13
2424	Mine, gravel/sand/CH/I U		p	1.46536E-13	-9.59664E-14	2.42502E-13
2425	Sanitary landfill facility/CH/I U		p	1.46138E-13	-3.40042E-14	1.80142E-13
2426	Regional distribution, oil products/RER/I U		p	1.42847E-13	-8.49086E-14	2.27756E-13
2427	Maintenance, barge/RER/I U		p	1.29325E-13	-7.18621E-14	2.01187E-13

No	Process	DQI	Unit	Total	Online Bill	Paper Bill
2428	Infra nuclear power plant BWR U	-	p	1.19915E-13	-9.80247E-15	1.29717E-13
2429	Infra final storage B U	--	p	1.14172E-13	-8.62745E-15	1.22799E-13
2430	Gas power plant/AU U	--	p	1.13639E-13	-1.45263E-13	2.58902E-13
2431	Storage 10'000 l/RER/I U		p	9.35716E-14	-5.61994E-14	1.49771E-13
2432	Concrete mixing plant/CH/I U		p	9.19792E-14	-6.26532E-14	1.54632E-13
2433	Catalytic converter, SCR, 200 litre/RER/I U		p	8.83966E-14	-5.73787E-14	1.45775E-13
2434	Municipal waste incineration plant/CH/I U		p	8.60342E-14	-6.88627E-15	9.29205E-14
2435	Hyrdro power station/AU U	--	p	8.55877E-14	-1.55602E-13	2.4119E-13
2436	3kWp flat roof installation, pc-Si, on roof/CH/I U		p	8.45052E-14	-5.48486E-14	1.39354E-13
2437	Helicopter/GLO/I U		p	8.09053E-14	-4.3608E-14	1.24513E-13
2438	Diesel-electric generating set production 10MW/RER/I U		p	7.88582E-14	-4.44895E-14	1.23348E-13
2439	Cogen unit ORC 1400kWth, wood burning, building/CH/I U		p	7.77435E-14	-4.06458E-14	1.18389E-13
2440	Sawmill/RER/I U		p	7.7259E-14	-1.4798E-14	9.2057E-14
2441	Maintenance, transoceanic freight ship/RER/I U		p	7.32564E-14	-3.94532E-14	1.1271E-13
2442	3kWp flat roof installation, mc-Si, on roof/CH/I U		p	7.09844E-14	-4.60728E-14	1.17057E-13
2443	Scrap preparation plant/RER/I U		p	6.93965E-14	-4.59409E-14	1.15337E-13
2444	Cogen unit 500kWe, components for electricity only/RER/I U		p	6.76805E-14	-4.39329E-14	1.11613E-13
2445	Barge/RER/I U		p	6.59189E-14	-3.99138E-14	1.05833E-13
2446	Barge tanker/RER/I U		p	6.34057E-14	-3.19483E-14	9.5354E-14
2447	Heat exchanger of cogen unit 160kWe/RER/I U		p	5.85496E-14	-3.51651E-14	9.37147E-14
2448	Transoceanic freight ship/OCE/I U		p	5.56178E-14	-2.92866E-14	8.49044E-14
2449	Cogen unit 500kWe, common components for heat+electricity/RER/I U		p	5.5498E-14	-3.6025E-14	9.1523E-14
2450	Water storage/CH/I U		p	5.36009E-14	-2.9503E-14	8.31039E-14
2451	Pump station/CH/I U		p	5.36009E-14	-2.9503E-14	8.31039E-14
2452	Furnace, wood chips, hardwood, 50kW/CH/I U		p	4.76209E-14	-2.88331E-14	7.6454E-14
2453	Heating, sanitary equipment cogen unit 160kWe/RER/I U		p	4.68756E-14	-2.81536E-14	7.50293E-14
2454	Infra interim storage B U	--	p	4.35654E-14	-3.29338E-15	4.68588E-14
2455	Slag compartment/CH/I U		p	4.25289E-14	-4.38786E-15	4.69167E-14
2456	Cogen unit 200kWe diesel SCR, components for electricity only/RER/I U		p	4.15986E-14	-2.70019E-14	6.86005E-14
2457	Air separation plant/RER/I U		p	3.84293E-14	-2.61122E-14	6.45415E-14
2458	Cogen unit 200kWe diesel SCR, common components for heat+electricity/RER/I U		p	3.53586E-14	-2.29515E-14	5.83101E-14
2459	Planing mill/RER/I U		p	3.45656E-14	-2.02069E-14	5.47725E-14
2460	Water works/CH/I U		p	3.103E-14	-1.70796E-14	4.81096E-14
2461	Infra hydraulic digger U	--	p	2.75346E-14	-1.00185E-15	2.85364E-14
2462	Gas power plant, 100MWe/RER/I U		p	2.62831E-14	-1.63665E-14	4.26495E-14
2463	Refinery/RER/I U		p	2.31301E-14	-1.3385E-14	3.65151E-14
2464	Infra power plant oil CH U	-	p	2.24766E-14	-1.82783E-15	2.43044E-14
2465	Wastewater treatment plant, class 4/CH/I U		p	2.11414E-14	-1.0254E-14	3.13953E-14
2466	Cogen unit 1MWe, components for heat only/RER/I U		p	1.796E-14	-1.07868E-14	2.87468E-14
2467	Cogen unit 1MWe, components for electricity only/RER/I U		p	1.796E-14	-1.07868E-14	2.87468E-14
2468	Cogen unit 1MWe, common components for heat+electricity/RER/I U		p	1.796E-14	-1.07868E-14	2.87468E-14
2469	Transoceanic tanker/OCE/I U		p	1.76386E-14	-1.01666E-14	2.78052E-14
2470	Platform, crude oil, offshore/OCE/I U		p	1.7528E-14	-1.00109E-14	2.75389E-14
2471	Facade construction, integrated, on roof/CH/I U		p	1.56731E-14	-1.01727E-14	2.58459E-14
2472	Plant offshore, natural gas, production/OCE/I U		p	1.55473E-14	-8.36032E-15	2.39076E-14
2473	Coal power plant/AU U	--	p	1.5462E-14	-1.01119E-13	1.16581E-13
2474	Packaging box production unit/RER/I U		p	1.50985E-14	-9.81497E-15	2.49135E-14
2475	3kWp slanted-roof installation, pc-Si, laminated, integrated, on roof/CH/I U		p	1.34457E-14	-8.72703E-15	2.21727E-14
2476	Mine, clay/CH/I U		p	1.1702E-14	-6.7724E-15	1.84744E-14
2477	3kWp slanted-roof installation, mc-Si, laminated, integrated, on roof/CH/I U		p	1.13049E-14	-7.33753E-15	1.86424E-14
2478	Underground mine, hard coal/GLO/I U		p	1.12023E-14	-4.53294E-15	1.57353E-14
2479	Operation, maintenance, port/RER/I U		p	1.10652E-14	-6.04599E-15	1.71112E-14
2480	Slanted-roof construction, integrated, on roof/CH/I U		p	1.0618E-14	-6.89169E-15	1.75097E-14
2481	Non-ferrous metal, mine, surface/GLO/I U		p	1.06153E-14	-6.51522E-15	1.71305E-14
2482	Cement plant/CH/I U		p	1.02751E-14	-3.51677E-15	1.37918E-14
2483	3kWp facade installation, pc-Si, laminated, integrated, on roof/CH/I U		p	9.61482E-15	-6.24055E-15	1.58554E-14
2484	Facade construction, mounted, on roof/CH/I U		p	9.41719E-15	-6.11228E-15	1.55295E-14
2485	Infra final storage C U	--	p	9.32691E-15	-7.04637E-16	1.00316E-14
2486	Infra interim storage C U	--	p	9.32691E-15	-7.04636E-16	1.00316E-14
2487	Wastewater treatment plant, class 2/CH/I U		p	9.3061E-15	-5.49003E-15	1.47961E-14
2488	Infra boiler oil 1MW U	-	p	8.60681E-15	-1.00376E-15	9.61057E-15
2489	Infra furnace saw mill 300 kW U	-	p	8.34168E-15	-9.79843E-15	1.81401E-14
2490	3kWp facade installation, mc-Si, laminated, integrated, on roof/CH/I U		p	8.07494E-15	-5.24109E-15	1.3316E-14
2491	Phosphoric acid plant, fertiliser grade/US/I U		p	6.25722E-15	-4.79385E-15	1.10511E-14
2492	Aluminium oxide, plant/RER/I U		p	6.12569E-15	-3.85242E-15	9.97811E-15
2493	Hard coal power plant/RER/I U		p	5.93488E-15	-3.73518E-15	9.67006E-15
2494	Explosive production plant/CH/I U		p	5.88189E-15	-3.60805E-15	9.48995E-15
2495	3kWp facade installation, pc-Si, panel, mounted, on roof/CH/I U		p	5.78391E-15	-3.75408E-15	9.538E-15
2496	Hazardous waste incineration plant/CH/I U		p	5.76652E-15	-3.78827E-15	9.55479E-15
2497	Aluminium electrolysis, plant/RER/I U		p	5.55295E-15	-3.39642E-15	8.94938E-15
2498	Wastewater treatment plant, class 3/CH/I U		p	5.36047E-15	-1.76813E-15	7.1286E-15
2499	Rock wool plant/CH/I U		p	5.15173E-15	-2.95096E-15	8.10269E-15
2500	3kWp facade installation, mc-Si, panel, mounted, on roof/CH/I U		p	4.84497E-15	-3.14465E-15	7.98962E-15
2501	Wind power plant 2MW, offshore, fixed parts/OCE/I U		p	4.46911E-15	-2.68512E-15	7.15422E-15
2502	Wind power plant 2MW, offshore, moving parts/OCE/I U		p	4.4691E-15	-2.68512E-15	7.15422E-15
2503	Open cast mine, lignite/RER/I U		p	4.25659E-15	-2.61753E-15	6.87413E-15
2504	Gas boiler/RER/I U		p	4.13134E-15	-2.37813E-15	6.50946E-15
2505	Uranium underground mine/RNA/I U		p	3.82819E-15	-2.36035E-15	6.18854E-15
2506	Wind power plant 600kW, moving parts/CH/I U		p	3.64764E-15	-2.24653E-15	5.89418E-15
2507	Open cast mine, hard coal/GLO/I U		p	3.5586E-15	-1.59743E-15	5.15603E-15
2508	Lignite power plant/RER/I U		p	3.40113E-15	-2.09225E-15	5.49337E-15
2509	Water treatment plant, deionisation/CH/I U		p	3.22931E-15	-2.42051E-15	5.64982E-15
2510	Uranium mill/US/I U		p	2.95081E-15	-1.81938E-15	4.77019E-15
2511	Aluminium melting furnace/RER/I U		p	2.2045E-15	-1.4382E-15	3.6427E-15
2512	Electric arc furnace converter/RER/I U		p	2.12234E-15	-1.42295E-15	3.54528E-15
2513	Nuclear power plant, pressure water reactor 1000MW/FR/I U		p	2.03299E-15	-1.2479E-15	3.28089E-15
2514	Wind power plant 800kW, moving parts/CH/I U		p	2.01697E-15	-1.24227E-15	3.25924E-15
2515	Wind power plant 600kW, fixed parts/CH/I U		p	1.94086E-15	-1.19533E-15	3.13619E-15
2516	Coal stove, 5-15 kW/RER/I U		p	1.91975E-15	-1.15199E-15	3.07174E-15
2517	Interim storage, nuclear waste to dispose in final repository SF, HLW, and ILW/CH/I U		p	1.86164E-15	-1.14309E-15	3.00472E-15
2518	Sorting plant for construction waste/CH/I U		p	1.83102E-15	-8.29631E-16	2.66065E-15
2519	Oil power plant 500MW/RER/I U		p	1.79116E-15	-1.08149E-15	2.87265E-15
2520	Infra boiler oil 10kW U	-	p	1.7114E-15	-8.47352E-17	1.79614E-15
2521	Wind power plant 30kW, moving parts/CH/I U		p	1.67367E-15	-1.03077E-15	2.70443E-15
2522	Infra boiler oil 100kW U	-	p	1.64751E-15	-6.73027E-17	1.71482E-15
2523	Blast furnace/RER/I U		p	1.62415E-15	-1.03523E-15	2.65939E-15
2524	Aluminium hydroxide, plant/RER/I U		p	1.60965E-15	-9.27391E-16	2.53704E-15
2525	Blast oxygen furnace converter/RER/I U		p	1.5594E-15	-9.87713E-16	2.54711E-15
2526	Wooden board manufacturing plant, organic bonded boards/RER/I U		p	1.48103E-15	-6.32562E-17	1.54429E-15
2527	Non-ferrous metal, mine, underground/GLO/I U		p	1.3308E-15	-1.9755E-15	3.3063E-15
2528	Liquid storage tank, chemicals, organics/CH/I U		p	1.02814E-15	-7.99809E-16	1.82795E-15
2529	Wind power plant 800kW, fixed parts/CH/I U		p	1.00852E-15	-6.211E-16	1.62962E-15
2530	Wind power plant 150kW, moving parts/CH/I U		p	9.16517E-16	-5.64478E-16	1.481E-15
2531	Wind power plant 30kW, fixed parts/CH/I U		p	8.36778E-16	-5.15403E-16	1.35218E-15
2532	Preservative treatment, infrastructure/RER/I U		p	8.31035E-16	-4.58057E-16	1.28909E-15
2533	Infra power saw U	--	p	8.25207E-16	-1.37523E-15	2.20043E-15

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2534	Solar photovoltaic farm/AU U	--	p	8.1287E-16	-6.21105E-16	1.43398E-15
2535	Road vehicle plant/RER/I U		p	7.77062E-16	-4.86875E-16	1.26394E-15
2536	Final repository for nuclear waste SF, HLW, and ILW/CH/I U		p	7.64091E-16	-4.70175E-16	1.23427E-15
2537	Hard coal coke production plant/RER/I U		p	7.25369E-16	-4.64978E-16	1.19035E-15
2538	Production plant, natural gas/GLO/I U		p	7.1421E-16	-3.84437E-16	1.09865E-15
2539	Nuclear power plant, pressure water reactor 1000MW/UCTE/I U		p	6.46836E-16	-3.89671E-16	1.03651E-15
2540	Aluminium casting, plant/RER/I U		p	5.70426E-16	-3.68779E-16	9.39204E-16
2541	Uranium open pit mine/RNA/I U		p	5.66408E-16	-3.49236E-16	9.15645E-16
2542	Nuclear power plant, pressure water reactor 1000MW/DE/I U		p	5.48221E-16	-3.4079E-16	8.8901E-16
2543	Methanol plant/GLO/I U		p	5.08006E-16	-3.94122E-16	9.02128E-16
2544	Final repository for nuclear waste LLW/CH/I U		p	4.98207E-16	-3.0722E-16	8.05427E-16
2545	Flat glass plant/RER/I U		p	4.7855E-16	-2.77978E-16	7.56529E-16
2546	Interim storage, nuclear waste to dispose in final repository LLW/CH/I U		p	4.43473E-16	-2.73417E-16	7.1689E-16
2547	Furnace, wood chips, hardwood, 300kW/CH/I U		p	4.02997E-16	-1.01535E-16	5.04532E-16
2548	Mine, bentonite/DE/I U		p	3.84348E-16	-2.20809E-16	6.05157E-16
2549	Nuclear spent fuel conditioning plant/CH/I U		p	3.67781E-16	-2.29578E-16	5.97359E-16
2550	Wind power plant 150kW, fixed parts/CH/I U		p	3.66639E-16	-2.25791E-16	5.92431E-16
2551	Chopper, mobile, diesel/RER/I U		p	3.32799E-16	-2.15904E-16	5.48702E-16
2552	Phosphate rock mine/US/I U		p	3.29202E-16	-2.53051E-16	5.82253E-16
2553	Anode, plant/RER/I U		p	3.20883E-16	-2.09123E-16	5.30006E-16
2554	Non-ferrous metal, smelter/GLO/I U		p	3.05119E-16	-1.85763E-16	4.90882E-16
2555	Ceramic plant/CH/I U		p	2.97479E-16	-1.71346E-16	4.68825E-16
2556	Wafer factory/DE/I U		p	2.24793E-16	-1.40292E-16	3.65085E-16
2557	Mine, iron/GLO/I U		p	2.22286E-16	-1.43531E-16	3.65817E-16
2558	Nuclear power plant, boiling water reactor 1000MW/DE/I U		p	2.21728E-16	-1.37832E-16	3.5956E-16
2559	Run-of-river hydropower plant/RER/I U		p	2.0986E-16	-1.24467E-16	3.34327E-16
2560	Photovoltaic module factory/DE/I U		p	1.89517E-16	-1.18257E-16	3.07774E-16
2561	Phosphate rock mine/MA/I U		p	1.82803E-16	-1.38321E-16	3.21124E-16
2562	Storage building, chemicals, solid/CH/I U		p	1.7118E-16	-6.62661E-17	2.37446E-16
2563	Nuclear power plant, pressure water reactor 1000MW/CH/I U		p	1.70951E-16	-1.10965E-16	2.81916E-16
2564	Nuclear power plant, boiling water reactor 1000MW/CH/I U		p	1.25537E-16	-8.14848E-17	2.07022E-16
2565	Nuclear fuel fabrication plant/GLO/I U		p	1.12494E-16	-6.93223E-17	1.81816E-16
2566	Uranium enrichment centrifuge plant/GLO/I U		p	8.63764E-17	-5.35928E-17	1.39969E-16
2567	Run-of-river hydropower plant/CH/I U		p	8.46852E-17	-5.89239E-17	1.43609E-16
2568	Port facilities/RER/I U		p	8.13883E-17	-4.47128E-17	1.26101E-16
2569	Uranium conversion plant/US/I U		p	6.8415E-17	-4.21827E-17	1.10598E-16
2570	Nuclear spent fuel reprocessing plant/RER/I U		p	6.61598E-17	-4.06235E-17	1.06783E-16
2571	Nuclear power plant, boiling water reactor 1000MW/UCTE/I U		p	6.05309E-17	-3.64643E-17	9.69952E-17
2572	Reservoir hydropower plant, alpine region/RER/I U		p	4.93108E-17	-2.4307E-17	7.36178E-17
2573	Uranium enrichment diffusion plant/US/I U		p	4.18739E-17	-2.57638E-17	6.76377E-17
2574	Reservoir hydropower plant/CH/I U		p	3.18086E-17	-2.06633E-17	5.24719E-17
2575	Mine, bauxite/GLO/I U		p	2.92029E-17	-1.05827E-17	3.97856E-17
2576	Photovoltaic cell factory/DE/I U		p	2.13221E-17	-1.33036E-17	3.46256E-17
2577	Reservoir hydropower plant, non alpine regions/RER/I U		p	2.09011E-17	-1.18203E-17	3.27214E-17
2578	Wastewater treatment plant, class 1/CH/I U		p	1.75828E-17	-1.15824E-17	2.91652E-17
2579	Open cast mine, peat/NORDEL/I U		p	6.38987E-18	-2.17955E-20	6.41166E-18
2580	Pulp plant/RER/I U		p	5.08394E-18	-2.97318E-18	8.05712E-18
2581	Lignite dust production plant/RER/I U		p	1.10043E-18	-6.36732E-19	1.73716E-18
2582	Silicone plant/RER/I U		p	3.93375E-19	-2.55471E-19	6.48846E-19
2583	Gas combined cycle power plant, 400MWe/RER/I U		p	1.04031E-19	-6.52239E-20	1.69255E-19
2584	Glass production site/RER/I U		p	4.01927E-20	-1.56945E-20	5.58872E-20
2585	Lignite briquettes production plant/RER/I U		p	3.37774E-20	-2.03675E-20	5.41449E-20
2586	Operation, maintenance, airport/RER U		p	1.88731E-20	-1.07657E-20	2.96388E-20
2587	Magnesium plant/RER/I U		p	1.59891E-20	-2.35853E-21	1.83476E-20
2588	Aircraft, freight/RER/I U		p	8.42354E-21	-4.18108E-21	1.26046E-20
2589	Disposal, airport/RER/I U		p	1.54021E-21	-7.16338E-22	2.25655E-21
2590	Glass sorting site/RER/I U		p	8.95799E-22	-5.59064E-22	1.45486E-21
2591	Airport/RER/I U		p	-6.04686E-22	-2.26842E-22	-3.77843E-22
2592	Mine, vermiculite/ZA/I U		p	-1.0308E-20	9.76614E-21	-2.00742E-20
2593	Wind turbine/AU U	--	p	-3.64697E-15	-3.06162E-13	3.02515E-13
2594	Test and Development Servers - Energy		p	-2.16713E-08	-2.16713E-08	5.3002E-26
2595	Test and Development Servers - Air-conditioner		p	-2.16713E-08	-2.16713E-08	5.3002E-26
2596	Production Servers - Energy		p	-2.16713E-08	-2.16713E-08	-3.27253E-23
2597	Production Servers - Air-conditioning		p	-2.16713E-08	-2.16713E-08	-4.13151E-22
2598	Energy use by employees		p	-1.43507E-07	-1.43507E-07	-7.25604E-22

Appendix B Data Output Tables from SIMAPRO

B.3 Paper Inventory

SimaPro 7.0 Inventory Date: 30/04/2008 Time: 17:31:01
Project Online billing v7

Title: Analyzing 1 kg material 'Paper, woodfree, coated, at regional storage/RER U - modified for online billing contractor'
Method: CML 2 baseline 2001- Australian Toxicity Factors V1.00 / World, 1995
Compartment: All compartments
Per sub-compartment: No
Default units: No
Indicator: Inventory
Relative mode: Non

No	Substance	Compartment	Unit	Total	Paper, woodfree, coated, at regional storage/RER U - modified for online billing contractor	Paper, woodfree, coated, at non-integrated mill/RER U - online billing contractor	Transport, lorry 32t/RER U	Transport, transoceanic freight ship/OCE U	Transport, freight, rail/RER U
1	Additives	Raw	µg	17.8297	x	17.8297	3E-12	9.63E-15	-5.32E-12
2	Air	Raw	ng	6.885454	x	6.885453	5.35E-07	1.48E-09	-5.04E-07
3	Aluminium,	Raw	mg	452.1353	x	342.9165	49.8168	0.01176	59.39019
4	Aluminum h	Raw	pg	0.514547	x	0.514547	-5.14E-13	1.42E-15	2.62E-13
5	Anhydrite, i	Raw	µg	74.0128	x	72.53682	1.262095	0.000767	0.213117
6	bagasse	Raw	g	2.836641	x	2.836641	8.3E-18	7.74E-21	-1.78E-18
7	Barite, 15%	Raw	mg	441.2221	x	283.5025	125.9443	0.603938	31.17132
8	Baryte, in g	Raw	pg	3.250188	x	3.250188	2.52E-07	7E-10	-2.38E-07
9	Basalt, in g	Raw	mg	286.5491	x	274.4625	6.743219	0.005543	5.337828
10	Bauxite, in	Raw	mg	38.06336	x	38.06336	6.35E-14	-3.83E-16	-1.93E-13
11	Borax, in gr	Raw	µg	35.06428	x	29.41891	5.197227	0.00079	0.447359
12	Calcite, in g	Raw	g	221.5349	x	216.5538	1.93776	0.002262	3.041046
13	Calcium su	Raw	pg	0.092919	x	0.092919	7.22E-09	2E-11	-6.81E-09
14	Carbon	Raw	µg	26.51715	x	26.51715	7.08E-14	1.06E-16	1.82E-14
15	Carbon dio	Raw	g	64.55084	x	63.77007	0.177342	0.001167	0.602257
16	Chromium,	Raw	mg	191.4587	x	173.236	3.571769	0.005189	14.64575
17	Chromium,	Raw	pg	1.11E-06	x	1.11E-06	8.62E-14	2.39E-16	-8.13E-14
18	Chrysotile,	Raw	µg	229.6194	x	227.9751	1.071503	0.00199	0.570794
19	Cinnabar, ir	Raw	µg	21.12927	x	20.98795	0.092433	0.000162	0.048722
20	Clay, bento	Raw	mg	164.1453	x	89.31213	37.18729	0.099621	37.54624
21	Clay, unspe	Raw	g	8.567127	x	6.996754	0.631148	0.000377	0.938849
22	Coal, 13.3 I	Raw	g	14.58539	x	14.58539	5.73E-17	8.36E-20	5.49E-18
23	Coal, 18.5 I	Raw	g	18.05796	x	18.05796	3.03E-16	-6.43E-19	-3.5E-16
24	Coal, 20.5 I	Raw	g	97.36541	x	97.36541	3.42E-16	4.93E-19	-1.74E-16
25	Coal, 21.5 I	Raw	g	128.1664	x	128.1664	1.39E-15	1.39E-18	-6.94E-16
26	Coal, 28.0 I	Raw	mg	403.0783	x	403.0783	3.8E-13	1.11E-15	1.88E-12
27	Coal, brow	Raw	g	318.9555	x	318.9555	1.21E-15	1.97E-18	1.21E-16
28	Coal, brow	Raw	g	38.35508	x	27.70064	1.399762	0.023666	9.231007
29	Coal, hard,	Raw	g	40.31817	x	29.99889	2.789427	0.017045	7.512803
30	Cobalt, in g	Raw	µg	1.109597	x	0.351689	0.635585	6.68E-05	0.122257
31	Colemanite	Raw	µg	251.0681	x	234.2229	9.363647	0.048283	7.43325
32	Copper, 0.9	Raw	mg	5.917862	x	4.494953	0.72606	0.000844	0.696005
33	Copper, 1.1	Raw	mg	32.71153	x	24.81537	4.029237	0.004681	3.86224
34	Copper, 1.4	Raw	mg	8.665388	x	6.573671	1.067357	0.00124	1.023119
35	Copper, 2.1	Raw	mg	43.04063	x	32.65116	5.301521	0.00616	5.081791
36	Copper, in	Raw	mg	6.062911	x	6.062911	2.28E-14	1.01E-17	-2.38E-14
37	Diatomite, i	Raw	mg	24.68408	x	24.68403	4.29E-05	3.41E-09	2.19E-06
38	Dolomite, in	Raw	mg	59.82757	x	49.62537	4.066242	0.011703	6.124252
39	Energy, fro	Raw	kJ	75.84513	x	75.84513	4.7E-16	6.82E-19	-5.9E-18
40	Energy, fro	Raw	J	8.69E-05	x	8.69E-05	6.75E-12	1.87E-14	-6.37E-12
41	Energy, fro	Raw	J	1.55E-05	x	1.55E-05	1.2E-12	3.33E-15	-1.13E-12
42	Energy, fro	Raw	J	0.000696	x	0.000696	5.41E-11	1.5E-13	-5.1E-11
43	Energy, fro	Raw	kJ	237.9735	x	237.9735	3.03E-15	5.33E-18	7.19E-16
44	Energy, fro	Raw	J	1.71E-05	x	1.71E-05	1.33E-12	3.68E-15	-1.25E-12
45	Energy, fro	Raw	J	0.00044	x	0.00044	3.41E-11	9.47E-14	-3.22E-11
46	Energy, fro	Raw	J	4.24E-08	x	4.24E-08	3.29E-15	9.13E-18	-3.1E-15
47	Energy, fro	Raw	J	97.58627	x	97.58627	4.03E-16	2.96E-19	-1.13E-16
48	Energy, fro	Raw	J	3.03E-06	x	3.03E-06	2.35E-13	6.52E-16	-2.22E-13
49	Energy, fro	Raw	J	0.000117	x	0.000117	9.1E-12	2.52E-14	-8.58E-12
50	Energy, fro	Raw	J	2.27E-08	x	2.27E-08	1.76E-15	4.88E-18	-1.66E-15
51	Energy, gro	Raw	kJ	870.3163	x	861.5546	2.03546	0.013041	6.713108
52	Energy, kin	Raw	kJ	29.2091	x	21.45736	1.004711	0.017322	6.729705
53	Energy, pot	Raw	kJ	289.489	x	220.0422	18.67442	0.101495	50.67087
54	Energy, rec	Raw	J	-3.02E-05	x	-3.02E-05	-2.34E-12	-6.49E-15	2.21E-12
55	Energy, sol	Raw	J	381.8687	x	255.1977	26.7333	0.228961	99.70869
56	Energy, un	Raw	J	2.11E-06	x	2.11E-06	1.64E-13	4.54E-16	-1.54E-13
57	Feldspar, ir	Raw	µg	2.403848	x	2.400285	0.002585	4.19E-06	0.000974

No	Substance	Compartment	Unit	Total	Paper, woodfree, coated, at regional storage/RER U - modified for online billing contractor	Paper, woodfree, coated, at non-integrated mill/RER U - online billing contractor	Transport, lorry 32t/RER U	Transport, transoceanic freight ship/OCE U	Transport, freight, rail/RER U
58	Ferromang	Raw	mg	3.041778	x	3.041778	1.25E-14	1.79E-17	-7.5E-15
59	Fluorine, 4.	Raw	mg	140.221	x	140.0992	0.08249	0.000347	0.038893
60	Fluorine, 4.	Raw	mg	66.43859	x	66.38041	0.039045	0.000162	0.018968
61	Fluorine, in	Raw	pg	0.059155	x	0.059155	-5.91E-14	1.64E-16	3.01E-14
62	Fluorspar,	Raw	g	3.548405	x	3.544766	0.002243	9.63E-06	0.001387
63	Fluorspar, i	Raw	pg	0.064303	x	0.064303	4.99E-09	1.38E-11	-4.71E-09
64	Gas, mine,	Raw	cm3	325.8532	x	223.6121	27.47084	0.168048	74.60218
65	Gas, natura	Raw	dm3	198.8996	x	198.8996	1.39E-15	8.58E-19	-2.12E-15
66	Gas, natura	Raw	dm3	153.7089	x	148.7939	2.136928	0.010918	2.767155
67	Granite, in	Raw	µg	209.0373	x	71.98756	130.3403	0.003347	6.706088
68	Graphite, fr	Raw	mg	228.684	x	228.684	6.54E-16	6.98E-19	-7.03E-16
69	Gravel, in g	Raw	g	261.1154	x	91.02544	85.83678	0.007703	84.24542
70	Gypsum, in	Raw	mg	25.48711	x	25.42036	0.063194	7.78E-06	0.003552
71	Iron ore, in	Raw	mg	434.9413	x	434.9413	1.76E-12	2.35E-15	-1.13E-12
72	Iron, 46% ir	Raw	g	10.5203	x	5.370144	2.413078	0.004978	2.732103
73	Iron, in gro	Raw	pg	6.237931	x	6.237931	4.84E-07	1.34E-09	-4.57E-07
74	Kaolinite, 2	Raw	g	224.6126	x	224.6119	0.000616	2.12E-07	0.000134
75	Kieserite, 2	Raw	µg	20.44156	x	8.949918	10.68704	0.001258	0.803345
76	Lead, 5%, i	Raw	mg	119.6277	x	40.77838	75.77205	0.00824	3.069036
77	Lead, in gr	Raw	pg	0.015736	x	0.015736	1.22E-09	3.39E-12	-1.15E-09
78	Limestone,	Raw	mg	904.3231	x	904.3231	-4.93E-13	-2.37E-14	-1.08E-11
79	Magnesite,	Raw	mg	131.2512	x	59.86397	30.2577	0.066791	41.06271
80	Magnesium	Raw	µg	1.098022	x	0.958444	0.033572	0.000167	0.105839
81	Manganese	Raw	mg	35.49419	x	17.02976	1.587743	0.00142	16.87526
82	Molybdenu	Raw	µg	799.8542	x	606.7794	98.52189	0.114467	94.4385
83	Molybdenu	Raw	µg	113.8205	x	86.34566	14.01982	0.016289	13.43875
84	Molybdenu	Raw	mg	12.448	x	5.977237	0.556769	0.000496	5.913503
85	Molybdenu	Raw	µg	417.6423	x	316.8287	51.44301	0.059769	49.31087
86	Molybdenu	Raw	mg	25.12287	x	12.06341	1.123685	0.001	11.93478
87	Nickel, 1.1	Raw	mg	2.319454	x	2.30026	0.006926	3.01E-05	0.012237
88	Nickel, 1.9	Raw	mg	545.5062	x	444.1496	23.19963	0.054859	78.10205
89	Nickel, in g	Raw	pg	0.000772	x	0.000772	5.99E-11	1.66E-13	-5.65E-11
90	Nitrogen, in	Raw	pg	686.6433	x	686.6433	5.33E-05	1.48E-07	-5.03E-05
91	Occupation	Raw	cm2a	555.1503	x	554.9714	0.107283	0.000369	0.071246
92	Occupation	Raw	mm2a	662.8158	x	657.2262	3.644353	0.015229	1.930019
93	Occupation	Raw	mm2a	445.2569	x	294.8555	39.48442	0.115058	110.802
94	Occupation	Raw	mm2a	52.94856	x	41.2687	9.008054	0.044922	2.626882
95	Occupation	Raw	m2a	2.385201	x	2.385201	8.65E-18	7.44E-21	-9.35E-18
96	Occupation	Raw	mm2a	226.6225	x	196.8294	24.46811	0.006262	5.318714
97	Occupation	Raw	cm2a	110.5965	x	99.33398	3.020227	0.010253	8.231999
98	Occupation	Raw	mm2a	402.3977	x	275.626	84.76356	1.069056	40.93905
99	Occupation	Raw	m2s	15.15898	x	12.24769	2.248883	0.010924	0.651479
100	Occupation	Raw	mm2a	567.7737	x	544.4106	12.08194	0.026659	11.25453
101	Occupation	Raw	mm2a	632.3372	x	607.0573	12.74072	0.011636	12.52761
102	Occupation	Raw	mm2a	362.2402	x	260.5332	38.07092	0.105048	63.53096
103	Occupation	Raw	cm2a	163.8828	x	163.8566	0.022679	4.64E-05	0.003504
104	Occupation	Raw	m2s	456.2558	x	345.1227	58.77298	0.034015	52.32616
105	Occupation	Raw	mm2a	72.77682	x	72.77682	3.13E-15	4.61E-18	-2.1E-15
106	Occupation	Raw	mm2a	939.3972	x	329.3171	2.834344	0.009345	607.2364
107	Occupation	Raw	cm2a	10.38756	x	3.641487	0.031341	0.000103	6.714633
108	Occupation	Raw	mm2a	263.014	x	132.6477	119.7672	0.012035	10.58715
109	Occupation	Raw	mm2a	868.2036	x	248.0649	589.4753	0.752658	29.91072
110	Occupation	Raw	mm2a	161.8934	x	161.8748	0.011702	4.04E-05	0.006768
111	Occupation	Raw	cm2a	22.78476	x	22.78476	1.13E-16	1.2E-19	-1.67E-17
112	Occupation	Raw	mm2a	370.6088	x	192.8979	68.0794	2.037827	107.5937
113	Occupation	Raw	cm2a	193.7847	x	193.2318	0.181169	0.000973	0.370756
114	Oil, crude,	Raw	mg	12.78406	x	12.78406	3.3E-14	1.74E-16	-5.81E-15
115	Oil, crude,	Raw	g	11.86443	x	11.86443	-4.29E-15	-1.07E-17	-2.52E-15
116	Oil, crude,	Raw	mg	63.77674	x	63.77674	-1.77E-15	-5.78E-18	-9.23E-16
117	Oil, crude,	Raw	g	7.422365	x	7.422365	-1.95E-15	-5.03E-18	6.51E-16
118	Oil, crude, i	Raw	g	74.44503	x	41.46693	26.99929	0.117988	5.860824
119	Olivine, in	Raw	µg	24.39662	x	23.79759	0.514841	0.00026	0.083926
120	Oxygen, in	Raw	g	13.90186	x	13.90186	2.07E-16	2.89E-19	-9.56E-17
121	Pd, Pd 2.0	Raw	ng	71.18887	x	33.59626	30.40328	0.139441	7.049886
122	Pd, Pd 7.3	Raw	ng	171.0876	x	80.74157	73.06798	0.335117	16.94294
123	Peat, in gro	Raw	mg	1.551891	x	1.331112	0.187675	9.4E-05	0.03301
124	Phosphoru	Raw	pg	0.256318	x	0.256318	1.53E-09	4.24E-12	-1.44E-09
125	Phosphoru	Raw	g	4.974316	x	4.974075	0.000165	6.48E-07	7.66E-05
126	Phosphoru	Raw	mg	560.8839	x	560.3969	0.329959	0.001388	0.155574

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127	Potassium	Raw	pg	207.2183	x	207.2183	1.61E-05	4.46E-08	-1.52E-05
128	Pt, Pt 2.5E-	Raw	ng	2.238727	x	1.181075	0.829352	0.003332	0.224967
129	Pt, Pt 4.8E-	Raw	ng	8.02551	x	4.233985	2.973106	0.011946	0.806473
130	Refractorie	Raw	mg	1.62945	x	1.62945	6.67E-15	9.57E-18	-4E-15
131	Rh, Rh 2.0	Raw	ng	1.625264	x	0.766836	0.694284	0.003188	0.160956
132	Rh, Rh 2.4	Raw	ng	5.090533	x	2.401829	2.174586	0.009984	0.504134
133	Rhenium, ir	Raw	ng	2.493431	x	1.248969	1.019807	0.003468	0.221187
134	Rutile, in gr	Raw	ng	191.9833	x	188.9225	2.32959	0.003826	0.727313
135	Salt, unspe	Raw	mg	506.8	x	506.8	1.44E-15	1.53E-18	-1.56E-15
136	Sand, river,	Raw	g	1.518298	x	1.518298	3.94E-15	-5.67E-18	-2.42E-15
137	Sand, unsp	Raw	mg	140.0743	x	139.9865	0.048854	9.35E-05	0.038781
138	Secondary	Raw	µg	649.1505	x	649.1505	3.6E-11	6.31E-14	2.35E-11
139	Shale, in gr	Raw	µg	210.0188	x	205.8366	3.574845	0.00218	0.605161
140	Silver, 0.01	Raw	ng	162.4053	x	107.8681	12.09867	0.095489	42.34305
141	Sodium chl	Raw	g	180.6341	x	180.318	0.281013	0.00011	0.034945
142	Sodium sul	Raw	g	1.175751	x	1.174878	0.000626	2.76E-06	0.000245
143	Stibnite, in	Raw	mg	2.565208	x	2.565203	4.45E-06	3.54E-10	2.28E-07
144	Sulfur dioxi	Raw	g	8.351564	x	8.351564	-9.54E-15	-3.49E-17	7.53E-15
145	Sulfur, bon	Raw	pg	163.3954	x	163.3954	1.27E-05	3.52E-08	-1.2E-05
146	Sulfur, in gr	Raw	mg	2.299421	x	2.175074	0.094948	5.97E-05	0.02934
147	Sylvite, 25	Raw	mg	747.3667	x	747.0353	0.179968	0.000304	0.151204
148	Talc, in gro	Raw	mg	771.4034	x	771.3814	0.010464	1.74E-05	0.011541
149	Tin, 79% in	Raw	µg	256.1946	x	209.1772	35.82386	0.006194	11.18738
150	TiO2, 45-6(	Raw	g	2.163388	x	2.152275	0.006668	2.47E-05	0.00442
151	Transforma	Raw	mm2	0.245245	x	0.181392	0.02334	5.7E-05	0.040457
152	Transforma	Raw	sq.in	157.9728	x	157.9215	0.030748	0.000106	0.020419
153	Transforma	Raw	mm2	0.053617	x	0.040598	0.005822	1.42E-06	0.007195
154	Transforma	Raw	mm2	1.603861	x	1.022882	0.328659	9.71E-05	0.252224
155	Transforma	Raw	mm2	0.896368	x	0.776306	0.041796	0.000114	0.078151
156	Transforma	Raw	mm2	0.37744	x	0.375565	0.000846	3.6E-06	0.001025
157	Transforma	Raw	mm2	0.01356	x	0.012084	0.001253	4.09E-07	0.000223
158	Transforma	Raw	mm2	106.2737	x	66.28088	31.96287	0.152774	7.877146
159	Transforma	Raw	mm2	344.6501	x	335.7189	2.527586	0.007441	6.396124
160	Transforma	Raw	mm2	0.834609	x	0.735953	0.026328	0.000208	0.07212
161	Transforma	Raw	mm2	0.004109	x	0.004016	2.02E-05	1.66E-07	7.2E-05
162	Transforma	Raw	mm2	0.200247	x	0.200073	0.000118	4.96E-07	5.55E-05
163	Transforma	Raw	mm2	0.341598	x	0.341302	0.000201	8.45E-07	9.47E-05
164	Transforma	Raw	mm2	14.30897	x	10.14359	1.816462	0.001515	2.347402
165	Transforma	Raw	mm2	11.4922	x	10.03947	0.683278	0.000888	0.768563
166	Transforma	Raw	mm2	82.1308	x	82.10414	0.015986	5.49E-05	0.010616
167	Transforma	Raw	mm2	52.97724	x	41.29107	9.012963	0.044937	2.628267
168	Transforma	Raw	mm2	3.690416	x	2.719298	0.439483	0.000624	0.531012
169	Transforma	Raw	mm2	519.6766	x	453.0588	31.94817	0.041787	34.62782
170	Transforma	Raw	mm2	8.496921	x	7.78603	0.130461	0.001372	0.579057
171	Transforma	Raw	sq.in	158.1	x	158.0487	0.030772	0.000106	0.020435
172	Transforma	Raw	mm2	0.089243	x	0.069447	0.008592	2.92E-06	0.011202
173	Transforma	Raw	mm2	3.111961	x	1.99316	0.277537	0.000909	0.840355
174	Transforma	Raw	mm2	52.94856	x	41.2687	9.008054	0.044922	2.626882
175	Transforma	Raw	mm2	1.603861	x	1.022882	0.328659	9.71E-05	0.252224
176	Transforma	Raw	mm2	0.896374	x	0.77631	0.041797	0.000114	0.078153
177	Transforma	Raw	mm2	0.37744	x	0.375565	0.000846	3.6E-06	0.001025
178	Transforma	Raw	mm2	0.01356	x	0.012084	0.001253	4.09E-07	0.000223
179	Transforma	Raw	mm2	12.73076	x	8.442424	2.070504	0.000666	2.217162
180	Transforma	Raw	mm2	1.509521	x	1.310976	0.163071	4.17E-05	0.035433
181	Transforma	Raw	mm2	89.63639	x	81.04492	2.29758	0.007251	6.286636
182	Transforma	Raw	mm2	4.904534	x	3.003707	1.527944	0.007115	0.365768
183	Transforma	Raw	mm2	6.200614	x	5.397557	0.253343	0.007844	0.541869
184	Transforma	Raw	mm2	0.028681	x	0.022372	0.004909	1.51E-05	0.001385
185	Transforma	Raw	mm2	10.92101	x	10.41823	0.259677	0.000607	0.242499
186	Transforma	Raw	mm2	17.04432	x	16.50114	0.278845	0.000327	0.264004
187	Transforma	Raw	mm2	171.9335	x	85.69821	54.56573	0.149395	31.52022
188	Transforma	Raw	mm2	2.713426	x	2.696366	0.004391	3.36E-05	0.012635
189	Transforma	Raw	mm2	252.5489	x	252.5061	0.037008	7.58E-05	0.005749
190	Transforma	Raw	mm2	0.004109	x	0.004016	2.02E-05	1.66E-07	7.2E-05
191	Transforma	Raw	mm2	3.15533	x	2.450938	0.372554	0.000215	0.331623
192	Transforma	Raw	mm2	2.185905	x	0.766295	0.006595	2.17E-05	1.412992
193	Transforma	Raw	mm2	2.402689	x	0.842292	0.007249	2.39E-05	1.553124
194	Transforma	Raw	mm2	1.284877	x	0.902372	0.313839	7.66E-05	0.068589
195	Transforma	Raw	mm2	3.593942	x	1.881098	1.311503	0.007663	0.393677

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196	Transforma	Raw	mm2	1.066059	x	0.926141	0.048863	0.000211	0.090845
197	Transforma	Raw	mm2	3.224811	x	3.224442	0.000233	8.04E-07	0.000135
198	Transforma	Raw	mm2	401.3921	x	390.6138	5.298479	0.020343	5.459463
199	Transforma	Raw	mm2	1.907042	x	1.271742	0.19538	0.00108	0.43884
200	Ulexite, in ç	Raw	µg	12.50815	x	8.746528	0.488387	0.008401	3.264839
201	Uranium, in	Raw	mg	2.351187	x	1.704705	0.126584	0.001222	0.518675
202	Vermiculite	Raw	µg	34.62711	x	32.71458	0.975281	0.001407	0.935841
203	Volume occ	Raw	mm3	3.875325	x	2.543179	0.256828	0.00253	1.072789
204	Volume occ	Raw	mm3	0.949503	x	0.62139	0.060603	0.000637	0.266874
205	Volume occ	Raw	m3day	1.003583	x	0.629407	0.103075	0.000541	0.27056
206	Volume occ	Raw	mm3	112.7084	x	109.4285	2.141395	0.002728	1.135753
207	Water, cool	Raw	g	53.35	x	53.35	2.02E-16	3.29E-19	2.03E-17
208	Water, cool	Raw	ng	894.462	x	894.462	6.95E-05	1.93E-07	-6.55E-05
209	Water, cool	Raw	ng	15.97177	x	15.97177	1.24E-06	3.44E-09	-1.17E-06
210	Water, cool	Raw	g	5.657467	x	5.657467	8.62E-14	3.99E-17	-1.69E-13
211	Water, cool	Raw	dm3	17.76537	x	16.47554	0.318708	0.002897	0.968231
212	Water, cool	Raw	oz	43.63036	x	43.63036	1.91E-16	1.65E-19	-5.13E-17
213	Water, lake	Raw	cm3	36.28971	x	34.3156	1.010174	0.001475	0.96246
214	Water, proc	Raw	ng	116.2189	x	116.2189	9.03E-06	2.5E-08	-8.51E-06
215	Water, proc	Raw	g	70.57977	x	70.57977	6.74E-16	6.64E-19	1.81E-16
216	Water, proc	Raw	ng	3.576039	x	3.576039	2.78E-07	7.7E-10	-2.62E-07
217	Water, proc	Raw	ng	14.00811	x	14.00811	1.09E-06	3.02E-09	-1.03E-06
218	Water, proc	Raw	g	3.123799	x	3.123799	7.92E-15	-6.39E-17	-4.18E-14
219	Water, proc	Raw	mm3	765.0346	x	765.0346	3.14E-12	4.5E-15	-1.89E-12
220	Water, proc	Raw	ng	5.812509	x	5.812509	4.51E-07	1.25E-09	-4.26E-07
221	Water, river	Raw	cm3	950.4767	x	655.4531	71.04771	0.593925	223.382
222	Water, salt,	Raw	cm3	219.0593	x	170.2505	13.95727	0.117185	34.73429
223	Water, salt,	Raw	cm3	45.64193	x	20.84644	20.16906	0.093567	4.532869
224	Water, turb	Raw	gal	349.4151	x	232.58	29.01223	0.180849	87.64208
225	Water, unsp	Raw	g	50.96505	x	50.96505	2.57E-14	2.92E-17	-1.23E-14
226	Water, unsp	Raw	dm3	28.71595	x	28.30946	0.232165	0.000379	0.173945
227	Water, well	Raw	cm3	272.2529	x	207.4863	20.52024	0.112475	44.13381
228	Wood, harc	Raw	mm3	813.6707	x	597.2412	49.13979	0.405317	166.8844
229	Wood, soft,	Raw	cm3	5.674987	x	5.03928	0.141086	0.000828	0.493793
230	Wood, unsp	Raw	mm3	77.34325	x	77.32745	0.007066	1.42E-05	0.008713
231	Zinc 9%, in	Raw	mg	86.31135	x	70.70971	11.88166	0.002405	3.717565
232	Zinc, in gro	Raw	pg	0.000592	x	0.000592	4.6E-11	1.27E-13	-4.33E-11
233	2-Propanol	Air	ng	42.23333	x	42.23333	1.52E-16	1.64E-19	-1.31E-16
234	Acenaphth	Air	pg	241.0551	x	171.2912	8.729016	0.157302	60.87763
235	Acetaldehy	Air	µg	86.91289	x	75.28412	1.990165	0.027056	9.611551
236	Acetic acid	Air	mg	4.726411	x	4.631601	0.038936	0.000164	0.05571
237	Acetone	Air	µg	96.2033	x	80.48665	2.545492	0.036443	13.13471
238	Acrolein	Air	ng	103.1177	x	84.16285	8.518665	0.149608	10.28654
239	Actinides, r	Air	nBq	40.54532	x	27.15398	2.261549	0.027102	11.1027
240	Aerosols, r	Air	µBq	726.7195	x	472.2386	41.47014	0.522855	212.4879
241	Aldehydes,	Air	µg	33.96032	x	33.11272	0.37066	0.001271	0.475663
242	Aluminum	Air	mg	10.2169	x	7.512552	0.869875	0.002852	1.831616
243	Ammonia	Air	mg	174.0781	x	171.8077	1.024414	0.04441	1.201505
244	Ammonium	Air	ng	187.4198	x	178.7578	5.631659	0.036887	2.993425
245	Antimony	Air	µg	3.673892	x	2.686832	0.459793	0.000867	0.5264
246	Antimony-1	Air	nBq	9.63272	x	5.282204	1.938645	0.002502	2.409369
247	Antimony-1	Air	nBq	100.5255	x	55.12423	20.23139	0.026106	25.1438
248	Argon-41	Air	mBq	533.5241	x	380.554	21.99923	0.330437	130.6404
249	Arsenic	Air	µg	59.96302	x	51.65691	3.783397	0.047648	4.475056
250	Barium	Air	µg	17.01278	x	12.80574	0.737099	0.008072	3.461867
251	Barium-140	Air	µBq	6.539035	x	3.585749	1.316022	0.001698	1.635566
252	Benzaldehy	Air	ng	44.08837	x	37.0257	4.062269	0.071823	2.928575
253	Benzene	Air	mg	6.804721	x	4.542801	1.744796	0.006288	0.510836
254	Benzene, e	Air	µg	103.3143	x	59.91938	35.34945	0.156916	7.888587
255	Benzene, h	Air	ng	91.60092	x	43.27759	20.57188	0.045738	27.70571
256	Benzene, p	Air	ng	8.335285	x	7.853837	0.335568	0.000184	0.145696
257	Benzo(a)py	Air	µg	3.696465	x	2.488428	0.298067	0.001945	0.908025
258	Beryllium	Air	µg	14.15753	x	14.12957	0.008437	1.72E-05	0.019508
259	Biphenyl	Air	pg	721.4782	x	721.4782	1.35E-09	5.67E-14	-1.16E-10
260	Boron	Air	mg	5.011216	x	4.674516	0.042675	0.000754	0.29327
261	Bromine	Air	µg	69.21825	x	48.09599	2.855112	0.046355	18.2208
262	Butadiene	Air	ng	538.7182	x	538.7115	0.005452	2.48E-05	0.001278
263	Butane	Air	mg	7.610278	x	5.576718	1.574462	0.007141	0.451957
264	Butene	Air	µg	79.06761	x	35.82818	35.30049	0.156682	7.782257

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265	Cadmium	Air	µg	33.80544	x	29.47769	2.814052	0.007904	1.505799
266	Calcium	Air	µg	232.4635	x	193.0309	12.08146	0.067417	27.28367
267	Caprolactar	Air	ng	6.670066	x	6.670066	1.25E-11	5.24E-16	-1.07E-12
268	Carbon-14	Air	Bq	3.274459	x	2.109845	0.230564	0.00218	0.93187
269	Carbon dio	Air	g	420.3925	x	420.3925	6.33E-15	-4.22E-18	-7.63E-15
270	Carbon dio	Air	oz	-71.14283	x	-71.16588	0.005012	3.67E-05	0.018005
271	Carbon dio	Air	oz	51.25568	x	46.72478	2.931448	0.015316	1.584139
272	Carbon disı	Air	mg	1.303125	x	0.790754	0.148979	0.000111	0.363282
273	Carbon mo	Air	mg	772.2963	x	772.2963	9.75E-14	1.18E-16	-4E-14
274	Carbon mo	Air	mg	19.62416	x	11.22634	3.756641	0.000871	4.640306
275	Carbon mo	Air	mg	734.36	x	362.7617	234.7215	0.950997	135.9259
276	Cerium-141	Air	µBq	1.58521	x	0.869267	0.319033	0.000412	0.396498
277	Cesium-13	Air	nBq	75.92137	x	41.63229	15.27965	0.019716	18.98972
278	Cesium-13	Air	µBq	1.345839	x	0.738005	0.270859	0.00035	0.336626
279	Chlorinated	Air	pg	0.244829	x	0.244829	1.9E-08	5.27E-11	-1.79E-08
280	Chlorine	Air	mg	5.771866	x	5.734085	0.02847	4.45E-05	0.009267
281	Chloroform	Air	ng	64.39172	x	50.5006	3.373729	0.022879	10.49451
282	Chromium	Air	µg	704.6404	x	636.4797	15.59318	0.039913	52.52766
283	Chromium-	Air	nBq	101.58	x	55.70246	20.44361	0.02638	25.40754
284	Chromium '	Air	µg	24.37541	x	22.88561	0.241235	0.00047	1.248094
285	Cobalt	Air	µg	39.9427	x	34.95065	1.627009	0.008913	3.356126
286	Cobalt-58	Air	nBq	141.4543	x	77.56794	28.46857	0.036735	35.38105
287	Cobalt-60	Air	µBq	1.249617	x	0.685241	0.251493	0.000325	0.312559
288	Copper	Air	µg	370.6609	x	279.0335	49.96723	0.070366	41.5898
289	Cumene	Air	mg	1.051034	x	1.039843	0.009076	8.85E-06	0.002107
290	Cyanide	Air	µg	218.1471	x	216.4778	0.618693	0.001646	1.048942
291	Cyclohexar	Air	µg	36.46238	x	36.46238	-6.19E-15	-5.74E-17	-8.63E-15
292	Dinitrogen ı	Air	mg	115.9248	x	111.784	2.744251	0.01154	1.384935
293	Dioxins, m	Air	pg	126.0438	x	76.8679	22.02995	0.153754	26.99218
294	Ethane	Air	mg	23.00172	x	21.69367	0.643358	0.003569	0.661124
295	Ethane, 1,1	Air	µg	254.6018	x	78.75925	172.5809	0.002815	3.258822
296	Ethane, 1,2	Air	µg	48.85148	x	48.15321	0.351229	0.000499	0.346536
297	Ethane, 1,2	Air	ng	906.4563	x	628.9397	57.80098	0.504429	219.2112
298	Ethane, he	Air	µg	5.42743	x	2.902101	1.132941	0.00024	1.392148
299	Ethanol	Air	µg	163.1831	x	140.0734	3.916684	0.053577	19.1394
300	Ethene	Air	mg	1.085647	x	0.893641	0.119289	0.000411	0.072306
301	Ethene, chl	Air	µg	24.98528	x	24.0509	0.3191	0.000446	0.614832
302	Ethene, tet	Air	ng	12.38249	x	12.38249	-8.54E-17	-2.42E-17	-1.01E-14
303	Ethylene di	Air	pg	388.4397	x	153.6283	219.9207	0.018848	14.87178
304	Ethylene o	Air	µg	13.04406	x	12.91835	0.099558	0.00011	0.026048
305	Ethyne	Air	µg	29.04704	x	24.19864	1.81234	0.004212	3.031847
306	Fluoride	Air	mg	17.0907	x	17.0907	7.29E-17	-2.97E-20	-4.99E-17
307	Fluorine	Air	µg	9.360011	x	6.514857	0.672753	0.001143	2.171258
308	Fluosilicic a	Air	µg	412.3542	x	409.4019	1.32483	0.000281	1.627109
309	Formaldeh	Air	mg	1.217783	x	1.125965	0.01912	0.000118	0.07258
310	Formaldeh	Air	µg	36.66993	x	36.66993	-6.99E-15	-5.87E-17	-9.92E-15
311	Heat, waste	Air	Mj	11.14617	x	9.060782	1.250824	0.006195	0.828365
312	Helium	Air	µg	181.2924	x	81.67913	83.066	0.284132	16.26315
313	Heptane	Air	µg	790.2595	x	357.8754	353.0033	1.566798	77.81402
314	Hexane	Air	mg	7.723994	x	6.716987	0.766208	0.003531	0.237269
315	Hydrocarbc	Air	mg	125.5988	x	125.5986	0.000227	2.71E-08	1.71E-05
316	Hydrocarbc	Air	mg	3.825105	x	2.918513	0.415558	0.001264	0.48977
317	Hydrocarbc	Air	µg	239.8385	x	180.0801	9.670961	0.121546	49.9659
318	Hydrocarbc	Air	mg	1.329877	x	1.086166	0.117731	0.00023	0.125751
319	Hydrocarbc	Air	µg	16.50068	x	14.99808	0.742743	0.000394	0.75947
320	Hydrocarbc	Air	mg	8.464084	x	8.464084	2.28E-15	-6.72E-18	-3.76E-15
321	Hydrogen	Air	mg	113.3374	x	113.1661	0.10947	0.000336	0.061537
322	Hydrogen-3	Air	Bq	18.11865	x	11.841	1.08401	0.012582	5.18105
323	Hydrogen c	Air	mg	225.5055	x	223.3051	0.511083	0.010141	1.679173
324	Hydrogen c	Air	pg	3E-21	x	3E-21	2.33E-28	6.47E-31	-2.2E-28
325	Hydrogen fl	Air	mg	2.013505	x	1.518559	0.104886	0.001522	0.388539
326	Hydrogen s	Air	mg	3.712081	x	3.529617	0.072557	0.000217	0.109689
327	Iodine	Air	µg	36.15505	x	24.70407	1.495878	0.025374	9.92972
328	Iodine-129	Air	mBq	3.193023	x	2.076827	0.197832	0.002211	0.916153
329	Iodine-131	Air	mBq	210.5561	x	150.3928	8.481647	0.130858	51.55085
330	Iodine-133	Air	µBq	7.818652	x	4.28744	1.573553	0.00203	1.955629
331	Iron	Air	µg	377.5388	x	305.2728	28.51686	0.086002	43.66313
332	Isocyanic a	Air	µg	8.099889	x	3.196704	0.084095	0.000837	4.818253
333	Krypton-85	Air	Bq	1.672334	x	1.192074	0.069708	0.001034	0.409518

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334	Krypton-85	Air	mBq	120.7984	x	70.68051	20.0039	0.041052	30.07292
335	Krypton-87	Air	mBq	41.15555	x	25.936	5.014973	0.018032	10.18655
336	Krypton-88	Air	mBq	43.48903	x	26.48227	6.19613	0.017039	10.7936
337	Krypton-89	Air	mBq	13.09547	x	7.400386	2.422715	0.003879	3.268489
338	Lanthanum	Air	nBq	558.8657	x	306.4599	112.4752	0.145134	139.7854
339	Lead	Air	µg	269.2863	x	200.3064	41.78232	0.06566	27.13199
340	Lead-210	Air	mBq	19.68385	x	15.08047	0.683693	0.009616	3.910075
341	m-Xylene	Air	µg	2.164651	x	1.69639	0.068859	0.000919	0.398482
342	Magnesium	Air	µg	213.3886	x	185.6449	9.028767	0.023931	18.69099
343	Magnesium	Air	ng	10.58053	x	10.58053	8.87E-17	1.71E-20	2.67E-18
344	Manganese	Air	µg	169.1876	x	158.2878	3.627139	0.011175	7.261519
345	Manganese	Air	nBq	52.0202	x	28.52583	10.46939	0.013509	13.01147
346	Mercaptans	Air	pg	0.000729	x	0.000729	5.66E-11	1.57E-13	-5.34E-11
347	Mercury	Air	µg	29.12602	x	22.02437	3.000136	0.011173	4.09034
348	Metals, uns	Air	pg	0.07538	x	0.07538	5.85E-09	1.62E-11	-5.52E-09
349	Methacrylic	Air	ng	5.628009	x	5.628009	-4.04E-17	-1.1E-17	-4.61E-15
350	Methane	Air	g	1.374906	x	1.374906	2.71E-17	4.06E-20	-1.51E-17
351	Methane, b	Air	mg	298.5505	x	298.0778	0.100875	0.000966	0.370882
352	Methane, b	Air	µg	6.566435	x	6.416783	0.0361	0.000277	0.113276
353	Methane, b	Air	µg	2.169664	x	0.974343	0.983797	0.004057	0.207466
354	Methane, c	Air	µg	23.69603	x	22.83606	0.165233	0.001706	0.693029
355	Methane, d	Air	ng	87.10513	x	86.68565	0.102509	0.000688	0.316284
356	Methane, d	Air	ng	28.34053	x	27.46919	0.222018	0.001903	0.647422
357	Methane, d	Air	pg	0.127005	x	0.102974	0.006257	3.9E-05	0.017735
358	Methane, fo	Air	g	1.142043	x	0.998611	0.078228	0.000309	0.064894
359	Methane, n	Air	pg	14.36349	x	13.77082	0.341709	0.000629	0.250332
360	Methane, te	Air	µg	7.689923	x	7.629858	0.042253	8.39E-05	0.017728
361	Methane, te	Air	µg	48.9037	x	26.17573	10.19647	0.002164	12.52933
362	Methane, tr	Air	pg	0.206186	x	0.167174	0.010157	6.34E-05	0.028792
363	Methane, tr	Air	pg	40.41067	x	32.76459	1.990713	0.012417	5.642945
364	Methanol	Air	mg	2.86642	x	2.816008	0.024455	8.24E-05	0.025874
365	Methyl acet	Air	ng	109.4688	x	109.4688	3.95E-16	4.25E-19	-3.4E-16
366	Methyl ethy	Air	ng	113.7257	x	113.7257	-6.53E-16	-2.22E-16	-9.32E-14
367	Molybdenu	Air	µg	8.373485	x	7.193539	0.554483	0.003018	0.622446
368	Monoethan	Air	µg	5.478658	x	5.134575	0.184266	0.000248	0.159569
369	Nickel	Air	µg	526.1895	x	467.6435	28.6282	2.408242	27.5096
370	Niobium-95	Air	nBq	6.175251	x	3.386264	1.242808	0.001604	1.544575
371	Nitrate	Air	ng	436.5229	x	317.2796	38.27054	0.126969	80.84577
372	Nitric oxide	Air	ng	43.27787	x	43.27787	8.1E-11	3.4E-15	-6.97E-12
373	Nitrogen di	Air	pg	-0.000961	x	-0.000959	-1.24E-06	-2.93E-10	-8.06E-07
374	Nitrogen ox	Air	g	8.177682	x	7.23649	0.695324	0.00605	0.239818
375	NMVOC, n	Air	mg	699.3434	x	527.8881	141.9475	0.428924	29.07891
376	Noble gase	Air	Bq	30681.7	x	19956.13	1900.896	21.24408	8803.428
377	o-Xylene	Air	ng	72.93811	x	72.93811	3.98E-15	-7.64E-18	1.63E-14
378	Organic sul	Air	pg	0.394723	x	0.394723	3.07E-08	8.5E-11	-2.89E-08
379	Ozone	Air	mg	1.047364	x	0.702769	0.062716	0.000671	0.281207
380	PAH, polyc	Air	µg	87.57668	x	71.14026	8.280093	0.221663	7.934661
381	Paraffins	Air	ng	1.216824	x	1.165734	0.028631	2.27E-05	0.022436
382	Particulates	Air	mg	10.15453	x	10.15453	2.16E-14	-5.62E-18	-4.78E-14
383	Particulates	Air	mg	254.215	x	254.215	2.16E-15	-3.26E-18	-2.52E-15
384	Particulates	Air	mg	140.2673	x	77.27446	47.17883	0.182697	15.63134
385	Particulates	Air	mg	353.0601	x	231.119	51.0352	0.28292	70.6229
386	Particulates	Air	mg	172.7565	x	89.84957	18.07317	0.191003	64.64276
387	Pentane	Air	mg	10.01255	x	7.461916	1.966129	0.008798	0.575708
388	Phenol	Air	µg	61.52685	x	58.24392	2.150731	0.001181	1.13102
389	Phenol, per	Air	µg	1.22779	x	0.870656	0.048323	0.000787	0.308024
390	Phosphoru	Air	µg	11.13587	x	9.404342	0.361472	0.002738	1.36732
391	Platinum	Air	pg	14.01835	x	11.3295	1.647306	0.001061	1.040482
392	Plutonium-2	Air	nBq	0.43558	x	0.283313	0.026988	0.000302	0.124978
393	Plutonium-2	Air	nBq	0.998512	x	0.649459	0.061866	0.000691	0.286496
394	Polonium-2	Air	mBq	31.73901	x	23.71572	1.173303	0.016831	6.833158
395	Polychlorin	Air	ng	153.2427	x	70.67848	36.24917	0.078754	46.23631
396	Polychlorin	Air	pg	169.2007	x	169.2007	3.35E-15	4.19E-18	-1.78E-15
397	Potassium	Air	µg	494.472	x	394.2972	16.41531	0.186382	83.57309
398	Potassium-	Air	mBq	3.461123	x	2.535856	0.128255	0.00196	0.795052
399	Propanal	Air	ng	44.08837	x	37.0257	4.062269	0.071823	2.928575
400	Propane	Air	mg	10.90266	x	8.760004	1.609391	0.007376	0.525891
401	Propene	Air	µg	614.8706	x	506.4264	84.54947	0.330528	23.56419
402	Propionic a	Air	µg	83.28369	x	81.42206	0.376612	0.003479	1.481534

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403	Propylene (	Air	µg	11.72336	x	2.381217	9.175352	0.000395	0.166398
404	Protactiniur	Air	µBq	458.9929	x	301.269	30.45056	0.299303	126.9741
405	Radioactive	Air	Bq	39591.32	x	39591.25	0.068746	5.49E-06	0.003521
406	Radium-22	Air	mBq	27.45486	x	21.19348	1.159146	0.012115	5.090121
407	Radium-22	Air	mBq	3.979948	x	3.399648	0.101499	0.000894	0.477907
408	Radon-220	Air	µBq	45.83123	x	41.88517	0.91887	0.002686	3.02451
409	Radon-222	Air	Bq	60925.79	x	39991.56	4042.167	39.72657	16852.34
410	Ruthenium-	Air	nBq	1.356743	x	0.743985	0.273053	0.000352	0.339353
411	Scandium	Air	ng	72.14167	x	59.83475	4.594113	0.010451	7.702354
412	Selenium	Air	µg	208.1954	x	204.7777	1.184645	0.042985	2.190114
413	Silicon	Air	µg	888.2463	x	763.2686	45.87577	0.092285	79.00968
414	Silicon tetra	Air	µg	4.240531	x	4.236849	0.002495	1.05E-05	0.001176
415	Silver	Air	pg	427.4227	x	408.6858	4.34673	0.034563	14.35563
416	Silver-110	Air	nBq	13.44636	x	7.373454	2.706165	0.003492	3.363251
417	Sodium	Air	µg	427.1328	x	376.3973	27.1167	0.121631	23.4971
418	Sodium car	Air	pg	-0.000218	x	-0.000217	-2.82E-07	-6.64E-11	-1.83E-07
419	Sodium chl	Air	µg	46.32631	x	46.27581	0.028974	0.000136	0.021393
420	Sodium dic	Air	ng	555.9151	x	516.5767	24.85087	0.20092	14.28663
421	Sodium for	Air	ng	37.80381	x	35.85067	1.176763	0.000918	0.775465
422	Strontium	Air	µg	19.29363	x	14.95247	0.759821	0.00806	3.573284
423	Styrene	Air	µg	1.276653	x	1.272106	0.000615	1E-05	0.003921
424	Sulfate	Air	mg	74.68442	x	74.34881	0.178403	0.000536	0.156671
425	Sulfur dioxi	Air	g	2.186279	x	1.919684	0.129284	0.005744	0.131567
426	Sulfur hexa	Air	µg	16.46424	x	12.73156	0.861088	0.011323	2.860274
427	Sulfur oxide	Air	g	5.338978	x	5.338978	-2.41E-16	-9.66E-19	1.95E-16
428	Sulfuric aci	Air	mg	21.14282	x	21.14282	9.07E-17	1.33E-19	-2.19E-17
429	t-Butyl met	Air	ng	978.0611	x	884.1479	75.90239	0.015693	17.99515
430	Thallium	Air	ng	159.4479	x	111.2134	17.552	0.014378	30.6682
431	Thorium	Air	ng	101.4729	x	86.64099	5.181716	0.01217	9.637995
432	Thorium-22	Air	µBq	805.2304	x	608.7442	27.90689	0.402348	168.177
433	Thorium-23	Air	mBq	9.647886	x	9.056676	0.117478	0.001128	0.472604
434	Thorium-23	Air	mBq	1.129416	x	0.841026	0.0392	0.000618	0.248572
435	Thorium-23	Air	µBq	459.0948	x	301.3401	30.45672	0.29936	126.9986
436	Tin	Air	µg	9.069835	x	7.215825	0.732671	0.000971	1.120368
437	Titanium	Air	µg	21.96605	x	17.73533	2.370018	0.002593	1.858108
438	Toluene	Air	mg	2.713587	x	1.630885	0.877806	0.003231	0.201664
439	Uranium	Air	ng	123.2537	x	109.5499	4.063688	0.010387	9.62971
440	Uranium-23	Air	mBq	13.30246	x	11.45542	0.35993	0.003511	1.48359
441	Uranium-23	Air	µBq	260.096	x	170.7191	17.25532	0.169605	71.95197
442	Uranium-23	Air	mBq	15.9751	x	13.37777	0.460276	0.005124	2.131925
443	Uranium al	Air	mBq	25.04132	x	16.4313	1.662079	0.01634	6.931597
444	Vanadium	Air	mg	1.083092	x	0.99994	0.032034	0.000209	0.050908
445	VOC, volati	Air	ng	267.6899	x	267.6899	2.87E-11	6.02E-15	-2.13E-12
446	water	Air	mg	14.82535	x	10.7835	1.29888	0.004293	2.738678
447	Xenon-131	Air	mBq	195.0312	x	121.1263	25.49363	0.081569	48.32965
448	Xenon-133	Air	Bq	6.436978	x	3.930347	0.906822	0.002545	1.597263
449	Xenon-133	Air	mBq	21.74805	x	14.91333	1.478152	0.012163	5.344408
450	Xenon-135	Air	Bq	2.621454	x	1.605594	0.364487	0.001047	0.650326
451	Xenon-135	Air	Bq	1.574715	x	0.956344	0.226847	0.000611	0.390912
452	Xenon-137	Air	mBq	35.87986	x	20.28108	6.633072	0.010639	8.955068
453	Xenon-138	Air	mBq	297.4663	x	172.6526	50.61644	0.098041	74.09923
454	Xylene	Air	mg	2.165162	x	1.036393	0.81675	0.003208	0.308811
455	Zinc	Air	µg	801.4765	x	588.4859	127.8971	0.180255	84.91322
456	Zinc-65	Air	nBq	259.7495	x	142.4364	52.27622	0.067456	64.96946
457	Zirconium	Air	ng	177.7066	x	87.16376	42.49477	0.087094	47.96094
458	Zirconium-9	Air	nBq	253.8953	x	139.2262	51.09802	0.065935	63.50518
459	Acenaphth	Water	ng	23.0097	x	10.4534	10.22938	0.046795	2.280129
460	Acenaphth	Water	ng	1.439031	x	0.653758	0.639747	0.002927	0.1426
461	Acetic acid	Water	µg	218.9938	x	216.0488	1.81536	0.003541	1.126146
462	Acidity, uns	Water	mg	5.876107	x	5.860398	0.014413	3.9E-06	0.001292
463	Actinides, r	Water	mBq	5.186356	x	3.373345	0.321335	0.003591	1.488086
464	Aluminum	Water	mg	234.3567	x	198.6933	7.446185	0.066847	28.15031
465	Ammonia	Water	µg	648.8558	x	648.8558	9.23E-15	1.33E-17	-4.19E-15
466	Ammonium	Water	mg	82.34869	x	82.0317	0.185824	0.000512	0.13066
467	Antimony	Water	µg	613.5383	x	596.7644	6.778995	0.025075	9.969783
468	Antimony-1	Water	µBq	3.88355	x	2.129585	0.781589	0.001009	0.971367
469	Antimony-1	Water	µBq	915.0189	x	584.2224	76.21699	0.562702	254.0169
470	Antimony-1	Water	µBq	822.2402	x	531.7912	69.25633	0.481144	220.7115
471	AOX, Adso	Water	µg	6.79515	x	4.576855	1.676346	0.006391	0.535558

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472	Arsenic	Water	µg	3.364706	x	3.364706	-2.64E-17	-2.99E-19	-5.72E-17
473	Arsenic, ior	Water	µg	314.9179	x	236.8543	28.89486	0.101296	49.06749
474	Barite	Water	mg	32.99102	x	25.71357	5.61271	0.02799	1.636749
475	Barium	Water	mg	6.947229	x	4.654034	1.516275	0.00772	0.7692
476	Barium-140	Water	µBq	17.01201	x	9.328715	3.423774	0.004418	4.255104
477	Benzene	Water	mg	2.758036	x	2.597035	0.131107	0.00053	0.029364
478	Benzene, e	Water	µg	88.82146	x	40.36831	39.47384	0.180576	8.798735
479	Beryllium	Water	µg	11.85555	x	8.002833	0.519128	0.00849	3.325098
480	BOD5, Biol	Water	g	1.657086	x	1.179078	0.364489	0.001705	0.111814
481	Boron	Water	mg	2.419427	x	1.688767	0.109375	0.001647	0.619638
482	Bromate	Water	mg	1.211032	x	1.202798	0.005379	9.55E-06	0.002845
483	Bromine	Water	mg	3.296861	x	1.840522	1.172471	0.005305	0.278563
484	Butene	Water	ng	99.57631	x	97.1308	0.39711	0.00525	2.043148
485	Cadmium	Water	ng	390.0178	x	390.0178	-1.13E-14	-1.03E-16	-1.78E-14
486	Cadmium, i	Water	µg	128.184	x	86.58202	19.41495	0.042117	22.14487
487	Calcium, io	Water	g	1.697421	x	1.502558	0.078162	0.000488	0.116214
488	Carbonate	Water	mg	1.717357	x	1.656999	0.032722	5.79E-05	0.027578
489	Carboxylic	Water	mg	16.13753	x	7.465036	7.054296	0.032624	1.585572
490	Cerium-141	Water	µBq	6.80168	x	3.729773	1.368881	0.001766	1.70126
491	Cerium-144	Water	µBq	2.070654	x	1.135465	0.416732	0.000538	0.517919
492	Cesium	Water	µg	3.699309	x	1.680611	1.644594	0.007523	0.36658
493	Cesium-134	Water	µBq	676.6231	x	452.1104	39.8945	0.443107	184.1751
494	Cesium-136	Water	µBq	1.207166	x	0.661962	0.24295	0.000313	0.30194
495	Cesium-137	Water	mBq	597.6999	x	388.5944	37.29631	0.412933	171.3962
496	Chlorate	Water	mg	11.62302	x	11.55547	0.043553	8.1E-05	0.023917
497	Chloride	Water	g	8.278318	x	6.719415	1.236278	0.004653	0.317972
498	Chlorinated	Water	µg	7.385936	x	7.085677	0.11982	0.000127	0.180312
499	Chlorine	Water	µg	33.77914	x	28.05582	1.436458	0.009647	4.277215
500	Chloroform	Water	pg	0.132717	x	0.108687	0.006257	3.9E-05	0.017735
501	Chromate	Water	pg	1.34E-06	x	1.34E-06	1.04E-13	2.88E-16	-9.78E-14
502	Chromium	Water	µg	2.625381	x	2.625381	6.67E-17	9.61E-20	-3.6E-17
503	Chromium-	Water	mBq	1.588446	x	0.922751	0.265834	0.000543	0.399317
504	Chromium '	Water	mg	2.394247	x	1.469698	0.390169	0.000912	0.533467
505	Chromium,	Water	µg	167.3052	x	148.0286	14.78163	0.028797	4.466206
506	Cobalt	Water	µg	934.0806	x	746.7325	41.33439	0.171142	145.8426
507	Cobalt-57	Water	µBq	38.31999	x	21.01317	7.712137	0.009951	9.584729
508	Cobalt-58	Water	mBq	9.385936	x	5.656761	1.260225	0.004242	2.464709
509	Cobalt-60	Water	mBq	7.748146	x	4.63782	1.094923	0.003309	2.012093
510	COD, Chen	Water	g	3.448676	x	2.947048	0.377283	0.001738	0.122608
511	Copper	Water	µg	8.983449	x	8.983449	1.46E-16	2.11E-19	-7.65E-17
512	Copper, ior	Water	mg	6.077079	x	5.749763	0.166671	0.000297	0.160349
513	Crude oil	Water	ng	892.4565	x	892.4565	5.43E-15	4.11E-15	3.91E-15
514	Cumene	Water	mg	2.505472	x	2.478579	0.021809	2.13E-05	0.005063
515	Cyanide	Water	µg	759.9598	x	371.5362	179.3905	0.370511	208.6626
516	Cyanide (in	Water	ng	11.3657	x	11.3657	4.66E-14	6.68E-17	-2.8E-14
517	Detergent,	Water	pg	1.170464	x	1.170464	9.09E-08	2.52E-10	-8.57E-08
518	Dichromate	Water	ng	957.0667	x	811.4435	91.90021	0.746161	52.97687
519	DOC, Dissc	Water	mg	950.9006	x	791.2353	117.4932	0.531826	41.64027
520	Ethane, 1,1	Water	pg	0.00013	x	0.00013	2.54E-16	3.12E-19	4.09E-16
521	Ethane, 1,2	Water	µg	26.5367	x	26.4421	0.033862	0.000184	0.06056
522	Ethene	Water	mg	1.031377	x	1.021681	0.007817	8.62E-06	0.00187
523	Ethene, chl	Water	ng	531.368	x	509.7316	7.789773	0.01176	13.83488
524	Ethylene di	Water	pg	941.6717	x	372.432	533.1412	0.045692	36.0528
525	Ethylene o>	Water	ng	8.053628	x	7.547826	0.270871	0.000364	0.234567
526	Fluoride	Water	mg	45.17593	x	44.1486	0.619608	0.001063	0.406655
527	Fluosilicic a	Water	µg	11.29842	x	5.985755	2.383425	0.000506	2.928731
528	Formaldeh	Water	µg	131.4914	x	129.7113	1.312489	0.001539	0.46609
529	Glutaraldel	Water	µg	4.072966	x	3.174515	0.692927	0.003456	0.202068
530	Heat, waste	Water	kJ	123.9465	x	88.18686	21.23256	0.087953	14.43908
531	Hydrocarbc	Water	µg	480.9102	x	218.4795	213.7973	0.978024	47.65544
532	Hydrocarbc	Water	µg	44.39171	x	20.16733	19.73513	0.090279	4.398964
533	Hydrocarbc	Water	mg	2.231058	x	1.153994	0.876993	0.004015	0.196057
534	Hydrocarbc	Water	pg	0.009562	x	0.009562	7.43E-10	2.06E-12	-7E-10
535	Hydrocarbc	Water	mg	8.741631	x	8.555125	0.142122	0.000578	0.043806
536	Hydrogen-3	Water	Bq	1369.875	x	891.86	84.94539	0.945595	392.1238
537	Hydrogen p	Water	µg	75.20666	x	75.1705	0.029152	2.23E-05	0.006992
538	Hydrogen s	Water	mg	1.258319	x	1.235086	0.011236	4.79E-05	0.011949
539	Hydroxide	Water	µg	2.585275	x	1.753619	0.152576	0.001624	0.677457
540	Hypochlorit	Water	µg	77.75526	x	48.84088	3.523969	0.065633	25.32477

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541	Iodide	Water	µg	375.7624	x	172.593	164.6348	0.755146	37.77944
542	Iodine-131	Water	µBq	181.0345	x	115.9441	16.83883	0.101055	48.15054
543	Iodine-133	Water	µBq	10.67976	x	5.856361	2.149369	0.002773	2.67126
544	Iron	Water	pg	0.243195	x	0.243195	1.89E-08	5.24E-11	-1.78E-08
545	Iron-59	Water	µBq	2.936095	x	1.610038	0.590908	0.000762	0.734386
546	Iron, ion	Water	mg	172.1104	x	132.218	6.745637	0.082422	33.06437
547	Kjeldahl N	Water	ng	62.91077	x	62.91077	2.27E-16	2.44E-19	-1.96E-16
548	Lanthanum	Water	µBq	18.1192	x	9.935857	3.646602	0.004705	4.532037
549	Lead	Water	mg	2.050043	x	1.913699	0.061534	0.000188	0.074623
550	Lead-210	Water	Bq	1.671896	x	1.668583	0.001241	8.07E-06	0.002063
551	Magnesium	Water	mg	127.087	x	98.27588	11.73487	0.077706	16.99855
552	Manganese	Water	mg	4.410464	x	3.903297	0.183786	0.001018	0.322363
553	Manganese	Water	µBq	572.3065	x	346.7546	76.02756	0.257488	149.2668
554	Mercury	Water	µg	16.70007	x	11.8508	2.286428	0.005021	2.557821
555	Metallic ion	Water	pg	2.197421	x	2.197421	1.71E-07	4.73E-10	-1.61E-07
556	Methane, d	Water	µg	56.98005	x	33.73685	18.6374	0.08902	4.516786
557	Methanol	Water	µg	128.6186	x	125.6026	0.845301	0.005317	2.165359
558	Molybdenu	Water	µg	129.7362	x	101.2419	4.293348	0.061536	24.13938
559	Molybdenu	Water	µBq	6.247111	x	3.42567	1.25727	0.001622	1.562549
560	Nickel	Water	µg	1.813909	x	1.813909	-2.23E-18	-6.33E-20	-1.3E-17
561	Nickel, ion	Water	mg	4.649093	x	3.544682	0.378313	0.000941	0.725156
562	Niobium-95	Water	µBq	70.19125	x	47.7148	6.09764	0.033204	16.3456
563	Nitrate	Water	g	2.293988	x	2.292419	0.00088	3.2E-06	0.000685
564	Nitrite	Water	mg	1.475029	x	1.468987	0.002563	7.63E-06	0.003472
565	Nitrogen	Water	mg	88.35819	x	87.92743	0.119823	0.001106	0.309828
566	Nitrogen, o	Water	mg	3.326622	x	3.008544	0.164295	0.001531	0.152252
567	Nitrogen, t	Water	µg	806.654	x	806.654	3.6E-14	-1.39E-18	-5.52E-14
568	non-filtrable	Water	ng	675.1644	x	675.1644	1.8E-12	2.7E-15	4.63E-13
569	Non-prescr	Water	pg	0.011743	x	0.011743	2.61E-10	1.02E-12	-7.73E-10
570	Oils, unspe	Water	mg	256.2319	x	122.4693	106.9699	0.522143	26.27058
571	Organic sul	Water	pg	0.071675	x	0.071675	5.57E-09	1.54E-11	-5.25E-09
572	PAH, polyc	Water	µg	39.77088	x	26.08292	9.750273	0.044159	3.893535
573	Paraffins	Water	ng	3.531344	x	3.383075	0.083091	6.58E-05	0.065111
574	Phenol	Water	µg	430.5986	x	236.64	157.9609	0.730722	35.26691
575	Phosphate	Water	mg	199.6991	x	195.9237	1.463519	0.004684	2.307144
576	Phosphoru	Water	mg	7.106265	x	7.088721	0.011689	4.56E-05	0.005809
577	Phosphoru	Water	pg	0.012938	x	0.012938	1E-09	2.79E-12	-9.48E-10
578	Phosphoru	Water	µg	75.16681	x	75.16681	1.74E-14	2.49E-17	-1.02E-14
579	Polonium-2	Water	Bq	2.547708	x	2.54364	0.001751	1.02E-05	0.002307
580	Potassium	Water	pg	6.24664	x	6.24664	4.85E-07	1.35E-09	-4.58E-07
581	Potassium-	Water	mBq	210.127	x	207.5989	0.458331	0.005532	2.064251
582	Potassium,	Water	mg	103.505	x	89.35223	8.230007	0.043605	5.879125
583	Propene	Water	µg	990.8934	x	963.6033	25.09538	0.008681	2.186014
584	Propylene (	Water	µg	28.20934	x	5.729803	22.07819	0.00095	0.400395
585	Protactiniur	Water	mBq	8.49987	x	5.579057	0.563899	0.005543	2.351371
586	Radioactive	Water	mBq	4.840971	x	4.836578	0.002915	1.21E-05	0.001465
587	Radioactive	Water	Bq	365.6268	x	364.5389	0.193312	0.002154	0.892493
588	Radium-22	Water	mBq	184.9655	x	84.03061	82.22972	0.376163	18.32901
589	Radium-22	Water	Bq	7.461965	x	5.480947	0.483572	0.004056	1.493389
590	Radium-22	Water	mBq	369.9309	x	168.0611	164.4594	0.752326	36.65803
591	Rubidium	Water	µg	37.32161	x	17.02175	16.46774	0.075447	3.756683
592	Ruthenium-	Water	µBq	1.318197	x	0.722847	0.265295	0.000342	0.329712
593	Scandium	Water	µg	21.23173	x	15.36335	0.787056	0.012679	5.068645
594	Selenium	Water	µg	29.28925	x	21.41832	1.641478	0.015962	6.213486
595	Silicon	Water	g	1.950861	x	1.56398	0.080293	0.000534	0.306054
596	Silver-110	Water	mBq	7.342609	x	4.333554	1.065106	0.003173	1.940777
597	Silver, ion	Water	µg	5.757919	x	4.035771	1.407403	0.006036	0.308708
598	Sodium-24	Water	µBq	47.26731	x	25.91953	9.512841	0.012275	11.82266
599	Sodium for	Water	ng	90.82143	x	86.12912	2.827102	0.002206	1.863007
600	Sodium, ior	Water	g	2.108725	x	1.377672	0.601781	0.002319	0.126953
601	Solids, inor	Water	g	3.673801	x	3.634165	0.006044	8.58E-05	0.033506
602	Solved orga	Water	pg	15.75248	x	15.75248	1.22E-06	3.39E-09	-1.15E-06
603	Solved soli	Water	mg	192.8961	x	179.4544	2.086013	0.004795	11.35093
604	Strontium	Water	mg	23.68005	x	11.0969	9.9564	0.046186	2.580563
605	Strontium-8	Water	µBq	143.4773	x	86.01955	22.48011	0.049209	34.92843
606	Strontium-9	Water	Bq	5.796647	x	4.137207	0.233879	0.00361	1.42195
607	Styrene	Water	pg	0.00026	x	0.00026	5.09E-16	6.24E-19	8.17E-16
608	Sulfate	Water	g	4.02818	x	3.809973	0.041852	0.000455	0.175899
609	Sulfate and	Water	ng	2.218567	x	2.218567	-2.42E-12	5.13E-15	1.27E-12

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	610	Sulfide	Water	mg	5.12986	x	5.124139	0.003152	1.32E-05	0.002556
	611	Sulfite	Water	µg	208.2481	x	132.607	9.341328	0.171011	66.12875
	612	Sulfur	Water	mg	5.534088	x	5.185495	0.281422	0.001377	0.065794
	613	Suspended	Water	mg	476.016	x	444.8167	23.17655	0.110315	7.912432
	614	t-Butyl met	Water	µg	8.093899	x	3.977148	3.327498	0.016369	0.772883
	615	Technetiun	Water	µBq	144.1871	x	79.17596	28.91236	0.037683	36.06109
	616	Tellurium-1	Water	µBq	89.15305	x	58.47521	5.743086	0.059069	24.87568
	617	Tellurium-1	Water	nBq	361.7201	x	198.353	72.79842	0.093937	90.47468
	618	Thallium	Water	µg	1.972361	x	1.431243	0.096282	0.00105	0.443787
	619	Thorium-22	Water	mBq	760.2736	x	356.5164	328.9308	1.504702	73.32174
	620	Thorium-23	Water	Bq	1.159724	x	0.761208	0.076939	0.000756	0.320822
	621	Thorium-23	Water	mBq	1.659251	x	1.220292	0.063603	0.00094	0.374416
	622	Thorium-23	Water	mBq	8.500953	x	5.579811	0.563965	0.005543	2.351634
	623	Tin, ion	Water	µg	331.2473	x	319.5729	3.345056	0.021187	8.308176
	624	Titanium, ic	Water	mg	49.51134	x	46.44971	1.413876	0.002438	1.64531
	625	TOC, Total	Water	mg	971.735	x	811.7934	117.6944	0.532336	41.71492
	626	Toluene	Water	µg	497.7133	x	242.861	207.7482	0.926813	46.17721
	627	Toluene (m	Water	ng	191.3381	x	191.3381	-3.65E-14	-3.06E-16	-5.17E-14
	628	Tributyltin c	Water	µg	7.615487	x	4.675431	1.743177	0.431056	0.765822
	629	Triethylene	Water	µg	74.15453	x	72.11036	0.399193	0.003921	1.641056
	630	Tungsten	Water	µg	21.59419	x	14.95843	0.87518	0.014638	5.745944
	631	Uranium-23	Water	mBq	10.19984	x	6.694866	0.676679	0.006651	2.821646
	632	Uranium-23	Water	mBq	16.82973	x	11.04652	1.11652	0.010974	4.655715
	633	Uranium-23	Water	mBq	883.2865	x	872.8106	2.333384	0.020785	8.121789
	634	Uranium al	Water	mBq	489.6781	x	321.4033	32.48724	0.319327	135.4682
	635	Vanadium,	Water	mg	1.485234	x	1.16032	0.119585	0.000374	0.204956
	636	VOC, volati	Water	mg	1.315889	x	0.6021	0.576983	0.002647	0.134159
	637	waste wate	Water	mg	35.4659	x	35.4659	2.66E-12	1.01E-14	-7.5E-12
	638	Waste wate	Water	cm3	12.30324	x	12.30324	7.87E-17	2.67E-19	2.01E-16
	639	Water	Water	mg	3.93969	x	3.93969	1.05E-14	1.57E-17	2.7E-15
	640	Xylene	Water	µg	378.4952	x	172.5187	167.7082	0.771557	37.49673
	641	Zinc	Water	µg	12.56433	x	12.56433	3.98E-15	5.72E-18	-2.38E-15
	642	Zinc-65	Water	µBq	640.8377	x	351.4101	128.9726	0.166422	160.2886
	643	Zinc, ion	Water	mg	12.53753	x	7.626887	4.215982	0.002972	0.691685
	644	Zirconium-9	Water	µBq	7.421081	x	4.069428	1.493539	0.001927	1.856186
	645	ash	Waste	g	5.470367	x	5.470367	2.09E-17	-1.2E-19	-6.59E-17
	646	bauxite resi	Waste	mg	11.30199	x	11.30199	3.02E-14	4.51E-17	7.76E-15
	647	Chemical w	Waste	pg	166.8965	x	166.8965	1.3E-05	3.59E-08	-1.22E-05
	648	Chemical w	Waste	pg	132.5628	x	132.5628	1.03E-05	2.85E-08	-9.71E-06
	649	Dross	Waste	µg	56.82246	x	56.82246	1.52E-13	2.27E-16	3.9E-14
	650	Metal waste	Waste	pg	0.408389	x	0.408389	3.17E-08	8.8E-11	-2.99E-08
	651	Mineral wa	Waste	mg	232.4435	x	232.4435	7.08E-13	-5.61E-17	-2.26E-13
	652	Oil waste	Waste	ng	2.155027	x	2.155027	4.03E-12	1.69E-16	-3.47E-13
	653	Packaging	Waste	pg	3.12E-15	x	3.12E-15	2.42E-22	6.72E-25	-2.29E-22
	654	Packaging	Waste	pg	1.09899	x	1.09899	8.54E-08	2.37E-10	-8.05E-08
	655	Packaging	Waste	pg	0.049234	x	0.049234	3.82E-09	1.06E-11	-3.61E-09
	656	Prescribed	Waste	mm3	1.89E-09	x	1.89E-09	4.2E-17	1.65E-19	-1.25E-16
	657	Production	Waste	ng	103.4169	x	103.4169	2.76E-13	4.13E-16	7.1E-14
	658	Slags and a	Waste	pg	203.3297	x	203.3297	1.58E-05	4.38E-08	-1.49E-05
	659	Sodium hyc	Waste	ng	48.65136	x	48.65136	9.11E-11	3.82E-15	-7.83E-12
	660	spent potlin	Waste	µg	81.82434	x	81.82434	2.18E-13	3.27E-16	5.62E-14
	661	Waste to re	Waste	pg	0.412552	x	0.412552	3.2E-08	8.89E-11	-3.02E-08
	662	Waste, fly a	Waste	g	29.13801	x	29.13801	1.07E-16	1.35E-19	-2.96E-17
	663	Waste, fron	Waste	pg	0.652339	x	0.652339	5.07E-08	1.4E-10	-4.78E-08
	664	Waste, indu	Waste	pg	145.6096	x	145.6096	1.13E-05	3.14E-08	-1.07E-05
	665	Waste, min	Waste	µg	32.71933	x	32.71933	-2.53E-11	-6.1E-14	-1.48E-11
	666	waste, non-	Waste	mm3	5.34E-07	x	5.34E-07	1.18E-14	4.64E-17	-3.51E-14
	667	Waste, nuc	Waste	pg	25.54137	x	25.54137	5.67E-07	2.22E-09	-1.68E-06
	668	Waste, She	Waste	µg	2.374667	x	2.374667	1.02E-14	1.72E-17	-8.27E-15
	669	Waste, soli	Waste	g	9.746338	x	9.746338	3.89E-17	4.16E-20	-3.76E-17
	670	Waste, to ir	Waste	pg	0.885867	x	0.885867	6.88E-08	1.91E-10	-6.49E-08
	671	Waste, uns	Waste	g	158.6254	x	158.6254	7.16E-16	6.84E-19	-7.12E-16
	672	Aclonifen	Soil	µg	17.94397	x	17.87462	0.041556	0.000145	0.02765
	673	Aluminum	Soil	mg	2.352861	x	1.421893	0.73973	0.003539	0.187699
	674	Antimony	Soil	pg	173.6946	x	169.2579	2.79375	0.003238	1.639655
	675	Arsenic	Soil	µg	179.3205	x	178.9496	0.295183	0.001413	0.074307
	676	Atrazine	Soil	ng	1.59486	x	1.088834	0.222294	0.000156	0.283576
	677	Barium	Soil	mg	1.125397	x	0.666322	0.368107	0.001758	0.08921
	678	Bentazone	Soil	µg	9.138576	x	9.103256	0.021164	7.4E-05	0.014082

No		Substance	Compartment	Unit	Total	Paper, woodfree, coated, at regional storage/RER U - modified for online billing contractor	Paper, woodfree, coated, at non-integrated mill/RER U - online billing contractor	Transport, lorry 32t/RER U	Transport, transoceanic freight ship/OCE U	Transport, freight, rail/RER U
	679	Beryllium	Soil	µg	170.6038	x	170.6038	6.46E-16	1.05E-18	6.49E-17
	680	Boron	Soil	µg	29.00183	x	18.82647	7.990567	0.040252	2.144537
	681	Cadmium	Soil	µg	28.61021	x	27.59709	0.989691	3.83E-05	0.023393
	682	Calcium	Soil	mg	9.837852	x	6.012442	2.972998	0.014362	0.83805
	683	Carbetamic	Soil	µg	18.53212	x	18.51954	0.007545	2.62E-05	0.005016
	684	Carbon	Soil	mg	29.07373	x	26.28091	2.237445	0.010588	0.544788
	685	Chloride	Soil	mg	183.4934	x	45.53835	134.6072	0.014441	3.333408
	686	Chlorothalo	Soil	mg	15.32168	x	15.32156	7.75E-05	7.13E-08	4.67E-05
	687	Chromium	Soil	µg	139.778	x	125.0375	13.55462	0.018104	1.167784
	688	Chromium (	Soil	pg	533.1822	x	533.1822	8.45E-15	-1.79E-18	-9.34E-17
	689	Chromium '	Soil	µg	42.97274	x	37.3939	3.522111	0.028624	2.028101
	690	Cobalt	Soil	ng	70.32988	x	60.16392	2.231397	0.018512	7.916052
	691	Cobalt & cc	Soil	ng	324.2192	x	324.2192	1.97E-15	-8.36E-19	-1.21E-15
	692	Copper	Soil	µg	733.8551	x	713.1061	19.09865	0.018424	1.631984
	693	Cypermethi	Soil	ng	848.9524	x	848.6769	0.16524	0.000568	0.109732
	694	Dinoseb	Soil	mg	4.164373	x	4.164339	2.11E-05	1.94E-08	1.27E-05
	695	Fenpiclonil	Soil	µg	603.4458	x	603.4385	0.004483	7.82E-06	0.002793
	696	Fluoride	Soil	µg	146.4785	x	96.79707	39.19242	0.195195	10.2938
	697	Glyphosate	Soil	µg	67.27962	x	23.00265	3.340054	0.00068	40.93623
	698	Heat, waste	Soil	kJ	11.49435	x	10.68097	0.495796	0.003039	0.314546
	699	Iron	Soil	mg	124.5056	x	45.32251	1.875714	0.00827	77.29907
	700	Lead	Soil	µg	498.3928	x	493.1225	5.154511	0.000174	0.11559
	701	Linuron	Soil	µg	138.8641	x	138.3274	0.321592	0.001125	0.213975
	702	Magnesium	Soil	mg	1.894572	x	1.142949	0.592013	0.002846	0.156764
	703	Mancozeb	Soil	mg	19.94725	x	19.94709	0.000101	9.28E-08	6.09E-05
	704	Manganese	Soil	µg	137.14	x	90.23498	30.91703	0.16103	15.82694
	705	Mercury	Soil	µg	10.30948	x	10.30873	0.000479	1.17E-06	0.000262
	706	Metaldehyc	Soil	µg	7.356993	x	7.354606	0.001432	4.92E-06	0.000951
	707	Metolachlo	Soil	mg	1.004096	x	1.000214	0.002326	8.14E-06	0.001547
	708	Metribuzin	Soil	µg	701.0911	x	701.0855	0.003547	3.26E-06	0.002139
	709	Molybdenu	Soil	ng	25.80774	x	23.30173	0.83417	0.003922	1.667917
	710	Napropami	Soil	µg	13.01965	x	13.01542	0.002534	8.71E-06	0.001683
	711	Nickel	Soil	mg	1.689459	x	1.680797	0.008501	1.89E-07	0.000161
	712	Oils, bioger	Soil	µg	831.6105	x	377.5953	5.34924	0.014562	448.6514
	713	Oils, unspe	Soil	mg	256.4056	x	120.1741	110.1371	0.542098	25.55224
	714	Orbencarb	Soil	mg	3.783402	x	3.783371	1.91E-05	1.76E-08	1.15E-05
	715	Phosphoru	Soil	µg	134.8441	x	83.99082	37.4944	0.185729	13.17314
	716	Pirimicarb	Soil	ng	866.2608	x	862.9128	2.006155	0.007019	1.334814
	717	Potassium	Soil	µg	911.8118	x	562.9579	261.4745	1.285838	86.09357
	718	Selenium	Soil	ng	9.725807	x	9.725807	3.44E-17	5.09E-20	-3.98E-19
	719	Silicon	Soil	µg	521.4419	x	383.9478	82.98492	0.436308	54.07284
	720	Silver	Soil	ng	154.3461	x	130.652	23.16849	0.000843	0.524747
	721	Sodium	Soil	mg	8.563051	x	6.557985	1.634079	0.007035	0.363951
	722	Strontium	Soil	µg	22.64863	x	13.38442	7.429988	0.035398	1.798827
	723	Sulfur	Soil	mg	1.428118	x	0.870526	0.44423	0.00212	0.111243
	724	Tebutam	Soil	µg	30.85478	x	30.84477	0.006006	2.06E-05	0.003988
	725	Teflubenzu	Soil	µg	46.68753	x	46.68715	0.000236	2.17E-07	0.000142
	726	Tin	Soil	ng	73.08688	x	70.40463	2.416965	0.000755	0.264528
	727	Titanium	Soil	µg	3.141405	x	2.444653	0.096536	0.001396	0.598821
	728	Vanadium	Soil	ng	89.91705	x	69.97377	2.763155	0.039962	17.14016
	729	Zinc	Soil	mg	4.33853	x	3.527295	0.795047	6.8E-05	0.01612
	730	Hardwood I	Non mat.	oz	39.15881	x	39.15881	1.42E-16	1.22E-19	-1.53E-16
	731	show on tre	Non mat.	mg	381.7762	x	381.7762	1.09E-15	1.16E-18	-1.17E-15
	732	Truck trave	Non mat.	inch	489.6076	x	489.6076	3.04E-15	-4.27E-18	-4.86E-15
	733	AU databas	Economic	Wh	893.3312	x	893.3312	5.83E-15	7.72E-18	-1.81E-15
	734	AU databas	Economic	kJ	172.4955	x	172.4955	1.2E-15	6.54E-19	-1.26E-15
	735	AU databas	Economic	kJ	87.53906	x	87.53906	4.33E-16	4.61E-19	-6.43E-17
	736	AU databas	Economic	J	435.9953	x	435.9953	4.82E-11	1.23E-13	-3.88E-11
	737	AU databas	Economic	kJ	656.5149	x	656.5149	-4.82E-15	-2.5E-17	-9.74E-15
	738	AU databas	Economic	Mj	6.766413	x	6.766413	4.39E-17	5.93E-20	-1.79E-17
	739	AU databas	Economic	Mj	5.769617	x	5.769617	1.08E-16	1.4E-19	-1.63E-17
	740	AU databas	Economic	kJ	579.0603	x	579.0603	1.65E-15	-1.83E-18	-7.92E-15

Appendix C Peer Review Report and Responses

General Comments	
Peer Review Comments	**URS Comments**
At the beginning of the study there is a comprehensive literature review of relevant studies.	No comment required.
The assumptions related to the choice of system boundaries are appropriate (see Section 1.4.2). The selection of core processes inside the system boundaries is correct, i.e. bill preparation, distribution and customer handling.	No comment required.
Several assumptions are also listed in Section 6.1 that relate to the system boundaries. The second paragraph: *'As the Simapro database did not offer the possibility of selecting appropriate paper (printing quality) from an Australian database, we selected relevant paper in the Ecoinvent (European) database and substituted the key inventory elements from an impacts perspective, i.e. the pulp and the electricity input (INFRAS, 1998), to reflect the sourcing of the pulp and the production of electricity in Australia. The amounts (weight of pulp and kWh of electricity) used have been kept at the same level. It should also be noted that the same principle was applied to the recycling of paper.'* Section 6.2: *'Energy input associated with air transportation of mail is not included in the model as it is not tracked by Australia Post on the basis that they only occupy space left over in regular flights which would fly regards of Australia Post's deliveries. The project team felt that trying to obtain such data would be a project in itself. Inclusion of this information would reinforce the conclusion that online billing impacts are less than paper billing.'* There is indeed an additional impact caused by air transport which is currently not included in the model. This exclusion results in a conservative assessment of paper billing. Although it is difficult to obtain relevant data, an attempt should be made. Section 6.1 also mentions that allocation procedures have been uniformly applied throughout the life cycle analysis process. The allocation procedures should be mentioned explicitly in the document. We suggest that such methodological choices and assumptions should be presented earlier on in the document in a separate Section. The detail associated with the calculation of LCI data for paper referred to above can be put in an appendix.	Key methodological choices and assumptions will be moved to section 1.4 (Goal and scope definition) Allocation procedures were based on number of items, either the number of pages or bills (and not on financials). This will be stated in the section dedicated to methodological choices. Regarding air transport, see comment below. We will include LCI data for paper as suggested.

General Comments	
Peer Review Comments	**URS Comments**
Section 3.2.3: There is a logical inconsistency here in the way airmail is excluded from the LCI. The approach to estimation of the petrol consumption associated with bill delivery is attributional – effectively we assume the postman is doing the usual surburban delivery trip and we allocate part of his/her trip to the bill. On the other hand, the air transportation is not included because "the flight would happen anyway" (which by contrast reflects a consequential LCA approach). This idea is repeated again in Section 6.2, although the authors also admit that data collection would be extremely difficult. The concluding sentence in 6.2 – that this exclusion is conservatively in favour of postal billing – is correct. Preliminary attributional estimates by us based on air freight delivery datasets in the Australian LCI database suggest that this fuel energy would dominate the overall LCI for airmailed bills. If the proportion of mail delivered by air can be estimated, and a significant proportion of the bills go by airmail, it would be worthwhile including this data. Otherwise, the exclusion should be made on the basis of data unavailability, rather than anything to do with consequentialism.	Although there is a difference between postal trucks, which run only for letters and parcel delivery and planes, which run primarily for passenger transport and incidentally carry mail, we will exclude air transport on the basis of data unavailability (Australia Post was contacted in this respect).
We note that the functional unit selected for this study represents what is in practice a theoretical ideal for Telstra, given that of over 1 million online billing customers (13 million online bills produced per year) 'only approximately 80,000 individual online billing customers chose not to receive a paper bill with their online bill' (see Section 3.1.1). This means that it is critical that this study is not interpreted to endorse the current success of Telstra's overall online billing service, but to endorse the success of Telstra in respect of those customers who chose to avoid the paper bill delivery, and the success of those customers who make this more sustainable choice. To make this clear, it would be worthwhile to present the functional unit in a separate section. Functional units are normally presented as the common product or service delivered by all the systems under study, so the functional unit in this case would be better expressed as "delivery of billing information to a Telstra client". The two dot points under 1.4.1 are then summaries of the systems for delivering that function, and may be included as subsidiary points. The FU section should then also introduce the point clearly made in 3.1.1 in the last two paragraphs. Critically, the executive summary needs to make this point – that the	We will create a functional unit section in Section 1, as suggested. We will also modify the Executive Summary to make the point that "the study is useful for informing Telstra customers and management about the benefits of a customer choosing pure online billing over paper billing".

General Comments	
Peer Review Comments	**URS Comments**
study is useful for informing Telstra customers and management about the benefits of a customer choosing pure online billing over paper billing, rather than reporting on the success of the current availability of online billing. The current statement that "The project has been completed to underpin claims made about the environmental benefits of Telstra's product and service innovations" would allow the second interpretation.	
If Telstra wished to examine the overall performance of its online billing operations, it might be more relevant to present the results in terms of the total client base (rather than an individual) all receiving posted bills, all receiving online bills (only) or all receiving the popular combination of online and postal notification. But the present approach used by URS is well chosen for the purpose described in the previous point.	No comment required.
If the client is willing to extend the project, the authors may elaborate further on the recommendations, eg. both bills and envelopes should be made out of recycled paper. This alternative could be further investigated in a sensitivity analysis. We would expect it would reduce the advantage of online billing over postal billing for the online billers who do not print out their bills. Assuming those who do print out use recycled paper, the effect may not be significant.	No comment required, not in the present scope of the project.

Specific Comments	
Peer Review Comments	**URS Comments**
Executive summary	
Two very minor typos: "… it is not possible to read the results of this LCA **as** total values…"; "The impact categories for the comparative LCA indicate that the environmental **burdens** associated with online billing…"	Recommendation accepted.
Key recommendation 1)… shouldn't that be server **utilisation** rather than capacity to be maximised?	Recommendation accepted.
Methodology	
Water usage: the authors write '*It should be noted that water resource depletion is not a separate indicator available in CML 2001, nor the Eco-indicator 99 methodology. Although water scarcity is a major issue in Australia, the only impact associated with the processes included in the model that involve direct water usage was the pulping of wood for paper, hence this is not considered a major concern.*' Water is used (not only) for paper production, but also in electricity generation, manufacturing of capital equipment etc. Hence, water might be included in addition to the other four impact categories due to its overarching importance in the Australian context. The authors should consider using EDIP 1997 which does include water use.	Water usage is a recognised shortfall of the current methods as there is no indicator for direct water usage. The EDIP 1997 method has human toxicity/water and ecotoxicity/water indicators, accounting for emissions to water but not water usage. While water is part of the inventories as an input, both in EDIP 1997 and CML 2001, it would be very difficult to use meaningfully, as there are many different categories of water input (from river water to salt water) in various units. We therefore recommend not to include water use and have stated in the report: 'water was excluded from the project scope. We hypothesise that water demand would be correlated to other resource use and therefore favour online billing'. .
Section 2.5 third paragraph is a little unclear: '*One of the key aspects of the model is paper usage which creates environmental impacts associated with land clearing. It was therefore determined that a land use indicator was needed. As CML 2001 V2.0 – Australian toxicity factors does not provide a land use impact category, Eco-indicator 99 method, (Goedkoep and Spriensma, 2000) Australian substances, version 2.03 was applied to the model. Eco-indicator 99 is an assessment method that has been updated and developed based on the well known Eco-indicator 95 (Goedkeop 1995). It is compatible with AS/ISO 14042 requirements and the version of Eco-indicator 99 applied is the same as the European version however Australian substance definitions for fuels have been added.*' How about replacing the third sentence with "Because the Australian toxicity factors in CML 2001 v2.0 do not include a land use impact category, the Eco-indicator 99 method, (Goedkoep and Spriensma, 2000) Australian substances, v2.03 was used"?	Recommendation accepted.

Specific Comments	
Peer Review Comments	**URS Comments**
Life cycle inventory	
Table 3-2 should be labelled like the other tables in terms of the data source. As this data seems to be critical, a sensitivity analysis of the % use for online billing would be appropriate.	Ref. to "Telstra, pers. Communication" will be added. A sensitivity analysis on the amount of energy used by the servers was carried out. The recommended sensitivity analysis on the % use for online billing would be equivalent to this sensitivity analysis (as, at the end of the day, it all depends on how much electricity use is attributed to online billing). A link between % of use of the server for online billing and electricity use sensitivity analysis will be made explicitly in the report to cover this recommendation.
Section 3.1.2 (Server usage impact)… Firstly, the second paragraph says two E25K Sun servers are used by Telstra. This is seems to contradict Table 3-2. This should be clarified or fixed. Secondly, the assumption '*a 1:1 ratio is assumed for close control air conditioning energy usage and server energy usage*' based on Koomey (2007) deserves elaboration. Can the authors please justify why this ratio has been chosen? Later on in Section 5.1.1 a sensitivity analysis investigates the influence of control air conditioning energy usage. This seems to be a critical assumption. More description would be helpful here. Thirdly, a minor improvement in this line – it would be clearer if "between the" was inserted instead of "for".	The servers numbers are indeed unclear, and have been clarified: there are actually 35 servers in total. Selection of the 1 to 1 ratio will be elaborated upon: "Koomey (2007) has found that " [the] total power used by servers represented about 0.6% of total U.S. electricity consumption in 2005." and that "When cooling and auxiliary infrastructure are included, that number grows to 1.2%", which led us to conclude that the power used by servers for their data operation function is approximately the same as the power used by the cooling and auxiliary infrastructure. In the same study, a graph shows that the proportion is approximately the same when considering worldwide data. This is also supported by data from a presentation by IBM which suggests that IT load accounts for 45% of data centre energy use consumption while ancillary activities account for 55% of the energy use." Energy Efficiency in the Data Center, IBM, 2007 "Between the" will replaced "for"..
Section 3.1.2 (Server materials impacts). The report says 'T*able A-2, in Appendix A outlines the material composition assumed for the average Telstra server*'. This seems to actually be a reference to Table A-1.	Recommendation accepted.
Section 3.1.2 (Employee energy usage). Firstly, the report says 246 $kWh.m^{-2}$ and 75 $MJ.m^{-2}$ are needed. These data need a reference. Secondly: '*In total, 47.3% of the capacity of the servers is used to run the online billing service, therefore*	Recommendation accepted. Source: Telstra, has been added and the appropriate paragraph rephrased.

Specific Comments	
Peer Review Comments	**URS Comments**
gas and electricity relative to staff running the servers was apportioned to reflect this percentage and 20,363 kWh of electricity and 6 GJ of gas was incorporated into the model.' The causation is not absolutely clear in this sentence. How about "Considering all the data in Table 3-2, 47.3% of server capacity was associated with online billing. We used this factor to allocate to the model a fraction the total electricity and gas demands caused by the employment of the server staff. These fractions were thus 20,363 kWh electricity and 6 GJ gas respectively."	
Section 3.1.4 Printing online bills. The assumption that '50% of printed online bills are recycled and 50% are sent to landfill' should be backed up by literature or a statement made to the effect that the assumption was made because no data or literature was found.	It is backed-up by IndustryEdge reference, see footnote.
Table 3-5: The reference "Evans et al 2001" is missing in Section 8.	Recommendation accepted.
Table 3-6: The reference "Telstra" is incomplete and missing in Section 8.	Recommendation accepted. Note it is a personal communication
Table 3-7: "Car**b**on black"; The reference is incomplete and missing in Section 8.	Recommendation accepted.
Section 3.3 refers to Appendix C. This needs to be added to the report.	Recommendation accepted.
Table 3-11 provides a good overview of comparative LCI data. It's a particularly minor point but given the significant figures of the other data, it would be nice to quote the petrol consumption as 0.59 mL/bill and black toner as 0.20 g/bill. More importantly, the origin of the following data is unclear for online billing: electricity 28,8 Wh/bill and gas 130 J/bill. What does "equipment 35 servers" mean? But the sum of all servers is 43 (see Table 3-4).	Recommendation accepted.. As mentioned above, Table 3-4 needs to be fixed, as it is confusing. There are actually 35 servers, the E25K servers being used both for Production and Test and Development.
Life cycle impact results	
Page 4-1 last paragraph. "32 g 1,4-D**C**B equivalent". There are two other instances of this.	Recommendation accepted.
In Section 4.4 we suggest replacement of the 4th and 5th sentences with "For each impact category, Table 4-2 shows the key contributing processes (including the size of the burden associated with that contributing process)."	Recommendation accepted.

Specific Comments	
Peer Review Comments	**URS Comments**
We got the general message of Table 4-2 but found interpreting some aspects was difficult. One simple thing: “Paper” in the second column is presumably “Production of paper”? If so, why are potatoes and fruit production involved in making it? More puzzling is how some values in the fifth column are positive and qualified by negative numbers in the seventh column, and sometimes the opposite, while generally the signs agree. There may be a good reason for this and it should be explained to the reader.	Recommendation accepted. This table will be fully revised.
Last paragraph: “energy usage and paper consumption are the key **activities**”.	Recommendation accepted.: “energy usage and paper consumption are the key **activities contributing to the impacts”**
At A4 size, Figures 4-1 to 3 are difficult to read. We suggest URS sacrifices the footer space, shifts the headings to the left and enlarges the diagrams for clarity.	Recommendation accepted.
The last paragraph before Section 5.1. Global Warming is quite information-dense. We suggest: ‘The sensitivity analysis demonstrated that the global warming burdens associated with online billing exceed those associated with paper billing when the number of customers receiving both paper and online bills is reduced to 70% of the base case figure. This also occurs if the server energy increases by 50% or approximately 95% of customers print their online bill. With regards to land use, the land use burdens associated with online billing exceed those associated with paper billing if 100% of customers recycle their paper bills.’	Recommendation accepted.
Sensitivity analysis	
First paragraph: “*This is because the energy usage of the servers remains constant regardless of the reduction in the number of bills produced.*” Wouldn’t the *proportion* of the server energy associated with online billing (Table 3-2) decrease?	No, the data used by each application (online billing or other) sits on the server and requires the same amount of energy regardless of whether it is used or not by the said application. This will be referenced to “Telstra, pers. Communication”. Therefore the proportion of the server energy associated with online billing varies very little, but the number of online bills which this information allows to manage varies. We therefore prefer to keep our wording.
The illustration of Figure 5-2 is a little confusing, i.e. increasing positive numbers on the left part of the x-axis followed by decreasing negative figures. Can the layout be sorted in a more logical format? This comment is applicable to all Figures	It could be changed, but we do not think that the readability would be much improved, so we propose to leave these diagrams as they are.

Specific Comments	
Peer Review Comments	**URS Comments**
5-Xs.	
Section 5.2.3. Minor point: URS could clarify whether this sensitivity test is intended to take into account uncertainty in the data URS has obtained for paper bill length, or is a reflection of known variability in paper bill length.	It is not so much an uncertainty as to the actual paper bill length than a possibility for Telstra to reduce the bill length by improving the layout. This sentence will be added to the paragraph.
References	
Minor point – there are two uses of “et al”, which ought to be spelt out.	Recommendation accepted.
The Koomey (2007) reference is not available online, and the URL is wrong /misspelt.	Recommendation accepted., The URL is incorrect and should read: http://enterprise.amd.com/Downloads/svrpwrusecompletefinal.pdf
Some references are missing (see comments above)	Recommendation accepted.