Appendix 3

All results are presented for 1 400 000 invoices either paper or electronic. These results do not reflect the total impacts of the respective invoice system since the study made is a consequential analysis, where processes not affected by a change is not included, e.g. the bank handling of invoices and the internet use (except for the difference in internet use time).

The study has focused on cumulative energy demand and greenhouse gas emissions and the results for these are presented below. To assess the cumulative energy demand a method provided with Ecoinvent 2.0 (Frischknecht et al., 2007) was used. Greenhouse gas emissions were assessed using the method provided in the CML Baseline 2000 (as provided in the SimaPro software), which calculates the total carbon dioxide-equivalents (CO2-eqv.) of the system studied. We used the 100-year perspective. The method in SimaPro was modified for the study. The characterisation factors for CO2 uptake by plants and the subsequent emissions of biogenic CO2 were set to zero. Carbon emitted from biogenic sources in another form, e.g. methane, was accounted for.

Moberg et al. (2008). Effects of a total change from paper invoicing to electronic invoicing in Sweden.

BASE SCENARIO - Paper invoice 2A4, *CO2cap*

Green House Gas Emissions

Title:	Analyzing 1 p 'Paper invoice system'
Mode:	**Group**
Method:	**CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator:	Characterization
Skip categories:	Never
Relative mode:	Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Production of envelopes	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Global warming (GWP100)	**kg CO2 eq**	**3,94E+07**	1,92E+07	3,25E+06	2,01E+06	1,96E+06	6,85E+06	1,88E+05	3,77E+05	2315877,2	3318400,8

Cumulative Energy Demand

Title:	Analyzing 1 p 'Paper invoice system'
Mode:	**Group**
Method:	**Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator:	Characterization
Skip categories:	Never
Relative mode:	Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Envelope production	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Non renewable, fossil	MJ eq	5,16E+08	2,20E+08	5,11E+07	3,24E+07	3,81E+07	1,09E+08	1,84E+06	3,04E+06	3,62E+07	2,43E+07
Non-renewable, nuclear	MJ eq	8,73E+07	6,57E+07	1,12E+07	4,96E+07	-3,69E+06	3,45E+07	1,32E+06	3,13E+06	6,76E+05	-7,52E+07
Renewable, biomass	MJ eq	7,95E+08	1,13E+09	-2,67E+07	2,05E+07	-2,06E+07	1,39E+07	5,17E+05	1,46E+06	9,44E+07	-4,18E+08
Renewable, wind, solar, geothe	MJ eq	1,11E+07	1,12E+07	2,75E+06	1,37E+07	-1,56E+06	7,09E+06	2,54E+05	7,35E+05	1,17E+04	-2,31E+07
Renewable, water	MJ eq	8,34E+06	4,51E+06	1,37E+05	4,37E+05	1,75E+05	1,96E+06	8,67E+04	1,22E+05	1,23E+05	7,95E+05
Total	**MJ eq**	**1,42E+09**	1,43E+09	3,85E+07	1,17E+08	1,24E+07	1,67E+08	4,02E+06	8,49E+06	1,31E+08	-4,91E+08

Moberg et al. (2008). Effects of a total change from paper invoicing to electronic invoicing in Sweden.

BASE SCENARIO - Electronic invoice, *CO2cap*

Green House Gas Emissions

Title: Analyzing 1 p 'Electronic invoice system'
Mode: **Group**
Method: **CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Server production and waste management	Server electricity use	Internet use	Archive, electronic invoice
Global warming (GWP100)	**kg CO2 eq**	**6,47E+05**	5,26E+04	5,87E+05	2,29E+03	4,59E+03

Cumulative Energy Demand

Title: Analyzing 1 p 'Electronic invoice system'
Mode: **Group**
Method: **Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Server production and waste management	Server electricity use	Internet use	Archive, electronic invoice
Non renewable, fossil	MJ eq	9,79E+06	6,20E+05	9,07E+06	3,54E+04	6,78E+04
Non-renewable, nuclear	MJ eq	2,38E+07	2,27E+05	2,33E+07	9,10E+04	1,52E+05
Renewable, biomass	MJ eq	1,33E+07	1,46E+04	1,31E+07	5,13E+04	8,38E+04
Renewable, wind, solar, geothe	MJ eq	6,81E+06	3,97E+03	6,73E+06	2,63E+04	4,29E+04
Renewable, water	MJ eq	1,10E+05	3,79E+04	7,08E+04	2,77E+02	1,07E+03
Total	**MJ eq**	5,38E+07	9,04E+05	5,23E+07	2,04E+05	3,47E+05

BASE SCENARIO - Paper invoice 2A4, *High Gas Price*

Green House Gas Emissions

Title:	Analyzing 1 p 'Paper invoice system'
Mode:	**Group**
Method:	**CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator:	Characterization
Skip categories:	Never
Relative mode:	Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Production of envelopes	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Global warming (GWP100)	**kg CO2 eq**	**4,68E+07**	2,69E+07	5,19E+06	1,18E+07	8,37E+05	1,19E+07	3,64E+05	8,96E+05	2,32E+06	-1,33E+07

Cumulative Energy Demand

Title:	Analyzing 1 p 'Paper invoice system'
Mode:	**Group**
Method:	**Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator:	Characterization
Skip categories:	Never
Relative mode:	Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Envelope production	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Non renewable, fossil	MJ eq	6,04E+08	3,12E+08	7,43E+07	1,50E+08	2,46E+07	1,69E+08	3,96E+06	9,25E+06	3,62E+07	-1,75E+08
Non-renewable, nuclear	MJ eq	5,28E+07	2,97E+07	2,16E+06	3,88E+06	1,57E+06	1,10E+07	4,94E+05	7,06E+05	6,76E+05	2,59E+06
Renewable, biomass	MJ eq	7,76E+08	1,11E+09	-3,18E+07	-5,22E+06	-1,77E+07	7,58E+05	5,37E+04	1,01E+05	9,44E+07	-3,74E+08
Renewable, wind, solar, geothe	MJ eq	6,16E+06	6,09E+06	1,45E+06	7,17E+06	-8,07E+05	3,74E+06	1,36E+05	3,88E+05	1,17E+04	-1,20E+07
Renewable, water	MJ eq	8,30E+06	4,47E+06	1,27E+05	3,85E+05	1,81E+05	1,93E+06	8,58E+04	1,19E+05	1,23E+05	8,82E+05
Total	**MJ eq**	**1,45E+09**	**1,46E+09**	**4,63E+07**	**1,56E+08**	**7,92E+06**	**1,87E+08**	**4,73E+06**	**1,06E+07**	**1,31E+08**	**-5,58E+08**

BASE SCENARIO - Electronic invoice, *High Gas Price*

Green House Gas Emissions

Title:	Analyzing 1 p 'Electronic invoice system'
Mode:	**Group**
Method:	**CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator:	Characterization
Skip categories:	Never
Relative mode:	Non

Impact category	Unit	Total	Server production and waste management	Server electricity use	Internet use	Archive, electronic invoice
Global warming (GWP100)	**kg CO2 eq**	**5,52E+06**	5,26E+04	5,41E+06	2,11E+04	3,52E+04

Cumulative Energy Demand

Title:	Analyzing 1 p 'Electronic invoice system'
Mode:	**Group**
Method:	**Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator:	Characterization
Skip categories:	Never
Relative mode:	Non

Impact category	Unit	Total	Server production and waste management	Server electricity use	Internet use	Archive, electronic invoice
Non renewable, fossil	MJ eq	6,81E+07	6,20E+05	6,68E+07	2,61E+05	4,35E+05
Non-renewable, nuclear	MJ eq	9,90E+05	2,27E+05	7,52E+05	2,93E+03	8,50E+03
Renewable, biomass	MJ eq	5,05E+05	1,46E+04	4,85E+05	1,89E+03	3,32E+03
Renewable, wind, solar, geothe	MJ eq	3,55E+06	3,97E+03	3,51E+06	1,37E+04	2,24E+04
Renewable, water	MJ eq	8,44E+04	3,79E+04	4,55E+04	1,78E+02	9,10E+02
Total	**MJ eq**	7,32E+07	9,04E+05	7,16E+07	2,79E+05	4,70E+05

1A4 SCENARIO - Paper invoice 1A4, *CO2cap*

Green House Gas Emissions

Title: Analyzing 1 p 'Paper invoice system (1A4)'
Mode: **Group**
Method: **CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Production of envelopes	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Global warming (GWP100)	**kg CO2 eq**	**3,94E+07**	1,92E+07	3,25E+06	2,01E+06	1,96E+06	6,85E+06	1,88E+05	3,77E+05	2,32E+06	3,32E+06

Cumulative Energy Demand

Title: Analyzing 1 p 'Paper invoice system (1A4)'
Mode: **Group**
Method: **Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Envelope production	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Non renewable, fossil	MJ eq	5,16E+08	2,20E+08	5,11E+07	3,24E+07	3,81E+07	1,09E+08	1,84E+06	3,04E+06	3,62E+07	2,43E+07
Non-renewable, nuclear	MJ eq	8,73E+07	6,57E+07	1,12E+07	4,96E+07	-3,69E+06	3,45E+07	1,32E+06	3,13E+06	6,76E+05	-7,52E+07
Renewable, biomass	MJ eq	7,95E+08	1,13E+09	-2,67E+07	2,05E+07	-2,06E+07	1,39E+07	5,17E+05	1,46E+06	9,44E+07	-4,18E+08
Renewable, wind, solar, geothe	MJ eq	1,11E+07	1,12E+07	2,75E+06	1,37E+07	-1,56E+06	7,09E+06	2,54E+05	7,35E+05	1,17E+04	-2,31E+07
Renewable, water	MJ eq	8,34E+06	4,51E+06	1,37E+05	4,37E+05	1,75E+05	1,96E+06	8,67E+04	1,22E+05	1,23E+05	7,95E+05
Total	**MJ eq**	**1,42E+09**	1,43E+09	3,85E+07	1,17E+08	1,24E+07	1,67E+08	4,02E+06	8,49E+06	1,31E+08	-4,91E+08

1A4 SCENARIO - Paper invoice 1A4, *High Gas Price*

Green House Gas Emissions

Title:	Analyzing 1 p 'Paper invoice system (1A4)'
Mode:	**Group**
Method:	**CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator:	Characterization
Skip categories:	Never
Relative mode:	Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Production of envelopes	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Global warming (GWP100)	**kg CO2 eq**	**4,68E+07**	2,69E+07	5,19E+06	1,18E+07	8,37E+05	1,19E+07	3,64E+05	8,96E+05	2,32E+06	-1,33E+07

Cumulative Energy Demand

Title:	Analyzing 1 p 'Paper invoice system (1A4)'
Mode:	**Group**
Method:	**Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator:	Characterization
Skip categories:	Never
Relative mode:	Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Envelope production	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Non renewable, fossil	MJ eq	6,04E+08	3,12E+08	7,43E+07	1,50E+08	2,46E+07	1,69E+08	3,96E+06	9,25E+06	3,62E+07	-1,75E+08
Non-renewable, nuclear	MJ eq	5,28E+07	2,97E+07	2,16E+06	3,88E+06	1,57E+06	1,10E+07	4,94E+05	7,06E+05	6,76E+05	2,59E+06
Renewable, biomass	MJ eq	7,76E+08	1,11E+09	-3,18E+07	-5,22E+06	-1,77E+07	7,58E+05	5,37E+04	1,01E+05	9,44E+07	-3,74E+08
Renewable, wind, solar, geothe	MJ eq	6,16E+06	6,09E+06	1,45E+06	7,17E+06	-8,07E+05	3,74E+06	1,36E+05	3,88E+05	1,17E+04	-1,20E+07
Renewable, water	MJ eq	8,30E+06	4,47E+06	1,27E+05	3,85E+05	1,81E+05	1,93E+06	8,58E+04	1,19E+05	1,23E+05	8,82E+05
Total	**MJ eq**	**1,45E+09**	1,46E+09	4,63E+07	1,56E+08	7,92E+06	1,87E+08	4,73E+06	1,06E+07	1,31E+08	-5,58E+08

PRINT SCENARIO 2A4 - Electronic invoice, *CO2cap*

Green House Gas Emissions

Title: Analyzing 1 p 'Electronic invoice system + print'
Mode: **Group**
Method: **CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Servers and internet	Paper production	Printing electronic invoice	Archive electronic invoice	Paper waste management
Global warming (GWP100)	**kg CO2 eq**	**2,22E+07**	**6,42E+05**	1,03E+07	5,62E+06	4,59E+03	5,65E+06

Cumulative Energy Demand

Title: Analyzing 1 p 'Electronic invoice system + print'
Mode: **Group**
Method: **Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Servers and internet	Paper production	Printing electronic invoice	Archive electronic invoice	Paper waste management
Non renewable, fossil	MJ eq	2,79E+08	9,73E+06	1,18E+08	7,64E+07	6,78E+04	7,46E+07
Non-renewable, nuclear	MJ eq	1,90E+07	2,36E+07	3,53E+07	2,00E+07	1,52E+05	-6,00E+07
Renewable, biomass	MJ eq	3,33E+08	1,32E+07	6,07E+08	-8,94E+06	8,38E+04	-2,78E+08
Renewable, wind, solar, geothe	MJ eq	-5,30E+06	6,76E+06	6,03E+06	7,14E+05	4,29E+04	-1,89E+07
Renewable, water	MJ eq	7,01E+06	1,09E+05	2,42E+06	3,55E+06	1,07E+03	9,26E+05
Total	**MJ eq**	**6,32E+08**	5,34E+07	7,69E+08	9,17E+07	3,47E+05	-2,82E+08

PRINT SCENARIO 2A4 - Electronic invoice, *High Gas Price*

Green House Gas Emissions

Title:	Analyzing 1 p 'Electronic invoice system + print'
Mode:	**Group**
Method:	**CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator:	Characterization
Skip categories:	Never
Relative mode:	Non

Impact category	Unit	Total	Servers and internet	Paper production	Printing electronic invoice	Archive, electronic invoice	Paper waste management
Global warming (GWP100)	**kg CO2 eq**	**1,80E+07**	**5,48E+06**	1,44E+07	5,94E+06	3,52E+04	-7,92E+06

Cumulative Energy Demand

Title:	Analyzing 1 p 'Electronic invoice system + print'
Mode:	**Group**
Method:	**Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator:	Characterization
Skip categories:	Never
Relative mode:	Non

Impact category	Unit	Total	Servers and internet	Paper production	Printing electronic invoice	Archive electronic invoice	Paper waste management
Non renewable, fossil	MJ eq	2,28E+08	6,76E+07	1,68E+08	8,02E+07	4,35E+05	-8,79E+07
Non-renewable, nuclear	MJ eq	3,89E+07	9,82E+05	1,59E+07	1,84E+07	8,50E+03	3,50E+06
Renewable, biomass	MJ eq	3,44E+08	5,01E+05	5,96E+08	-9,78E+06	3,32E+03	-2,43E+08
Renewable, wind, solar, geothe	MJ eq	-2,46E+06	3,53E+06	3,27E+06	4,99E+05	2,24E+04	-9,78E+06
Renewable, water	MJ eq	7,03E+06	8,35E+04	2,40E+06	3,55E+06	9,10E+02	9,98E+05
Total	**MJ eq**	**6,16E+08**	7,27E+07	7,85E+08	9,30E+07	4,70E+05	-3,36E+08

PRINT SCENARIO 1A4 - Electronic invoice, *CO2cap*

Green House Gas Emissions

Title: Analyzing 1 p 'Electronic invoice system + print (1A4)'
Mode: **Group**
Method: **CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Servers and internet	Paper production	Printing electronic invoice	Archive electronic invoice	Paper waste management
Global warming (GWP100)	**kg CO2 eq**	**1,16E+07**	**6,42E+05**	5,15E+06	2,96E+06	4,59E+03	2,82E+06

Cumulative Energy Demand

Title: Analyzing 1 p 'Electronic invoice system + print (1A4)'
Mode: **Group**
Method: **Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Servers and internet	Paper production	Printing electronic invoice	Archive electronic invoice	Paper waste management
Non renewable, fossil	MJ eq	1,46E+08	9,73E+06	5,90E+07	4,01E+07	6,78E+04	3,73E+07
Non-renewable, nuclear	MJ eq	1,98E+07	2,36E+07	1,76E+07	8,36E+06	1,52E+05	-3,00E+07
Renewable, biomass	MJ eq	1,66E+08	1,32E+07	3,03E+08	-1,19E+07	8,38E+04	-1,39E+08
Renewable, wind, solar, geothe	MJ eq	2,51E+05	6,76E+06	3,02E+06	-1,45E+05	4,29E+04	-9,43E+06
Renewable, water	MJ eq	3,58E+06	1,09E+05	1,21E+06	1,80E+06	1,07E+03	4,63E+05
Total	**MJ eq**	**3,35E+08**	5,34E+07	3,84E+08	3,82E+07	3,47E+05	-1,41E+08

PRINT SCENARIO 1A4 - Electronic invoice, *High Gas Price*

Green House Gas Emissions

Title: Analyzing 1 p 'Electronic invoice system + print (1A4)'
Mode: **Group**
Method: **CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Servers and internet	Paper production	Printing electronic invoice	Archive, electronic invoice	Paper waste management
Global warming (GWP100)	**kg CO2 eq**	**1,15E+07**	5,48E+06	7,21E+06	2,76E+06	3,52E+04	-3,96E+06

Cumulative Energy Demand

Title: Analyzing 1 p 'Electronic invoice system + print (1A4)'
Mode: **Group**
Method: **Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Servers and internet	Paper production	Printing electronic invoice	Archive electronic invoice	Paper waste management
Non renewable, fossil	MJ eq	1,46E+08	6,76E+07	8,38E+07	3,77E+07	4,35E+05	-4,39E+07
Non-renewable, nuclear	MJ eq	2,00E+07	9,82E+05	7,97E+06	9,30E+06	8,50E+03	1,75E+06
Renewable, biomass	MJ eq	1,66E+08	5,01E+05	2,98E+08	-1,13E+07	3,32E+03	-1,21E+08
Renewable, wind, solar, geothe	MJ eq	2,85E+05	3,53E+06	1,64E+06	-1,11E+04	2,24E+04	-4,89E+06
Renewable, water	MJ eq	3,58E+06	8,35E+04	1,20E+06	1,80E+06	9,10E+02	4,99E+05
Total	**MJ eq**	**3,35E+08**	7,27E+07	3,93E+08	3,74E+07	4,70E+05	-1,68E+08

LAPTOP SCENARIO - Paper invoice 2A4, *CO2cap*

Green House Gas Emissions

Title: Analyzing 1 p 'Paper invoice system'
Mode: **Group**
Method: **CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Production of envelopes	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Global warming (GWP100)	**kg CO2 eq**	3,92E+07	1,92E+07	3,25E+06	2,01E+06	1,96E+06	6,85E+06	6,87E+04	2,26E+05	2,32E+06	3,32E+06

Cumulative Energy Demand

Title: Analyzing 1 p 'Paper invoice system'
Mode: **Group**
Method: **Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Envelope production	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Non renewable, fossil	MJ eq	5,13E+08	2,20E+08	5,11E+07	3,24E+07	3,81E+07	1,09E+08	6,31E+05	1,51E+06	3,62E+07	2,43E+07
Non-renewable, nuclear	MJ eq	8,55E+07	6,57E+07	1,12E+07	4,96E+07	-3,69E+06	3,45E+07	5,62E+05	2,08E+06	6,76E+05	-7,52E+07
Renewable, biomass	MJ eq	7,95E+08	1,13E+09	-2,67E+07	2,05E+07	-2,06E+07	1,39E+07	2,39E+05	1,04E+06	9,44E+07	-4,18E+08
Renewable, wind, solar, geothe	MJ eq	1,07E+07	1,12E+07	2,75E+06	1,37E+07	-1,56E+06	7,09E+06	1,16E+05	5,22E+05	1,17E+04	-2,31E+07
Renewable, water	MJ eq	8,23E+06	4,51E+06	1,37E+05	4,37E+05	1,75E+05	1,96E+06	3,47E+04	6,33E+04	1,23E+05	7,95E+05
Total	**MJ eq**	**1,41E+09**	1,43E+09	3,85E+07	1,17E+08	1,24E+07	1,67E+08	1,58E+06	5,21E+06	1,31E+08	-4,91E+08

LAPTOP SCENARIO - Electronic invoice, *CO2cap*

Green House Gas Emissions

Title: Analyzing 1 p 'Electronic invoice system'
Mode: **Group**
Method: **CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Server production and waste management	Server electricity use	Internet use	Archive, electronic invoice
Global warming (GWP100)	**kg CO2 eq**	**6,47E+05**	5,26E+04	5,87E+05	2,29E+03	4,59E+03

Cumulative Energy Demand

Title: Analyzing 1 p 'Electronic invoice system'
Mode: **Group**
Method: **Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Server production and waste management	Server electricity use	Internet use	Archive, electronic invoice
Non renewable, fossil	MJ eq	9,79E+06	6,20E+05	9,07E+06	3,54E+04	6,78E+04
Non-renewable, nuclear	MJ eq	2,38E+07	2,27E+05	2,33E+07	9,10E+04	1,52E+05
Renewable, biomass	MJ eq	1,33E+07	1,46E+04	1,31E+07	5,13E+04	8,38E+04
Renewable, wind, solar, geothe	MJ eq	6,81E+06	3,97E+03	6,73E+06	2,63E+04	4,29E+04
Renewable, water	MJ eq	1,10E+05	3,79E+04	7,08E+04	2,77E+02	1,07E+03
Total	**MJ eq**	**5,38E+07**	9,04E+05	5,23E+07	2,04E+05	3,47E+05

LAPTOP SCENARIO - Paper invoice 2A4, *High Gas Price*

Green House Gas Emissions

Title: Analyzing 1 p 'Paper invoice system'
Mode: **Group**
Method: **CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Production of envelopes	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Global warming (GWP100)	**kg CO2 eq**	**4,63E+07**	2,69E+07	5,19E+06	1,18E+07	8,37E+05	1,19E+07	1,50E+05	5,96E+05	2,32E+06	-1,33E+07

Cumulative Energy Demand

Title: Analyzing 1 p 'Paper invoice system'
Mode: **Group**
Method: **Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Envelope production	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Non renewable, fossil	MJ eq	5,99E+08	3,12E+08	7,43E+07	1,50E+08	2,46E+07	1,69E+08	1,60E+06	5,94E+06	3,62E+07	-1,75E+08
Non-renewable, nuclear	MJ eq	5,21E+07	2,97E+07	2,16E+06	3,88E+06	1,57E+06	1,10E+07	1,81E+05	3,45E+05	6,76E+05	2,59E+06
Renewable, biomass	MJ eq	7,76E+08	1,11E+09	-3,18E+07	-5,22E+06	-1,77E+07	7,58E+05	2,54E+04	6,66E+04	9,44E+07	-3,74E+08
Renewable, wind, solar, geothe	MJ eq	5,97E+06	6,09E+06	1,45E+06	7,17E+06	-8,07E+05	3,74E+06	6,21E+04	2,74E+05	1,17E+04	-1,20E+07
Renewable, water	MJ eq	8,19E+06	4,47E+06	1,27E+05	3,85E+05	1,81E+05	1,93E+06	3,43E+04	6,13E+04	1,23E+05	8,82E+05
Total	**MJ eq**	**1,44E+09**	1,46E+09	4,63E+07	1,56E+08	7,92E+06	1,87E+08	1,91E+06	6,69E+06	1,31E+08	-5,58E+08

LAPTOP SCENARIO - Electronic invoice, *High Gas Price*

Green House Gas Emissions

Title: Analyzing 1 p 'Electronic invoice system'
Mode: **Group**
Method: **CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Server production and waste management	Server electricity use	Internet use	Archive, electronic invoice
Global warming (GWP100)	**kg CO2 eq**	**5,52E+06**	5,26E+04	5,41E+06	2,11E+04	3,52E+04

Cumulative Energy Demand

Title: Analyzing 1 p 'Electronic invoice system'
Mode: **Group**
Method: **Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Server production and waste management	Server electricity use	Internet use	Archive, electronic invoice
Non renewable, fossil	MJ eq	6,81E+07	6,20E+05	6,68E+07	2,61E+05	4,35E+05
Non-renewable, nuclear	MJ eq	9,90E+05	2,27E+05	7,52E+05	2,93E+03	8,50E+03
Renewable, biomass	MJ eq	5,05E+05	1,46E+04	4,85E+05	1,89E+03	3,32E+03
Renewable, wind, solar, geothe	MJ eq	3,55E+06	3,97E+03	3,51E+06	1,37E+04	2,24E+04
Renewable, water	MJ eq	8,44E+04	3,79E+04	4,55E+04	1,78E+02	9,10E+02
Total	**MJ eq**	**7,32E+07**	9,04E+05	7,16E+07	2,79E+05	4,70E+05

1ST CLASS SCENARIO - Paper invoice 2A4, *CO2cap*

Green House Gas Emissions

Title: Analyzing 1 p 'Paper invoice system'
Mode: **Group**
Method: **CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Production of envelopes	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Global warming (GWP100)	**kg CO2 eq**	**4,18E+07**	1,92E+07	3,25E+06	2,01E+06	1,96E+06	9,17E+06	1,88E+05	3,77E+05	2,32E+06	3,32E+06

Cumulative Energy Demand

Title: Analyzing 1 p 'Paper invoice system'
Mode: **Group**
Method: **Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Envelope production	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Non renewable, fossil	MJ eq	5,50E+08	2,20E+08	5,11E+07	3,24E+07	3,81E+07	1,43E+08	1,84E+06	3,04E+06	3,62E+07	2,43E+07
Non-renewable, nuclear	MJ eq	9,20E+07	6,57E+07	1,12E+07	4,96E+07	-3,69E+06	3,92E+07	1,32E+06	3,13E+06	6,76E+05	-7,52E+07
Renewable, biomass	MJ eq	7,96E+08	1,13E+09	-2,67E+07	2,05E+07	-2,06E+07	1,40E+07	5,17E+05	1,46E+06	9,44E+07	-4,18E+08
Renewable, wind, solar, geothe	MJ eq	1,11E+07	1,12E+07	2,75E+06	1,37E+07	-1,56E+06	7,11E+06	2,54E+05	7,35E+05	1,17E+04	-2,31E+07
Renewable, water	MJ eq	9,28E+06	4,51E+06	1,37E+05	4,37E+05	1,75E+05	2,90E+06	8,67E+04	1,22E+05	1,23E+05	7,95E+05
Total	**MJ eq**	**1,46E+09**	1,43E+09	3,85E+07	1,17E+08	1,24E+07	2,06E+08	4,02E+06	8,49E+06	1,31E+08	-4,91E+08

1ST CLASS SCENARIO - Paper invoice 2A4, *High Gas Price*

Green House Gas Emissions

Title: Analyzing 1 p 'Paper invoice system'
Mode: **Group**
Method: **CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Production of envelopes	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Global warming (GWP100)	**kg CO2 eq**	**4,91E+07**	2,69E+07	5,19E+06	1,18E+07	8,37E+05	1,42E+07	3,64E+05	8,96E+05	2,32E+06	-1,33E+07

Cumulative Energy Demand

Title: Analyzing 1 p 'Paper invoice system'
Mode: **Group**
Method: **Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Envelope production	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Non renewable, fossil	MJ eq	6,38E+08	3,12E+08	7,43E+07	1,50E+08	2,46E+07	2,03E+08	3,96E+06	9,25E+06	3,62E+07	-1,75E+08
Non-renewable, nuclear	MJ eq	5,75E+07	2,97E+07	2,16E+06	3,88E+06	1,57E+06	1,57E+07	4,94E+05	7,06E+05	6,76E+05	2,59E+06
Renewable, biomass	MJ eq	7,76E+08	1,11E+09	-3,18E+07	-5,22E+06	-1,77E+07	8,56E+05	5,37E+04	1,01E+05	9,44E+07	-3,74E+08
Renewable, wind, solar, geothe	MJ eq	6,18E+06	6,09E+06	1,45E+06	7,17E+06	-8,07E+05	3,76E+06	1,36E+05	3,88E+05	1,17E+04	-1,20E+07
Renewable, water	MJ eq	9,24E+06	4,47E+06	1,27E+05	3,85E+05	1,81E+05	2,87E+06	8,58E+04	1,19E+05	1,23E+05	8,82E+05
Total	**MJ eq**	1,49E+09	1,46E+09	4,63E+07	1,56E+08	7,92E+06	2,26E+08	4,73E+06	1,06E+07	1,31E+08	-5,58E+08

Moberg et al. (2008). Effects of a total change from paper invoicing to electronic invoicing in Sweden.

LONG TRANSPORT SCENARIO - Paper invoice 2A4, *CO2cap*

Green House Gas Emissions

Title: Analyzing 1 p 'Paper invoice system'
Mode: **Group**
Method: **CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Production of envelopes	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Global warming (GWP100)	**kg CO2 eq**	**4,34E+07**	1,92E+07	3,26E+06	3,37E+06	3,47E+06	6,85E+06	1,88E+05	377276,21	2315877,2	4373476

Cumulative Energy Demand

Title: Analyzing 1 p 'Paper invoice system'
Mode: **Group**
Method: **Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Envelope production	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Non renewable, fossil	MJ eq	5,77E+08	2,20E+08	5,12E+07	5,35E+07	6,15E+07	1,09E+08	1,84E+06	3,04E+06	3,62E+07	4,07E+07
Non-renewable, nuclear	MJ eq	9,10E+07	6,57E+07	1,13E+07	5,09E+07	-2,27E+06	3,45E+07	1,32E+06	3,13E+06	6,76E+05	-7,42E+07
Renewable, biomass	MJ eq	7,96E+08	1,13E+09	-2,67E+07	2,05E+07	-2,06E+07	1,39E+07	5,17E+05	1,46E+06	9,44E+07	-4,18E+08
Renewable, wind, solar, geothe	MJ eq	1,11E+07	1,12E+07	2,75E+06	1,37E+07	-1,55E+06	7,09E+06	2,54E+05	7,35E+05	1,17E+04	-2,31E+07
Renewable, water	MJ eq	9,05E+06	4,51E+06	1,39E+05	6,83E+05	4,49E+05	1,96E+06	8,67E+04	1,22E+05	1,23E+05	9,87E+05
Total	**MJ eq**	**1,48E+09**	1,43E+09	3,87E+07	1,39E+08	3,76E+07	1,67E+08	4,02E+06	8,49E+06	1,31E+08	-4,74E+08

LONG TRANSPORT SCENARIO - Paper invoice 2A4, *High Gas Price*

Green House Gas Emissions

Title: Analyzing 1 p 'Paper invoice system'
Mode: **Group**
Method: **CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Production of envelopes	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Global warming (GWP100)	**kg CO2 eq**	**5,07E+07**	2,69E+07	5,20E+06	1,31E+07	2,34E+06	1,19E+07	3,64E+05	8,96E+05	2,32E+06	-1,23E+07

Cumulative Energy Demand

Title: Analyzing 1 p 'Paper invoice system'
Mode: **Group**
Method: **Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Envelope production	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Non renewable, fossil	MJ eq	6,65E+08	3,12E+08	7,45E+07	1,71E+08	4,80E+07	1,69E+08	3,96E+06	9,25E+06	3,62E+07	-1,58E+08
Non-renewable, nuclear	MJ eq	5,65E+07	2,97E+07	2,17E+06	5,16E+06	2,99E+06	1,10E+07	4,94E+05	7,06E+05	6,76E+05	3,58E+06
Renewable, biomass	MJ eq	7,76E+08	1,11E+09	-3,18E+07	-5,18E+06	-1,76E+07	7,58E+05	5,37E+04	1,01E+05	9,44E+07	-3,74E+08
Renewable, wind, solar, geothe	MJ eq	6,19E+06	6,09E+06	1,45E+06	7,18E+06	-7,95E+05	3,74E+06	1,36E+05	3,88E+05	1,17E+04	-1,20E+07
Renewable, water	MJ eq	9,01E+06	4,47E+06	1,28E+05	6,32E+05	4,55E+05	1,93E+06	8,58E+04	1,19E+05	1,23E+05	1,07E+06
Total	**MJ eq**	**1,51E+09**	1,46E+09	4,64E+07	1,78E+08	3,31E+07	1,87E+08	4,73E+06	1,06E+07	1,31E+08	-5,40E+08

EXTRA E-HANDLING SCENARIO - Electronic invoice, *CO2cap*

Green House Gas Emissions

Title: Analyzing 1 p 'Electronic invoice system'
Mode: **Group**
Method: **CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Server production and waste management	Server electricity use	Internet use	Electricity use extra e-handling	Computer for extra e-handling	Archive electronic invoice
Global warming (GWP100)	**kg CO2 eq**	**2,70E+06**	5,26E+04	5,87E+05	2,29E+03	3,35E+05	1,72E+06	4,59E+03

Cumulative Energy Demand

Title: Analyzing 1 p 'Electronic invoice system'
Mode: **Group**
Method: **Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Server production and waste management	Server electricity use	Internet use	Electricity use extra e-handling	Computer for extra e-handling	Archive electronic invoice
Non renewable, fossil	MJ eq	3,09E+07	6,20E+05	9,07E+06	3,54E+04	5,17E+06	1,59E+07	6,78E+04
Non-renewable, nuclear	MJ eq	4,20E+07	2,27E+05	2,33E+07	9,10E+04	1,33E+07	4,96E+06	1,52E+05
Renewable, biomass	MJ eq	2,12E+07	1,46E+04	1,31E+07	5,13E+04	7,50E+06	3,78E+05	8,38E+04
Renewable, wind, solar, geothe	MJ eq	1,07E+07	3,97E+03	6,73E+06	2,63E+04	3,84E+06	7,90E+04	4,29E+04
Renewable, water	MJ eq	1,04E+06	3,79E+04	7,08E+04	2,77E+02	4,04E+04	8,89E+05	1,07E+03
Total	**MJ eq**	**1,06E+08**	9,04E+05	5,23E+07	2,04E+05	2,98E+07	2,22E+07	3,47E+05

EXTRA E-HANDLING SCENARIO - Electronic invoice, *High Gas Price*

Green House Gas Emissions

Title: Analyzing 1 p 'Electronic invoice system'
Mode: **Group**
Method: **CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Server production and waste management	Server electricity use	Internet use	Electricity use extra e-handling	Computer for extra e-handling	Archive electronic invoice
Global warming (GWP100)	**kg CO2 eq**	**1,03E+07**	5,26E+04	5,41E+06	2,11E+04	3,08E+06	1,72E+06	3,52E+04

Cumulative Energy Demand

Title: Analyzing 1 p 'Electronic invoice system'
Mode: **Group**
Method: **Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Server production and waste management	Server electricity use	Internet use	Electricity use extra e-handling	Computer for extra e-handling	Archive electronic invoice
Non renewable, fossil	MJ eq	1,22E+08	6,20E+05	6,68E+07	2,61E+05	3,81E+07	1,59E+07	4,35E+05
Non-renewable, nuclear	MJ eq	6,38E+06	2,27E+05	7,52E+05	2,93E+03	4,29E+05	4,96E+06	8,50E+03
Renewable, biomass	MJ eq	1,16E+06	1,46E+04	4,85E+05	1,89E+03	2,77E+05	3,78E+05	3,32E+03
Renewable, wind, solar, geothe	MJ eq	5,63E+06	3,97E+03	3,51E+06	1,37E+04	2,00E+06	7,90E+04	2,24E+04
Renewable, water	MJ eq	9,99E+05	3,79E+04	4,55E+04	1,78E+02	2,59E+04	8,89E+05	9,10E+02
Total	**MJ eq**	**1,36E+08**	9,04E+05	7,16E+07	2,79E+05	4,08E+07	2,22E+07	4,70E+05

1 MINUTE INTERNET SCENARIO - Paper invoice 2A4, *CO2cap*

Green House Gas Emissions

Title: Analyzing 1 p 'Paper invoice system'
Mode: **Group**
Method: **CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Production of envelopes	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Global warming (GWP100)	**kg CO2 eq**	**4,13E+07**	1,92E+07	3,25E+06	2,01E+06	1,96E+06	6,85E+06	1,88E+05	2,26E+06	2,32E+06	3,32E+06

Cumulative Energy Demand

Title: Analyzing 1 p 'Paper invoice system'
Mode: **Group**
Method: **Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Envelope production	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Non renewable, fossil	MJ eq	5,31E+08	2,20E+08	5,11E+07	3,24E+07	3,81E+07	1,09E+08	1,84E+06	1,82E+07	3,62E+07	2,43E+07
Non-renewable, nuclear	MJ eq	1,03E+08	6,57E+07	1,12E+07	4,96E+07	-3,69E+06	3,45E+07	1,32E+06	1,88E+07	6,76E+05	-7,52E+07
Renewable, biomass	MJ eq	8,03E+08	1,13E+09	-2,67E+07	2,05E+07	-2,06E+07	1,39E+07	5,17E+05	8,78E+06	9,44E+07	-4,18E+08
Renewable, wind, solar, geothe	MJ eq	1,48E+07	1,12E+07	2,75E+06	1,37E+07	-1,56E+06	7,09E+06	2,54E+05	4,41E+06	1,17E+04	-2,31E+07
Renewable, water	MJ eq	8,95E+06	4,51E+06	1,37E+05	4,37E+05	1,75E+05	1,96E+06	8,67E+04	7,33E+05	1,23E+05	7,95E+05
Total	**MJ eq**	**1,46E+09**	1,43E+09	3,85E+07	1,17E+08	1,24E+07	1,67E+08	4,02E+06	5,10E+07	1,31E+08	-4,91E+08

Moberg et al. (2008). Effects of a total change from paper invoicing to electronic invoicing in Sweden.

1 MINUTE INTERNET SCENARIO - Paper invoice 2A4, *High Gas Price*

Green House Gas Emissions

Title: Analyzing 1 p 'Paper invoice system'
Mode: **Group**
Method: **CML 2 baseline 2000 exkl bioCO2 V2.04 / West Europe, 1995**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Production of envelopes	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Global warming (GWP100)	**kg CO2 eq**	**5,13E+07**	2,69E+07	5,19E+06	1,18E+07	8,37E+05	1,19E+07	3,64E+05	5,38E+06	2,32E+06	-1,33E+07

Cumulative Energy Demand

Title: Analyzing 1 p 'Paper invoice system'
Mode: **Group**
Method: **Cumulative Energy Demand V1.05 / Cumulative energy demand**
Indicator: Characterization
Skip categories: Never
Relative mode: Non

Impact category	Unit	Total	Paper production	Offset printing	Digital printing and enveloping	Envelope production	Distribution	Data capture	Consumer invoice handling	Archive, paper invoice	Waste management
Non renewable, fossil	MJ eq	6,50E+08	3,12E+08	7,43E+07	1,50E+08	2,46E+07	1,69E+08	3,96E+06	5,55E+07	3,62E+07	-1,75E+08
Non-renewable, nuclear	MJ eq	5,63E+07	2,97E+07	2,16E+06	3,88E+06	1,57E+06	1,10E+07	4,94E+05	4,24E+06	6,76E+05	2,59E+06
Renewable, biomass	MJ eq	7,77E+08	1,11E+09	-3,18E+07	-5,22E+06	-1,77E+07	7,58E+05	5,37E+04	6,07E+05	9,44E+07	-3,74E+08
Renewable, wind, solar, geothe	MJ eq	8,10E+06	6,09E+06	1,45E+06	7,17E+06	-8,07E+05	3,74E+06	1,36E+05	2,33E+06	1,17E+04	-1,20E+07
Renewable, water	MJ eq	8,90E+06	4,47E+06	1,27E+05	3,85E+05	1,81E+05	1,93E+06	8,58E+04	7,16E+05	1,23E+05	8,82E+05
Total	**MJ eq**	**1,50E+09**	1,46E+09	4,63E+07	1,56E+08	7,92E+06	1,87E+08	4,73E+06	6,34E+07	1,31E+08	-5,58E+08