

Environmental review 2018



18-01-30

Table of contents

1. Introduction.....	4
1.1 Background.....	4
1.2 Purpose, goal and extent.....	4
1.3 Implementations	4
2. About City Network.....	5
3. Organization	6
4. PESTLE and SWOT analysis	6
5. Input, activities and output	8
5.1 Life cycle analysis.....	8
6. Stakeholders.....	8
7. Compliance with mandatory requirements	9
8. Emergencies and incidents.....	10
9. City Networks environmental aspects.....	10
10. Model used to identify significant environmental aspects	11
11. Significant environmental aspects for City Network.....	13

Summary

This Sustainability Analysis aims at identifying the significant environmental aspects of City Network's internal and external activities. All aspects are valued according to a valuation model to identify areas in which City Network has the greatest environmental impact. Both direct and indirect aspects are identified and a list of the most significant aspects has been compiled

The following aspects are considered significant for City Network:

Considerable environmental aspects	Points
Business travel	13
Energy	9
Procurement	9
Office supplies/equipment	7
Scrap-metal	6

1. Introduction

1.1 Background

City Network is currently certified to ISO 14001:2004. From 2018, the company needs to renew its certification according to the new ISO. The environmental review will also take into account aspects of the company growth since the last survey in 2015. Going forward, the assessment will be updated at least every five years or if the nature of the business changes significantly.

1.2 Purpose, goal and extent

The purpose of this environmental assessment is to incorporate the new requirement of ISO 14001 and to map the environmental impact of City Network in order to identify the significant environmental aspects. The assessment is based on the environmental impact of the operation in 2017.

The environmental management system includes all data centers owned by City Network. All City Network staff related activities such as travel and consumptions of equipment are also included. All activities are listed under the heading “environmental aspects”

Data centers leased from third party providers abroad are required to be certified to ISO 14001 or equivalent in accordance with current procurement requirements. City Network procures and install the hardware itself in these data centers. When the hardware is outdated or reaches end of life, City Network decommissions the hardware waste material in Sweden.

Other waste disposed of abroad, such as packaging, corrugated cardboard and possibly household waste, is handled on site by the contracted staff. The suppliers also take full responsibility for meeting the requirements for refrigerant and extinguishing solutions as well as any fuels needed for powering backup power generator, and chemicals for cleaning of the premises.

Only staff employed by City Network will receive sustainability education. Each third party supplier is responsible for providing training to their own employees. However, City Network share large parts of its sustainability work through its website where it is available to both customer and suppliers.

1.3 Implementations

The environmental review was conducted in January 2018 by Konsult Verde in cooperation with the City Network staff.

Extent of assessment

- Identify, describe and quantify all activities that have environmental impact.
- Review and calculation of company provided information regarding environmental goal-adherence.
- Valuation of the direct and indirect environmental aspects according to a general model in order to identify which of City Networks environmental aspects that have the greatest impact (significant environmental aspects).

City Networks environmental aspects can be described as:

- Direct aspects are impacts that are linked to activities in their own operations.
- Indirect aspects are impacts that occur outside the business. For example, aspects linked to services and/or equipment procurement.

2. About City Network

City Network is a global cloud service provider for IT infrastructure (LaaS) via its City Cloud service. City Cloud based on OpenStack is offered as a public cloud service, as a private cloud or as a compliant cloud that ensures that customers and comply with specific requirements and rules regarding audit, logging, data processing and data security, such as Solvency, Basel and GDPR.

City Network have a customer base both in Sweden as well as abroad, and represent both private and public sectors.

The service City Network offers to its customers saves resources not only for the business but also for the environment. When companies share and coexist within the same servers rather than all owning and supporting their own, they limit the need for the number of active servers and thus save energy. They also get access to the best-developed materials with better effect and can be sure that all material is recycled as City Network is environmentally certified according to ISO 14001.

If the companies themselves should store all their own data, they need an overcapacity of about 50 percent in order to grow. However, if most company collect data in the City Network service, no more than 20 percent overcapacity is required. The example below shows how much energy and how many servers are saved when multiple companies merge and use a common data center.

	Server need	Overcapacity	Total need of services	Energy consumption
1 company with 10 000 employees	500	50%	750	kna dc
100 companies with 10 000 employees	50000	50%	75000	kna dc*100
Common datacenter	50000	20%	60000	kna dc*1,2

3. Organization

City Network is a joint venture, limited liability company with two owners, one of which is the CEO of the company.

City Network has its headquarters in Sweden. The majority of the staff is situated in Karlskrona, one person is located in Stockholm and one in Malmö. Three sales consultants are located in London, USA and Brazil respectively. In addition, there are two subsidiaries, one in India and one in Austria each employing one person. City Network Data Centers are located in Sweden, England, Germany, Japan, the United States and the United Arab Emirates.

The management team consists of seven people and there are eleven functions within the company. For each function, there is a linked process. The person responsible for the function is also responsible for the process and its implementation. Process quality assurance also include any and all environmental aspects for that process

4. PESTLE and SWOT analysis

To help identify risks and opportunities, a PESTLE analysis has been performed. The acronym PESTLE stands for “political, economic, social, technological, legal and environmental” and the analysis aids the company in identifying factors in the environment and how they can affect the industry business.

- Political – How much policy controls the economy. Taxes, labor legislation, environmental legislation, trade barriers, customs, political stability in exporting countries.
- Economic – Growth, interest rate, ex changes rates and inflation.
- Social – Culture, health, population age distribution, attitudes in society, security
- Technical – Research and development activities, automation change rate, innovation.
- Environmental – Ecology, environment, climate and weather
- Legal Discrimination Acts, consumer acts, competition acts, occupational safety, occupational safety acts.

Activity	Risks	Possibilities
Political requirements	Higher energy tax	Possibility to recover energy in existing premises if prices increase dramatically. Today, it is not economically viable, but it can possible be in the future. New premises for the business possibility to lower energy consumption.
Political requirements	Stricter environmental laws	The environmentally hazardous substances used in the company are

		not particular scarce and unfamiliar to nature. Most other business use similar products and the companies that provide City Network with coolants and extinguishing agents are certifies and also involved in the development of new and safer chemicals.
Political requirements	Increased transports costs due to higher taxes on fossil fuels.	Travel by train rather than airplane when possible. Reduce business travel if possible.
Social requirements	Higher requirement from customers and suppliers	City Network work continuously to increase their performance in environmental and sustainability issues. City Network offer their customers the options of purchasing only the space the customer need in order for the customer to limit their costs and maximize the server use, which also is positive for the environment.
Technical risks	Competitors are moving faster than the market shares	City Network are continuously involved in business development in order to keep track of business trends
Environmental risks	Sabotage may lead to emissions to air, soil or water	City Network continuously work to ensure security of materials and immaterial assets
Environmental risks	Climate change may affect location of business offices	Ensure that raising water levels will not affect the premises of the office spaces
Environmental risks	Climate change may affect vulnerability in the technical equipment	Make sure to have extra backup and to consider the location of new sites/premises

The PESTLE analysis is reviewed annually by the management and updated if necessary.

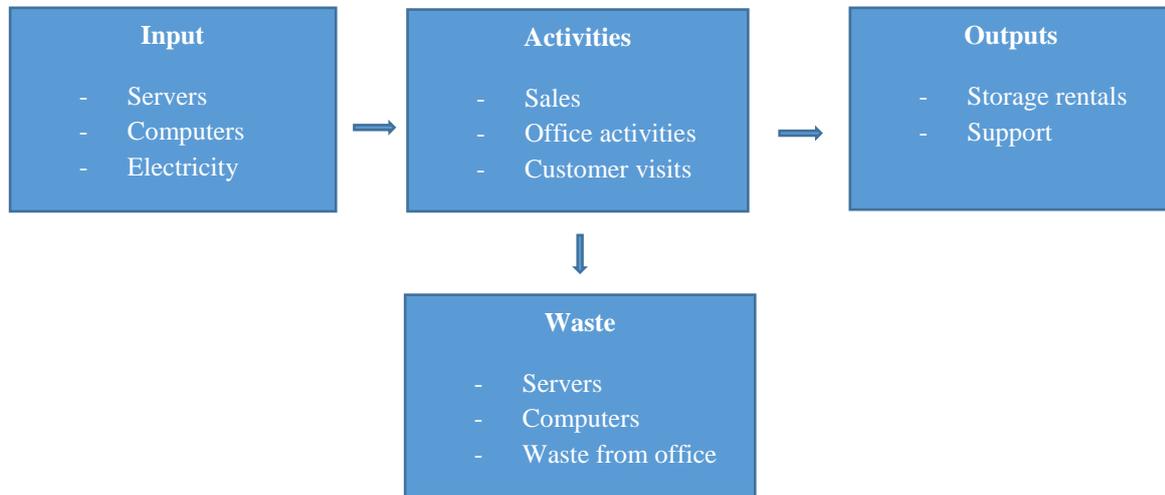
Furthermore, City Network also conducts an annual risk analysis at the headquarters. All risks that are considered significant are recorded and complemented with an activity plan where responsibility, resources allocated and schedule are allocated.

Summary

There are currently no acute and significant environmental risks. However, in the event of a relocation or at the time of acquiring new premises, all recorded risks should considered. The current trend of increasing energy costs need also be taken in account.

5. Input, activities and output

City Network input, activities and output are described in the following model:



5.1 Life cycle analysis

City Network's life cycle starts with its procurements of goods and services. The company has a purchasing policy and pose environmental requirements on suppliers in two tiers.

City Network customer business offering consists of services only and therefore generates no waste. One of City Network's considerable environmental impacts is electricity consumption related to maintain up and running servers and computers. In order to alleviate this impact, the company is working to reduce energy consumption by purchasing energy efficient servers and computers, and primarily purchases electricity from renewable sources. City Network also attempt to utilize serves longer than recommended by normalizing the cycles. In short, additional virtual storage is added to the new servers and less on the old ones, thus extending the usage. In one of the future premises, energy recycling will be performed.

City Network services generate waste by the means of life servers and computers. Waste supplier addresses waste management in an environmentally sound manner. Additional waste is handled according to the municipal waste regulations. City Network premises in other countries managed their waste in accordance with local laws and regulations.

6. Stakeholders

City Network's stakeholders are:

- Customers who may require the company to work with environmental issues. This is primarily due to certification requirements, but also in some cases as a requirement for energy recovery. Therefore, these requirements are taken into account both in procurement and in the selection of new premises.

- Suppliers with an interest in company growth to ensure a continued business agreement with City Network. In order for the company to continue to grow, it is important that the customers are satisfied, staff thrives, company economy is solid and adheres to rules and legislation. City Network is proactive in all aspects. Binding requirements are updated annually. Employee interviews are conducted annually. Anonymous employee surveys are conducted twice a year to ensure that the staff are satisfied with their work situation. Customer surveys are also conducted twice a year to ensure that the company has satisfied customers.
- City Networks employees may have wishes regarding how the company approaches environmental issues. All employees are informed of the company's environmental work and can also provide comments and suggestions if they wish. Currently no special requests have been made.
- State and municipality may require permits to operate the business. By checking the laws and requirements that may apply to the company, the business ensures that it meets any present requirements.
- Property owners may set requirements for the business being conducted on their premises. In case of changes in the operation or possible accidents, the property owner is always contacted.
- Certification bodies need to have certain insight into what is happening in the business in order to perform the certification. Therefore, this information is documented in both the emergency document and the "Binding requirements' document.
- Second tier stakeholders may have requirements. No requirements have been brought forward so far.
- The University /BTH) has an interest in City Network as their students have the opportunity to intern at the company. At this time, they have not brought forward any demands regarding the company's environmental work.
- Hyper Island has the opportunity to use the company's premises for various activities. At this time, they have not brought forward any demands regarding the company's environmental work.

City Networks stakeholders are included in the "Binding requirements" document as well as in the document "Emergency" as in case of emergency contacts. The stakeholders are reviewed annually on the management's review.

7. Compliance with mandatory requirements

In order to keep track of current mandatory requirements, an external consulting company is recruited to compile a comprehensive list, which the business performs an annual review against.

City Network has a reporting obligation. They use refrigerants on their premises at significant enough amounts to require a reporting to a regulating department under the municipality. Any emissions and replenishment level should also be reported. Also, a leakage control of refrigerants have to be performed annually by a certified company.

8. Emergencies and incidents

City Network has an emergency preparedness plan and responsibility for this is appointed.

The particular environmental risks that may arise are primarily the risk of fire and the lease of extinguishing media. To avoid this, regular operating checks are carried out. There are routines for these and all checks are also noted in the activity plan.

9. City Networks environmental aspects

The following aspects are considered relevant for City Network:

Direct environmental aspects	Environmental effect
Energy 2 504 100 KWh/year	For heating and cooling, mainly renewable sources such as sun, wind and water are used. For City Network offshore premises, the cost of energy use is included in the storage space rental fee.
Business travel 30 400 kg of CO ₂ emissions/year	Most business travel is by airplane
Paper around 125 kg of CO ₂ emissions/year	Several documents are digital and all customers invoices are sent digitally. Invoice reminders are sent by mail.
Office supplies (paper not included)	Environmental requirements are imposed on the purchase of these in case where it is reasonable.
Water 516 150 l/year	Water consumptions includes personal hygiene, dishes and cleaning. There is no shortage of water in our society, although some energy consumptions and the use of chemicals are required for purifications and distribution. City Network offshore premises, water use is negligible due to the low count of personal at each site.
Chemicals around 30 liters/year	Chemicals are used by the cleaning staff and the diesel tank for reserve energy.
Waste	Household waste, combustible, food waste, metal, glass, cardboard and paper are sorted according to municipality waste management regulations. Hazardous waste such as batteries, lamps and toners are sorted and delivered to the hazardous waste station.
Metal/Electronic waste 166 kg	Servers and computers etcetera are sent to a Metal/electronic waste distribution center for sorting and handling.
Coolants and extinguishing media	Coolants and extinguishing media do not contain any substances that contribute to the deterioration of the ozone layer. However, when realized they contribute

	to the greenhouse effect. Leakage control is done annually by certified firm. Notification to the supervisory authority shall be made annually. For City Network offshore premises, the handling of coolants and extinguishing media is included in the storage space rental fee.
Noise	In the case of functional control of the diesel unit, some noise may occur, but no complaints have yet been made.
Indirect environmental aspects	
Procurements	The company has a purchasing policy and pose environmental requirements on suppliers in two tiers.

10. Model used to identify significant environmental aspects

In order to assess the environmental aspects, each aspect is scored according to two tables. The first indicates the amount of emissions that the aspect gives rise to:

Amount	Unit	Points
Negligible amount	<10 kg/liter/MWh	1
Small amount	>10-100 kg/liter/MWh	2
Medium amount	>100-1000 kg/liter/MWh	3
Large amount	>1 – 10 ton/m ³ /MWh	4
Very large amount	>10 – 100 ton/m ³ /MWh	5
Extremely amount	>100 ton/m ³ /MWh	6

When evaluating aspects not measurable in units such as kg, liters etc. such as for example noise level, a point system is used. Negligible (1 point), small (2 points), medium (3 points), large (4 points), very large (5 points) or extreme (6 points)

The second grid determines if the environmental aspects is contributing to violations toward The Natural Step System Principles. For each System Principle that is violated the contribution is valued in points. Low level (1 point), high level (2 points). If it is unclear if any principle is violated, the principle of caution is assumed and the aspect is valued to 1 point. Further information regarding Natural Step System Principles is attached in appendix 1.

Environmental aspects:	Yes/No	Comment	Low level 1 point High level 2 points
Principle 1 Nature is not subject to systematically increasing concentrations of substances extracted from the Earth's crust			
By use of metals and minerals that are scarce in nature			
By use of fossil fuels			
Principle 2 Nature is not subject to systematically increasing concentration of substances produced by society			
By production of materials and chemicals that are persistent and unfamiliar to nature			
By excess production and usage of nature liked material			
Principle 3 Nature is not subject to systematically increasing concentrations degradation by physical means			
By excessive harvesting and use of natural resources			
By monoculture and loss of biological diversity			
By changing the character of the land			
Principle 4 People are not subject to systematic barriers to:			
Integrity Caused by direct harm at the individual level; physically, mentally or emotionally.			
Influence Hindering people to participate in shaping social system(s) one is part of and dependent on.			
Competence Not allowing every group and individual to have the opportunity to be good at something and develop to become even better.			
Impartiality Because they are not treated equally between individuals and by organizations and by authorities.			

Meaning By the facts that they do not feel meaningful in their organization or system.			
---	--	--	--

When all aspects are evaluated and valued, the average value is calculated. The aspects with sums higher than average will be treated as significant aspects.

All significant aspects are evaluated with two parameters, where the first represents external drivers:

Drivers	Requirements	Points	Remarks
External drivers	None	0 points	
External drivers	Medium	2 points	
External drivers	Strong	4 points	

The second parameter represent the ability to affect or influence the environmental aspect.

All considerable aspects will be assessed annually according to the following parameters:

Environmental aspect	Economic feasibility	Technical feasibility	Feasibility	Remarks

Economic (1-3) How cost effective are the measures? Is there a need for large investments? Are there financial means available?

Technical (1-3) (hard-easy/existing). Are there technical means accessible? Is special technology required? If so, is that technology available to reduce impact? Is it possible to reduce the impact on a technical basis?

Feasibility (1-3) (difficult – easy). Are there measures needed to reduce the impact feasible? Can you measure the improvement? Is there supporting data available? Is the organization ready?

Assessment of each aspect can be found in Appendix 2.

11. Significant environmental aspects for City Network

The 11 aspects have been assessed and scored. The total sum has then been divided by number of aspects and then gives an average value of 6.

Significant environmental aspects	Points
Business travel	13
Energy	9
Purchases	9
Office furniture	7
Metal waste	6

These aspects will be assessed according to external driving forces and City Networks ability to implement the recommended measures. They will then be basis for setting environmental goals for the company.

References

Verbal references

Tony Hallén	City Network
Anna-Karin Wijk	City Network
Daniel Öberg	City Network
Johan Herrlin	Stena Technoworld AB

Written references

Naturvårdsverkets calculation of water usage (appendix 3)
Swedish waste handling 2014

Electronic references

www.citynetwork.se

www.transportstyrelsen.se (calculations of emission, car travel)

www.zeromission.myclimate.org/sv/flighet/calculator/new (calculation of emission, air travel)

www.consitio.se (calculations of emission, train travel)

www.avfallsverige.se (calculations of emissions, household waste)

www.naturalstep.org

Appendix 1 The Natural Step

The Natural Step is an ideology-based organization that works to accelerate sustainable development. Since 1989, The Natural Step has assisted hundreds of organizations and individuals around the globe to take strategic steps in the right directions by means of counselling, education and research.

The basis for the services offered is a scientifically developed peer reviewed framework for strategic sustainable development. It includes principles of sustainability and a planning methodology that all types of actors can use to find profitable ways to incorporate social and ecological sustainability.

Sustainability Principles

The Brundtland Commission describes sustainable development as a development where we meet human needs today in a manner that does not prevent future generation from meeting their needs. It is a political definition with broad acceptance that describes what we are successfully doing when we have a sustainable society. However, the definition is too abstract and philosophical to provide a good practical guide, according to Karl-Henrik Robèrt.

That is why the Founder of the Natural Step Karl Henrik created a consensus dialogue with several researchers who identified four principles of sustainability that can guide concrete actions. The fourth principle has been further developed.

In the sustainable society, nature is not subjected to systematic...

1. Concentration of substances from the earth crust (eg fossil coal and heavy metals)
2. Concentration increase of substances from community productions (eg NOx, hormone releasing substances)
3. Extermination with physical methods (eg from traffic infra structure, forest wrecking, overfishing)

And in that society, people are not systematically hindered from meeting their needs through the absence of:

4. Integrity by not being directly injured, physically, mentally or emotionally (eg through the work situation)
5. Influence because they are unable to create the social system to which they depend (eg through the right to vote and make his voice heard)
6. Competence by not having the opportunity to develop to get even better (eg through schooling and other education)
7. Impartiality because they are not treated equally between individuals, but also between individuals and other organizations such as courts and authorities. And they do not have the same rights or are valued differently as humans.
8. Meaning by the fact that they do not feel meaningful in their organization or system.

Appendix 2 Evaluation of environmental aspects

Environmental aspect: energy

A large portion of the electricity used comes from renewable sources.

City Network premises in other countries include energy in their rental agreements. City Network pose environmental requirements in the cases where server site premises are rented.

Electricity supplier	Site	Annual usage KWh
OX 2 Vindel AB	735999218000/075911	14 000
Affärsverken Karlskrona	40012528	19 500
Affärsverken Karlskrona	40012527/server site	1 370 000
Affärsverken Karlskrona	900400	14 000
Affärsverken Karlskrona	Karlskrona 2	192 000
Interxion London		140 000
Interxion Kista		384 000
Interxion Germany		160 000
Japan		72 000
Dubai		66 000
Buffalo		66 000
LA		6 600
Sum		2 504 100

City Network usage: 2 504 100 KWh = 2 504 MWh per year

Amount	Unit	Points
Negligible amount	<10 kg/liter/MWh	1
Small amount	>10-100 kg/liter/MWh	2
Medium amount	>100-1000 kg/liter/MWh	3
Large amount	>1 – 10 ton/m ³ /MWh	4
Very large amount	>10 – 100 ton/m ³ /MWh	5
Extremely amount	>100 ton/m ³ /MWh	6

Environmental aspects:	Yes/No	Comment	Low level 1 point High level 2 points
Principle 1 Nature is not subject to systematically increasing concentrations of substances extracted from the Earth`s crust			

By use of metals and minerals that are scarce in nature	Yes	<p>City Network mainly purchases eco-labeled electricity.</p> <p>Solar cells are often made from silicon, a commonly occurring substance in nature.</p> <p>Hydroelectric power plants generally contains no rare metals or minerals.</p> <p>The wind turbines are made of steel, which is a common metal. They also contain more substances that are scarce in nature and not easily extricable thus considered a rare commodity.</p> <p>It is unclear which energy sources are used in a couple of the server halls located abroad, even though environmental requirements have been set.</p> <p>Therefore, this aspect receives one point according to the precautionary principle.</p>	1
By use of fossil fuels	Yes	Fossil fuel is used both to fill transportation needs for the facilities but also for the actual operations. The amount is considered relatively small compared to energy extracted from example oil and coal.	1
Principle 2 Nature is not subject to systematically increasing concentration of substances produced by society			
By production of materials and chemicals that are persistent and unfamiliar to nature	No	The probability that the energy used requires substances that are foreign to nature is considered very small.	
By excess production and usage of nature liked material	No	The probability that the energy used contributes to overproduction and the	

		use of nature material is considered very small.	
Principle 3 Nature is not subject to systematically increasing concentrations degradation by physical means			
By excessive harvesting and use of natural resources	No	No resources above ground are over harvests or exceeding limits safe enough for earth to recover from.	
By monoculture and loss of biological diversity	Yes	Hydropower can effect biodiversity through changing natural conditions.	1
By changing the character of the land	Yes	Both wind power and hydropower contribute to changes in the landscape. The change is nevertheless judged to be relatively low according to the evaluation done when granting permission for hydropower.	1
Principle 4 People are not subject to systematic barriers to:			
Integrity Caused by direct harm at the individual level; physically, mentally or emotionally. Influence Hindering people to participate in shaping social system (s) one is part of and dependent on. Competence Not allowing every group and individual to have the opportunity to be good at something and develop to become even better. Impartiality Because they are not treated equally between individuals and by organizations and by authorities. Meaning By the facts that they do not feel meaningful in their organization or system.	Yes	The materials produced in the EU most likely does not affect people´s integrity. However, there is a risk that social requirements will not be considered during production of material in other parts of the world.	1

Points for energy	
Amount	4
System principles	5
Sum	9

Environmental aspect: business travel

City Network aims to limit the amount of business travel necessary, by the means of digital meetings. Still there are business travel that have to take place and most are by airplane. One traveling salesperson travels by car. One employee is located in Malmö and travels by train.

For calculation of emissions from car and airplane City Network has on recommendation from Vi-skogen used the calculator from:

http://zeromission.Myclimate.org/sv/flight_calculators.sw

For calculation of emissions of travels by train City Network uses the Consisio climate balance calculator.

For calculation of emissions of travels by car a table from transportstyrelsen has been used. The calculated emissions from business travel by car is 125,5 grams per kilometer.

Business travel from Karlskrona during 2017.

By plane	Roundtrips per year	Ton CO₂
Stockholm	99	26,6
Frankfurt	2	1
Riga	5	0,3
By train		
Malmö	5	0,002
By car	Kilometers per year	
	20000	2,51
Sum		30,4

Amount	Unit	Points
Negligible amount	<10 kg/liter/MWh	1
Small amount	>10-100 kg/liter/MWh	2
Medium amount	>100-1000 kg/liter/MWh	3
Large amount	>1 – 10 ton/m ³ /MWh	4
Very large amount	>10 – 100 ton/m ³ /MWh	5
Extremely amount	>100 ton/m ³ /MWh	6

Environmental aspects:	Yes/No	Comment	Low level 1 point High level 2 points
Principle 1 Nature is not subject to systematically increasing concentrations of substances extracted from the Earth`s crust			
By use of metals and minerals that are scarce in nature	Yes	Vehicles both car and airplanes may contain metals that are scarce and foreign to nature.	1
By use of fossil fuels	Yes	Fossil fuel is used for transportation and travel both by car and airplane.	2
Principle 2 Nature is not subject to systematically increasing concentration of substances produced by society			
By production of materials and chemicals that are persistent and unfamiliar to nature	Yes	Vehicles both car and airplanes may contain metals that are scarce and foreign to nature. However, the amount is considered small.	1
By excess production and usage of nature liked material	No	The risk is considered small	
Principle 3 Nature is not subject to systematically increasing concentrations degradation by physical means			
By excessive harvesting and use of natural resources	No	No resources above ground are over harvested or exceeding limits safe enough for earth to recover from.	
By monoculture and loss of biological diversity	Yes	The use of mineral oils contributes to the deterioration of biodiversity due to climate change.	2
By changing the character of the land	Yes	Oil extraction can change the landscape image	1
Principle 4 People are not subject to systematic barriers to:			
Integrity Caused by direct harm at the individual level; physically, mentally or emotionally.	Yes	There is a risk that people working with oil extraction and vehicle production, are not able to meet their needs as	

<p>Influence Hindering people to participate in shaping social system (s) one is part of and dependent on.</p> <p>Competence Not allowing every group and individual to have the opportunity to be good at something and develop to become even better.</p> <p>Impartiality Because they are not treated equally between individuals and by organizations and by authorities.</p> <p>Meaning By the facts that they do not feel meaningful in their organization or system.</p>		determined by the social sustainability principles.	2
---	--	---	---

Points for business travel	
Amount	4
System principles	9
Sum	13

Environmental aspect: paper

City Network uses circa 26 000 sheets of paper per year. Every sheet of paper weight 4,8 grams. The summarized amount of used paper is circa 125 kg paper per year.

Amount	Unit	Points
Negligible amount	<10 kg/liter/MWh	1
Small amount	>10-100 kg/liter/MWh	2
Medium amount	>100-1000 kg/liter/MWh	3
Large amount	>1 – 10 ton/m ³ /MWh	4
Very large amount	>10 – 100 ton/m ³ /MWh	5
Extremely amount	>100 ton/m ³ /MWh	6

Environmental aspects:	Yes/No	Comment	Low level 1 point High level 2 points
Principle 1 Nature is not subject to systematically increasing concentrations of substances extracted from the Earth`s crust			

By use of metals and minerals that are scarce in nature	No		
By use of fossil fuels	Yes	By manufacturing and transporting paper	1
Principle 2 Nature is not subject to systematically increasing concentration of substances produced by society			
By production of materials and chemicals that are persistent and unfamiliar to nature	Yes	Some chemicals are used in the manufacturing process. However, all hazardous chemicals have been replaced with less hazardous and they are also handled in a manner where environmental requirements are considered. An eco-labelled paper is, of course, better than one that is not.	1
By excess production and usage of nature liked material	No		
Principle 3 Nature is not subject to systematically increasing concentrations degradation by physical means			
By excessive harvesting and use of natural resources	No	Provided that the paper is produced from forest where replanting takes place there is no violation. In Sweden there is plenty of forests and replanting is routine procedure. The amount of paper sheets that may be produced abroad are deemed to be negligible.	
By monoculture and loss of biological diversity	Yes	Biodiversity decreases in Sweden due to the wood industry	1
By changing the character of the land	No		
Principle 4 People are not subject to systematic barriers to:			
Integrity Caused by direct harm at the individual level; physically, mentally or emotionally.			
Influence	No	Provided that the paper is produced in Sweden. The amount of paper sheets that may be produced abroad are deemed negligible.	

<p>Hindering people to participate in shaping social system (s) one is part of and dependent on.</p> <p>Competence Not allowing every group and individual to have the opportunity to be good at something and develop to become even better.</p> <p>Impartiality Because they are not treated equally between individuals and by organizations and by authorities.</p> <p>Meaning By the facts that they do not feel meaningful in their organization or system.</p>			
---	--	--	--

Point for paper	
Amount	3
System Principles	3
Sum	6

Environmental aspect office equipment

City Networks office equipment consists of office furniture, computers and office supplies. It is hard to determine the precise amount. The furniture is of good quality and will last many years while by obvious reasons office supplies are spent at a faster rate. Some of the office supplies consumed is labelled environmentally friendly and some are not. The usage is estimated to be of medium amounts.

Amount	Unit	Points
Negligible amount	<10 kg/liter/MWh	1
Small amount	>10-100 kg/liter/MWh	2
Medium amount	>100-1000 kg/liter/MWh	3
Large amount	>1 – 10 ton/m ³ /MWh	4
Very large amount	>10 – 100 ton/m ³ /MWh	5
Extremely amount	>100 ton/m ³ /MWh	6

Environmental aspects:	Yes/No	Comment	Low level 1 point High level 2 points
Principle 1 Nature is not subject to systematically increasing concentrations of substances extracted from the Earth`s crust			

By use of metals and minerals that are scarce in nature	Yes	Material uses may contain unusual metals or minerals.	1
By use of fossil fuels	Yes	Fossil fuel may be used both in production and transportation	1
Principle 2 Nature is not subject to systematically increasing concentration of substances produced by society			
By production of materials and chemicals that are persistent and unfamiliar to nature	Yes	There is equipment that may contain substances and chemicals that is persistent and unfamiliar to nature.	1
By excess production and usage of nature liked material	No		
Principle 3 Nature is not subject to systematically increasing concentrations degradation by physical means			
By excessive harvesting and use of natural resources	No		
By monoculture and loss of biological diversity	No		
By changing the character of the land	No		
Principle 4 People are not subject to systematic barriers to:			
Integrity Caused by direct harm at the individual level; physically, mentally or emotionally.			
Influence Hindering people to participate in shaping social system (s) one is part of and dependent on.			
Competence Not allowing every group and individual to have the opportunity to be good at something and develop to become even better.			
Impartiality Because they are not treated equally between individuals and by organizations and by authorities.			
Meaning	Yes	Unless requirements are posed at the time of procurement there is a risk of violations to the social principle.	

By the facts that they do not feel meaningful in their organization or system.			1
--	--	--	----------

Points for office equipment	
Amount	3
System Principles	4
Sum	7

Environmental aspect: water

City Network uses 516 150 liters of water per year according to the calculation in appendix 3.

Amount	Unit	Points
Negligible amount	<10 kg/liter/MWh	1
Small amount	>10-100 kg/liter/MWh	2
Medium amount	>100-1000 kg/liter/MWh	3
Large amount	>1 – 10 ton/m ³ /MWh	4
Very large amount	>10 – 100 ton/m ³ /MWh	5
Extremely amount	>100 ton/m ³ /MWh	6

Environmental aspects:	Yes/No	Comment	Low level 1 point High level 2 points
Principle 1 Nature is not subject to systematically increasing concentrations of substances extracted from the Earth`s crust			
By use of metals and minerals that are scarce in nature	No		
By use of fossil fuels	No		
Principle 2 Nature is not subject to systematically increasing concentration of substances produced by society			
By production of materials and chemicals that are persistent and unfamiliar to nature	Yes	Some chemicals are needed to purify the water, however the levels of use is considered low.	1
By excess production and usage of nature liked material	No		
Principle 3 Nature is not subject to systematically increasing			

concentrations degradation by physical means			
By excessive harvesting and use of natural resources	No	The water supply is abundant in Sweden thus not an issue. In other countries there are very few employees thus not much water usage to consider.	
By monoculture and loss of biological diversity	No		
By changing the character of the land	No		
Principle 4 People are not subject to systematic barriers to:			
<p>Integrity Caused by direct harm at the individual level; physically, mentally or emotionally.</p> <p>Influence Hindering people to participate in shaping social system (s) one is part of and dependent on.</p> <p>Competence Not allowing every group and individual to have the opportunity to be good at something and develop to become even better.</p> <p>Impartiality Because they are not treated equally between individuals and by organizations and by authorities.</p> <p>Meaning By the facts that they do not feel meaningful in their organization or system.</p>	No		

Points for water usage	
Amount	4
System Principles	1
Sum	5

Environmental aspect: chemicals

City Network uses circa 30 liters of chemicals per year. When possible, purchases of new chemicals consider environmental labelling and safety.

The diesel fuel for the reserve aggregate is not used during normal circumstances.

Amount	Unit	Points
Negligible amount	<10 kg/liter/MWh	1
Small amount	>10-100 kg/liter/MWh	2
Medium amount	>100-1000 kg/liter/MWh	3
Large amount	>1 – 10 ton/m ³ /MWh	4
Very large amount	>10 – 100 ton/m ³ /MWh	5
Extremely amount	>100 ton/m ³ /MWh	6

Environmental aspects:	Yes/No	Comment	Low level 1 point High level 2 points
Principle 1 Nature is not subject to systematically increasing concentrations of substances extracted from the Earth`s crust			
By use of metals and minerals that are scarce in nature	No		
By use of fossil fuels	Yes	Fossil fuel may be used both in production and transportation	1
Principle 2 Nature is not subject to systematically increasing concentration of substances produced by society			
By production of materials and chemicals that are persistent and unfamiliar to nature	No		
By excess production and usage of nature liked material	No		
Principle 3 Nature is not subject to systematically increasing concentrations degradation by physical means			
By excessive harvesting and use of natural resources	No		
By monoculture and loss of biological diversity	No		
By changing the character of the land	No		
Principle 4			

People are not subject to systematic barriers to:			
<p>Integrity Caused by direct harm at the individual level; physically, mentally or emotionally.</p> <p>Influence Hindering people to participate in shaping social system (s) one is part of and dependent on.</p> <p>Competence Not allowing every group and individual to have the opportunity to be good at something and develop to become even better.</p> <p>Impartiality Because they are not treated equally between individuals and by organizations and by authorities.</p> <p>Meaning By the facts that they do not feel meaningful in their organization or system.</p>	Yes	Depending on where products are produced this may be an issue. Therefore, this condition is given one point in precautionary measures.	1

Points for chemicals	
Amount	2
System Principles	2
Sum	4

Environmental aspect: waste

City Network waste consists of household waste/combustible, compost, metal, glass, paper and cardboard. A small amount of batteries, toners and lamps. All waste is sorted and handled in accordance to the municipally waste handling requirements. The precise annual amounts of waste is hard to compile but is estimated to medium amount.

Amount	Unit	Points
Negligible amount	<10 kg/liter/MWh	1
Small amount	>10-100 kg/liter/MWh	2
Medium amount	>100-1000 kg/liter/MWh	3
Large amount	>1 – 10 ton/m ³ /MWh	4
Very large amount	>10 – 100 ton/m ³ /MWh	5
Extremely amount	>100 ton/m ³ /MWh	6

Environmental aspects:	Yes/No	Comment	Low level 1 point High level 2 points
Principle 1 Nature is not subject to systematically increasing concentrations of substances extracted from the Earth`s crust			
By use of metals and minerals that are scarce in nature	No		
By use of fossil fuels	Yes	Waste transports are dependent on fossil fuel, however the usage is considered small	1
Principle 2 Nature is not subject to systematically increasing concentration of substances produced by society			
By production of materials and chemicals that are persistent and unfamiliar to nature	No		
By excess production and usage of nature liked material	No		
Principle 3 Nature is not subject to systematically increasing concentrations degradation by physical means			
By excessive harvesting and use of natural resources	No		
By monoculture and loss of biological diversity	No		
By changing the character of the land	No		
Principle 4 People are not subject to systematic barriers to:			
Integrity Caused by direct harm at the individual level; physically, mentally or emotionally.			
Influence Hindering people to participate in shaping social system (s) one is part of and dependent on.			
Competence Not allowing every group and individual to have the opportunity to be good at something and develop to become even better.	No		

Impartiality Because they are not treated equally between individuals and by organizations and by authorities. Meaning By the facts that they do not feel meaningful in their organization or system.			
--	--	--	--

Points for waste	
Amount	3
System Principle	1
Sum	4

Environmental aspect: metal waste

City Network discharged 166 kg of metal during 2017

Amount	Unit	Points
Negligible amount	<10 kg/liter/MWh	1
Small amount	>10-100 kg/liter/MWh	2
Medium amount	>100-1000 kg/liter/MWh	3
Large amount	>1 – 10 ton/m ³ /MWh	4
Very large amount	>10 – 100 ton/m ³ /MWh	5
Extremely amount	>100 ton/m ³ /MWh	6

73 % of the metal waste is recycled

15 % energy is recycled

12 % is managed in other ways

Environmental aspects:	Yes/No	Comment	Low level 1 point High level 2 points
Principle 1 Nature is not subject to systematically increasing concentrations of substances extracted from the Earth`s crust			
By use of metals and minerals that are scarce in nature	Yes	Some metals in computers and servers may be scarce and unusual. Most of the waste is recycled but some leakage is impossible to avoid	1
By use of fossil fuels	Yes	Fossil fuel is used for both transport and processing. Amount is considered low	1
Principle 2			

Nature is not subject to systematically increasing concentration of substances produced by society			
By production of materials and chemicals that are persistent and unfamiliar to nature	Yes	Computers and servers contain flame retardants. When decommissioning, there is a risk of emission.	1
By excess production and usage of nature liked material	No		
Principle 3 Nature is not subject to systematically increasing concentrations degradation by physical means			
By excessive harvesting and use of natural resources	No		
By monoculture and loss of biological diversity	No		
By changing the character of the land	No		
Principle 4 People are not subject to systematic barriers to:			
<p>Integrity Caused by direct harm at the individual level; physically, mentally or emotionally.</p> <p>Influence Hindering people to participate in shaping social system (s) one is part of and dependent on.</p> <p>Competence Not allowing every group and individual to have the opportunity to be good at something and develop to become even better.</p> <p>Impartiality Because they are not treated equally between individuals and by organizations and by authorities.</p> <p>Meaning By the facts that they do not feel meaningful in their organization or system.</p>	No	All recycling is handled in Sweden	

Points for metal waste	
Amount	3
System Principle	3
Sum	6

Environmental aspect: coolants and fire extinguish-media

City Network uses both coolants and fire extinguish-media. City Network uses a little over 100 kg in Sweden. Premises abroad includes the services in the rent and are not part of the calculation.

Amount	Unit	Points
Negligible amount	<10 kg/liter/MWh	1
Small amount	>10-100 kg/liter/MWh	2
Medium amount	>100-1000 kg/liter/MWh	3
Large amount	>1 – 10 ton/m ³ /MWh	4
Very large amount	>10 – 100 ton/m ³ /MWh	5
Extremely amount	>100 ton/m ³ /MWh	6

Environmental aspects:	Yes/No	Comment	Low level 1 point High level 2 points
Principle 1 Nature is not subject to systematically increasing concentrations of substances extracted from the Earth`s crust			
By use of metals and minerals that are scarce in nature	No		
By use of fossil fuels	No		
Principle 2 Nature is not subject to systematically increasing concentration of substances produced by society			
By production of materials and chemicals that are persistent and unfamiliar to nature	Yes	Coolants and fire extinguish-media cause an increased greenhouse effect when emitted. As ordinary activities do not cause any emissions, the points will be low.	1
By excess production and usage of nature liked material	No		
Principle 3			

Nature is not subject to systematically increasing concentrations degradation by physical means			
By excessive harvesting and use of natural resources	No		
By monoculture and loss of biological diversity	No		
By changing the character of the land	No		
Principle 4 People are not subject to systematic barriers to:			
<p>Integrity Caused by direct harm at the individual level; physically, mentally or emotionally.</p> <p>Influence Hindering people to participate in shaping social system (s) one is part of and dependent on.</p> <p>Competence Not allowing every group and individual to have the opportunity to be good at something and develop to become even better.</p> <p>Impartiality Because they are not treated equally between individuals and by organizations and by authorities.</p> <p>Meaning By the facts that they do not feel meaningful in their organization or system.</p>	No	Provided that the production of coolants and fire-extinguishing media takes place in countries where Social requirements are set this is not an issue.	

Points for coolants and fire extinguish-media	
Amount	3
System Principle	1
Sum	4

Environmental aspect: procurements

City Network adheres to a procurement policy. Precise amount of purchased material is hard to state but is estimated to relatively high amount.

Amount	Unit	Points
Negligible amount	<10 kg/liter/MWh	1
Small amount	>10-100 kg/liter/MWh	2
Medium amount	>100-1000 kg/liter/MWh	3
Large amount	>1 – 10 ton/m ³ /MWh	4
Very large amount	>10 – 100 ton/m ³ /MWh	5
Extremely amount	>100 ton/m ³ /MWh	6

Environmental aspects:	Yes/No	Comment	Low level 1 point High level 2 points
Principle 1 Nature is not subject to systematically increasing concentrations of substances extracted from the Earth`s crust			
By use of metals and minerals that are scarce in nature	Yes	The materials purchased often contains metals and/or minerals that are scarce and unusual in nature	2
By use of fossil fuels	Yes	Fossil fuel is used in production and transportation	2
Principle 2 Nature is not subject to systematically increasing concentration of substances produced by society			
By production of materials and chemicals that are persistent and unfamiliar to nature	Yes	Computers and servers contain flame retardants	1
By excess production and usage of nature liked material			
Principle 3 Nature is not subject to systematically increasing concentrations degradation by physical means			
By excessive harvesting and use of natural resources	No		
By monoculture and loss of biological diversity	No		

By changing the character of the land	No		
Principle 4 People are not subject to systematic barriers to:			
<p>Integrity Caused by direct harm at the individual level; physically, mentally or emotionally.</p> <p>Influence Hindering people to participate in shaping social system (s) one is part of and dependent on.</p> <p>Competence Not allowing every group and individual to have the opportunity to be good at something and develop to become even better.</p> <p>Impartiality Because they are not treated equally between individuals and by organizations and by authorities.</p> <p>Meaning By the facts that they do not feel meaningful in their organization or system.</p>	No	Requirements are posed at the time of procurement, thus there is no risk or a very low risk of violations to the social principles.	

Point for procurement	
Amount	4
System Principles	5
Sum	9

Environmental aspect: noise

City Network are not causing considerable noise. The diesel tank positioned in the yard is producing some noise but no complaints have been made to date

Amount	Unit	Points
Negligible amount	<10 kg/liter/MWh	1
Small amount	>10-100 kg/liter/MWh	2
Medium amount	>100-1000 kg/liter/MWh	3
Large amount	>1 – 10 ton/m ³ /MWh	4
Very large amount	>10 – 100 ton/m ³ /MWh	5
Extremely amount	>100 ton/m ³ /MWh	6

Environmental aspects:	Yes/No	Comment	Low level 1 point High level 2 points
Principle 1 Nature is not subject to systematically increasing concentrations of substances extracted from the Earth's crust			
By use of metals and minerals that are scarce in nature	No		
By use of fossil fuels	No		
Principle 2 Nature is not subject to systematically increasing concentration of substances produced by society			
By production of materials and chemicals that are persistent and unfamiliar to nature	No		
By excess production and usage of nature liked material	No		
Principle 3 Nature is not subject to systematically increasing concentrations degradation by physical means			
By excessive harvesting and use of natural resources	No		
By monoculture and loss of biological diversity	No		
By changing the character of the land	No		
Principle 4 People are not subject to systematic barriers to:			
Integrity Caused by direct harm at the individual level; physically, mentally or emotionally.			
Influence Hindering people to participate in shaping social system (s) one is part of and dependent on.			
Competence Not allowing every group and individual to have the opportunity to be good at something and develop to become even better.			
Impartiality Because they are not treated equally between individuals and by organizations and by authorities.	No		

Meaning By the facts that they do not feel meaningful in their organization or system.			
---	--	--	--

Points for noise	
Amount	1
System Principle	0
Sum	1

Appendix 3 Template for calculating water usage

Activity	Average usage 1/person/day
Bath/shower	20
Personal hygiene	20
WC	10
Cooking	5
Laundry	1
Dishwasher	5 (1 meal + 2 coffee breaks)
Cleaning	1
Usage per person/day	<i>1 Circa 62</i>

Employees: 37

Days: 225 (water usage is calculated for business days on premises or on travel)

Water usage per year: $62 * 37 * 225 = 516\ 150\ 1$

Source: Naturvårdsverket