Sustainable Development Goals
Impact of NWB Bank's loan portfolio

Accountability report: Reporting year 2022

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Colophon

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Management summary

This report describes the framework, methodology and accountability of the underlying data for the Sustainable Development Goals (SDGs) impact of the loan portfolio of NWB Bank. NWB Bank finances the Dutch public sector, including water authorities, drinking water companies, renewable energy projects, municipalities, housing associations, and healthcare institutions. All our clients have an impact on Dutch society through their activities. NWB Bank contributes to this impact by making these activities possible. The clients we fund are our starting point when it comes to identifying the Sustainable Development Goals (SDGs) for the bank. In that context, NWB Bank has identified the following SDGs: SDG 6 – Clean water and sanitation, SDG 7 – Affordable and clean energy, SDG 11 – Sustainable cities and communities, SDG 13 – Climate action, SDG 14 – Life below water, and SDG 15 – Life on land. This first measurement is based on the 2021 loan portfolio.

Chapter 1 'Introduction' and chapter 2 'Impact methodology' are written by NWB Bank. Chapter 3 describes the results of the selected KPI's and gives an overview of NWB Bank on each of the SDG's. Chapter 3 until chapter 9 are written by Het PON & Telos and present an extensive description of the indicators per sector. The SDG impact of the different sectors are described in the following order: housing associations, water authorities, drinking water companies, municipalities, healthcare institutions and lastly renewable energy projects.

The first results of all the KPI's are presented in the table below. The explanations and interpretation can be found in chapter 3.

Table S1- Summary of the results

SDG	KPI	Results absolute	Results percentage
6	Water quality – surface water: % surface waters WFD targets achieved		0.0%
	Water quality – surface water: % phosphate removed from water		86.9%
	Water quality – surface water: % nitrates removed from water		84.5%
	Water quality – surface water: % oxygen-binding substances removed from water		92.8%
	Water quality - drinking water		99.9%
7	Energy neutral		12.0%
	Heat neutral		10.0%
	Electricity neutral		19.0%
11	Total registration time for social housing in months	74	

	Residents with access to public transport	9,638,870	79.7%
	Allocations within income limits	137,004	73.7%
	Amount of residual Household waste	2,228,061,599	
	Amount of sorted household waste	3,254,897,953	
	Air pollution: Concentration of PM2.5	9.2 µg/m^3	
	Air pollution: Concentration of PM10	16.4 µg/m^3	
	Air pollution: Concentration of NO_x	19.4 µg/m^3	
	Air pollution: Concentration of O_3	50.2 µg/m^3	
13	Green roofs - percentage of green roof compared to potential	3,451,565 m^2	1.02%
	CO2 impact	Results table 3.5	-
14	Nature quality water : index (intact ecosystem = 100)	36	
15	Area of public green space categorized as gardens and nature	24,973,398m^2	30.1%
	Area of protected nature incl. water	17,061 km^2	25.0%
	Air pollution – Emissions NH3	73 kiloton	
	Air pollution – Emissions NOx	159 kiloton	

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1 Introduction[1]

1.1 Sustainable Development Goals (SDGs)

The Sustainable Development Goals are sometimes called the world's strategy. The Sustainable Development Goals are 17 targets that aim to end poverty, protect the planet, and improve the lives and prospects of everyone, everywhere. The Sustainable Development Goals were set by UN member states in 2015 as part of the 2030 Agenda for Sustainable Development.

1.2 NWB Bank and SDGs

NWB Bank finances the Dutch public sector, including water authorities, drinking water companies, renewable energy projects, municipalities, housing associations, and healthcare institutions. All our clients have an impact on Dutch society through their activities. NWB Bank contributes to this impact by making these activities possible. The clients we fund are our starting point when it comes to identifying the Sustainable Development Goals (SDGs) for the bank. In that context, we have identified the following SDGs:

SDG 6 - Clean water and sanitation
The main contributors to this goal are the water authorities and drinking water companies. The drinking water companies provide clean drinking water and the water authorities contribute to wastewater treatment.

SDG 7 - Affordable and clean energy
We contribute by financing renewable energy projects but also by our clients investing in affordable and clean energy, such as rooftop solar panels.

SDG 11 - Sustainable cities and communities
This includes the activities of local authorities and housing associations. They contribute to sustainable communities and cities by building homes, maintaining neighbourhoods, and providing services.

[1] Chapter 1 'Introduction' and chapter 2 'Impact methodology' are written by NWB Bank.

SDG 13 - Climate action
By funding the activities of water authorities, we contribute to climate adaptation and thus to SDG 13.

SDG 14 - Life below water
Many different organisms live in rivers, streams, and ditches. Through our funding activities, we have an impact on them and therefore this SDG is relevant to us.

SDG 15 - Life on land
As we fund many things that affect the built environment, we also have an impact on life on land.

1.3 From impact to action

Mapping our clients' performance against these SDGs is important to us for a number of reasons. First, it allows us to monitor trends in these performances over the years and discuss them with our clients, thereby increasing the impact of our funding. In addition, measuring performance on the different SDGs also helps us to identify risks that may arise in our portfolio's. We also want to clearly show our stakeholders how we are making an impact as a bank – we have already done this for SDG 13 by reporting the climate footprint of our different client groups, but we want to do the same for the other SDGs.

1.4 Reading guide

This report describes the accountability for the underlying data of the methodology of the impact measurements of NWB Bank's loan portfolio. The portfolio of the NWB contains of the sectors municipalities, housing associations, drinking water companies, healthcare institutions, water authorities, and renewable energy. NWB Bank targets six SDGs on which she measures the impact. The six SDGs are clean water and sanitation (SDG 6), affordable and clean energy (SDG 7), sustainable cities and communities (SDG 11), climate action (SDG 13), life below water (SDG 14), and life on land (SDG 15).

In the chapters below the methodology is described even as the first results. From chapter 4 tot chapter 9 an extensive description of the indicators per sector is given. At first, there is an impact methodology chapter in which an extensive explanation of the followed guide for impact reporting is given. Second the first results are presented. Then, all sectors and its indicators are described starting with the social housing sector. Second, the water authorities are described. Third, the drinking water companies followed by the municipalities, the healthcare institutions and the renewable energy projects.

2 Impact methodology[2]

We have used the Principles for Impact Reporting for Financial Institutions (BFI Methodology) as a guide for impact reporting. The application of the principles is set out below.

2.1 Scope

First, we mapped the impact of our different client groups on the SDGs.
The aim was to get as complete and accurate a picture as possible of the impact of the bank's loan portfolio on the SDGs. We mapped this impact based on desk research, using the following sources: the UN SDGs indicator list,[3] the SDG impact measurement overview from the Sustainable Finance Platform of the SDG Impact Measurement Working Group,[4] and impact reports from other financial institutions. This overall overview was further supplemented with information on the characteristics and impacts of different sectors, based on public information such as academic articles and publications by umbrella organisations, as well as sector analyses prepared by the Bank.

Based on this overview, we then identified a shorter list of key performance indicators (KPIs). To do this, we first selected those indicators that were considered to represent the most material SDG impacts of the sectors. We then selected those indicators that were measurable, seeking a balance in the number of themes and impact indicators per SDG and per sector. The ultimate goal was a list of key performance indicators that was measurable, relevant and balanced, and also consisted of KPIs that were available and traceable to the client.

The final list of impact indicators was developed with Het PON & Telos consultant-researchers, with a number of indicators adjusted or added based on the expertise and experience of Het PON & Telos.

SDG	KPI	Description	Sector
6	Water quality - surface water	% phosphate removed from water	Water authorities
		% nitrates removed from water	Water authorities
		% oxygen-binding substances removed from water	Water authorities
		% surface waters WFD targets achieved	Water authorities
			Water authorities
			Water authorities

[2] Chapter 1 'Introduction' and chapter 2 'Impact methodology' are written by NWB Bank.
[3] https://unstats.un.org/sdgs/indicators/indicators-list/
[4] https://www.dnb.nl/groene-economie/platform-voor-duurzame-financiering/werkgroep-sdg-impactmeting/

	Water quality - drinking water	% measurement that meets standards	Drinking water companies
7	Gas consumption	Broken down by sectors in Nm3	Housing associations, Water authorities, Drinking water companies, Municipalities, Healthcare institutions
	Electricity consumption	Broken down by sectors in kWh	Housing associations, Water authorities, Drinking water companies, Municipalities, Healthcare institutions
	Renewable energy use	Share of renewable energy use out of total energy use in %	Housing associations, Water authorities, Drinking water companies, Municipalities, Healthcare institutions
	Renewable energy production from NWB-funded projects	MWh / year	Renewable energy projects
11	Total registration time for social housing	Number of months	Housing associations
	Access to public transport	Number of people	Municipalities
	Allocations within income limits	Allocations per year	Housing associations
	Amount of residual Household waste	Kg waste/year	Municipalities
	Amount of sorted household waste	Kg waste/year	Municipalities
	Air pollution	Emissions PM 2.5	Municipalities
		Emissions PM 10	Municipalities
		Concentration of PM2.5	Municipalities
		Concentration of PM10	Municipalities
		Concentration of NOx	Municipalities
		Concentration of O3	Municipalities
13	Green roofs	% green roof compared to potential	Municipalities
	CO2 impact	Ton CO2-equivalent / year	Housing associations, Water authorities, Drinking water companies, Municipalities, Healthcare institutions

14	Nature quality water	Index (intact ecosystem = 100)	Water authorities
15	Area of managed nature	m2 nature area managed	Municipalities
	Area of public green space	m2 of public green space categorised as gardens and nature	Municipalities
	Air pollution	Emissions NOx	Municipalities
		Emissions NH3	Municipalities

2.2 Attribution

NWB Bank's share in a client's or project's impact will be calculated by multiplying the client's or project's total impact by the proportional share of the outstanding loan volume with NWB Bank in the total balance sheet of the client. This attribution formula will be used next year when the second impact measurement is finished. In this report (of the first reporting year) no impact is presented, simply because only data from one year is collected as a zero measurement. In the second reporting year the attribution will be calculated by the following formula:

$$\sum \textbf{Client or project impact} \times \frac{\textbf{Outstanding loan volume}}{\textbf{Total balance sheet (equity + debt)}}$$

The impact figures will be derived from or calculated using public data from, among others, Dutch Central Bureau of Statistics (CBS), the Human Environment and Transport Inspectorate, the Water Authorities, Climate Monitor, and the sustainability reports of the institutions funded by NWB Bank. The selected clients for which data is collected is based on the loan portfolio as at 31-12-2021.

2.3 Data quality

An important element of the calculation is the quality of the data. There are five levels of quality involved in the calculation:
- Class 1 concerns individual data or actual consumption data that have been subject to monitoring.
- Class 2 concerns unaudited data or other primary consumption data.
- Class 3 concerns average data specific to the sector or comparable institutions.
- Class 4 concerns accessed data by region or country.
- Class 5 concerns rough estimates.

Table 2.1 Generic data quality table

Data quality (Highest to lowest)	Description
1	Audited impact data or actual primary data
2	Non-audited impact data, or other primary data
3	Averaged data that is peer/(sub)-sectorspecific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

2.4 Neutrality

Neutrality was the starting point in selecting the KPIs. First, we identified the impact of our different client groups on the SDGs. We then created a longlist of approximately 25 themes, spread across the six SDGs. The aim of the longlist was to get a picture of the impact of the bank's loan portfolio on the SDGs as complete and accurate as possible. KPIs were defined based on the 25 themes. We report both positive and negative impacts. The aim is to enable stakeholders to make unbiased decisions. A decision free from all prejudice and favoritism. We want to eliminate any potential risk of green washing with this.

2.5 Aggregation

Negative effects are not offset against positive effects.

2.6 Consistency

Information is reported consistently. Unit assumptions, choices, estimates, and calculation approaches underlying the results are documented. In this way, we and our stakeholders continue to have a good understanding of what the percentage impacts mean.

Consistent reporting ensures that results are comparable over time and across reports. Applying consistency also helps to meet the principles of other frameworks, such as the Partnership for Carbon Accounting Financials (PCAF), which derives some of its principles from the Greenhouse Gas (GHG) Protocol.

The pursuit of consistency in methodology does not mean that we cannot be open to improvement and refinement based on evolving insights.

2.7 Similar

The impact reporting is sufficiently comparable and detailed to understand the context of the KPIs. To this end, we will continue to include performance over a number of years. In addition, relative values are presented. A distinction is made between indirect and direct impacts. When we for example finance wind turbines, we have a direct impact on the production of renewable energy. Whereas when we finance municipalities, this is balance sheet financing and we have no direct impact on where the money goes.

2.8 Relevance

Some indicators cannot be influenced exclusively by a particular client group. Therefore, an intermediate step is needed to indicate which client groups can influence which indicators. We then reflect the size of a client group in the weighting methodology. Areas of impact where NWB has more clients, who in turn can have a greater impact on the achievement of results, will be more strongly reflected in the weighting than areas where the bank has fewer clients. This is a simplification of reality and may be an area that can be modulated as the methodology evolves.

2.9 Reliability

Reliability is essential. Reliability is achieved by embedding it in the bank's processes. Material errors distort and undermine decision-making. This principle is also included in other frameworks such as the PCAF, which borrows this principle from the GHG Protocol.

2.10 Best-in-class benchmarking

Where benchmarks are used, best-in-class benchmarks are included to ensure that the Bank's impact is compared to a realistic benchmark. An example of this is the climate change agreement.

Best-in-class benchmarking ensures that positive impacts are not exaggerated and negative impacts are not artificially minimised. This ensures that results are preserved and prevents greenwashing. Benchmarks can also provide useful information for interpreting results by putting the bank's impact performance into context.

2.11 Transparency

This enhances the credibility of impact information and allows third-party validation. Relevant assumptions, references and calculation methods are disclosed transparently.

2.12 Timeliness

This ensures that published impact information is up to date. Failure to publish impact information in a timely manner diminishes its usefulness for reporting and decision-making. We report impact information in the annual report and separately.

2.13 Restrictions

As yet, there is insufficient data available on a number of types of SDG impact that our clients have. Additionally, some types of impact are only partially included. For example the data availability, the most recent data is used, however this is often a year out of date. Another example for the latter are the Scope 3 emissions. It has not been possible to

calculate Scope 3 emissions for all sectors. No calculations or data are available that would allow us to make a reasonable estimate of these GHG emissions.

2.14 Calculating impact is an ongoing process

Comparability and transparency of impact accounting requires uniform disclosure, following the same guidelines and methods and ideally using the same metrics. However, the methodology used in this report is not yet a set and fixed method. Methodology development is an ongoing process in which we are continually looking for improvements. The impact presented in this report is not conclusive. By improving the method or using better data sources, today's world may look different tomorrow. If the method is improved, the results of the earlier years will be recalculated so comparison in time will be possible.

3 SDG impact results

In this chapter the first results of all the KPI's are presented.

3.1.1 SDG 6 Clean water and Sanitation

The goals set in the European Water Framework Directive (WFD), are key to achieving good water quality. The water boards are the main actors in the Netherlands for achieving those goals. In this report these goals are included in SDG 6 clean water and sanitation. These goals also have a strong relation to SDG 14 life below water.

The ecological status of surface water bodies is, according to the WFD, comprised of the biological status of the surface water body and physico-chemical and hydromorphology elements in the surface water body. The ecological status is insufficient when any of the above described components fails to achieve a good status, following the principle "one out, all out". The ecological status of surface water bodies currently does not suffice at any location, there are water bodies where the biological status is "good", however, one of the physcio-chemical or hydromorphology elements of the water bodies fails to achieve the "good" status.

A relevant part of achieving good water quality is a high standard waste water treatment. Removing Oxygen binding substances and nutrients, such as Phosphor and Nitrogen, from waste water is essential for obtaining healthy water bodies. The European Directive on urban waste water treatment, Commission Directive 98/15/EC, states that at least 75% of these substances needs to be removed. Undeniably, it would be best to have 100% of these substances removed. Currently, the waste water treatment plants easily meet the goals set by the European directive with percentages between 84.5 and 92.8.

The Human Environment and Transport Inspectorate (ILT) is responsible for measuring the quality of the Dutch drinking water. Annually, the inspectorate analyses whether the drinking water meets the required quality and safety standards. In the most recent survey, they acquired 544.006 samples. Based on those samples, the inspectorate has reported that 99,9% of the samples met the required quality and safety standards.

Table 3.1 Sustainable development goal 6 and corresponding KPI's

SDG	KPI	Results percentage
6	Water quality – surface water: % surface waters WFD targets achieved	0.0%
	Water quality – surface water: % phosphate removed from water	86.9%
	Water quality – surface water: % nitrates removed from water	84.5%
	Water quality – surface water: % oxygen-binding substances removed from water	92.8%
	Water quality - drinking water	99.9%

3.1.2 SDG 7 Affordable and clean energy

NWB Bank has set the goal to have an energy positive loan portfolio by 2035. This requires the renewable energy production by its portfolio to transcend the fossil energy consumption by the same portfolio. For energy neutral the results are 12%, for heat neutral the results are 10% and for electricity the results are 19%.

Table 3.2 Sustainable development goal 7

SDG	KPI	Results percentage
7	Energy neutral	12.0%
	Heat neutral	10.0%
	Electricity neutral	19.0%

3.1.3 SDG 11 Sustainable cities and communities

Waiting lists are a common phenomenon in social housing. This is usually due to a very high demand for affordable and low-cost rental housing and the low supply. This demand only seems to increase in the coming years due to the housing shortage in the rental sector. Moreover, there is little additional construction by housing corporations. Very few social housing association units have been added in the Netherlands in recent years, while the population grew substantially. Between 2015 and 2020, the number of social housing association units increased by only 1 percent, while the population grew by 3 percent. The average registration time for a social housing unit is 74 months for municipalities in the loan portfolio.

One million travelers use public transportation every day in the Netherlands. Five percent of all travel takes place via public transportation. Two percent travel by train and three percent by bus, tram or metro. The share of public transport use is lower in rural areas and higher in urban areas. The low public transport use in rural areas can be explained by the fact that public transport does not offer competitive travel time there. For this KPI we measure the number of inhabitants that reside within 700 m of a train, bus, tram or metro station or stop that is serviced at least twice an hour. For all the municipalities in the bank loans portfolio 9,638,870 inhabitants have access to public transport. This is 79,7 percent of all the inhabitants of these municipalities.

Housing associations are obligated to provide social housing to people with low incomes, who have little chance of finding housing in the market sector. The Dutch government indicates an yearly income limit for those households. In the KPI allocations within income limits the percentage of allocations within these limits are calculated. Different groups are measured, namely the one-person, two-person, and multi-person households, both above and below the retirement age and also above and below income limits. Allocations are also

differentiated based on rental prices in categories[5]. The housing associations in NWB Bank's loan portfolio have allocated 73.7 percent of their vacant houses to households with a low income.

The national government's goal is to achieve 100 kilograms of residual waste per capita by 2020. For the KPI the total amount of waste collected residual and sorted is calculated. Residual household waste and sorted household is waste that is collected by municipalities at households including waste of small stores and businesses that is collected at the same time and in the same way as that from households. E.g. the amount of textile, used paper, and cardboard, which are collected by schools, associations and charities. Properly separated waste is easier to recycle than waste that is not separated. The total amount of residual waste collected the municipalities in the loan portfolio is 2,228,061,599 kg of waste. This is 170 kg per capita. The municipalities collected 3,254,897,953 kg of sorted waste.

Good air quality is important for healthy and sustainable cities and communities. In guidelines and regulations often a distinction is made between short- and long term exposure to pollutants in air. The KPI air quality, being the background concentration, are thereby mainly comparable to the long term exposure limits.

Particulate matter is divided into PM10, particles smaller than 10 µm, and PM2.5, particles smaller than 2.5 µm. In Wet Milieubeheer, Wm, the limit set for the concentration of PM10 is 40 µg/m^3 and for PM2.5 is 25 µg/m^3. The limits set in 2021 in the Air Quality Guidelines, AQG, of the World Health Organization, WHO, are with 15 µg/m^3 for PM10 and 5 µg/m^3 for PM2.5 more strict. The concentration of PM10 and PM2.5 of the municipalities in the portfolio of the bank easily meet the limits set by the Wm, however the new limits set in the AQG of the WHO are not met.

In Wm the limit set for the concentration of Nitrogen dioxide (NO_2) is a maximum yearly average of 40 µg/m^3 and in some cases 30 µg/m^3 for nitrogen oxides. The AQG of WHO have in 2021 been set more strict from 40 to 10 µg/m^3 for NO_2 The average concentration of NO_x in the municipalities in the Bank's portfolio meet with 19.4 µg/m^3 the limits set in Wm, however the limit of the new WHO guideline is not met.

The limit set for Ozone, O_3, in Wm is a daily maximum 8-hour mean of 120 µg/m^3 that should not be exceeded on more than 25 days in three years and on the long term should not be exceeded on any day. WHO has set a limit in the guideline of a daily maximum 8-hour mean of 60 µg/m^3 that should not be exceed in the peak season, the six consecutive months of the year with highest running-average ozone concentration. The yearly background concentration of 50.2 µg/m^3 of the municipalities in the Bank's loan portfolio is not directly comparable to these guidelines. The short-term goal set in the Wm is met, however the long-term goal that the limit should not be exceeded on any day has not been met yet.

[5] The exact numbers of all the limits and categories can be obtained from: https://www.woningmarktbeleid.nl/actueel/nieuws/2020/11/18/inkomens-- en-huurgrenzen-huurtoeslag-2021-bekend

Table 3.3 Sustainable development goal 11 and corresponding KPI

SDG	KPI	Results absolute	Results percentage
11	Total registration time for social housing in months	74	
	Residents with access to public transport	9,638,870	79.7%
	Allocations within income limits	137,004	73.7%
	Amount of residual Household waste	2,228,061,599	
	Amount of sorted household waste	3,254,897,953	
	Air pollution: Concentration of PM2.5	9.2 µg/m^3	
	Air pollution: Concentration of PM10	16.4 µg/m^3	
	Air pollution: Concentration of NO_x	19.4 µg/m^3	
	Air pollution: Concentration of O_3	50.2 µg/m^3	

3.1.4 SDG 13 Climate action

Green roofs can play an outstanding role in making a city more liveable and healthier. First of all, green roofs act as water storage, second of all more greenery in the city provides cooling and third more greenery provides biodiversity. Fourth, green roofs can help improve air quality. Finally green insulate, keeping a house cooler in the summer and warmer in the winter.

To calculate the green roof surface potential the flat roof surface of buildings larger than 50 m^2 have been determined. Second by means of automatic detection, green roofs have been identified on the basis of aerial photos. An additional calculation on the basis of vegetation index provided by the aerial photos has been performed to get correct green roof surface areas. The results show that the municipalities in NWB Bank's loan portfolio have a total of 3,451,565m2 green roofs that is almost 700 soccer fields. That is 1% of the green roof potential.

Table 3.4 Sustainable development goal 13 and corresponding KPI's

SDG	KPI	Results	Results percentage
13	Green roofs - percentage of green roof compared to potential	2,451,565 m^2	1.02%
	CO2 impact	Results table 3.5	-

The GHG footprint of NWB Bank has been calculated based on the GHG emissions of individual organizations. The GHG emissions of an individual organization have been multiplied by the proportional share of the outstanding loan volume with NWB Bank in the total balance sheet of the client. More information about the calculation method can be found in the Greenhouse Gas Emissions of NWB Bank Loan Portfolio report[6]. This calculation method is only applied in for the CO_2 impact and not for the other KPI's.

As can be seen in table 3.5, NWB Bank's loan portfolio for reporting year 2022 has a total GHG emission of 1,623 kiloton CO_2 equivalent. In comparison to reporting year 2021 the total emissions have decreased by 137 kiloton. The reduction was mainly due to a reduction of GHG emissions for the water authorities (-99 kiloton CO_2 equivalent) and for the social housing sector (-23 kiloton CO_2 equivalent). For the water authorities the reduction was largest for scope 2 (-105 kiloton CO_2 equivalent) and for the social housing sector the reduction was largest for scope 1 (-18 kiloton CO_2 equivalent). The absolute and relative decrease of GHG emissions of NWB's loan portfolio is positive. Many factors play a role in explaining why this development is taking place. These factors are addressed in the Greenhouse Gas Emissions report[7].

Table 3.5 Absolute and relative GHG emissions for reporting years 2019, 2021, and 2022

Market segment	Sector ^	Part covered with GHG footprint (million EUR)			GHG emissions (ton CO_2-eq)			Relative GHG emissions (ton CO_2-eq/million EUR)		
		2022	2021	2019	2022	2021	2019	2022	2021	2019
Social housing	Housing associations	30,566	30,357	30,199	388,026	410,588	510,660	12.6	13.6	16.9
Public sector	Municipalities	6,740	6,665	6,583	380,404	397,652	423,377	56.6	59.6	64.4
	Provinces	356	202	247	10,787	6,415	10,685	30.3	31.7	43.3
	Water authorities	7,977	7,172	6,327	720,472	819,645	892,342	90.2	114.2	141.2
	Joint Regulations	366	-	-	9	-	-	0.03	-	-
Healthcare	Healthcare	1,657	1,689	1,866	80,996	85,458	119,730	48.9	50.6	64.2
Education	Education	94	82	67	4,160	3,663	2,452	44.4	44.8	36.8
Networks	Drinking water companies	920	820	-	37,945	36,721	-	41.3	44.8	-
Total		**48,676**	**46,987**	**45,289**	**1,622,799**	**1,760,142**	**1,959,246**	**33.3**	**37.5**	**43.3**

^ Avoided emissions need to be reported separately from actual emissions, therefore the avoided emissions that have been calculated for this report are not included in this table

3.1.5 SDG 14 Life below water

The index quality of aquatic nature is based on the occurrence of typical aquatic freshwater flora and freshwater fauna in surface waters. Scores on the index range from 0 to 100, in which 100 resembles the quality of an ecosystem in an intact state. The index shows that

[6] https://nwbbank.com/
[7] https://nwbbank.com/

the quality of the Dutch aquatic nature is lower than would be the case in an intact natural ecosystem; the average quality of Dutch freshwater ecosystems is low.

Table 3.6 Sustainable development goal 14 and corresponding KPI

SDG	KPI	Results
14	Nature quality water : index (intact ecosystem = 100)	37

3.1.6 SDG 15 Life on land

For SDG 15 – Life on land KPI area of public green space is selected. The data map presents an image of the locations of public green space in the Netherlands. All trees, bushes, and low vegetation are being presented. The municipalities in the loan portfolio of NWB Bank have a green space of 24,973,398 m^2. This is 30% of the total surface of the municipalities. There are no strict guidelines in the Netherlands for the quantity of public green space. However, two conditions are often adhered to. The first criterion is the availability of at least 75m^2 of green space per home, where everything that is not petrified is counted as green space (such as parks, lawns, roadsides, and water) according to the 'Nota ruimte' of the national government[8]. The second criterion is an advice of the World Health Organization and concerns the presence of at least one hectare of continuous green space per neighbourhood/municipality. For biodiversity, recreation, and human well-being, green space should not be too fragmented.

The area of protected nature is comprised of the land and water surface area that has a European, Natura2000, or Dutch, NNN, protected status. Currently 17,061 km^2 of land and water is protected by these regulations within the municipalities of the bank's loan portfolio, which is 25 percent of the surface area. Although the percentage of protected nature in the Netherlands is acceptable, the biodiversity crisis has pointed out that currently life on land is under serious stress. Nature in the Netherlands is generally too fragmented and particularly outside and even inside protected sites the conditions are sub-par.

In the Netherlands, ecosystems are under stress of an overdose of nutrients, particularly nitrogen in the form of nitrogen oxides (NOx) or ammonia (NH3). The European 'National Emission Ceilings', NEC (EU 2016/2284) and the Gothenburg protocol, state guidelines for yearly limits of emissions of these substances. For NOx the limit is from 2020 onwards 202 Kton/yr and for NH3 123 Kton/yr. The municipalities in the bank's loan portfolio have a significant share in the Dutch emissions with 73 Kton NH3 and 159 Kton NOx in 2020.

[8] https://www.pbl.nl/publicaties/Milieu-_en_Natuureffecten_Nota_Ruimte

Table 3.7 Sustainable development goal 13 and corresponding KPI

SDG	KPI	Results	Results percentage
15	Area of public green space categorized as gardens and nature	24,973,398m^2	30.1%
	Area of protected nature incl. water	17,061 km^2	25.0%
	Air pollution – Emissions NH3	73 kiloton	
	Air pollution – Emissions NOx	159 kiloton	

4 Housing associations

4.1 General factsheet

Topic	Description
Portfolio covered	98.32 % of NWB Bank's portfolio is covered for this customer group. This percentage is an indication of the completeness of the dataset. It is calculated by looking at the collected data for the customers in the loan portfolio of NWB Bank. The percentage is lower than 100% percent if there are missing data. The missing data are either not available or it was not possible to collect or calculate these data correctly.
Indicators	- Energy consumption: natural gas - Energy consumption: electricity - Total allocations within income limits - GHG emissions
Limitations	None.

4.2 Factsheets per indicator

4.2.1 Energy consumption per housing association – natural gas (Nm^3)

Topic	Description
Data	Data on the natural gas use is based on register data from the Microdata of the Dutch Central Bureau of Statistics (CBS). The data on natural gas use is based on connection registers of energy network companies. It is based on actual natural gas consumption, and therefore reliable. Natural gas use per housing association house is available in the CBS Microdata and aggregated to the municipality level. Per municipality the natural gas use by housing association houses is known. Data on the number of houses per housing association per municipality come from the "Inspectie van de leefomgeving en transport". This data is audited and therefore reliable.
Calculation steps	The use of natural gas per housing association is unknown. Therefore, an estimation had to be made. To make this estimation as accurate as possible, a few calculations had to be made. The CBS Microdata has information on natural gas consumption of all Dutch houses. Within the CBS Microdata database, this dataset has been combined with a dataset that has information about homeowners. For this calculation only houses owned by housing associations has been used. The definition of a house used by CBS is: *the smallest unit of use located within one or more buildings and suitable for residential purposes, accessed by a private entrance from the public road, a yard or a shared traffic area. Examples include detached houses, single-family houses, apartment or porch houses, student houses.* *All residential objects in the Basic Registration of Addresses and Buildings (BAG) with at least a residential function and possibly one or more other use functions are considered as a house.* So both self-contained and non-self-contained homes are included in this data. Per municipality, the natural gas use for all houses owned by housing associations has been calculated. Outside the CBS Microdata database, the natural gas use per housing association has been calculated. From the CBS data it is only known how many houses are owned by housing associations per municipality. The "Inspectie van de leefomgeving en transport" has data on the number of independent and non-independent houses per housing association per municipality. According to this data the percentage of houses owned by the housing associations has been calculated per municipality. This percentage has been multiplied by the total number of houses owned by all the housing associations per municipality

	(CBS data) to result in the number of houses owned per housing association per municipality. This extra calculation step has been performed because the total number of houses owned by all the housing associations per municipality from the CBS data did not correspond to the total number of houses owned by all the housing associations per municipality from the "Inspectie van de leefomgeving en transport". Because the energy consumption data comes from CBS, also the total number of houses owned by all the housing associations per municipality from CBS has been used to calculate the number of houses owned by housing associations per municipality. The natural gas use per municipality for all houses owned by housing associations has been multiplied by the ratio of the number of houses of one particular housing association versus total number of houses of all housing associations in one municipality. For each housing association the natural gas use per municipality has been added up to result in the total natural gas use for that particular housing association.
Limitations	Unfortunately, we have no data available about which house belongs to which housing association. Therefore, the natural gas use per housing association has to be estimated based on the ratio of the number of houses of one particular housing association versus total number of houses of all housing associations in one municipality. The accuracy of the data can be improved when it is known which house belongs to which housing association. However, this will have no effect on the natural gas use of the sector in total, but improves the data quality on client level. The most recent data on energy consumption of housing associations available from CBS is from the year 2020. Therefore, the data used for this report is from the year 2020 instead of 2021.
SDG	7
Data quality estimate	Natural gas use is calculated based on primary data on actual building energy consumption. The data quality score 2 applies to the overall sector. See option 1b in Table 5-15 on page 98 of the report Financed Emissions, The global GHG accounting & reporting standard Part A.[9] At the level of individual housing associations, the data quality score would be 3, because it is not known which house belongs to which housing association.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Natural gas use of housing associations
Data file	Original file: Output microdata aardgas en elektra verbruik.xlsx Edited file: Energieverbruik 2017 2019 en 2020 aangepast voor gebruik in SQL.xlsx
Data Source	CBS Microdata (received by e-mail: 25-8-2022_output aangepast vrijgegeven_8741_jkrz.msg)
Year	2017- 2019- 2020
Last update	Not applicable
Date of download	25-8-2022

[9] https://carbonaccountingfinancials.com/standard. PCAF(2022). Financed Emissions, The global GHG accounting & reporting standard Part A.

Link to webpage	https://www.cbs.nl/nl-nl/onze-diensten/maatwerk-en-microdata/microdata-zelf-onderzoek-doen/microdatabestanden/energieverbruik-energiegebruiken-van-woningen
Filters used to obtain the datafile	Not applicable
Internal location	Original file: Klantgroepen\Woningcorporaties\SDG_7_Gasverbruik\Ruwe data Edited file: Klantgroepen\Woningcorporaties\SDG_7_Gasverbruik\Voorbewerking data
Data quality estimate	2 Natural gas use is calculated based on primary data on actual building energy consumption. The data quality score 2 applies to the overall sector. See option 1b in Table 5-15 on page 98 of the report Financed Emissions, The global GHG accounting & reporting standard Part A.[10]
Unit of measurement	Nm^3
Selections	Not applicable
Data transformation	To perform the calculations the following transformations have been done: Data of the year 2020 was transformed to the 2021 municipality division. For the year 2020 (reporting year 2022) no transformations have been done.
Data missing	For the year 2020 the following number of housing associations are missing in the final results of natural gas use data: 2020: 5 from the 282 housing associations in the loan portfolio. This is according to the loan portfolio of 31-12-2021
Print Screens	Klantgroepen\Woningcorporaties\ SDG_7_Gasverbruik\Printscreens\ 25-8-2022_output aangepast vrijgegeven_8741_jkrz.msg

Topic	Description
Data	Number of houses owned by housing associations by municipalities
Data file	Original files: dvi2019 H2.xlsx dvi2020 H2.xlsx Edited files: 20221021 aantal woningen 2019.xlsx 20221021 aantal woningen 2020.xlsx
Data Source	Inspectie Leefomgeving en Transport (ilent); Autoriteit Woningcorporaties
Year	2019-2020
Last update	Not applicable
Date of download	18-10-2022
Link to webpage	https://data.overheid.nl/dataset/verantwoordingsinformatie-woningcorporaties-dvi2020-hfd21
Filters used to obtain the datafile	Filters obtained for 2019 and 2020: DEAB_Indicatie_Ultimo: J & N; Soort_Instelling_Ultimo: TI; EenheidSoort: WoonZelfst & WoonOnzelfst.
Internal location	Original files: Klantgroepen\Woningcorporaties\SDG_7_Gasverbruik\Ruwe data Edited files: Klantgroepen\Woningcorporaties\ SDG_7_Gasverbruik\Voorberwerking data
Data quality estimate	1 Audited data per housing association specific.
Unit of measurement	Number of dwellings

[10] https://carbonaccountingfinancials.com/standard. PCAF(2022). Financed Emissions, The global GHG accounting & reporting standard Part A.

Selections	Not applicable
Data transformation	To perform the calculations the following transformations have been done: Data of the year 2020 was transformed to the 2021 municipality division.
Data missing	Not applicable
Print Screens	Klantgroepen\Woningcorporaties\SDG_7_Gasverbruik\Printscreens\ 20221018 dvi 2019 H2.png 20221018 dvi 2020 H2.png

List of the calculation sheets	Location
Energiedata woco.csv Woningen woningcorporaties per gemeente.csv	Klantgroepen\Woningcorporaties\SDG_7_Gasverbruik\Brond ata voor SQL
PCAF_woco_NWB	Klantgroepen\Woningcorporaties\SDG_7_Gasverbruik\Scripts en database SQL
WOCO NWB Bank 2019.sql WOCO NWB Bank 2020.sql	Klantgroepen\Woningcorporaties\SDG_7_Gasverbruik\Scripts en database SQL
Energieverbruik_perwoco_totaal_2019.csv Energieverbruik_perwoco_totaal_2020.csv	Klantgroepen\Woningcorporaties\SDG_7_Gasverbruik\Data uit SQL
20221013 missende Woco's NWB Bank 2021.xlsx Only missing associations for the loan portfolio of 31-12-2021 are presented because this is the basis for the final file.	Klantgroepen\Woningcorporaties\SDG_7_Gasverbruik\Missen de data
20221128 gasverbruik woningcorporaties min1meting.xlsx 20221128 gasverbruik woningcorporaties nulmeting.xlsx	Klantgroepen\Woningcorporaties\SDG_7_Gasverbruik

4.2.2 Energy consumption per housing association – electricity (kWh)

Topic	Description
Data	Data on the electricity use is based on register data from the Microdata of the Dutch Central Bureau of Statistics (CBS). The data on electricity use is based on connection registers of energy network companies, based on actual energy consumption and therefore reliable. Electricity use per housing association house is available in the CBS Microdata and aggregated to the municipality level. Per municipality the electricity use by housing association houses is known. Data on the number of houses per housing association per municipality come from the "Inspectie van de leefomgeving en transport". This data is audited and therefore reliable.
Calculation steps	The use of electricity per housing association is unknown. Therefore, an estimation had to be made. To make this estimation as accurate as possible, a few calculations had to be made. The CBS Microdata has information on electricity use of all Dutch houses. Within the CBS Microdata database, this dataset has been combined with a dataset that has information about homeowners so only houses owned by housing associations have been used. The definition of a house used by CBS is: *the smallest unit of use located within one or more buildings and suitable for residential purposes, accessed by a private entrance from the public road, a yard or a shared traffic area. Examples include detached houses, single-family houses, apartment or porch houses, student houses.* *All residential objects in the Basic Registration of Addresses and Buildings (BAG) with at least a residential function and possibly one or more other use functions are considered as a house.* So both self-contained and non-self-contained homes are included in this data. Per municipality, the electricity use for all houses owned by housing associations has been calculated. Outside the CBS Microdata database, the electricity use per housing association has been calculated. From the CBS data it is only known how many houses are owned by housing associations per municipality. The "Inspectie van de leefomgeving en transport" has data on the number of independent and non-independent houses per housing association per municipality. According to this data the percentage of houses owned by the housing associations has been calculated per municipality. This percentage has been multiplied by the total number of houses owned by all the housing associations per municipality (CBS data) to result in the number of houses owned per housing association per municipality. This extra calculation step has been performed because the total number of houses owned by all the housing associations per municipality from the CBS data did not correspond to the total number of houses owned by all the housing associations per municipality from the "Inspectie van de leefomgeving en transport". Because the energy consumption data comes from CBS, also the total number of houses owned by all the housing associations per municipality from CBS has been used to calculate the number of houses owned by housing associations per municipality. The electricity use per municipality for all houses owned by housing associations has been multiplied by the ratio of the number of houses of one particular housing association versus total number of houses of all housing associations in one municipality. For each housing association the electricity use per municipality has been added to result in the total electricity use for that particular housing association.
Limitations	Unfortunately, we have no data available about which house belongs to which housing association. Therefore, the electricity use per housing association has to be estimated based on the ratio of the number of houses of one particular housing association versus total number of houses of all housing associations in one municipality. The accuracy of the data can be improved when it is known which house belongs to which housing association. However, this will have no effect on the total electricity use of the sector in total, but improves the data quality on client level. The most recent data on energy consumption of housing associations available from CBS is from the year 2020. Therefore, the data used for this report is from the year 2020 instead of 2021.

SDG	7
Data quality estimate	Electricity use is calculated based on primary data on actual building energy consumption. The data quality score 2 applies to the overall sector. See option 1b in Table 5-15 on page 98 of the report Financed Emissions, The global GHG accounting & reporting standard Part A.[11] At the level of individual housing associations, the data quality score would be 3, because it is not known which house belongs to which housing association.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Electricity use of housing associations
Data file	Original file: Output microdata aardgas en elektra vebruik.xlsx Edited file: Energieverbruik 2017 2019 en 2020 aangepast voor gebruik in SQL.xlsx
Data Source	CBS Microdata (received by e-mail: 25-8-2022_output aangepast vrijgegeven_8741_jkrz.msg)
Year	2017- 2019- 2020
Last update	Not applicable
Date of download	25-8-2022
Link to webpage	https://www.cbs.nl/nl-nl/onze-diensten/maatwerk-en-microdata/microdata-zelf-onderzoek-doen/microdatabestanden/energieverbruik-energiegebruiken-van-woningen
Filters used to obtain the datafile	Not applicable
Internal location	Original file: Klantgroepen\Woningcorporaties\SDG_7_Elektriciteitsverbruik\Ruwe data Edited file: Klantgroepen\Woningcorporaties\SDG_7_Elektriciteitsverbruik\Voorbewerking data
Data quality estimate	2 Electricity use is calculated based on primary data on actual building energy consumption. The data quality score 2 applies to the overall sector. See option 1b in Table 5-15 on page 98 of the report Financed Emissions, The global GHG accounting & reporting standard Part A.[12]
Unit of measurement	kWh
Selections	Not applicable
Data transformation	To perform the calculations the following transformations have been done: Data of the year 2020 was transformed to the 2021 municipality division.
Data missing	For the year 2020 the following number of housing associations are missing in the final results of electricity use data:

[11] https://carbonaccountingfinancials.com/standard. PCAF(2022). Financed Emissions, The global GHG accounting & reporting standard Part A.
[12] https://carbonaccountingfinancials.com/standard. PCAF(2022). Financed Emissions, The global GHG accounting & reporting standard Part A.

	2020: 5 from the 282 housing associations in the loan portfolio. This is according to the loan portfolio of 31-12-2021
Print Screens	Klantgroepen\Woningcorporaties\SDG_7_Elektriciteitsverbruik\Printscreens\ 25-8-2022_output aangepast vrijgegeven_8741_jkrz.msg

Topic	Description
Data	Number of houses owned by housing associations by municipalities
Data file	Original files: dvi2019 H2.xlsx dvi2020 H2.xlsx Edited files: 20221021 aantal woningen 2019.xlsx 20221021 aantal woningen 2020.xlsx
Data Source	Inspectie Leefomgeving en Transport (ilent); Autoriteit Woningcorporaties
Year	2019-2020
Last update	Not applicable
Date of download	18-10-2022
Link to webpage	https://data.overheid.nl/dataset/verantwoordingsinformatie-woningcorporaties-dvi2020-hfd21
Filters used to obtain the datafile	Filters obtained for 2019 and 2020: DEAB_Indicatie_Ultimo: J & N; Soort_Instelling_Ultimo: TI; EenheidSoort: WoonZelfst & WoonOnzelfst.
Internal location	Original files: Klantgroepen\Woningcorporaties\SDG_7_Elektriciteitsverbruik\Ruwe data Edited files: Klantgroepen\Woningcorporaties\ SDG_7_Elektriciteitsverbruik\Voorberwerking data
Data quality estimate	1 Audited data per housing association specific.
Unit of measurement	Number of dwellings
Selections	Not applicable
Data transformation	To perform the calculations the following transformations have been done: Data of the year 2020 was transformed to the 2021 municipality division.
Data missing	Not applicable
Print Screens	Klantgroepen\Woningcorporaties\SDG_7_Elektriciteitsverbruik\Printscreens\ 20221018 dvi 2019 H2.png 20221018 dvi 2020 H2.png

List of the calculation sheets	Location
Energiedata woco.csv Woningen woningcorporaties per gemeente.csv	Klantgroepen\Woningcorporaties\ SDG_7_Elektriciteitsverbruik\Brondata voor SQL
PCAF_woco_NWB	Klantgroepen\Woningcorporaties\ SDG_7_Elektriciteitsverbruik\Scripts en database SQL
WOCO NWB Bank 2019.sql WOCO NWB Bank 2020.sql	Klantgroepen\Woningcorporaties\ SDG_7_Elektriciteitsverbruik\Scripts en database SQL
Energieverbruik_perwoco_totaal_2019.csv Energieverbruik_perwoco_totaal_2020.csv	Klantgroepen\Woningcorporaties\SDG_7_Elektriciteitsverbruik \Data uit SQL
20221013 missende Woco's NWB Bank 2021.xlsx	Klantgroepen\Woningcorporaties\ SDG_7_Elektriciteitsverbruik\Missende data

Only missing associations for the loan portfolio of 31-12-2021 are presented because this is the basis for the final file.	
20221128 elektriciteitsverbruik woningcorporaties min1meting.xlsx 20221128 elektriciteitsverbruik woningcorporaties nulmeting.xlsx	Klantgroepen\Woningcorporaties\SDG_7_Elektriciteitsverbruik

4.2.3 Total allocations within income limits

Topic	Description
Data	All data for this indicator is obtained from dVi woningcorporaties H5.2.1 via: https://data.overheid.nl/
Calculation steps	The data is obtained by performing the following steps: Obtain the total allocations for all housing associations by downloading dVi chapter five. Tab 'data 5.2.1.' shows the total allocations for one-person, two-person, and multi-person households, both above and below the retirement age and also above and below income limits. Allocations are also differentiated based on rental prices in categories 'basishuur', boven kwaliteitskortingsgrens onder laagste aftoppingsgrens', boven laagste aftoppingsgrens onder liberalisatiegrens' and 'tot en met kwaliteitskortingsgrens'. In order to calculate the total allocations within income limits we add up the following allocations: - Total number of allocations for one-person households, both above and below retirement age, below income limits for all rental price categories. - Total number of allocations for two-person households, both above and below retirement age, below income limits for all rental price categories. - Total number of allocations for multi-person households, both above and below retirement age, below income limits for all rental price categories. - Total number of allocations below income limits for price category 'boven liberalisatiegrens'. The exact numbers of all the limits and categories can be obtained from: https://www.woningmarktbeleid.nl/actueel/nieuws/2020/11/18/inkomens--en-huurgrenzen-huurtoeslag-2021-bekend Inkomensgrenzen passend toewijzen 2021 Eenpersoonshuishouden €23.725 Meerpersoonshuishouden €32.200 Eenpersoonsouderenhuishouden €23.650 Meerpersoonsouderenhuishouden €32.075
Limitations	No limitations
SDG	SDG 11.1: Sustainable cities and communities
Data quality estimate	All the data is primary data which is obtained directly from the housing associations. No calculations or estimations needed. Data quality score = 2

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data

3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Accountability information housing associations
Data file	dVi2019 H5.xlsx
Data Source	Inspectie Leefomgeving en Transport (Rijk)
Year	2019 &2020
Last update	09-01-2022
Date of download	12-01-2022
Link to webpage	https://data.overheid.nl/dataset/verantwoordingsinformatie-woningcorporaties-dvi2019-hfd5
Filters used to obtain the datafile	Not applicable
Internal location	Klantgroepen\Woningcorporaties\SDG_11_Toewijzingen binnen inkomensgrenzen/aantal toewijzingen binnen inkomensgrenzen
Data quality estimate	2
Unit of measurement	Number of allocations
Selections	Not applicable
Data missing	Not applicable
Print Screens	Klantgroepen\Woningcorporaties\SDG_11_Toewijzingen binnen inkomensgrenzen\printscreens

4.2.4 GHG emissions per housing association

Topic	Description
Data	Data on the electricity use and natural gas use is based on register data from the Microdata of the Dutch Central Bureau of Statistics (CBS). The data on natural gas use is based on connection registers of energy network companies. It is based on actual natural gas consumption, and therefore reliable. Natural gas use per housing association house is available in the CBS Microdata and aggregated to the municipality level. Per municipality the natural gas use by housing association houses is known. The data on electricity use is based on connection registers of energy network companies, based on actual energy consumption and therefore reliable. Electricity use per housing association house is available in the CBS Microdata and aggregated to the municipality level. Per municipality the electricity use by housing association houses is known. The data on district heating is based on connection registers of energy network companies, collected by the Dutch Central Bureau of Statistics (CBS). It is based on actual energy consumption, and therefore reliable. The use of district heating is available on municipality level. Per municipality the district heating use by houses owned by the housing associations are known. Data on the number of houses per housing association per municipality come from the “Inspectie van de leefomgeving en transport”. This data is audited and therefore reliable.
Calculation steps	**Scope 1: Natural gas** The use of natural gas per housing association is unknown. Therefore, an estimation had to be made. To make this estimation as accurate as possible, a few calculations had to be made. The CBS Microdata has information on natural gas consumption of all Dutch

houses. Within the CBS Microdata database, this dataset has been combined with a dataset that has information about homeowners. For this calculation only houses owned by housing associations has been used. The definition of a house used by CBS is: *the smallest unit of use located within one or more buildings and suitable for residential purposes, accessed by a private entrance from the public road, a yard or a shared traffic area. Examples include detached houses, single-family houses, apartment or porch houses, student houses.*

All residential objects in the Basic Registration of Addresses and Buildings (BAG) with at least a residential function and possibly one or more other use functions are considered as a house. So both self-contained and non-self-contained homes are included in this data.

Per municipality, the natural gas use for all houses owned by housing associations has been calculated. Outside the CBS Microdata database, the natural gas use per housing association has been calculated.

From the CBS data it is only known how many houses are owned by housing associations per municipality. The "Inspectie van de leefomgeving en transport" has data on the number of independent and non-independent houses per housing association per municipality. According to this data the percentage of houses owned by the housing associations has been calculated per municipality. This percentage has been multiplied by the total number of houses owned by all the housing associations per municipality (CBS data) to result in the number of houses owned per housing association per municipality. This extra calculation step has been performed because the total number of houses owned by all the housing associations per municipality from the CBS data did not correspond to the total number of houses owned by all the housing associations per municipality from the "Inspectie van de leefomgeving en transport". Because the energy consumption data comes from CBS, also the total number of houses owned by all the housing associations per municipality from CBS has been used to calculate the number of houses owned by housing associations per municipality.

The natural gas use per municipality for all houses owned by housing associations has been multiplied by the ratio of the number of houses of one particular housing association versus total number of houses of all housing associations in one municipality. For each housing association the natural gas use per municipality has been added up to result in the total natural gas use for that particular housing association.

Unfortunately, no data is available about the car fleet of the housing associations, therefore this is not taken into account in scope 1.

The natural gas use in Nm^3 has been multiplied by the emission factor for natural gas to result in kg GHG emissions (1.785 kg CO_2/Nm^3). These emissions have been divided by 1000 to result in ton GHG emissions.

Scope 2: District heating

The use of district heating per housing association is unknown. Therefore, an estimation had to be made. To make this estimation as accurate as possible, a few calculations had to be made. The CBS Microdata has information on the use of district heating of all Dutch houses. Within the CBS Microdata database, this dataset has been combined with a dataset with information about homeowners. For this calculation only houses owned by housing associations has been used. The definition of a house used by CBS is: *the smallest unit of use located within one or more buildings and suitable for residential purposes, accessed by a private entrance from the public road, a yard or a shared traffic area. Examples include detached houses, single-family houses, apartment or porch houses, student houses.*

All residential objects in the Basic Registration of Addresses and Buildings (BAG) with at least a residential function and possibly one or more other use functions are considered as a house. So both self-contained and non-self-contained homes are included in this data.

Per municipality, the use of district heating for all houses owned by housing associations has been calculated. Outside the CBS Microdata database, the use of district heating per housing association has been calculated.

From the CBS data it is only known how many houses are owned by housing associations per municipality. The "Inspectie van de leefomgeving en transport" has data on the number of independent and non-independent houses per housing association per municipality. According to this data the percentage of houses owned by the housing associations has been calculated per municipality. This percentage has been multiplied by the total number of houses owned by all the housing associations per municipality (CBS data) to result in the number of houses owned per housing association per

	municipality. This extra calculation step has been performed because the total number of houses owned by all the housing associations per municipality from the CBS data did not correspond to the total number of houses owned by all the housing associations per municipality from the "Inspectie van de leefomgeving en transport". Because the energy consumption data comes from CBS, also the total number of houses owned by all the housing associations per municipality from CBS has been used to calculate the number of houses owned by housing associations per municipality. The use of district heating per municipality for all houses owned by housing associations has been multiplied by the ratio of the number of houses of one particular housing association versus total number of houses of all housing associations in one municipality. For each housing association the use of district heating per municipality has been added up to result in the total district heating use for that particular housing association. The use of district heating in GJ has been multiplied by the emission factor for district heating (STEG) to result in kg GHG emissions (32.53 kg CO_2/GJ). These emissions have been divided by 1000 to result in ton GHG emissions. **Scope 2: Electricity use** The use of electricity per housing association is unknown. Therefore, an estimation had to be made. To make this estimation as accurate as possible, a few calculations had to be made. The CBS Microdata has information on electricity use of all Dutch houses. Within the CBS Microdata database, this dataset has been combined with a dataset that has information about homeowners so only houses owned by housing associations have been used. The definition of a house used by CBS is: *the smallest unit of use located within one or more buildings and suitable for residential purposes, accessed by a private entrance from the public road, a yard or a shared traffic area. Examples include detached houses, single-family houses, apartment or porch houses, student houses.* *All residential objects in the Basic Registration of Addresses and Buildings (BAG) with at least a residential function and possibly one or more other use functions are considered as a house*. So both self-contained and non-self-contained homes are included in this data. Per municipality, the electricity use for all houses owned by housing associations has been calculated. Outside the CBS Microdata database, the electricity use per housing association has been calculated. From the CBS data it is only known how many houses are owned by housing associations per municipality. The "Inspectie van de leefomgeving en transport" has data on the number of independent and non-independent houses per housing association per municipality. According to this data the percentage of houses owned by the housing associations has been calculated per municipality. This percentage has been multiplied by the total number of houses owned by all the housing associations per municipality (CBS data) to result in the number of houses owned per housing association per municipality. This extra calculation step has been performed because the total number of houses owned by all the housing associations per municipality from the CBS data did not correspond to the total number of houses owned by all the housing associations per municipality from the "Inspectie van de leefomgeving en transport". Because the energy consumption data comes from CBS, also the total number of houses owned by all the housing associations per municipality from CBS has been used to calculate the number of houses owned by housing associations per municipality. The electricity use per municipality for all houses owned by housing associations has been multiplied by the ratio of the number of houses of one particular housing association versus total number of houses of all housing associations in one municipality. For each housing association the electricity use per municipality has been added to result in the total electricity use for that particular housing association. The electricity use in kWh has been multiplied by the emission factor for unknown electricity to result in kg GHG emissions (0.405 kg CO_2/kWh). These emissions have been divided by 1000 to result in ton GHG emissions. For unknown electricity it is advised by CO2emissiefactoren.nl to use the emission factor of 0.405 kg CO_2 equivalent per kWh from January 2018 because of a method change for the average power mix. To have no differences between reporting years in this report due to a change in the emission factor the emission factor of the year 2018 has been used for reporting year 2019, while the energy consumption data was from the year 2017.

Limitations	Unfortunately, we have no data available about which house belongs to which housing association. Therefore, the energy use (natural gas use, electricity use, and district heating) per housing association has to be estimated based on the ratio of the number of houses of one particular housing association versus total number of houses of all housing associations in one municipality. The accuracy of the data can be improved when it is known which house belongs to which housing association. However, this will have no effect on the GHG emissions of the sector in total, but improves the data quality on client level. The most recent data on energy consumption of housing associations available from CBS is from the year 2020. Therefore, the data used for this report is from the year 2020 instead of 2021.
SDG	13
Data quality estimate	Scope 1 and 2: data quality score 2. The GHG emissions are calculated based on primary data on actual building energy consumption. The data quality score 2 applies to the overall sector. See option 1b in Table 5-15 on page 98 of the report Financed Emissions, The global GHG accounting & reporting standard Part A.[13] At the level of individual housing associations, the data quality score would be 3, because it is not known which house belongs to which housing association.

Topic	Description
Data	Natural gas use of housing associations
Data file	Original file: Output microdata aardgas en elektra verbruik.xlsx Edited file: Energieverbruik 2017 2019 en 2020 aangepast voor gebruik in SQL.xlsx
Data Source	CBS Microdata (received by e-mail: 25-8-2022_output aangepast vrijgegeven_8741_jkrz.msg)
Year	2017- 2019- 2020
Last update	Not applicable
Date of download	25-8-2022
Link to webpage	https://www.cbs.nl/nl-nl/onze-diensten/maatwerk-en-microdata/microdata-zelf-onderzoek-doen/microdatabestanden/energieverbruik-energiegebruiken-van-woningen
Filters used to obtain the datafile	Not applicable
Internal location	Original file: Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Ruwe data Edited file: Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Voorbewerking data
Data quality estimate	2 The GHG emissions are calculated based on primary data on actual building energy consumption. The data quality score 2 applies to the overall sector. See option 1b in Table 5-15 on page 98 of the report Financed Emissions, The global GHG accounting & reporting standard Part A.[14]
Unit of measurement	Nm^3
Selections	Not applicable
Data transformation	To perform the calculations the following transformations have been done: Data of the year 2020 was transformed to the 2021 municipality division.

[13] https://carbonaccountingfinancials.com/standard. PCAF(2022). Financed Emissions, The global GHG accounting & reporting standard Part A.

[14] https://carbonaccountingfinancials.com/standard. PCAF(2022). Financed Emissions, The global GHG accounting & reporting standard Part A.

Data missing	For the year 2020 the following number of housing associations are missing in the final results of GHG emissions: 2020: 5 from the 282 social associations in the loan portfolio. This is according to the loan portfolio of 31-12-2021.
Print Screens	Klantgroepen\Woningcorporaties\ SDG_13_CO2 impact\Printscreens\ 25-8-2022_output aangepast vrijgegeven_8741_jkrz.msg

Topic	Description
Data	Electricity use of housing associations
Data file	Original file: Output microdata aardgas en elektra vebruik.xlsx Edited file: Energieverbruik 2017 2019 en 2020 aangepast voor gebruik in SQL.xlsx
Data Source	CBS Microdata (received by e-mail: 25-8-2022_output aangepast vrijgegeven_8741_jkrz.msg)
Year	2017- 2019- 2020
Last update	Not applicable
Date of download	25-8-2022
Link to webpage	https://www.cbs.nl/nl-nl/onze-diensten/maatwerk-en-microdata/microdata-zelf-onderzoek-doen/microdatabestanden/energieverbruik-energiegebruiken-van-woningen
Filters used to obtain the datafile	Not applicable
Internal location	Original file: Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Ruwe data Edited file: Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Voorbewerking data
Data quality estimate	2 The GHG emissions are calculated based on primary data on actual building energy consumption. The data quality score 2 applies to the overall sector. See option 1b in Table 5-15 on page 98 of the report Financed Emissions, The global GHG accounting & reporting standard Part A.[15]
Unit of measurement	kWh
Selections	Not applicable
Data transformation	To perform the calculations the following transformations have been done: Data of the year 2020 was transformed to the 2021 municipality division.
Data missing	For the year 2020 the following number of housing associations are missing in the final results of GHG emissions: 2020: 5 from the 282 housing associations in the loan portfolio. This is according to the loan portfolio of 31-12-2021.
Print Screens	Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Printscreens\ 25-8-2022_output aangepast vrijgegeven_8741_jkrz.msg

Topic	Description
Data	District heating of housing associations
Data file	Original files: Stadverwarming 2017.xlsx Stadsverwarming 2019.xlsx Stadsverwarming 2020.xlsx

[15] https://carbonaccountingfinancials.com/standard. PCAF(2022). Financed Emissions, The global GHG accounting & reporting standard Part A.

	Edited file: Energieverbruik 2017 2019 en 2020 aangepast voor gebruik in SQL.xlsx
Data Source	CBS Microdata (received by e-mail: Fwd 11-10-2022_output vrijgegeven_8741_spnn.msg)
Year	2017- 2019- 2020 For this report only the years 2019 and 2020 have been used.
Last update	Not applicable
Date of download	11-10-2022
Link to webpage	https://www.cbs.nl/nl-nl/onze-diensten/maatwerk-en-microdata/microdata-zelf-onderzoek-doen/microdatabestanden/energieverbruik-energiegebruiken-van-woningen https://opendata.cbs.nl/statline/#/CBS/nl/dataset/83878NED/table
Filters used to obtain the datafile	Not applicable
Internal location	Original files: Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Ruwe data\Microdata stadsverwarming Edited file: Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Voorbewerking data
Data quality estimate	2 The GHG emissions are calculated based on primary data on actual building energy consumption. The data quality score 2 applies to the overall sector. See option 1b in Table 5-15 on page 98 of the report Financed Emissions, The global GHG accounting & reporting standard Part A.[16]
Unit of measurement	GJ
Selections	Not applicable
Data transformation	To perform the calculations the following transformations have been done: Data of the year 2020 was transformed to the 2021 municipality division.
Data missing	Not applicable
Print Screens	Not applicable

Topic	Description
Data	Number of houses owned by housing associations by municipalities
Data file	Original files: dvi2019 H2.xlsx dvi2020 H2.xlsx Edited files: 20221021 aantal woningen 2019.xlsx 20221021 aantal woningen 2020.xlsx
Data Source	Inspectie Leefomgeving en Transport (ilent); Autoriteit Woningcorporaties
Year	2019-2020
Last update	Not applicable
Date of download	18-10-2022
Link to webpage	https://data.overheid.nl/dataset/verantwoordingsinformatie-woningcorporaties-dvi2020-hfd21
Filters used to obtain the datafile	Filters obtained for 2019 and 2020: DEAB_Indicatie_Ultimo: J & N; Soort_Instelling_Ultimo: TI; EenheidSoort: WoonZelfst & WoonOnzelfst.

[16] https://carbonaccountingfinancials.com/standard. PCAF(2022). Financed Emissions, The global GHG accounting & reporting standard Part A.

Internal location	Original files: Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Ruwe data Edited files: Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Voorbewerking data
Data quality estimate	1 Audited data per housing association specific.
Unit of measurement	Number of dwellings
Selections	Not applicable
Data transformation	To perform the calculations the following transformations have been done: Data of the year 2020 was transformed to the 2021 municipality division.
Data missing	Not applicable
Print Screens	Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Printscreens\ 20221018 dvi 2019 H2.png 20221018 dvi 2020 H2.png

Topic	Description
Data	Total balance sheet
Data files	Original files: dVi2018 H3.xlsx dVi2020 H3.xlsx Edited file: Balanstotaal 2018 en 2020.xlsx
Data Source	Inspectie Leefomgeving en Transport (ilent); Autoriteit woningcorporaties
Year	2018 and 2020 For reporting year 2021, the outstanding loan and total balance sheet of 2020 have been used. For reporting year 2022, the outstanding loan of 2021 has been used, but the total balance sheet of 2020 has been used, because the total balance sheet of 2021 was not available. It is preferable to use the same year for the outstanding loan and the total balance sheet. Unfortunately, this was not possible for reporting year 2022, therefore the total balance sheet of the previous year has been used.
Last update	Not applicable
Date of download	2018: 7-10-2022 2020: 5-10-2022
Link to webpage	https://data.overheid.nl/dataset/verantwoordingsinformatie-woningcorporaties
Filters used to obtain the datafile	Sheet: data 3.1 Column B (Soort_instelling) selected on TE Column C (DAEB_Indicatie) selected on O Column D (Jaar) selected on 2018 or 2020 Column E (Balanskant) selected on PASSIVA Column F (Balanstype) selected on PASSIVA
Internal location	Original files: Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Ruwe data Edited file: Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Voorbewerking data For some housing associations, the annual report has been used as a source for the total balance sheet. The annual reports are located in the following folder: Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Jaarverslagen
Data quality	1 Audited data per housing association specific.
Unit of measurement	Euro
Selections	Not applicable
Data transformation	Not applicable

Data missing	For a few housing associations total balance sheet data was missing in the used data file. For these housing associations the total balance sheet data have been taken from the annual reports. When data of the needed year was missing, data of the previous year has been used.
Print Screens	In folder: Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Printscreens\ 20221007 dvi 2018 H3.png 20221005 dvi 2020 H3.png

List of the calculation sheets	Location
Emissiefactoren_totaaloverzicht.csv Energiedata woco.csv Leningen woco NWB aangepast.csv Passiva woco.csv Woningen woningcorporaties per gemeente aangepast.csv	Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Brondata voor SQL
PCAF_woco_NWB	Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Scripts en database SQL
WOCO NWB Bank 2020.sql WOCO NWB Bank 2021.sql	Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Scripts en database SQL
Toerekening_NWB_woco_2019.csv Toerekening_NWB_woco_2020.csv	Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Data uit SQL
20221013 missende Woco's NWB Bank 2021.xlsx Only missing associations for the loan portfolio of 31-12-2021 are presented because this is the basis for the final file.	Klantgroepen\Woningcorporaties\SDG_13_CO2 impact\Missende data
20230125 CO2-eq voetafdruk woningcorporaties nulmeting en min1meting.xlsx	Klantgroepen\Woningcorporaties\SDG_13_CO2 impact

5 Water authorities

5.1 General factsheet

Topic	Description
Portfolio covered	98.94 % of NWB Bank's portfolio is covered for this customer group. This percentage is an indication of the completeness of the dataset. It is calculated by looking at the collected data for the customers in the loan portfolio of NWB Bank. The percentage is lower than 100% percent if there are missing data. The missing data are either not available or it was not possible to collect or calculate these data correctly.
Indicators	- Quality of surface water: % phosphor removed - Quality of surface water: % nitrogen removed - Quality of surface water: % chemical oxygen removed - Quality of surface water: biological state (KRW goals) - Quality of surface water: ecological state (KRW goals) - Quality of surface water: chemical state (KWR goals) - Quality of surface water: total assessment (KRW goals) - GHG emissions - Index water quality
Limitations	None.

5.2 Factsheet per data source used per indicator

5.2.1 Quality of surface water – % phosphor removed

Topic	Description
Data	Percentage of phosphor (P total) removed from water by sewage treatment plants per waterboard
Calculation steps	Not applicable
Limitations	Not applicable
SDG	SDG 6.3
Data quality estimate	2 – Non-audited data, or other primary data. The data is directly collected from the sewage treatment plants.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Percentage of phosphor removed
Data file	P_N_CZV_KVK.csv
Data Source	Unie van Waterschappen
Year	2021
Last update	24-8-2022

Date of download	02-12-2022
Link to webpage	https://www.waarstaatjegemeente.nl/jive?workspace_guid=50c9fe92-c238-458d-83a1-a63892e41d40 https://live-waves.databank.nl/jive?workspace_guid=767629da-5a51-4597-882d-6d72b7e024f9
Filters used to obtain the datafile	Inhoud: Rendement voor fosforverwijdering, rendement voor stikstofverwijdering, rendement voor CZV verwijdering Niveau: Waterschappen Jaar: 2019, 2020, 2021
Internal location	\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_stoffen verwijderd
Data quality estimate	2
Unit of measurement	Percentage (%)
Selections	Not applicable
Data missing	Not applicable
Print Screens	\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_stoffen verwijderd\Printscreens

5.2.2 Quality of surface water – % nitrogen removed

Topic	Description
Data	Percentage of nitrogen (N total) removed from water by sewage treatment plants per waterboard
Calculation steps	Not applicable
Limitations	Not applicable
SDG	SDG 6.3
Data quality estimate	2 – Non-audited data, or other primary data. The data is directly collected from the sewage treatment plants.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Percentage of nitrogen removed
Data file	P_N_CZV_KVK.csv
Data Source	Unie van Waterschappen
Year	2021
Last update	24-8-2022
Date of download	02-12-2022
Link to webpage	https://www.waarstaatjegemeente.nl/jive?workspace_guid=50c9fe92-c238-458d-83a1-a63892e41d40 https://live-waves.databank.nl/jive?workspace_guid=767629da-5a51-4597-882d-6d72b7e024f9

Filters used to obtain the datafile	Inhoud: Rendement voor fosforverwijdering, rendement voor stikstofverwijdering, rendement voor CZV verwijdering Niveau: Waterschappen Jaar: 2019, 2020, 2021
Internal location	\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_stoffen verwijderd
Data quality estimate	2
Unit of measurement	Percentage (%)
Selections	Not applicable
Data missing	Not applicable
Print Screens	\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_stoffen verwijderd\Printscreens

5.2.3 Quality of surface water – % chemical oxygen demand removed

Topic	Description
Data	Percentage of chemical oxygen demand (COD) removed from water by sewage treatment plants per waterboard
Calculation steps	Not applicable
Limitations	Not applicable
SDG	SDG 6.3
Data quality estimate	2 – Non-audited data, or other primary data. The data is directly collected from the sewage treatment plants.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Percentage of COD removed
Data file	P_N_CZV_KVK.csv
Data Source	Unie van Waterschappen
Year	2021
Last update	24-8-2022
Date of download	02-12-2022
Link to webpage	https://www.waarstaatjegemeente.nl/jive?workspace_guid=50c9fe92-c238-458d-83a1-a63892e41d40 https://live-waves.databank.nl/jive?workspace_guid=767629da-5a51-4597-882d-6d72b7e024f9
Filters used to obtain the datafile	Inhoud: Rendement voor fosforverwijdering, rendement voor stikstofverwijdering, rendement voor CZV verwijdering Niveau: Waterschappen Jaar: 2019, 2020, 2021

Internal location	\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_stoffen verwijderd
Data quality estimate	2
Unit of measurement	Percentage (%)
Selections	Not applicable
Data missing	Not applicable
Print Screens	\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_stoffen verwijderd\Printscreens

5.2.4 Quality of surface water – biological status (KRW goals)

Topic	Description
Data	Biological status of surface water
Calculation steps	Biological status of surface water according to the Water Framework Directive (Kaderrichtlijn water, KRW) is a combination of the measurements on fytoplankton, fish, macrofauna and waterflora. The measured values for all water bodies is combined with a file of the responsible water authorities. Subsequently, the percentage of water bodies that pass the criteria (value equals "voldoet", "goed" of "zeer goed") is calculated for each water authority. If a water body is managed by two water authorities it is included in the calculation for both water authorities.
Limitations	Not applicable.
SDG	SDG 6.6
Data quality estimate	2 – Non-audited data, or other primary data. The data is directly presented by the responsible water authorities. Data is collected by methodology and following legislation of the European Water Framework Directive.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Biological status of surface water
Data file	4_oordelen_owl_2021_20220429.csv
Data Source	Informatiehuis water (samenwerking RWS, waterschappen en provincies)
Year	2021
Last update	29-04-2022
Date of download	30-05-2022
Link to webpage	https://www.waarstaatjegemeente.nl/jive?workspace_guid=50c9fe92-c238-458d-83a1-a63892e41d40 https://www.waterkwaliteitsportaal.nl/bronbestanden-2021
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_KRW\Ruwe data\

Data quality estimate	2
Unit of measurement	Not applicable
Selections	Typering: Biologie totaal, Chemische toestand, Ecologische toestand of potentieel, Eindoordeel oppervlaktewater
Data missing	Not applicable
Print Screens	\werkmap\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_KRW\Printscreens

Topic	Description
Data	Surface water bodies
Data file	3b_oppervlaktewaterlichamen_SGBP3_20220518.csv
Data Source	Informatiehuis water (samenwerking RWS, waterschappen en provincies)
Year	2021
Last update	18-05-2022
Date of download	02-12-2022
Link to webpage	https://www.waarstaatjegemeente.nl/jive?workspace_guid=50c9fe92-c238-458d-83a1-a63892e41d40 https://www.waterkwaliteitsportaal.nl/bronbestanden-2021
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_KRW\Ruwe data\
Data quality estimate	2
Unit of measurement	Not applicable
Selections	Not applicable
Data missing	Not applicable
Print Screens	\werkmap\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_KRW\Printscreens

5.2.5 Quality of surface water – ecological status (KRW goals)

Topic	Description
Data	Ecological status or potential of surface water
Calculation steps	Ecological status of surface water according to the Water Framework Directive (Kaderrichtlijn water, KRW) is a combination of the biological status and some additional physical and chemical characteristics. The measured values for all water bodies is combined with a file of the responsible water authorities. Subsequently, the percentage of water bodies that pass the criteria (value equals “voldoet”, “goed” of “zeer goed”) is calculated for each water authority. If a water body is managed by two water authorities it is included in the calculation for both water authorities.
Limitations	Two water bodies could not be evaluated for the ecological status (“niet toetsbaar”). These have been excluded of the calculation.
SDG	SDG 6.6
Data quality estimate	2 – Non-audited data, or other primary data. The data is directly presented by the responsible water authorities. Data is collected by methodology and following legislation of the European Water Framework Directive.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Ecological status of surface water
Data file	4_oordelen_owl_2021_20220429.csv
Data Source	Informatiehuis water (samenwerking RWS, waterschappen en provincies)
Year	2021
Last update	29-04-2022
Date of download	30-05-2022
Link to webpage	https://www.waarstaatjegemeente.nl/jive?workspace_guid=50c9fe92-c238-458d-83a1-a63892e41d40 https://www.waterkwaliteitsportaal.nl/bronbestanden-2021
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_KRW\Ruwe data\
Data quality estimate	2
Unit of measurement	Not applicable
Selections	Typering: Biologie totaal, Chemische toestand, Ecologische toestand of potentieel, Eindoordeel oppervlaktewater
Data missing	Not applicable
Print Screens	\werkmap\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_KRW\Printscreens

Topic	Description
Data	Surface water bodies
Data file	3b_oppervlaktewaterlichamen_SGBP3_20220518.csv
Data Source	Informatiehuis water (samenwerking RWS, waterschappen en provincies)
Year	2021
Last update	18-05-2022
Date of download	02-12-2022
Link to webpage	https://www.waarstaatjegemeente.nl/jive?workspace_guid=50c9fe92-c238-458d-83a1-a63892e41d40 https://www.waterkwaliteitsportaal.nl/bronbestanden-2021
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_KRW\Ruwe data\
Data quality estimate	2

Unit of measurement	Not applicable
Selections	Not applicable
Data missing	Not applicable
Print Screens	\werkmap\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_KRW\Printscreens

5.2.6 Quality of surface water – chemical status (KRW goals)

Topic	Description
Data	Chemical status of surface water
Calculation steps	Chemical status of surface water according to the Water Framework Directive (Kaderrichtlijn water, KRW) is a combination of measures of chemical substances. The measured values for all water bodies is combined with a file of the responsible water authorities. Subsequently, the percentage of water bodies that pass the criteria (value equals “voldoet”, “goed” of “zeer goed”) is calculated for each water authority. If a water body is managed by two water authorities it is included in the calculation for both water authorities.
Limitations	Not applicable
SDG	SDG 6.6
Data quality estimate	2 – Non-audited data, or other primary data. The data is directly presented by the responsible water authorities. Data is collected by methodology and following legislation of the European Water Framework Directive.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Chemical status of surface water
Data file	4_oordelen_owl_2021_20220429.csv
Data Source	Informatiehuis water (samenwerking RWS, waterschappen en provincies)
Year	2021
Last update	29-04-2022
Date of download	30-05-2022
Link to webpage	https://www.waarstaatjegemeente.nl/jive?workspace_guid=50c9fe92-c238-458d-83a1-a63892e41d40 https://www.waterkwaliteitsportaal.nl/bronbestanden-2021
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_KRW\Ruwe data\
Data quality estimate	2
Unit of measurement	Not applicable

Selections	Typering: Biologie totaal, Chemische toestand, Ecologische toestand of potentieel, Eindoordeel oppervlaktewater
Data missing	Not applicable
Print Screens	\werkmap\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_KRW\Printscreens

Topic	Description
Data	Surface water bodies
Data file	3b_oppervlaktewaterlichamen_SGBP3_20220518.csv
Data Source	Informatiehuis water (samenwerking RWS, waterschappen en provincies)
Year	2021
Last update	18-05-2022
Date of download	02-12-2022
Link to webpage	https://www.waarstaatjegemeente.nl/jive?workspace_guid=50c9fe92-c238-458d-83a1-a63892e41d40 https://www.waterkwaliteitsportaal.nl/bronbestanden-2021
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_KRW\Ruwe data\
Data quality estimate	2
Unit of measurement	Not applicable
Selections	Not applicable
Data missing	Not applicable
Print Screens	\werkmap\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_KRW\Printscreens

5.2.7 Quality of surface water – total status (KRW goals)

Topic	Description
Data	Total status of the quality of surface water
Calculation steps	Total status of the quality of surface water according to the Water Framework Directive (Kaderrichtlijn water, KRW) is a combination of the ecological and chemical status of the surface water bodies. The measured values for all water bodies is combined with a file of the responsible water authorities. Subsequently, the percentage of water bodies that pass the criteria (value equals “voldoet”, “goed” of “zeer goed”) is calculated for each water authority. If a water body is managed by two water authorities it is included in the calculation for both water authorities.
Limitations	Not applicable
SDG	SDG 6.6
Data quality estimate	2 – Non-audited data, or other primary data. The data is directly presented by the responsible water authorities. Data is collected by methodology and following legislation of the European Water Framework Directive.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific

4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Total status of the quality of surface water
Data file	4_oordelen_owl_2021_20220429.csv
Data Source	Informatiehuis water (samenwerking RWS, waterschappen en provincies)
Year	2021
Last update	29-04-2022
Date of download	30-05-2022
Link to webpage	https://www.waarstaatjegemeente.nl/jive?workspace_guid=50c9fe92-c238-458d-83a1-a63892e41d40 https://www.waterkwaliteitsportaal.nl/bronbestanden-2021
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_KRW\Ruwe data\
Data quality estimate	2
Unit of measurement	Not applicable
Selections	Typering: Biologie totaal, Chemische toestand, Ecologische toestand of potentieel, Eindoordeel oppervlaktewater
Data missing	Not applicable
Print Screens	\werkmap\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_KRW\Printscreens

Topic	Description
Data	Surface water bodies
Data file	3b_oppervlaktewaterlichamen_SGBP3_20220518.csv
Data Source	Informatiehuis water (samenwerking RWS, waterschappen en provincies)
Year	2021
Last update	18-05-2022
Date of download	02-12-2022
Link to webpage	https://www.waarstaatjegemeente.nl/jive?workspace_guid=50c9fe92-c238-458d-83a1-a63892e41d40 https://www.waterkwaliteitsportaal.nl/bronbestanden-2021
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_KRW\Ruwe data\
Data quality estimate	2
Unit of measurement	Not applicable
Selections	Not applicable
Data missing	Not applicable

Print Screens	\werkmap\Klantgroepen\Waterschappen\SDG_6_Waterkwaliteit oppervlaktewater_KRW\Printscreens

5.2.8 GHG emissions for per water authority

Topic	Description
Data	Data has been used from the report Climate monitor water authorities (Arcadis, 2022). This monitor is developed by Arcadis for the Union of Water Authorities (Unie van Waterschappen) and NWB Bank. This monitor describes the emissions in the three scopes for each individual water authority in detail. For the report Climate monitor water authorities the calculations are performed by using emission factors based on 'well to wheel' (WTW). The PCAF methodology prescribes to use emission factors based on 'tank to wheel' (TTW). Therefore, Arcadis has provided Het PON & Telos with the data from the Climate monitor water authorities calculated based on 'tank to wheel' (TTW). This data can be find in the file 'Overzicht CO_2-voetafdruk vj 2021 TTW.pdf'. Arcadis acquired the data from water authorities via a questionnaire, in which quantitative and qualitative data were collected.
Calculation steps	The file 'Overzicht CO_2-voetafdruk vj 2021 TTW.pdf' contains all TTW values. The values have been added up to result in the categories per scope that are shown in Table 6-1. For the exact calculation steps per scope, consult the Arcadis (2022) report[17].
Limitations	Not all the process emissions are in scope yet. It is desired by the water authorities and the national climate agreement, that these will be taken in consideration as well. For more information see Arcadis report p.46 and further.
SDG	13
Data quality estimate	The GHG emissions are calculated based on data received from the water authorities themselves, but the data is not audited. Therefore, data quality score is 2. The GHG emissions of methane and nitrous oxide from sewage treatment plants have been determined based on an IPCC model. This does not take into account the individual situations of the sewage treatment plants. But, data is sectorspecific. Therefore, data quality score is 3 for scope 1 GHG emissions from the sewage treatment plant.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Fuel, warmth and electricity use per water authority in TTW
Data file	Overzicht CO2-voetafdruk vj 2021 TTW.pdf
Data Source	Arcadis, 2022
Year	2021
Last update	September 2022
Date of download	Received by email from Arcadis at 20-9-2022
Link to webpage	Not public
Filters used to obtain the datafile	Not applicable

[17] https://unievanwaterschappen.nl/publicaties/klimaatmonitor-2021/

Internal location	Klantgroepen\Waterschappen\SDG_13_CO2 impact
Data quality estimate	2 and 3 The method for water authorities is scaled into data quality level 2, because of the detailed underlying information provided in the Arcadis (2022) study. Except for the GHG emissions from the sewage treatment plant. The extent of emissions of methane and nitrous oxide from sewage treatment plants are determined based on an IPCC model. This does not take into account the individual situations of the sewage treatment plants. But, data is sectorspecific. Therefore, data quality score is 3 for scope 1 GHG emissions from the sewage treatment plant.
Unit of measurement	Multiple
Selections	Not applicable
Data missing	Not applicable
Print Screens	Not applicable

Topic	Description
Data	Total balance sheet per water authority
Data file	Totale passiva waterschappen 2021.xlsx
Data Source	Unie van Waterschappen, WAVES, ABF Research
Year	2021
Last update	18-7-2022
Date of download	6-10-2022
Link to webpage	https://live-waves.databank.nl/jive
Filters used to obtain the datafile	Waterschapsspiegel > Alle gegevens > Financiën > Gerealiseerd > Balans > Passiva All water authorities Year: 2021
Internal location	Klantgroepen\Waterschappen\SDG_13_CO2 impact
Data quality estimate	2 High data quality. Directly supplied by water authorities from internal accounting systems.
Unit of measurement	Euro
Selections	Not applicable
Data missing	Not applicable
Print Screens	In folder: Klantgroepen\Waterschappen\SDG_13_CO2 impact\Printscreens\ 20221004 totale passiva waterschappen.png

List of the calculation sheets	Location
Totaaloverzicht emissies waterschappen 2021 NWB Bank.xlsx	Klantgroepen\Waterschappen\SDG_13_CO2 impact
20221128 CO2-eq voetafdruk waterschappen nulmeting.xlsx	Klantgroepen\Waterschappen\SDG_13_CO2 impact

5.2.9 Index water quality

Topic	Description
Data	Index ecological quality water
Calculation steps	Planbureau voor de Leefomgeving (PBL) calculates the quality of water flora and macrofauna based on the monitoring data of the biological monitoring network of water authorities. In case of macrofauna, there is a list consisting of 1250 species with characteristics and positive and negative scoring species per water type., resulting in a score between 0 and 1. In case of water flora, the list consist of 200 species with characteristics and positive and negative scoring species per water type., resulting in a score between 0 and 1. The total ecological index score is the mean of the sum of the scores on water flora and macrofauna, where both quality indices have the same weight. **Scores:** The scores are based on goals as mentioned in The European Water Framework Directive (WFD). The main goal is a score of 0,6 or higher.
Limitations	Aggregated scores
SDG	14
Data quality estimate	3- average data that is peer/(sub)sector-specific

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Index ecological quality water
Data file	"O:\221685 Impactmeting NWB bank\werkmap\Klantgroepen\Waterschappen\SDG_14_Natuurkwaliteit water\230129 Natuurkwaliteit water.xlsx"
Data Source	Planbureau voor de Leefomgeving (PBL)
Year	2020
Last update	2022
Date of download	29-01-2023
Link to webpage	n.a.
Filters used to obtain the datafile	n.a.
Internal location	O:\221685 Impactmeting NWB bank\werkmap\Klantgroepen\Waterschappen\SDG_14_Natuurkwaliteit water
Data quality estimate	3 (based on large amount of actual primary sample data)
Unit of measurement	Index
Selections	n.a.
Data missing	Where missing in 2020, filled with 2019 where available. 2019 not available, data missing

Print Screens	"O:\221685 Impactmeting NWB bank\werkmap\Klantgroepen\Waterschappen\SDG_14_Natuurkwaliteit water\Printscreens\Natuurkwaliteit water.png"

6 Drinking water companies

6.1 General factsheet

Topic	Description
Portfolio covered	90 % of NWB Bank's portfolio is covered for this customer group. This percentage is an indication of the completeness of the dataset. It is calculated by looking at the collected data for the customers in the loan portfolio of NWB Bank. The percentage is lower than 100% percent if there are missing data. The missing data are either not available or it was not possible to collect or calculate these data correctly.
Indicators	- Total amount of purified water - Water quality - GHG emissions
Limitations	None.

6.2 Factsheet per data source used per indicator

6.2.1 Total amount of purified water

Topic	Description
Data	Total amount of purified water
Calculation steps	None
Limitations	No limitations.
SDG	SDG 6: clean water and sanitation
Data quality estimate	2 – Non-audited data, or other primary data. Score / Quality requirement: 1 – Audited data or actual primary data 2 – Non-audited data, or other primary data 3 – Average data that is peer/(sub)sector-specific 4 – Proxy data on the basis of region or country 5 – Estimated data with very limited support

Topic	Description
Data	Total amount of purified water 2021
Data file	"O:\221685 Impactmeting NWB bank\werkmap\Klantgroepen\Drinkwaterbedrijven\SDG_6_Hoeveelheid gezuiverd water\20230129 Afzet drinkwater drinkwaterbedrijven 2020 en 2021.xlsx"
Data Source	Vereniging van waterbedrijven Nederland (Vewin)
Year	2021
Last update	2022
Date of download	29-01-2023
Link to webpage	https://www.waarstaatjegemeente.nl/jive?workspace_guid=50c9fe92-c238-458d-83a1-a63892e41d40

	https://www.vewin.nl/SiteCollectionDocuments/Publicaties/Cijfers/Vewin-Kerngegevens-drinkwater-2022.pdf
Filters used to obtain the datafile	n.a.
Internal location	O:\221685 Impactmeting NWB bank\werkmap\Klantgroepen\Drinkwaterbedrijven\SDG_6_Hoeveelheid gezuiverd water
Data quality estimate	1 - Audited data or actual primary data
Unit of measurement	mln m^3
Selections	n.a.
Data missing	n.a.
Print Screens	O:\221685 Impactmeting NWB bank\werkmap\Klantgroepen\Drinkwaterbedrijven\SDG_6_Hoeveelheid gezuiverd water\Printscreens

Topic	Description
Data	Total amount of purified water 2020
Data file	"O:\221685 Impactmeting NWB bank\werkmap\Klantgroepen\Drinkwaterbedrijven\SDG_6_Hoeveelheid gezuiverd water\20230129 Afzet drinkwater drinkwaterbedrijven 2020 en 2021.xlsx"
Data Source	Vereniging van waterbedrijven Nederland (Vewin)
Year	2020
Last update	2021
Date of download	29-01-2023
Link to webpage	https://www.waarstaatjegemeente.nl/jive?workspace_guid=50c9fe92-c238-458d-83a1-a63892e41d40 https://www.vewin.nl/SiteCollectionDocuments/Publicaties/Vewin-Kerngegevens-Drinkwater-2021-5253.pdf
Filters used to obtain the datafile	n.a.
Internal location	O:\221685 Impactmeting NWB bank\werkmap\Klantgroepen\Drinkwaterbedrijven\SDG_6_Hoeveelheid gezuiverd water
Data quality estimate	1 - Audited data or actual primary data
Unit of measurement	mln m^3
Selections	n.a.
Data missing	n.a.
Print Screens	O:\221685 Impactmeting NWB bank\werkmap\Klantgroepen\Drinkwaterbedrijven\SDG_6_Hoeveelheid gezuiverd water\Printscreens

6.2.2 Water quality

Topic	Description
Data	Water quality drinking water
Calculation steps	None
Limitations	Only available on sectoral level
SDG	SDG 6: clean water and sanitation
Data quality estimate	3 – Average data that is peer/(sub)sector-specific

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Water quality drinking water
Data file	n.a.
Data Source	Inspectie leefomgeving en transport (ILT)
Year	2021
Last update	2022
Date of download	29-01-2023
Link to webpage	https://www.waarstaatjegemeente.nl/jive?workspace_guid=50c9fe92-c238-458d-83a1-a63892e41d40 https://www.ilent.nl/documenten/jaarverslagen/2022/12/29/drinkwaterkwaliteit-2021
Filters used to obtain the datafile	n.a.
Internal location	O:\221685 Impactmeting NWB bank\werkmap\Klantgroepen\Drinkwaterbedrijven\SDG_6_Waterkwaliteit drinkwater\Rapport ILT
Data quality estimate	3
Unit of measurement	%
Selections	n.a.
Data missing	n.a.
Print Screens	"O:\221685 Impactmeting NWB bank\werkmap\Klantgroepen\Drinkwaterbedrijven\SDG_6_Waterkwaliteit drinkwater\Printscreens\%metingen dat voldoet aan normering.png"

6.2.3 GHG emissions per drinking water company

Topic	Description
Data	Data to calculate the GHG emissions for scope 1, 2 and 3 is obtained from Vewin (benchmark) and the individual drinking water companies. Total balance sheet data is taken from the annual reports of the drinking water companies. For one drinking water company the annual financial report was not available. The total balance sheet data of this drinking water company has been requested from the drinking water company itself.
Calculation steps	Scope 1 contains: - CH_4 and CO_2 emissions during extraction and treatment of groundwater - Emissions due to natural gas use - Emissions for the use of aggregates - Emissions of the company cars - Emissions linked to the generation of energy Methane emissions released during aeration were multiplied by the global warming potential for methane (28 kg CO_2-eq / kg methane; CO2emissiefactoren.nl). The amount of natural gas used for heating has been multiplied by the emission factor for natural gas (1.785 kg CO_2/Nm^3). The amount of fuel oil used for emergency aggregates has been multiplied by the emission factor for fuel oil (3.185 kg CO_2/liter). This emission factor is only available based on 'Well to Wheel', therefore this emission factor has been used for this calculation. To calculate the GHG emissions for the car fleet, the liters of used fuel have been multiplied by the correct emission factor or the driven kilometers have been multiplied by the emission factor for a car with an unknown fuel and weight class (0.163 kg CO_2/vehicle kilometer). To calculate the GHG emissions for train use, the travelled kilometers have been multiplied by the correct emission factor for a train of unknown type (0.002 kg CO_2/passenger kilometer). Self-generated energy by the drinking water companies has been mainly generated by solar panels and the emission factor is 0. The GHG emissions of the individual items of scope 1 have been added together to calculate total GHG emissions for scope 1. Scope 2 contains: - Indirect emissions for purchased energy CO2emissiefactoren.nl prescribes to use the emission factor for grey electricity to calculate the GHG emissions for the purchase of green electricity from abroad. The amount of electricity purchased from abroad and the amount of purchased grey electricity have been multiplied by the emission factor for grey electricity (0.476 kg CO_2/kWh). For green energy purchased from the Netherlands zero emissions have been included. When district heating has been used, the amount of district heating has been multiplied by the emission factor for district heating (STEG; 32.53 kg CO_2/GJ). The GHG emissions of the individual items of scope 2 have been added together to calculate total GHG emissions for scope 2. Scope 3 contains: - Commuting traffic (for some drinking water companies) - (Air) Travel - Chemicals - Transport by third parties (suppliers) - Transport of drinking water production residues For air travel the amount of kilometers have been multiplied by the correct emission factor (0.278 kg CO_2/passenger kilometer <700 km / 0.187 kg CO_2/passenger kilometer 700-2,500 km / 0.137 kg CO_2/passenger kilometer >2,500 km.

	To calculate the GHG emissions for the use of the car, the driven kilometers have been multiplied by the emission factor for a car with an unknown fuel and weight class (0163 kg CO_2/vehicle kilometer). To calculate the GHG emissions for train use, the travelled kilometers have been multiplied by the correct emission factor for a train of unknown type (0.002 kg CO_2/ passenger kilometer). To calculate the GHG emissions for general public transport (metro, bus, tram), the travelled kilometers have been multiplied by the correct emission factor for general public transport (0.052 kg CO_2/passenger kilometer). The emission factors for chemicals are not described at CO2emissiefactoren.nl. Drinking water companies obtain the emission factors for chemicals from their suppliers or from another source. We do not have insight in the chemical details of each drinking water company. Therefore, we have used the kg CO_2 equivalent for chemicals that is in the data obtained from Vewin (benchmark). It might be possible that in some cases this also includes transport of chemicals and this might lead to double counting. The GHG emissions due to transport of chemicals and other materials by third parties have been calculated by multiplying the ton-kilometers with the emission factor for bulk and goods transport. We have used the emission factor identified by CO2emissiefactoren.nl as being the most common (0.067 kg CO_2/tonkilometer). The GHG emissions due to transport of drinking water production residues are in the data obtained from Vewin (benchmark). For the Vewin benchmark this is calculated based on 'Well to Wheel'. The GHG emissions calculated based on 'Well to Wheel' have been converted to GHG emissions based on 'Tank to Wheel' by using the same method as for the GHG emissions due to transport of chemicals and other materials. The GHG emissions of the individual items of scope 3 have been added together to calculate total GHG emissions for scope 3. From one drinking water company we have received the total GHG emissions per scope based on 'Well to Wheel', but missed the detailed information to calculate all the individual items in scope 1, 2, and 3 based on 'Tank to Wheel'. Unfortunately, it has not been possible to make a good conversion factor based on the other drinking water companies to convert the GHG emissions based on 'Well to Wheel' to GHG emissions based on 'Tank to Wheel'. The GHG emissions of this drinking water company have been included in the calculation based on 'Well to Wheel' and results in an overestimation of the GHG emissions based on 'Tank to Wheel'. For the same drinking water company detailed information has been missing for scope 2. This drinking water company uses 100% green energy. It is most likely that this green energy originates from the Netherlands and therefore no emissions have been taken into account for scope 2 for this drinking water company.
Limitations	In 2020, the Dutch drinking water companies have published a methodology to calculate the GHG footprint.[18] This methodology is also based on the GHG protocol. The methodology of the drinking water companies has a standard calculation approach. This approach can be extended with extra options to be added to the calculation. Although this methodology to calculate the GHG footprint for drinking water companies has been published, there are still differences in the way the different drinking water companies calculate their own GHG footprint. One could say that the standard calculation method is a golden mean, but deviates from the real GHG footprint. Scope 3, for example is incomplete and which emissions are included in the scope 1, 2 or 3 varies between the drinking water companies. We know that there are snags in the standard calculation methodology of the drinking water companies, but in order to match their working methods as closely as possible their so called standard calculation method is used for this report. A limitation is that from one drinking water company we have received the total GHG emissions per scope based on 'Well to Wheel', but missed the detailed information to calculate all the individual items in scope 1, 2, and 3 based on 'Tank to Wheel'. It has not been possible to make a good conversion factor based on the other drinking water companies to convert the GHG emissions based on 'Well to Wheel' to GHG emissions based on 'Tank to Wheel'. The GHG emissions of this drinking water company have been included in the calculation based in 'Well to Wheel' and results in an overestimation of the GHG emissions based on 'Tank to Wheel'.

[18] https://www.praktijkcodesdrinkwater.nl/opbrengst/klimaatneutraliteit/?search=klimaat

	Another limitation is that for the drinking water company of which we received the total GHG emissions per scope based on 'Well to Wheel' we had to assume that the purchased electricity in scope 2 was green electricity generated in the Netherlands. They use green energy, but according to the received data we cannot be completely sure that this green energy is all purchased from the Netherlands. Therefore, scope 2 might be slightly underestimated. Scope 3 contains several limitations. As mentioned earlier, the emission factors for chemicals are not described at CO2emissiefactoren.nl. Drinking water companies obtain the emission factors for chemicals from their suppliers or from another source. We do not have insight in the chemical details of each drinking water company. Therefore, we have used the kg CO_2 equivalent for chemicals that is in the data that we have obtained from the Vewin benchmark. It might be possible that in some cases this also includes transport of chemicals and this might lead to double counting. For transport of drinking water production residues and transport of third parties, there are several uncertainties. We might have used a different emission factor than the drinking water companies do because there are a few options at CO2emissiefactoren.nl in the bulk and goods transport category. We have chosen the emission factor identified by CO2emissiefactoren.nl as being the most common. There can also be differences in what the drinking water companies include in transport of third parties. Some only include transport of chemicals and others include more items. These details are unknown. One of the drinking water companies in the loan portfolio is part of two other drinking water companies and 2 other companies. The drinking water company delivers a semi-finished product to two other drinking water companies in the portfolio of NWB Bank. The GHG footprint of this drinking water company has been included in these other drinking water companies. The loan of the drinking water company that delivers a semi-finished product to the other drinking water companies has been allocated to these two drinking water companies based of the volume of water that has been delivered to the two drinking water companies compared to the total volume of water delivered to the 4 parties (2 drinking water companies and 2 other companies).
SDG	13
Data quality estimate	The GHG emissions are calculated based on data received from the water companies themselves, but the data is not audited. Therefore, data quality score for scope 1 and 2 is 2. The GHG emissions for scope 3 are less certain than scope 1 and 2, because traveled distances are known, but details on means of transport are sometimes missing. Therefore, data quality score is 3.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Data used to calculate scope 1, 2, and 3
Data file	Data van waterleidingbedrijven
Data Source	Vewin and individual drinking water companies
Year	2021
Last update	Not applicable
Date of download	Not applicable
Link to webpage	Not applicable

Filters used to obtain the datafile	Not applicable
Internal location	Original data: Klantgroepen\Drinkwaterbedrijven\SDG_13_CO2 impact\Data van waterleidingbedrijven Werrkmap\Waterleidingbedrijven\Data via VEWIN The original emails can be find in: Klantgroepen\Drinkwaterbedrijven\SDG_13_CO2 impact\Ontvangen emails\Invulsheet Het PON & Telos
Data quality estimate	2 - Non-audited data, or other primary data Data received from drinking water companies, but the data is not audited.
Unit of measurement	Several
Selections	Not applicable
Data transformation	Some data had to be converted from well to wheel to tank to wheel, see calculation section in the general factsheet.
Data missing	Some detailed data was missing. See calculation section in the general factsheet.
Print Screens	Not applicable

Topic	Description
Data	Extra detailed information
Data file	Extra informatie
Data Source	Individual drinking water companies
Year	2021
Last update	Not applicable
Date of download	Not applicable
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Original data: Klantgroepen\Drinkwaterbedrijven\SDG_13_CO2 impact\Ontvangen emails\Extra informatie
Data quality estimate	2 - Non-audited data, or other primary data Data received from drinking water companies, but the data is not audited.
Unit of measurement	Several
Selections	Not applicable
Data missing	Not applicable
Print Screens	Not applicable

Topic	Description
Data	Total balance sheet
Data file	Jaarverslagen
Data Source	Annual reports of the individual drinking water companies
Year	2021
Last update	Not applicable

Date of download	Not applicable
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Original data: Klantgroepen\Drinkwaterbedrijven\SDG_13_CO2 impact\Jaarverslagen
Data quality estimate	2 - Non-audited data, or other primary data Data received from drinking water companies. This data is audited by an external accountant.
Unit of measurement	Several
Selections	Not applicable
Data missing	From one drinking water company the total balance sheet could not be find in the annual report. The data has been received by email and was added to the Excel file of this drinking water company.
Print Screens	Not applicable

List of the calculation sheets	Location
20221221 Waterleidingbedrijven NWB Bank na correctie.xlsx	Klantgroepen\Drinkwaterbedrijven\SDG_13_CO2 impact\Berekeningen\Rapportagejaar 2022
20230123 CO2-eq voetafdruk waterleidingbedrijven nulmeting.xlsx	Klantgroepen\Drinkwaterbedrijven\SDG_13_CO2 impact

7 Municipalities

7.1 General factsheet

Topic	Description
Portfolio covered	96.41 % of NWB Bank's portfolio is covered for this customer group. This percentage is an indication of the completeness of the dataset. It is calculated by looking at the collected data for the customers in the loan portfolio of NWB Bank. The percentage is lower than 100% percent if there are missing data. The missing data are either not available or it was not possible to collect or calculate these data correctly.
Indicators	- Energy consumption: natural gas - Energy consumption: electricity - Total renewable energy - Total renewable electricity - Total renewable heat - Number of inhabitants with access to public transportation - Total amount of residual household waste - Total amount of sorted household waste - Air pollution: concentration PM2.5 - Air pollution: concentration PM10 - Air pollution: concentration NOx - Air pollution: concentration O3 - Green roofs - GHG emissions - Total registration time for social housing - Air pollution: Nitrogen oxides (NOx) emissions - Air pollution: Methane (NH3) emissions - Total area of protected nature - Public green space
Limitations	Some sources have already adjusted the indicators to the municipality division of 2022 whereby there are missing values for the reclassified municipalities of 2022. This accounts for: Boxmeer, Uden, Heerhugowaard, and Weesp.

7.2 Factsheets per indicator

7.2.1 Energy consumption per municipality - natural gas (Nm3)

Topic	Description
Data	The data used in this approach comes from multiple sources. Data regarding the number of employees working for SBI-code 8411 and the data about the number of employees working for the total public administration and government services sector comes from Lisa. Lisa is the national information system for jobs in the Netherlands and contains a database with data of all locations where paid work is done. This data was purchased on the municipality level. The data is supplied in the 2021 municipality division and therefore all other used data has been recalculated to the 2021 municipality division. For the calculation that is explained below at calculation steps also data regarding the number of employees working for the provincial government organization has been used. Data regarding the number of employees working for the provincial government organization comes from A&O fonds provincies. A&O fonds provincies is an organization that provides practical tools, knowledge, and subsidies for governments. This data is available on the aggregation level of provinces. Data about the supply of energy to the sector public administration and government services comes from the Dutch Central Bureau of Statistics (CBS). The data covers the

<table>
<tr><td></td><td>supply of electricity and natural gas to businesses and other utility buildings. The data is based on the connection register of the energy network and is therefore reliable. Data is divided by sector and region.</td></tr>
<tr><td>Calculation steps</td><td>Natural gas use
For the sector public administration and government services, the supply of natural gas is known (CBS) at the aggregation level of municipalities and includes both municipalities and other governmental authorities.

To calculate natural gas use for municipalities, several calculation steps have been made. The number of employees that work for the total public administrations and government services sector is known for each municipality, as well as the number of employees that work for a general government administration per municipality. General government administrations include municipalities, as well as provinces and ministries (also known as SBI-code 8411). Therefore, we have subtracted the number of employees working for the provincial government organization from the total number of employees working for general government administrations for all provincial capitals except for the municipality of The Hague. For the municipality of The Hague, we have used the number of employees working for the municipality according to their website, because also the national government and therefore a lot of the ministries are located in the municipality of The Hague.

The supply of natural gas to the public administration and government services sector is known per municipality (CBS). The percentage of number of employees working for each municipality (SBI-code 8411) relative to the number of employees working for the total public administration and government services sector in each municipality has been multiplied by the supply of natural gas to the public administration and government services sector. This results in the supply of natural gas to the municipality as an organization.</td></tr>
<tr><td>Limitations</td><td>Limitations of the current method are that the supply of natural gas to the municipality as organization are unknown. It is therefore calculated according to the estimated number of employees working for the general government administrations per municipality and the total number of employees working for the total public administration and government services sector per municipality.
The general government administrations include municipalities, as well as provinces and ministries amongst others (also known as SBI-code 8411). We corrected the number of employees working for the general government administrations for the provincial capitals, but not for other municipalities that might contain employees of other governments than municipalities.</td></tr>
<tr><td>SDG</td><td>7</td></tr>
<tr><td>Data quality estimate</td><td>Natural gas use by municipalities is calculated based on energy supply to the public administration and government services sector at the aggregation level of municipalities. This is not only energy supply to the municipalities, but also other governmental authorities. Therefore, data is used on the basis of region and data quality score is 4.

<table>
<tr><th>Score</th><th>Quality requirement</th></tr>
<tr><td>1</td><td>Audited data or actual primary data</td></tr>
<tr><td>2</td><td>Non-audited data, or other primary data</td></tr>
<tr><td>3</td><td>Average data that is peer/(sub)sector-specific</td></tr>
<tr><td>4</td><td>Proxy data on the basis of region or country</td></tr>
<tr><td>5</td><td>Estimated data with very limited support</td></tr>
</table>
</td></tr>
</table>

Topic	Description
Data	Number of employees working for the public administrations and government services sector
Data file	LISA-statistiek_(ordernr_202200020)_sector O.xlsx
Data Source	Lisa; het werkgelegenheidsregister van Nederland
Year	2018-2020-2021
Last update	June 2022
Date of download	Data purchased on 29-06-2022
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Klantgroepen\Gemeenten\SDG_7_Gasverbruik\Ruwe data
Data quality estimate	2 Data from LISA are based on observations/measurements of all locations of companies. Self-employed persons are taken into account as well. This makes it possible to present an overview of employment on both geographic and sectoral level.
Unit of measurement	Number of employees
Selections	Not applicable
Data missing	Not applicable
Print Screens	In folder: Klantgroepen\Gemeenten\ SDG_7_Gasverbruik \Printscreens\FW Bestelling LISA-data (ordernummer 202200020).msg

Topic	Description
Data	Number of employees working for a general government administration
Data file	LISA-statistiek_(ordernr_202200019)_8411.xlsx
Data Source	Lisa; het werkgelegenheidsregister van Nederland
Year	2018-2020-2021
Last update	June 2022
Date of download	Data purchased on 21-06-2022
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Klantgroepen\Gemeenten\SDG_7_Gasverbruik \Ruwe data
Data quality estimate	2 Data from LISA are based on observations/measurements of all locations of companies. Self-employed persons are taken into account as well. This makes it possible to present an overview of employment on both geographic and sectoral level.
Unit of measurement	Number of employees
Selections	Not applicable
Data missing	Not applicable
Print Screens	In folder: Gemeenten\ SDG_7_Gasverbruik \Printscreens\FW Bestelling LISA-data (ordernummer 202200019).msg

Topic	Description
Data	Number of employees working at provinces
Data file	20220926 berekening sbi 8411 zonder provincies_aangepast_18-1-23.xlsx in sheet: Banen provinciehoofdsteden
Data Source	A & O Fonds Provincies
Year	2018-2020-2021
Last update	June 2022
Date of download	21-09-2022
Link to webpage	https://personeelsmonitorprovincies.onderzoek.nl/index.cfm?action=main.report
Filters used to obtain the datafile	No filters used
Internal location	Klantgroepen\Gemeenten\SDG_7_Gasverbruik \Ruwe data
Data quality estimate	2 Data is directly acquired from provinces, using a questionnaire. Data quality is therefore indicated as high.
Unit of measurement	Number of employees
Selections	Not applicable
Data missing	Not applicable
Print Screens	In folder: Klantgroepen\Gemeenten\ SDG_7_Gasverbruik \Printscreens\Banen provinciehoofdsteden

Topic	Description
Data	Supply of energy to the public administration and government services sector at the aggregation level of municipalities
Data file	20221007 levering aardgas en elektriciteit sector O gemeenten.xlsx
Data Source	CBS Statline
Year	2018-2020-2021
Last update	7-10-2022
Date of download	7-10-2022
Link to webpage	https://opendata.cbs.nl/statline/#/CBS/nl/dataset/82538NED/table?ts=1601410027649
Filters used to obtain the datafile	Onderwerp: Geleverd aardgas, geleverde elektriciteit Perioden: 2018 – 2020 - 2021 Regio's: Gemeenten per provincie Bedrijfstakken/branches: Bedrijfstakken 1e digit (SBI 2008), O Openbaar bestuur en overheidsdiensten
Internal location	Klantgroepen\Gemeenten\SDG_7_Gasverbruik \Ruwe data
Data quality estimate	4 Highly reliable data, because of the manner of registration. There are multiple control and correction methods used, which can be find here: https://www.cbs.nl/nl-nl/onze-diensten/methoden/onderzoeksomschrijvingen/korte-onderzoeksbeschrijvingen/leveringen-van-elektriciteit-en-aardgas-via-het-openbare-net. The supply of energy is not only to the municipalities, but to the total public administration and government services sector at the aggregation level of municipality. Therefore, the data quality score is 4 because it is data on the basis of region.
Unit of measurement	Natural gas: 1000 Nm^3 Electricity: 1000 kWh

Selections	Not applicable
Data transformation	The data has been transformed from the original municipality division to the 2021 municipality division. The missing values have been replaced with values from previous years, as described in the original data file on tab 'Data voor herindelen' in order to transform the data to the municipality division of 2021.
Data missing	For several municipalities, the data was missing and has been replaced by data from previous or coming years, see the original data file, tab 'Data voor herindelen' for the changes made in the original data.
Print Screens	In folder: Klantgroepen\Gemeenten\ SDG_7_Gasverbruik \Printscreens\ 20221007 levering aardgas, elektriciteit via openbaar net sector O gemeenten v1.PNG 20221007 levering aardgas, elektriciteit via openbaar net sector O gemeenten v2.PNG 20221007 levering aardgas, elektriciteit via openbaar net sector O gemeenten v3.PNG

Topic	Description
Data	Total balance sheet municipalities
Data file	20220922 passiva gemeenten 2021.xlsx
Data Source	CBS Statline
Year	2021
Last update	22-09-2022
Date of download	17-10-2022
Link to webpage	https://iv3statline.cbs.nl/#/IV3/nl/dataset/45054NED
Filters used to obtain the datafile	Gemeenten: allemaal Verslagsoort: Jaarrekening Categorie: Ultimo Onderwerp: 2e plaatsing Taakveld/balanspost: Passiva
Internal location	Klantgroepen\Gemeenten\SDG_7_Gasverbruik\Scope 1 en 2\Ruwe data
Data quality	2 High quality data. The data is directly delivered to CBS by municipalities from internal accounting systems. The data has not been edited by CBS.
Unit of measurement	Euro
Selections	Not applicable
Data transformation	Not applicable
Data missing	Not applicable
Print Screens	In folder: Klantgroepen\Gemeenten\SDG_7_Gasverbruik\Scope 1 en 2\Printscreens\iv3

List of the calculation sheets	Location
Aardgas_elektra_gemeente.csv Banen_8411-gemeente_aangepast_18-1-23.csv Banen_sectorO_gemeente.csv Bedrijfsautos_aangepast.csv Emissiefactoren_totaaloverzicht.csv KM_bedrijfsautos_aangepast.csv Passiva_gemeente.csv portefeuilleNWB_gemeente.csv	Klantgroepen\Gemeenten\SDG_7_Gasverbruik\Brondata voor SQL
PCAF gemeente NWB	Klantgroepen\Gemeenten\SDG_7_Gasverbruik \Script + database
NWB gemeente 2021 (2).sql	Klantgroepen\Gemeenten\SDG_7_Gasverbruik \Script + database

Vw_berekening_gemeente.csv Vw_koppelingNWB.csv	Klantgroepen\Gemeenten\SDG_7_Gasverbruik \Data verkregen uit SQL
20230123 gasverbruik gemeenten nulmeting.xlsx	Klantgroepen\Gemeenten\SDG_7_Gasverbruik

7.2.2 Energy consumption per municipality - electricity (kWh)

Topic	Description
Data	The data used in this approach comes from multiple sources. Data regarding the number of employees working for SBI-code 8411 and the data about the number of employees working for the total public administration and government services sector comes from Lisa. Lisa is the national information system for jobs in the Netherlands and contains a database with data of all locations where paid work is done. This data was purchased on the municipality level. The data is supplied in the 2021 municipality division and therefore all other used data has been recalculated to the 2021 municipality division. For the calculation that is explained below at calculation steps also data regarding the number of employees working for the provincial government organization has been used. Data regarding the number of employees working for the provincial government organization comes from A&O fonds provincies. A&O fonds provincies is an organization that provides practical tools, knowledge, and subsidies for governments. This data is available on the aggregation level of provinces. Data about the supply of energy to the sector public administration and government services comes from the Dutch Central Bureau of Statistics (CBS). The data covers the supply of electricity and natural gas to businesses and other utility buildings. The data is based on the connection register of the energy network and is therefore reliable. Data is divided by sector and region.
Calculation steps	**Electricity use** For the sector public administration and government services, the supply of electricity is known (CBS) at the aggregation level of municipalities and includes both municipalities and other governmental authorities. To calculate electricity use for municipalities, several calculation steps have been made. The number of employees that work for the total public administrations and government services sector is known for each municipality, as well as the number of employees that work for a general government administration per municipality. General government administrations include municipalities, as well as provinces and ministries (also known as SBI-code 8411). Therefore, we have subtracted the number of employees working for the provincial government organization from the total number of employees working for general government administrations for all provincial capitals except for the municipality of The Hague. For the municipality of The Hague, we have used the number of employees working for the municipality according to their website, because also the national government and therefore a lot of the ministries are located in the municipality of The Hague. The supply of electricity to the public administration and government services sector is known per municipality (CBS). The percentage of number of employees working for each municipality (SBI-code 8411) relative to the number of employees working for the total public administration and government services sector in each municipality has been multiplied by the supply of electricity to the public administration and government services sector. This results in the supply of electricity to the municipality as an organization.
Limitations	Limitations of the current method are that the supply of electricity to the municipality as organization are unknown. It is therefore calculated according to the estimated number of employees working for the general government administrations per municipality and the total number of employees working for the total public administration and government services sector per municipality.

	The general government administrations include municipalities, as well as provinces and ministries amongst others (also known as SBI-code 8411). We corrected the number of employees working for the general government administrations for the provincial capitals, but not for other municipalities that might contain employees of other governments than municipalities.
SDG	7
Data quality estimate	Electricity use by municipalities is calculated based on energy supply to the public administration and government services sector at the aggregation level of municipalities. This is not only energy supply to the municipalities, but also other governmental authorities. Therefore, data is used on the basis of region and data quality score is 4.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Number of employees working for the public administrations and government services sector
Data file	LISA-statistiek_(ordernr_202200020)_sector O.xlsx
Data Source	Lisa; het werkgelegenheidsregister van Nederland
Year	2018-2020-2021
Last update	June 2022
Date of download	Data purchased on 29-06-2022
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Klantgroepen\Gemeenten\SDG_7_Elektriciteitsverbruik\Ruwe data
Data quality estimate	2 Data from LISA are based on observations/measurements of all locations of companies. Self-employed persons are taken into account as well. This makes it possible to present an overview of employment on both geographic and sectoral level.
Unit of measurement	Number of employees
Selections	Not applicable
Data missing	Not applicable
Print Screens	In folder: Klantgroepen\Gemeenten\ SDG_7_Elektriciteitsverbruik\Printscreens\FW Bestelling LISA-data (ordernummer 202200020).msg

Topic	Description
Data	Number of employees working for a general government administration
Data file	LISA-statistiek_(ordernr_202200019)_8411.xlsx
Data Source	Lisa; het werkgelegenheidsregister van Nederland
Year	2018-2020-2021
Last update	June 2022

Date of download	Data purchased on 21-06-2022
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Klantgroepen\Gemeenten\ SDG_7_Elektriciteitsverbruik\Ruwe data
Data quality estimate	2 Data from LISA are based on observations/measurements of all locations of companies. Self-employed persons are taken into account as well. This makes it possible to present an overview of employment on both geographic and sectoral level.
Unit of measurement	Number of employees
Selections	Not applicable
Data missing	Not applicable
Print Screens	In folder: Gemeenten\ SDG_7_Elektriciteitsverbruik \Printscreens\FW Bestelling LISA-data (ordernummer 202200019).msg

Topic	Description
Data	Number of employees working at provinces
Data file	20220926 berekening sbi 8411 zonder provincies_aangepast_18-1-23.xlsx in sheet: Banen provinciehoofdsteden
Data Source	A & O Fonds Provincies
Year	2018-2020-2021
Last update	June 2022
Date of download	21-09-2022
Link to webpage	https://personeelsmonitorprovincies.onderzoek.nl/index.cfm?action=main.report
Filters used to obtain the datafile	No filters used
Internal location	Klantgroepen\Gemeenten\ SDG_7_Elektriciteitsverbruik\Ruwe data
Data quality estimate	2 Data is directly acquired from provinces, using a questionnaire. Data quality is therefore indicated as high.
Unit of measurement	Number of employees
Selections	Not applicable
Data missing	Not applicable
Print Screens	In folder: Klantgroepen\Gemeenten\ SDG_7_Elektriciteitsverbruik \Printscreens\Banen provinciehoofdsteden

Topic	Description
Data	Supply of energy to the public administration and government services sector at the aggregation level of municipalities
Data file	20221007 levering aardgas en elektriciteit sector O gemeenten.xlsx
Data Source	CBS Statline
Year	2018-2020-2021
Last update	7-10-2022

Date of download	7-10-2022
Link to webpage	https://opendata.cbs.nl/statline/#/CBS/nl/dataset/82538NED/table?ts=1601410027649
Filters used to obtain the datafile	Onderwerp: Geleverd aardgas, geleverde elektriciteit Perioden: 2018 – 2020 - 2021 Regio's: Gemeenten per provincie Bedrijfstakken/branches: Bedrijfstakken 1e digit (SBI 2008), O Openbaar bestuur en overheidsdiensten
Internal location	Klantgroepen\Gemeenten\SDG_7_Elektriciteitsverbruik\Ruwe data
Data quality estimate	4 Highly reliable data, because of the manner of registration. There are multiple control and correction methods used, which can be find here: https://www.cbs.nl/nl-nl/onze-diensten/methoden/onderzoeksomschrijvingen/korte-onderzoeksbeschrijvingen/leveringen-van-elektriciteit-en-aardgas-via-het-openbare-net. The supply of energy is not only to the municipalities, but to the total public administration and government services sector at the aggregation level of municipality. Therefore, the data quality score is 4 because it is data on the basis of region.
Unit of measurement	Natural gas: 1000 Nm^3 Electricity: 1000 kWh
Selections	Not applicable
Data transformation	The data has been transformed from the original municipality division to the 2021 municipality division. The missing values have been replaced with values from previous years, as described in the original data file on tab 'Data voor herindelen' in order to transform the data to the municipality division of 2021.
Data missing	For several municipalities, the data was missing and has been replaced by data from previous or coming years, see the original data file, tab 'Data voor herindelen' for the changes made in the original data.
Print Screens	In folder: Klantgroepen\Gemeenten\ SDG_7_Elektriciteitsverbruik\Printscreens\ 20221007 levering aardgas, elektriciteit via openbaar net sector O gemeenten v1.PNG 20221007 levering aardgas, elektriciteit via openbaar net sector O gemeenten v2.PNG 20221007 levering aardgas, elektriciteit via openbaar net sector O gemeenten v3.PNG

Topic	Description
Data	Total balance sheet municipalities
Data file	20220922 passiva gemeenten 2021.xlsx
Data Source	CBS Statline
Year	2021
Last update	22-09-2022
Date of download	17-10-2022
Link to webpage	https://iv3statline.cbs.nl/#/IV3/nl/dataset/45054NED
Filters used to obtain the datafile	Gemeenten: allemaal Verslagsoort: Jaarrekening Categorie: Ultimo Onderwerp: 2^e plaatsing Taakveld/balanspost: Passiva
Internal location	Klantgroepen\Gemeenten\SDG_7_Elektriciteitsverbruik\Scope 1 en 2\Ruwe data
Data quality	2 High quality data. The data is directly delivered to CBS by municipalities from internal accounting systems. The data has not been edited by CBS.
Unit of measurement	Euro
Selections	Not applicable

Data transformation	Not applicable
Data missing	Not applicable
Print Screens	In folder: Klantgroepen\Gemeenten\SDG_7_Elektriciteitsverbruik\Scope 1 en 2\Printscreens\iv3

List of the calculation sheets	Location
Aardgas_elektra_gemeente.csv Banen_8411-gemeente_aangepast_18-1-23.csv Banen_sectorO_gemeente.csv Bedrijfsautos_aangepast.csv Emissiefactoren_totaaloverzicht.csv KM_bedrijfsautos_aangepast.csv Passiva_gemeente.csv portefeuilleNWB_gemeente.csv	Klantgroepen\Gemeenten\ SDG_7_Elektriciteitsverbruik\Brondata voor SQL
PCAF gemeente NWB	Klantgroepen\Gemeenten\ SDG_7_Elektriciteitsverbruik\Script + database
NWB gemeente 2021 (2).sql	Klantgroepen\Gemeenten\ SDG_7_Elektriciteitsverbruik\Script + database
Vw_berekening_gemeente.csv Vw_koppelingNWB.csv	Klantgroepen\Gemeenten\ SDG_7_Elektriciteitsverbruik\Data verkregen uit SQL
20230123 elektriciteitsverbruik gemeenten nulmeting.xlsx	Klantgroepen\Gemeenten\SDG_7_Elektriciteitsverbruik

7.2.3 Total renewable energy

Topic	Description
Data	Total renewable energy in Terajoule (TJ) Data on renewable energy obtained from Klimaatmonitor: https://klimaatmonitor.databank.nl/jive
Calculation steps	No calculations. Data directly from Klimaatmonitor. For the determination of the amount of renewable energy that is generated per municipality with several techniques, the total amount of generated renewable energy per province or RES-region is being used, as published by CBS (orderd by Rijkswaterstaat). The amounts per municipality are not being published by CBS because of the traceability to individual installations. This is why the provincial or the regional amounts of renewable energy has been divided by the municipalities within a province or region on the basis of the installed capacity per municipality or a different relevant distribution code. The data on the provincial level apply to: • Wind onshoresince 2002; • Geothermic since 2014; • Biomass boilers since 2014; • Biogas since 2014; • Bio-WKK since 2019 (total nationwide before then) Data and comments can be find in the file: \Klantgroepen\Gemeenten\SDG_7_Hernieuwbare energie\Ruwe data\Totaal bekende hernieuwbare energie - 2020 - Gemeenten.xlsx
Limitations	The most recent data on renewable energy that is available is of 2020
SDG	SDG 7
Data quality estimate	4 – Non-audited data, or other primary data. Both klimaatmonitor as well as CBS data are highly reliable, but not audited and thereby score 4.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Totaal bekende hernieuwbare energie (TJ) per gemeente in 2020
Data file	Totaal bekende hernieuwbare energie - 2020 - Gemeenten.xlsx
Data Source	Klimaatmonitor
Year	2020
Last update	08-2022
Date of download	22-08-2022
Link to webpage	https://klimaatmonitor.databank.nl/jive (Klimaatmonitor - Totaal bekende hernieuwbare energie (databank.nl))
Filters used to obtain the datafile	Onderwerp: Hernieuwbare energie – Totaal bekende hernieuwbare energie Niveau: Gemeente – alle gemeenten Jaar: Meest recente - 2020
Internal location	\Klantgroepen\Gemeenten\SDG_7_Hernieuwbare energie\Ruwe data\Totaal bekende hernieuwbare energie - 2020 - Gemeenten.xlsx
Data quality estimate	2 Klimaatmonitor obtains information from different sources. In the case of renewable energy, most information is provided by CBS, however several other sources are used to supplement this data. For more information see https://klimaatmonitor.databank.nl/content/overzicht-bronnen-en-methoden
Unit of measurement	TJ
Selections	Not applicable
Data missing	Not applicable
Print Screens	Klantgroepen\Gemeenten\SDG_7.2_Hernieuwbare energie\Printscreens\Totaal bekende hernieuwbare energie 2020 Gemeenten.PNG

7.2.4 Total renewable electricity

Topic	Description
Data	Total renewable electricity in kWh Data on renewable electricity obtained from Klimaatmonitor: https://klimaatmonitor.databank.nl/jive
Calculation steps	The total renewable electricity (in TJ) per municipality is multiplied by the conversion factor of TJ to kWh, which is 277 777.778 to calculate the total renewable energy in kWh. For the determination of the amount of renewable electricity that is generated per municipality with several techniques, the total amount of generated renewable electricity per province or RES-region is being used, as published by CBS (ordered by Rijkswaterstaat). The amounts per municipality are not being published by CBS because of the traceability to individual installations. This is why the provincial or the regional amounts of energy is being divided by the municipalities within a province or region on the basis of the installed capacity per municipality or a different relevant distribution code. The data on the provincial level apply to:

	• Wind onshoresince 2002; • Geothermic since 2014; • Biomass boilers since 2014; • Biogas since 2014; • Bio-WKK since 2019 (total nationwide before then) Data, calculation steps and comments can be find in the file: \Klantgroepen\Gemeenten\ SDG_7_Hernieuwbare energie\Ruwe data
Limitations	The most recent data on renewable energy that is available is of 2020.
SDG	SDG 7.2
Data quality estimate	4 – Non-audited data, or other primary data. Both klimaatmonitor as well as CBS data are highly reliable, but not audited and thereby score 4. **Score** / **Quality requirement** 1 – Audited data or actual primary data 2 – Non-audited data, or other primary data 3 – Average data that is peer/(sub)sector-specific 4 – Proxy data on the basis of region or country 5 – Estimated data with very limited support

Topic	Description
Data	Totaal bekende hernieuwbare elektriciteit (kWh) per gemeente in 2020
Data file	Totaal bekende hernieuwbare elektriciteit - 2020 - Gemeenten.xlsx
Data Source	Klimaatmonitor
Years	2020
Last update	08-2022
Date of download	22-08-2022
Link to webpage	https://klimaatmonitor.databank.nl/jive (Klimaatmonitor - Totaal bekende hernieuwbare elektriciteit (databank.nl))
Filters used to obtain the datafile	Onderwerp: Hernieuwbare energie – Totaal bekende hernieuwbare elektriciteit Niveau: Gemeente – alle gemeenten Jaar: Meest recente - 2020
Internal location	Klantgroepen\Gemeenten\SDG_7_Hernieuwbare energie\Ruwe data\Totaal bekende hernieuwbare elektriciteit - 2020 – Gemeenten.xlsx
Data quality estimate	2 Klimaatmonitor obtains information from different sources. In the case of renewable electricity, most information is provided by CBS, however several other sources are used to supplement this data. For more information see https://klimaatmonitor.databank.nl/content/overzicht-bronnen-en-methoden
Unit of measurement	kWh
Selections	Not applicable
Data missing	Not applicable
Print Screens	Klantgroepen\Gemeenten\SDG_7.2_Hernieuwbare energie\Printsceens\Totaal bekende hernieuwbare elektriciteit 2020 Gemeenten.PNG

7.2.5 Total renewable heat

Topic	Description
Data	Total renewable heat in TJ Data on renewable energy obtained from Klimaatmonitor: https://klimaatmonitor.databank.nl/jive
Calculation steps	No calculations. Data directly from Klimaatmonitor. For the determination of the amount of renewable heat that is generated per municipality with several techniques, the total amount of generated renewable heat per province or RES-region is being used, as published by CBS (ordered by Rijkswaterstaat). The amounts per municipality are not published by CBS because of the traceability to individual installations. This is why the provincial or the regional amounts of energy is being divided by the municipalities within a province or region on the basis of the installed capacity per municipality or a different relevant distribution code. The data on the provincial level apply to: • Wind onshore since 2002; • Geothermic since 2014; • Biomass boilers since 2014; • Biogas since 2014; • Bio-WKK since 2019 (total nationwide before then) Data and comments can be find in the file: \Klantgroepen\Gemeenten\SDG_7_Hernieuwbare energie\Totaal bekende hernieuwbare warmte - 2020 – Gemeenten – per inwoner.xlsx
Limitations	The most recent data on renewable heat that is available is of 2020.
SDG	SDG 7.2
Data quality estimate	4 – Non-audited data, or other primary data. Both klimaatmonitor as well as CBS data are highly reliable, but not audited and thereby score 4.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Total known renewable heat (TJ) per municipality in 2020
Data file	Totaal bekende hernieuwbare warmte - 2020 - Gemeenten.xlsx
Data Source	Klimaatmonitor
Years	2020
Last update	08-2022
Date of download	24-08-2022
Link to webpage	https://klimaatmonitor.databank.nl/jive (Klimaatmonitor - Totaal bekende hernieuwbare warmte (databank.nl))
Filters used to obtain the datafile	Onderwerp: Hernieuwbare energie – Totaal bekende hernieuwbare warmte Niveau: Gemeente – alle gemeenten Jaar: Meest recente - 2020
Internal location	Klantgroepen\Gemeenten\SDG_7_Hernieuwbare energie\Ruwe data\ Totaal bekende hernieuwbare warmte - 2020 - Gemeenten.xlsx
Data quality estimate	2

	Klimaatmonitor obtains information from different sources. In the case of renewable heat, most information is provided by CBS, however several other sources are used to supplement this data. For more information see https://klimaatmonitor.databank.nl/content/overzicht-bronnen-en-methoden
Unit of measurement	TJ
Selections	Not applicable
Data missing	Not applicable
Print Screens	Klantgroepen\Gemeenten\SDG_7.2_Hernieuwbare energie\Printscreens\Totaal bekende hernieuwbare warmte 2020 Gemeenten.PNG

7.2.6 Number of inhabitants with access to public transportation

Topic	Description
Data	Number of inhabitants that reside within 700 m of a station or stop that is serviced at least twice an hour. Data on public transportation obtained from gtfs OVapi: http://gtfs.ovapi.nl/ Data on inhabitants on a (hectare) grid obtained from CBS: https://www.cbs.nl/nl-nl/dossier/nederland-regionaal/geografische-data/kaart-van-100-meter-bij-100-meter-met-statistieken Data on municipality boundaries obtained from Nationaal Georegister: Nationaal georegister - bestuurlijke grenzen: gemeenten (https://www.nationaalgeoregister.nl/geonetwork/srv/dut/catalog.search#/metadata/e2ac0716-1fcc-4f7c-b704-d8c2ef8dffd6?tab=general)
Calculation steps	The calculation steps are performed in three ways, by 1) R-script, 2) in QGIS, 3) in Excel 1) R-script: Select only those stops or stations that are serviced at least twice an hour on weekdays between 7am and 8pm. These are regularly serviced stops. Data from GTFS concerning public transportation schedules are downloaded. An R-script is used to perform the following steps and calculations (N.B. for more precise description of the steps review the R-script "R script regularly serviced public transport stops"): From the data only tram, underground, train, and bus services are subtracted. In the schedules only the weekdays are taken into account of which 20 randomly selected days per weekday are selected as a subsample. Public transport schedules for these 100 days are loaded and only the times between 7am and 8pm are taken into consideration. Within this timeframe the script counts the number of times a means of public transport, i.e. a bus, tram, train, or underground, services a stop or station. This calculation is done for all stops and stations. The number of times a stop or station is serviced is divided by the number of days (100) and the number of hours per day (13) to calculate how often a stop is serviced per hour on weekdays. Only those stops or stations that are frequented at least twice an hour are taken into consideration. These stops are saved to file busmetrotramtreinhaltenMin2PerUur_2022_subsam100.csv 2) QGIS: Calculate the number of inhabitants that live within 700 meters of the regularly serviced stops. Those inhabitants have access to public transportation. Data from CBS (CBS vierkant) and geographical information of municipalities is combined with the regularly serviced stops from step 1 to calculate the number of inhabitants per municipality that live within 700 meters of regularly serviced public transport stops and the total inhabitants per municipality. Research indicates that 700 meters is approximately the maximum distance inhabitants travel by foot to a public transport stop, except for the larger stations or public transport hubs. The following steps were performed to calculate these data (N.B. for a more precise description of the steps review "QGIS public transportation script.docx").

	Use the file created in step 1 to create an 700 meter buffer around regularly serviced Public Transport stops. Combine information on geographic location of municipalities with CBS vierkantstatistieken to create a 100m grid of points containing the municipality code and the number of inhabitants that live around that point. Select the points with municipality and inhabitant data that are located within the 700 meter bufferzone around the regularly serviced Public Transport stops. Calculate the number of inhabitants per municipality that live within 700 meters of a regularly serviced Public Transport stop. Save these to file (inhabitantsaccesstoPT_permunicipality2022.csv) 3) Excel: Clear out the whitelines in the .csv-file. Join the resulting data with municipality data on the basis of the gemeentecode and set the value for inhabitants of municipalities that are not present in the dataset to 0. Save this to file (numb_perc_inhabpermunic_accessPT2022.csv)
Limitations	The public transportation data regards schedules for the coming year (2022); it is thus not based on actual results of the past year.
SDG	SDG 11.2
Data quality estimate	2 – Non-audited data, or other primary data

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Public transportation information (o.a. routes, stops, stop_times, trips) of buses, trams, undergrounds, trains and ferries in the Netherlands.
Data file	In Folder: gtfs-openov-nl agency.txt calendar_dates.txt feed_info.txt routes.txt shapes.txt stop_times.txt stops.txt trips.txt
Data Source	GTFS OVapi
Years	2022
Last update	31-08-2022 (frequently updated)
Date of download	01-09-2022
Link to webpage	http://gtfs.ovapi.nl/
Filters used to obtain the datafile	Not applicable
Internal location	Klantgroepen\Gemeenten\SDG_11_Toegang OV\Ruwe data\
Data quality estimate	2 Data is provided by General Transit Feed Specification (gtfs.org), an organization that stimulates open data for public transportation organizations. The different Dutch organizations for public transport provide the data for the gtfs.ovapi.nl platform. This data is provided on the basis of best-effort, thus there is no service level agreement. See gtfs.ovapi.nl/README for more information.

Unit of measurement	Several units (date, time, location, number)
Selections	Not applicable
Data missing	Not applicable
Print Screens	Klantgroepen\Gemeenten\SDG_11_Toegang OV\Printscreens\

Topic	Description
Data	Data on inhabitants of the Netherlands on a 100 x 100m grid
Data file	cbs_vk100_2021_v1.gpkg
Data Source	Statis
Year	2021
Last update	01-03-2022
Date of download	11-10-2022
Link to webpage	https://www.cbs.nl/nl-nl/dossier/nederland-regionaal/geografische-data/kaart-van-100-meter-bij-100-meter-met-statistieken
Filters used to obtain the datafile	Year: 2021 (most recent)
Internal location	Klantgroepen\Gemeenten\Basisbestanden\cbs_vk100_2021_v1.gpkg
Data quality estimate	2
Unit of measurement	Number of inhabitants
Selections	Not applicable
Data missing	Not applicable
Print Screens	In folder: Klantgroepen\Gemeenten\SDG_11.2_Toegang OV\Printscreens\

Topic	Description
Data	Data on geographic location of Dutch municipalities
Data file	Gemeentegebieden2022.gpkg
Data Source	PDOK / Nationaal Georegister / kadaster
Year	2022
Last update	24-03-2022
Date of download	11-10-2022
Link to webpage	https://service.pdok.nl/ kadaster/bestuurlijkegebieden/wfs/v1_0?request=GetCapabilities&service=WFS
Filters used to obtain the datafile	Year: 2022
Internal location	Klantgroepen\Gemeenten\Basisbestanden\Gemeentegebieden2022.gpkg
Data quality estimate	2
Unit of measurement	Multipolygon
Selections	Not applicable
Data missing	Not applicable
Print Screens	In folder: Klantgroepen\Gemeenten\SDG_11.2_Toegang OV\Printscreens\

7.2.7 Total amount of residual household waste

Topic	Description
Data	The data is obtained from CBS: https://opendata.cbs.nl/statline/#/CBS/nl/dataset/83452NED/table?ts=1638976050279
Calculation steps	To calculate the amount of residual household waste per municipality, the amount of residual household waste per inhabitant was multiplied by the number of inhabitants of the municipality. Missing data in 2021 is filled with data from 2020. All calculation steps were done in SQL. Non-segregated household waste is waste that is collected by municipalities at households including waste of small stores and businesses that is collected at the same time and in the same way as that from households. Thus, a (small) part of the collected waste does not originate from households.
Limitations	Data is not final yet and may slightly change per year
SDG	SDG 11.6
Data quality estimate	2 - Non-audited data, or other primary data

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Amount of residual household waste
Data file	Restafval_2021.xlsx
Data Source	Dutch Central Bureau of Statistics (CBS)
Years	2020&2021
Last update	29-09-2022
Date of download	04-10-2022
Link to webpage	https://opendata.cbs.nl/#/CBS/nl/dataset/83452NED/table?searchKeywords=gemeentelijk%20afval
Filters used to obtain the datafile	Afvalsoort: Gemengd huishoudelijk afval; Overig huishoudelijk afval Regio's: alle gemeenten Perioden: 2020 2021 Onderwerp: Hoeveelheid huishoudelijk afval
Internal location	\Klantgroepen\Gemeenten\SDG_11_Afval\Ruwe data – overig\Restafval_2021.xlsx
Data quality estimate	2
Unit of measurement	Kg per inhabitant
Selections	Not applicable
Data missing	Missing data filled with 2020 data. If 2020 data was missing, data not filled.
Print Screens	\Klantgroepen\Gemeenten\SDG_11_Afval\Printscreens\Restafval 2021.png

Topic	Description
Data	Number of inhabitants per municipality 2021
Data file	Bevolking_op_1_januari_2021.csv
Data Source	Dutch Central Bureau of Statistics
Year	2021
Last update	30-05-2022
Date of download	24-11-2022
Link to webpage	https://opendata.cbs.nl/#/CBS/nl/dataset/03759ned/table?dl=39E0B
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Gemeenten \Basisbestanden\Bevolking_op_1_januari_2021.csv
Data quality estimate	1 – Number of inhabitants per municipality as stated by the Dutch government
Unit of measurement	Not applicable
Selections	Not applicable
Data missing	Not applicable
Print Screens	\Klantgroepen\Gemeenten\Basisbestanden\Bevolking op 1 januari 2021.png

Topic	Description
Data	Regional division of municipalities 2021
Data file	Gemeenten alfabetisch 2021.xlsx
Data Source	Dutch Central Bureau of Statistics
Year	2021
Last update	01-01-2022
Date of download	14-09-2022
Link to webpage	https://www.cbs.nl/nl-nl/onze-diensten/methoden/classificaties/overig/gemeentelijke-indelingen-per-jaar/indeling-per-jaar/gemeentelijke-indeling-op-1-januari-2021
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Gemeenten \Basisbestanden\Gemeentelijke indeling\Gemeenten alfabetisch 2021.xlsx
Data quality estimate	1 – Regional division of municipalities as stated by the Dutch government
Unit of measurement	Not applicable
Selections	Not applicable
Data missing	Not applicable
Print Screens	\Klantgroepen\Gemeenten\Basisbestanden\Printscreens\Gemeentelijke indeling\Gemeenten alfabetisch 2021.PNG

7.2.9 Total amount of sorted household waste

Topic	Description
Data	The data is obtained from CBS: https://opendata.cbs.nl/statline/#/CBS/nl/dataset/83452NED/table?ts=1638976050279
Calculation steps	To calculate the amount of sorted household waste per municipality, the amount of sorted household waste per inhabitant was multiplied by the number of inhabitants of the municipality. Missing data in 2021 is filled with data from 2020. All calculation steps were done in SQL. Sorted household waste is waste that is collected at households by municipalities including waste of small stores and businesses that is collected at the same time and in the same way as that from households. E.g. the amount of textile, used paper, and cardboard, which are collected by schools, associations and charities is often collected at the same time and in the same way as that from households. Thus, a (small) part of the collected waste does not originate from households.
Limitations	Data is not final yet and may slightly change per year
SDG	SDG 11.6
Data quality estimate	2 - Non-audited data, or other primary data

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Amount of sorted household waste
Data file	Grof_en_fijn_afval_2021.xlsx
Data Source	Dutch Central Bureau of Statistics (CBS)
Years	2019&2020 and 2020&2021
Last update	29-09-2022
Date of download	04-10-2022
Link to webpage	https://opendata.cbs.nl/#/CBS/nl/dataset/83452NED/table?searchKeywords=gemeentelijk%20afval
Filters used to obtain the datafile	Afvalsoort: Gescheiden ingezameld fijn afval; Gescheiden ingezameld grof afval Regio's: alle gemeenten Perioden: 2020 2021 Onderwerp: Hoeveelheid huishoudelijk afval
Internal location	\Klantgroepen\Gemeenten\SDG_11_6_Afval\Ruwe data – overig\Grof_en_fijn_afval_2021.xlsx
Data quality estimate	2
Unit of measurement	Kg per inhabitant
Selections	Not applicable
Data missing	Missing data filled with 2020 data. If 2020 data was missing, data not filled.
Print Screens	\Klantgroepen\Gemeenten\SDG_11_6_Afval\Printscreens\Grof en Fijn afval 2021.png

Topic	Description
Data	Number of inhabitants per municipality 2021
Data file	Bevolking_op_1_januari_2021.csv
Data Source	Dutch Central Bureau of Statistics
Year	2021
Last update	30-05-2022
Date of download	24-11-2022
Link to webpage	https://opendata.cbs.nl/#/CBS/nl/dataset/03759ned/table?dl=39E0B
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Gemeenten \Basisbestanden\Bevolking_op_1_januari_2021.csv
Data quality estimate	1 – Number of inhabitants per municipality as stated by the Dutch government
Unit of measurement	Not applicable
Selections	Not applicable
Data missing	Not applicable
Print Screens	\Klantgroepen\Gemeenten\Basisbestanden\Bevolking op 1 januari 2021.png

Topic	Description
Data	Regional division of municipalities 2021
Data file	Gemeenten alfabetisch 2021.xlsx
Data Source	Dutch Central Bureau of Statistics
Year	2021
Last update	01-01-2022
Date of download	14-09-2022
Link to webpage	https://www.cbs.nl/nl-nl/onze-diensten/methoden/classificaties/overig/gemeentelijke-indelingen-per-jaar/indeling-per-jaar/gemeentelijke-indeling-op-1-januari-2021
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Gemeenten \Basisbestanden\Gemeentelijke indeling\Gemeenten alfabetisch 2021.xlsx
Data quality estimate	1 – Regional division of municipalities as stated by the Dutch government
Unit of measurement	Not applicable
Selections	Not applicable
Data missing	Not applicable
Print Screens	\Klantgroepen\Gemeenten\Basisbestanden\Printscreens\Gemeentelijke indeling\Gemeenten alfabetisch 2021.PNG

7.2.10 Air pollution – concentration PM2.5

Topic	Description
Data	Concentration of Particulate Matter <2.5 µg (PM2.5) in air; 95th percentile in µg/m^3
Calculation steps	This indicator is calculated on the basis of the large-scale concentration maps of the RIVM (Grootschalige Concentratiekaarten Nederland (GCN)). The GCN contains modelled values for air quality of all locations in the Netherlands. At locations where a lot of emission sources are present, a local contribution should be added to the GCN value. This has not been done in this indicator, since the local contribution is relatively small compared to the background concentration which is represented in the GCN. The large-scale concentration maps are available in a gridfile of 1×1 km. In an R-code each grid is assigned to the municipality in which it lies by means of geospatial functionality. Subsequently, the 95th percentile of the gridvalues per municipality are calculated. In this indicator the decision has been made to use 95th percentile values, because the air quality norms state that exceedence of the norm values is not allowed at any place within the municipality. However, due to a small incertainty in the modelled values, 95th percentile is more reliable than maximum values.
Limitations	This indicator is based on modelled values. 95th percentile values have therefore been used rather than maximum values.
SDG	SDG 11.6
Data quality estimate	3 – Average data that is peer/(sub)sector-specific.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Concentration of PM2.5; 95th percentile in in µg/m^3
Data file	Conc_pm25_gemeente_95p_komma.csv
Data Source	RIVM
Year	2020&2021
Last update	10-03-2022
Date of download	26-07-2022
Link to webpage	https://www.rivm.nl/gcn-gdn-kaarten/concentratiekaarten/cijfers-achter-concentratiekaarten/gcn-concentratiekaartbestanden-achterliggende-jaren
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Gemeenten\SDG_11_Luchtverontreiniging
Data quality estimate	3 Modelled data is collected by RIVM. For further information see the factsheets in \Klantgroepen\Gemeenten\SDG_11_Luchtverontreiniging\Data
Unit of measurement	µg/m^3
Selections	Not applicable
Data missing	Not applicable
Print Screens	\Klantgroepen\Gemeenten\SDG_11_Luchtverontreiniging\Printscreens\

7.2.11 Air pollution – concentration PM10

Topic	Description
Data	Concentration of Particulate Matter <10 µg (PM10) in air; 95th percentile in µg/m^3
Calculation steps	This indicator is calculated on the basis of the large-scale concentration maps of the RIVM (Grootschalige Concentratiekaarten Nederland (GCN)). The GCN contains modelled values for air quality of all locations in the Netherlands. At locations where a lot of emission sources are present, a local contribution should be added to the GCN value. This has not been done in this indicator, since the local contribution is relatively small compared to the background concentration which is represented in the GCN. The large-scale concentration maps are available in a gridfile of 1×1 km. In an R-code each grid is assigned to the municipality in which it lies by means of geospatial functionality. Subsequently, the 95th percentile of the gridvalues per municipality are calculated. In this indicator the decision has been made to use 95th percentile values, because the air quality norms state that exceedence of the norm values is not allowed at any place within the municipality. However, due to a small incertainty in the modelled values, 95th percentile is more reliable than maximum values.
Limitations	This indicator is based on modelled values. 95th percentile values have therefore been used rather than maximum values.
SDG	SDG 11.6
Data quality estimate	3 – Average data that is peer/(sub)sector-specific.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Concentration of PM10; 95th percentile in in µg/m^3
Data file	Conc_pm10_gemeente_95p_komma.csv
Data Source	RIVM
Year	2020&2021
Last update	10-03-2022
Date of download	26-07-2022
Link to webpage	https://www.rivm.nl/gcn-gdn-kaarten/concentratiekaarten/cijfers-achter-concentratiekaarten/gcn-concentratiekaartbestanden-achterliggende-jaren
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Gemeenten\SDG_11_Luchtverontreiniging
Data quality estimate	3 Modelled data is collected by RIVM. For further information see the factsheets in \Klantgroepen\Gemeenten\SDG_11_Luchtverontreiniging\Data
Unit of measurement	µg/m^3
Selections	Not applicable
Data missing	Not applicable
Print Screens	\Klantgroepen\Gemeenten\SDG_11_Luchtverontreiniging\Printscreens\

7.2.12 Air pollution – concentration NOx

Topic	Description
Data	Concentration of nitric oxides including nitrogen dioxide (NOx) in air; 95th percentile in µg/m³
Calculation steps	This indicator is calculated on the basis of the large-scale concentration maps of the RIVM (Grootschalige Concentratiekaarten Nederland (GCN)). The GCN contains modelled values for air quality of all locations in the Netherlands. At locations where a lot of emission sources are present, a local contribution should be added to the GCN value. This has not been done in this indicator, since the local contribution is relatively small compared to the background concentration which is represented in the GCN. The large-scale concentration maps are available in a gridfile of 1×1 km. In an R-code each grid is assigned to the municipality in which it lies by means of geospatial functionality. Subsequently, the 95th percentile of the gridvalues per municipality are calculated. In this indicator the decision has been made to use 95th percentile values, because the air quality norms state that exceedence of the norm values is not allowed at any place within the municipality. However, due to a small incertainty in the modelled values, 95th percentile is more reliable than maximum values.
Limitations	This indicator is based on modelled values. 95th percentile values have therefore been used rather than maximum values.
SDG	SDG 11.6
Data quality estimate	3 – Average data that is peer/(sub)sector-specific. Score | Quality requirement 1 | Audited data or actual primary data 2 | Non-audited data, or other primary data 3 | Average data that is peer/(sub)sector-specific 4 | Proxy data on the basis of region or country 5 | Estimated data with very limited support

Topic	Description
Data	Concentration of NOx in air; 95th percentile in µg/m³
Data file	Conc_nox_gemeente_95p_komma.csv
Data Source	RIVM
Year	2020&2021
Last update	10-03-2022
Date of download	26-07-2022
Link to webpage	https://www.rivm.nl/gcn-gdn-kaarten/concentratiekaarten/cijfers-achter-concentratiekaarten/gcn-concentratiekaartbestanden-achterliggende-jaren
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Gemeenten\SDG_11_Luchtverontreiniging
Data quality estimate	3 Modelled data is collected by RIVM. For further information see the factsheets in \Klantgroepen\Gemeenten\SDG_11_Luchtverontreiniging\Data
Unit of measurement	µg/m³
Selections	Not applicable
Data missing	Not applicable
Print Screens	\Klantgroepen\Gemeenten\SDG_11_Luchtverontreiniging\Printscreens\

7.2.13 Air pollution - concentration O3

Topic	Description
Data	Concentration of ozone (O3) in air; 95th percentile in µg/m³
Calculation steps	This indicator is calculated on the basis of the large-scale concentration maps of the RIVM (Grootschalige Concentratiekaarten Nederland (GCN)). The GCN contains modelled values for air quality of all locations in the Netherlands. At locations where a lot of emission sources are present, a local contribution should be added to the GCN value. This has not been done in this indicator, since the local contribution is relatively small compared to the background concentration which is represented in the GCN. The large-scale concentration maps are available in a gridfile of 1×1 km. In an R-code each grid is assigned to the municipality in which it lies by means of geospatial functionality. Subsequently, the 95th percentile of the gridvalues per municipality are calculated. In this indicator the decision has been made to use 95th percentile values, because the air quality norms state that exceedence of the norm values is not allowed at any place within the municipality. However, due to a small incertainty in the modelled values, 95th percentile is more reliable than maximum values.
Limitations	This indicator is based on modelled values. 95th percentile values have therefore been used rather than maximum values.
SDG	SDG 11.6
Data quality estimate	3 – Average data that is peer/(sub)sector-specific. Score / Quality requirement 1 – Audited data or actual primary data 2 – Non-audited data, or other primary data 3 – Average data that is peer/(sub)sector-specific 4 – Proxy data on the basis of region or country 5 – Estimated data with very limited support

Topic	Description
Data	Concentration of O3; 95th percentile in in µg/m³
Data file	Conc_o3_gemeente_95p_komma.csv
Data Source	RIVM
Year	2020&2021
Last update	10-03-2022
Date of download	26-07-2022
Link to webpage	https://www.rivm.nl/gcn-gdn-kaarten/concentratiekaarten/cijfers-achter-concentratiekaarten/gcn-concentratiekaartbestanden-achterliggende-jaren
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Gemeenten\SDG_11_Luchtverontreiniging
Data quality estimate	3 Modelled data is collected by RIVM. For further information see the factsheets in \Klantgroepen\Gemeenten\SDG_11_Luchtverontreiniging\Data
Unit of measurement	µg/m³
Selections	Not applicable
Data missing	Not applicable

Print Screens	\Klantgroepen\Gemeenten\SDG_11_Luchtverontreiniging\Printscreens\

7.2.14 Green roofs

Topic	Description
Data	Green roofs
Calculation steps	Results have been aggregated and reclassified to the 2022 municipality classification. Calculation steps on the source data have been performed by Readar by means of automatic detection through machine learning. Manual checks have been performed by Readar. Calculation steps (for a more thorough explanation of the calculations see " Klantgroepen\Gemeenten\SDG_13.1_Groene daken\Ruwe data - overig\20221104_Levering_groenedaken_rapportage.pdf"): Step 1: Flat roof surface of buildings larger than 50 m^2 have been calculated on the basis of LiDAR data (AHN3+AHN4). Step 2: By means of automatic detection, green roofs have been identified on the basis of aerial photos. Step 3: Manual checks have been performed to check whether automatic detection correctly recognized green roofs. Step 4: An additional calculation on the basis of vegetation index provided by the aerial photos has been performed to get correct green roof surface areas. Step 5: Calculated data has been assigned to municipalities on the basis of BAG building data and CBS Buurten en Wijken data. Data used by Readar for the calculations: Aerial photos (source: Kadaster, via Nationaalgeoregister.nl): 2020, 25cm RGB+N, and 2021, 08cm TrueOrtho RGB LiDAR data (source: AHN, https://www.ahn.nl/): AHN4 hoogtedata where available, AHN3 hoogtedata where AHN4 data is not available BAG pandinformatie (source: Kadaster) CBS buurten en wijken (source: CBS)
Limitations	No limitations
SDG	SDG 13.1
Data quality estimate	2 – Non-audited data, or other primary data. Score / Quality requirement 1 – Audited data or actual primary data 2 – Non-audited data, or other primary data 3 – Average data that is peer/(sub)sector-specific 4 – Proxy data on the basis of region or country 5 – Estimated data with very limited support

Topic	Description
Data	Green roofs
Data file	0- en 1-meting groene daken heringedeeld.csv
Data Source	Readar
Years	2020&2021
Last update	2021
Date of download	04-11-2022
Link to webpage	https://readar.com/
Filters used to obtain the datafile	Not applicable
Internal location	Klantgroepen\Gemeenten\ SDG_13.1_Groene daken\0- en 1-meting groene daken heringedeeld.csv
Data quality estimate	2 – data has been calculated on the basis of aerial photos and BAG information of Kadaster, AHN data and CBS Buurten en Wijken data. Calculations have an uncertainty factor.
Unit of measurement	Surface area percentage (surface area in m^2)
Selections	Not applicable
Data missing	Not applicable
Print Screens	Not applicable

7.2.15 GHG emissions per municipality

Topic	Description
Data	**Data scope 1 and 2** For scope 1 natural gas use and scope 2 electricity use, data of 2021 has been used. For scope 1 fossil use by company cars, the calculation has been made with partial use of 2020 data. The data used in this approach come from multiple sources. Data regarding the number of employees working for SBI-code 8411 and the data about the number of employees working for the total public administration and government services sector comes from Lisa. Lisa is the national information system for jobs in the Netherlands and contains a database with data of all locations where paid work is done. This data was purchased on the municipality level. The data is supplied in the 2021 municipality division and therefore all other used data, like supply of energy to the public administration and government services sector has been reclassified to the 2021 municipality division to have data for all the municipalities that are present in the dataset of Lisa. For the calculation that is explained below at calculation steps also data regarding the number of employees working for the provincial government organization has been used. Data regarding the number of employees working for the provincial government organization comes from A&O fonds provincies. A&O fonds provincies is an organization that provides practical tools, knowledge, and subsidies for governments. This data is available on the aggregation level of provinces. Data about the supply of energy to the sector public administration and government services comes from the Dutch Central Bureau of Statistics (CBS). The data covers the supply of electricity and natural gas to businesses and other utility buildings. The data is based on the connection register of the energy network and is therefore reliable. Data is divided by sector and region. Data about the number of company cars owned by companies per sector comes from the Dutch Central Bureau of Statistics (CBS). The data originally comes from motor vehicle registration (RDW) and is therefore reliable.

	Data about the number of kilometers driven with a car per year comes from the Dutch Central Bureau of Statistics (CBS) and covers the average kilometers per year of a passenger car with a Dutch registration. The original data comes from the online kilometer registration (OKR) of the RDW and is therefore reliable. **Data scope 3** Data about the standard business classification ('standaard bedrijfsindeling') comes from the Dutch Central Bureau of Statistics (CBS). CBS uses the standard business classification to classify business units by their main activity. Data about GHG emissions by the Dutch economy to the air also comes from the Dutch Central Bureau of Statistics (CBS). The data contains emissions of harmful substances to the air. The data is based on the environmental accounts. Environmental accounts links the system of national accounts and environmental statistics. Environmental accounts include both physical and monetary data on the environment. The main sources for the environmental accounts are the environmental statistics (mainly emission registrations), the energy statistics (mainly Dutch energy balance) and the national accounts. Data on GHG emissions by the Dutch economy is two years behind and most recent data is from 2020. Therefore, for scope 3 data from the years 2017, 2019, and 2020 have been used for the calculations of reporting years 2019, 2021, and 2022, respectively. The national accounts contain data on the monetary value of all produced goods and services in the Netherlands. These data come from the Dutch Central Bureau of Statistics (CBS). Because the GHG emissions by the Dutch economy are divided by the monetary value of all produced goods and services in the Netherlands, data of the monetary value of all produced goods and services in the Netherlands of the years 2017, 2019, and 2020 have been used for the calculations of reporting years 2019, 2021, and 2022, respectively. Data on the expenses of municipalities come from the Dutch Central Bureau of Statistics (CBS). The municipalities are the source for these data themselves. They deliver the data directly to CBS in an uniform prescribed format. CBS does not check or edit these data. The OECD has developed the Classification of the Function of Government (COFOG) which classifies government expenditure data from the System of National Accounts by the purpose for which the funds are used. Municipal budgets are divided into 48 tasks (second level), clustered in 9 divisions (first level). The tasks indicate the purpose of the expenditure. The following tasks are included: management and support; safety; traffic, transport and water management; economy; education; sport, culture and recreation; social domain; public health and environment; public housing, spatial planning and urban renewal. The expenditures are also classified by economic categories. This indicates the type of expenditure. The following categories are included: salaries and social charges; taxes; goods and services; transfers; interest and dividends; financial transactions; settlements.
Calculation steps	**Scope 1 natural gas and scope 2 electricity** For the sector public administration and government services, the supply of natural gas and electricity is known (CBS) at the aggregation level of municipalities and includes both municipalities and other governmental authorities. To calculate scope 1 and 2 for municipalities, several calculation steps have been made. The number of employees that work for the total public administrations and government services sector is known for each municipality, as well as the number of employees that work for a general government administration per municipality. General government administrations include municipalities, as well as provinces and ministries (also known as SBI-code 8411). Therefore, we have subtracted the number of employees working for the provincial government organization from the total number of employees working for general government administrations for all provincial capitals except for the municipality of The Hague. For the municipality of The Hague, we have used the number of employees working for the municipality according to their website, because also the national government and therefore a lot of the ministries are located in the municipality of The Hague. The supply of natural gas and electricity to the public administration and government services sector is known per municipality (CBS). The percentage of number of employees working for each municipality (SBI-code 8411) relative to the number of employees working for the total public administration and government services sector in each

	municipality has been multiplied by the supply of natural gas and electricity to the public administration and government services sector. This results in the supply of natural gas and electricity to the municipality as an organization. The amount of natural gas per municipality has been multiplied by the emission factor for natural gas (1.785 kg CO_2/Nm^3) and the amount of electricity has been multiplied by the emission factor for electricity (unknown source; 0.405 kg CO_2/kWh). The amount of GHG emissions has been divided by the factor 1000, to result in ton GHG emissions for scope 1 (natural gas) and scope 2 (electricity). **Scope 1 fossil fuel for company cars** Scope 1 emissions also include the fossil fuel emissions of company cars. This calculation has also started with the number of employees that work for the total public administrations and government services sector as well as the number of employees that work for a general government administration (SBI-code 8411), both per municipality. The number of company cars used in the total public administration and government services sector is known (CBS Statline). To calculate the total number of company cars for the municipalities, the number of company cars used by the total public administration and government services sector has been multiplied by the percentage of employees working at municipalities relative to all employees working for the Dutch public administration and government services. The total number of company cars for Dutch municipalities has been multiplied by the percentage of employees working for that municipality, relative to all employees working for Dutch municipalities to result in the number of company cars per municipalities. This has been multiplied by the number of kilometers driven per company cars (all fuel types) and multiplied by the emission factor for passenger transport, car, fuel type unknown, weight class unknown (0.163 kg CO2/vehicle kilometer). The GHG emissions have been divided by the factor 1000, to result in ton GHG emissions for company cars. The final calculated values for scope 1 and 2 have been reallocated to the municipality division of 2021, for all years calculated. **Scope 3** For the calculation of scope 3 only one economic category is relevant: “Goods and Services”. This category describes the expenses of municipalities for goods and services for which they pay, either in a purchase or in hire construction. A number of subcategories can be distinguished. The following categories have been used in the calculation of scope 3: Category 3.1 describes expenses on the purchase or sale of areal positions; Category 3.2 are the purchases of sustainable goods and services. These are goods with a lifespan longer than one year; Category 3.5 describes the insourced employees; Category 3.8 contains other goods and services, such as tools, food, and other expenses. To calculate the GHG emissions for scope 3 for municipalities, it is necessary to have a value per subcategory mentioned above (3.1, 3.2, 3.5, and 3.8) that links GHG emissions (per kg) to expenses (in Euro). To come to this value per category (in kg CO_2-eq/Euro) as a first step, the most appropriate production sector(s) (the standard business format; SBI codes; CBS) has to be linked to the four mentioned categories. In a next step, using the environmental accounts, the expenses have been linked to the emission data. First, we had a closer look at the description of the 4 mentioned categories (3.1, 3.2, 3.5, and 3.8).[19] According to the detailed description, the most appropriate production sector(s) have been linked to the category (Table 2-1). Category 3.1 has been linked to only one sectoral production category, whereas categories 3.2, 3.5, and 3.8 have been linked to multiple sectoral production categories. The share of each production sector per subcategory is unknown. Therefore, the share of each production sector per category has been assumed by the researchers of Het PON & Telos. The weighing has been done

[19] https://findo.nl/content/30---Goederen-en-diensten

based on an estimate of the relative share of the various relevant industries in the expenditure per subcategory (Table 2-2).

Table 2-1. The categories with the linked sectoral production category

Category	SBI code
3.1	Rental and trading real estate (L)
3.2	Industry (C); construction industry (F); wholesale and retail, and repair of motor vehicles (G); rental and trading of real estate (L); consultancy, research, rental of movable property, other services (M/N); public administration, public services and compulsory social security (O).
3.5	Consultancy, research, rental of movable property, other services (M/N); public administration, public services and compulsory social security (O).
3.8	Extraction of minerals (B); industry (C); production, distribution and trading of electricity, natural gas, steam and chilled air (D); water collection and distribution; waste and waste water management and remediation (E); rental of movable property and other services (N); public administration, public services and compulsory social security (O).

Table 2-2. The share of each production sector per subcategory

Category	Share per SBI code
3.1	100% L
3.2	20% C-F-G-L 10% M/N 10% O
3.5	50% M/N 50% O
3.8	20% B-C-D-E 10% N 10% O

Based on the method described above the composition per production sectors has been known per subcategory (in %)(A). Using the environmental accounts, the total GHG emissions has been known per production sector (in kg) and the annual monetary value per production sector has been known (in Euro). So per production sector the kg GHG emissions per Euro has been calculated (B). Knowing A and B for each subcategory the specific kg GHG emissions per Euro expenditure (C) has been calculated.

For reporting year 2022, this resulted in the values for kg CO_2 per Euro (C) presented in Table 2-3.

Table 2-3 The kg CO_2 equivalent per euro that is used in the calculation

Reporting year	2022
Category 3.1	0.006 kg CO_2-eq / Euro
Category 3.2	0.20 kg CO_2-eq / Euro
Category 3.5	0.03 kg CO_2-eq / Euro
Category 3.8	0.47 kg CO_2-eq / Euro

The IV3 spending database of all municipalities has been used (CBS, Statline). From this database the categories 3.1, 3.2, 3.5, and 3.8 have been selected. Only the positive expenditures have been taken into account. The expenditure of the municipality per sub-function and category has been multiplied by the kg CO_2-eq per Euro (C). This has resulted in kg GHG emissions per expenditure (D). Per municipality these values for all the subfunctions x subcategories have been added up to result in scope 3 per municipality in kg. This has been divided by 1000 to result in ton GHG emissions. Finally, the GHG emissions have been calculated per municipality.

	The expenses on natural gas use and electricity use are supposedly also included in the spending on category 3.8. Therefore in the end, the scope 1 (natural gas) and scope 2 (electricity) emissions have been subtracted from the total scope 3 emissions to avoid double counting. To calculate the emission factors for category 3.1, 3.2, 3.5, and 3.8 data of the year 2020 has been used for reporting year 2022. However, for the expenditure of the municipalities the year 2021 has been used for reporting year 2022.
Limitations	A risk of double counting arises from that local and regional government related collaborations, companies, and projects might be included in the financial and emission reporting of municipalities and provinces. This can only be assessed by individual entities, and this has not been corrected for in this report. Limitations of the current method are that the supplies of natural gas and electricity to the municipality as organization are unknown. It is therefore calculated according to the estimated number of employees working for the general government administrations per municipality and the total number of employees working for the total public administration and government services sector per municipality. The general government administrations include municipalities, as well as provinces and ministries amongst others (also known as SBI-code 8411). We corrected the number of employees working for the general government administrations for the provincial capitals, but not for other municipalities that might contain employees of other governments than municipalities. There is also no data registered about company cars (number of cars, type of car, type of fuel etc.) per municipality. The best possible result is achieved by using the current model(s). Many municipalities are working on making their operations more sustainable. Part of this development is making their vehicle fleet more sustainable. For example, municipalities are purchasing more electric cars when they replace cars. In the calculation method in this project, this development is not visible. As a result, the GHG emissions caused by company cars are a relative rough estimate and may deviate from the actual situation due to developments in the field of making the municipalities vehicle fleet more sustainable. Besides cars, municipalities also own other means of transport, such as scooters and (electric) bikes. The use of these means of transport is not included in the calculated GHG emissions for company cars. An uncertainty in the method described under calculations earlier in this factsheet is that the exact share of each production sector per category is unknown. It was not possible to specify this by more detailed information from several municipalities. Therefore, a share was assumed by the researchers of Het PON & Telos. Another limitation is the possible double counting in scope 1 and 2 in comparison to scope 3. However, by using the current model(s), the best result possible is achieved. As described in the section “calculation steps” the GHG emissions of scope 1 and 2 are subtracted from the GHG emissions of scope 3 because it is assumed that the expenses on natural gas use and electricity use are included in the spending on category 3.8.
SDG	13
Data quality estimate	Scope 1 natural gas and scope 2 electricity: data quality score 4. The GHG emissions are calculated based on energy supply to the public administration and government services sector at the aggregation level of municipalities. This is not only energy supply to the municipalities, but also other governmental authorities. Therefore, data is used on the basis of region and data quality score is 4. Scope 1 company cars: data quality score 5. The GHG emissions are calculated based on average car information. Make, model, and type are unknown and distance traveled is based on local or regional statistical data. Therefore, data quality score is 5. See option 3b in Table 5-16 on page 106 of the report Financed Emissions, The global GHG accounting & reporting standard Part A.[20] Scope 3: data quality score 4.

[20] https://carbonaccountingfinancials.com/standard. PCAF(2022). Financed Emissions, The global GHG accounting & reporting standard Part A.

	The GHG emissions are calculated based on economic activity. The expenses made in the categories 3.1, 3.2, 3.5, and 3.8 were multiplied by a value for kg CO_2-eq / Euro. The value for kg CO_2-eq / Euro has been calculated based on proxy data on the basis of country. Therefore, data quality is score 4. **Score** / **Quality requirement** 1 – Audited data or actual primary data 2 – Non-audited data, or other primary data 3 – Average data that is peer/(sub)sector-specific 4 – Proxy data on the basis of region or country 5 – Estimated data with very limited support

Topic	Description
Data	Number of employees working for the public administrations and government services sector
Data file	LISA-statistiek_(ordernr_202200020)_sector O.xlsx
Data Source	Lisa; het werkgelegenheidsregister van Nederland
Year	2018-2020-2021
Last update	June 2022
Date of download	Data purchased on 29-06-2022
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Klantgroepen\Gemeenten\SDG_13_CO2 impact\Ruwe data
Data quality estimate	2 Data from LISA are based on observations/measurements of all locations of companies. Self-employed persons are taken into account as well. This makes it possible to present an overview of employment on both geographic and sectoral level.
Unit of measurement	Number of employees
Selections	Not applicable
Data missing	Not applicable
Print Screens	In folder: Klantgroepen\Gemeenten\SDG_13_CO2 impact\Printscreens\FW Bestelling LISA-data (ordernummer 202200020).msg

Topic	Description
Data	Number of employees working for a general government administration
Data file	LISA-statistiek_(ordernr_202200019)_8411.xlsx
Data Source	Lisa; het werkgelegenheidsregister van Nederland
Year	2018-2020-2021
Last update	June 2022
Date of download	Data purchased on 21-06-2022
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable

Internal location	Klantgroepen\Gemeenten\SDG_13_CO2 impact\Ruwe data
Data quality estimate	2 Data from LISA are based on observations/measurements of all locations of companies. Self-employed persons are taken into account as well. This makes it possible to present an overview of employment on both geographic and sectoral level.
Unit of measurement	Number of employees
Selections	Not applicable
Data missing	Not applicable
Print Screens	In folder: Gemeenten\SDG_13_CO2 impact\Printscreens\FW Bestelling LISA-data (ordernummer 202200019).msg

Topic	Description
Data	Number of employees working at provinces
Data file	20220926 berekening sbi 8411 zonder provincies_aangepast_18-1-23.xlsx in sheet: Banen provinciehoofdsteden
Data Source	A & O Fonds Provincies
Year	2018-2020-2021
Last update	June 2022
Date of download	21-09-2022
Link to webpage	https://personeelsmonitorprovincies.onderzoek.nl/index.cfm?action=main.report
Filters used to obtain the datafile	No filters used
Internal location	Klantgroepen\Gemeenten\SDG_13_CO2 impact\Ruwe data
Data quality estimate	2 Data is directly acquired from provinces, using a questionnaire. Data quality is therefore indicated as high.
Unit of measurement	Number of employees
Selections	Not applicable
Data missing	Not applicable
Print Screens	In folder: Klantgroepen\Gemeenten\SDG_13_CO2 impact\Printscreens\Banen provinciehoofdsteden

Topic	Description
Data	Supply of energy to the public administration and government services sector at the aggregation level of municipalities
Data file	20221007 levering aardgas en elektriciteit sector O gemeenten.xlsx
Data Source	CBS Statline
Year	2018-2020-2021
Last update	7-10-2022
Date of download	7-10-2022
Link to webpage	https://opendata.cbs.nl/statline/#/CBS/nl/dataset/82538NED/table?ts=1601410027649
Filters used to obtain the datafile	Onderwerp: Geleverd aardgas, geleverde elektriciteit Perioden: 2018 – 2020 - 2021 Regio's: Gemeenten per provincie

	Bedrijfstakken/branches: Bedrijfstakken 1e digit (SBI 2008), O Openbaar bestuur en overheidsdiensten
Internal location	Klantgroepen\Gemeenten\SDG_13_CO2 impact\Ruwe data
Data quality estimate	4 Highly reliable data, because of the manner of registration. There are multiple control and correction methods used, which can be find here: https://www.cbs.nl/nl-nl/onze-diensten/methoden/onderzoeksomschrijvingen/korte-onderzoeksbeschrijvingen/leveringen-van-elektriciteit-en-aardgas-via-het-openbare-net. The supply of energy is not only to the municipalities, but to the total public administration and government services sector at the aggregation level of municipality. Therefore, the data quality score is 4 because it is data on the basis of region.
Unit of measurement	Natural gas: 1000 Nm^3 Electricity: 1000 kWh
Selections	Not applicable
Data transformation	The data has been transformed from the original municipality division to the 2021 municipality division. The missing values have been replaced with values from previous years, as described in the original data file on tab 'Data voor herindelen' in order to transform the data to the municipality division of 2021.
Data missing	For several municipalities, the data was missing and has been replaced by data from previous or coming years, see the original data file, tab 'Data voor herindelen' for the changes made in the original data.
Print Screens	In folder: Klantgroepen\Gemeenten\SDG_13_CO2 impact\Printscreens\ 20221007 levering aardgas, elektriciteit via openbaar net sector O gemeenten v1.PNG 20221007 levering aardgas, elektriciteit via openbaar net sector O gemeenten v2.PNG 20221007 levering aardgas, elektriciteit via openbaar net sector O gemeenten v3.PNG

Topic	Description
Data	Number of company cars owned by companies in the public administration and government services sector
Data file	20220610 ruwe data bedrijfsautos 2020.xlsx
Data Source	CBS Statline
Year	2020 Data used from 2020 to calculate scope 1 fossil fuel use by cars for reporting year 2022
Last update	24-01-2022
Date of download	10-06-2022
Link to webpage	https://opendata.cbs.nl/statline/#/CBS/nl/dataset/81481NED/table?ts=1626174554210
Filters used to obtain the datafile	Onderwerp: Bedrijfsbestelauto's Bedrijfstakken/branches: O Openbaar bestuur en overheidsdiensten Bedrijfsgrootte/leeftijd bestelauto: Totaal Perioden: 2020
Internal location	Klantgroepen\Gemeenten\SDG_13_CO2 impact\Scope 1 en 2\Ruwe data
Data quality estimate	2 The research method of this data can be find here: https://www.cbs.nl/nl-nl/onze-diensten/methoden/onderzoeksomschrijvingen/korte-onderzoeksbeschrijvingen/bezit-en-gebruik-bestelauto-s The additional research report can be find here: https://www.cbs.nl/nl-nl/onze-diensten/methoden/onderzoeksomschrijvingen/aanvullende%20onderzoeksbeschrijvingen/bezit-en-gebruik-bestelauto-s Data comes from motor vehicle registration (RDW) and data is checked on content, quality and usability by CBS
Unit of measurement	Number of company cars

Selections	Not applicable
Data missing	Not applicable
Print Screens	In folder: Klantgroepen\Gemeenten\SDG_13_CO2 impact\Scope 1 en 2\Printscreens\ 20220610 bedrijfsautos_2020.png

Topic	Description
Data	Average kilometers driven with a passenger car with a Dutch registration per year
Data file	20220610 ruwe data km bedrijfswagens 2020.xlsx
Data Source	CBS Statline
Year	2020 Data used from 2020 to calculate scope 1 fossil fuel use by cars for reporting year 2022
Last update	10-11-2022
Date of download	10-6-2022
Link to webpage	https://opendata.cbs.nl/statline/#/CBS/nl/dataset/71107ned/table?ts=1626174732075
Filters used to obtain the datafile	Gewichtsklasse leeggewicht: Totaal Leeftijd voertuig: Totaal Tenaamstelling: Bedrijf Brandstofsoort: Alle brandstofsoorten Onderwerp: Gemiddelde jaarkilometrage Perioden: 2020
Internal location	Klantgroepen\Gemeenten\SDG_13_CO2 impact\Scope 1 en 2\Ruwe data
Data quality estimate	2 The research method of this data can be find here: https://www.cbs.nl/nl-nl/onze-diensten/methoden/onderzoeksomschrijvingen/korte-onderzoeksbeschrijvingen/verkeersprestaties-personenauto-s The original data comes from the online kilometer registration (OKR) of the RDW. This data is reliable.
Unit of measurement	Kilometers
Selections	Not applicable
Data missing	Not applicable
Print Screens	In folder: Klantgroepen\Gemeenten\SDG_13_CO2 impact\Scope 1 en 2\Printscreens\ 20220610 km bedrijfswagens_2020.png

Topic	Description
Data	Standard business format: description per sectoral production category. The description of the sectoral production categories in this document is used to link categories of municipalities their finances to one or more sectoral production categories.
Data file	2022EP06 SBI Structuur.pdf
Data Source	CBS
Year	2022
Last update	2022
Date of download	31-10-2022
Link to webpage	https://www.cbs.nl/nl-nl/onze-diensten/methoden/classificaties/activiteiten/sbi-2008-standaard-bedrijfsindeling-2008/de-structuur-van-de-sbi-2008-versie-2018-update-2022
Filters used to obtain the datafile	Not applicable
Internal location	Klantgroepen\Gemeenten\SDG_13_CO2 impact\Scope 3

Data quality estimate	Not applicable
Unit of measurement	Not applicable
Selections	Not applicable
Data missing	Not applicable
Print Screens	In folder: Klantgroepen\Gemeenten\SDG_13_CO2 impact\Scope3\Printscreens\20223110 SBI codes.PNG

Topic	Description
Data	GHG emissions to the air by the Dutch economy
Data file	05092022 emissies naar lucht 2017 2019 2020.xlsx
Data Source	CBS Statline
Year	2017-2019-2020
Last update	03-12-2021
Date of download	05-09-2022
Link to webpage	https://opendata.cbs.nl/#/CBS/nl/dataset/83300NED/table?dl=5932E
Filters used to obtain the datafile	Onderwerp: Broeikasgassen (klimaatverandering); Broeikasgas-equivalent Perioden: 2017, 2019, 2020 Nederlandse economie: Economische activiteiten A, B, C, D, E, F, G-I, J, K, L, M-N, O-Q, R-U
Internal location	Klantgroepen\Gemeenten\SDG_13_CO2 impact\Scope 3\Ruwe Data
Data quality estimate	4 The research method used to obtain the data can be find here: https://www.cbs.nl/nl-nl/onze-diensten/methoden/onderzoeksomschrijvingen/korte-onderzoeksbeschrijvingen/milieurekeningen Data is based on environmental accounts. Important sources for the environmental accounts are environmental statistics, such as emission registrations, energy statistics (Dutch energy balance) and a macro economic system used by CBS. It is data on the basis of country and therefore data quality score is 4.
Unit of measurement	GHG emissions: mln kilogram
Selections	Not applicable
Data transformation	Calculations made with the data are described in the section calculation steps of municipalities (scope 3).
Data missing	Not applicable
Print Screens	In folder: Klantgroepen\Gemeenten\SDG_13_CO2 impact\Scope 3 \Printscreens\20220905 emissies naar lucht 2017 2019 2020.PNG

Topic	Description
Data	The monetary value of all produced goods and services in the Netherlands
Data file	20221028 bbp 2017 2019 2020.xlsx
Data Source	CBS Statline
Year	2017-2019-2020
Last update	24-06-2022
Date of download	28-10-2022
Link to webpage	https://opendata.cbs.nl/#/CBS/nl/dataset/84087NED/table?ts=1601538240382

Filters used to obtain the datafile	Perioden: 2017/2019/2020 Onderwerp: BBP vanuit de productie: Waarde prijsniveau 2015 Bruto toegevoegde waarde basisprijzen; A, B-E, B, C, D, E, F, G-I, J, K, L, M-N, O-Q, R-U
Internal location	Klantgroepen\Gemeenten\SDG_13_CO2 impact\Scope 3\Ruwe data
Data quality estimate	3 Based on registered production statistics. The data quality has increased due to a number of checks and control functions in the method. The research method used to obtain the data can be find here: https://www.cbs.nl/nl-nl/onze-diensten/methoden/onderzoeksomschrijvingen/korte-onderzoeksbeschrijvingen/nationale-rekeningen
Unit of measurement	Mln Euro
Selections	Not applicable
Data transformation	Calculations made with the data are described in the section calculation steps of municipalities (scope 3)
Data missing	Not applicable
Print Screens	In folder: Klantgroepen\Gemeenten\SDG_13_CO2 impact\Scope 3\Printscreens\20221028 bbp 2017 2019 2020.PNG

Topic	Description
Data	Expenses of all Dutch municipalities per IV3/COFOG code
Data file	20220922 iv3 2021 gemeente.xlsx
Data Source	CBS Statline
Year	2021
Last update	2021: 22-09-2022
Date of download	22-09-2022
Link to webpage	2021: https://iv3statline.cbs.nl/#/IV3/nl/dataset/45054NED/table
Filters used to obtain the datafile	Onderwerp: 2e plaatsing Taakveld/balanspost: alle taakvelden 0 t/m 8 Categorie: Lasten: L3.1 grond, L3.2 Duurzame goederen, L3.5.1. Ingeleend personeel, L3.8 Overige goederen en diensten Verslagsoort: Jaarrekening
Internal location	Klantgroepen\Gemeenten\SDG_13_CO2 impact\Scope 3\Ruwe data
Data quality estimate	2 High data quality. Data is directly supplied by municipalities from internal accounting systems. Provinces deliver the data to CBS, the data has not been edited by CBS.
Unit of measurement	Euro
Selections	Not applicable
Data missing	For 2021 no missing data
Print Screens	In folder: Klantgroepen\Gemeenten\SDG_13_CO2 impact\Scope 3\Printscreens\iv3

List of the calculation sheets	Location
Aardgas_elektra_gemeente.csv Banen_8411-gemeente_aangepast_18-1-23.csv Banen_sectorO_gemeente.csv Bedrijfsautos_aangepast.csv Emissiefactoren_totaaloverzicht.csv KM_bedrijfsautos_aangepast.csv	Klantgroepen\Gemeenten\SDG_13_CO2 impact\Scope 1 en 2\Brondata voor SQL

Passiva_gemeente.csv portefeuilleNWB_gemeente.csv	
PCAF gemeente NWB	Klantgroepen\Gemeenten\ SDG_13_CO2 impact\Script + database
NWB gemeente 2021.sql	Klantgroepen\Gemeenten\SDG_13_CO2 impact\Script + database
20230120_NWB scope 1 en 2 2021.csv	Klantgroepen\Gemeenten\SDG_13_CO2 impact\Scope 1 en 2\Data verkregen uit SQL
NWB 20230123 scope 3 gemeente 2021.xlsx	Klantgroepen\Gemeenten\SDG_13_CO2 impact
20230123 CO2-eq voetafdruk gemeenten nulmeting.xlsx	Klantgroepen\Gemeenten\SDG_13_CO2impact

7.2.16 Total registration time for social housing

Topic	Description
Data	Total registration time for social housing
Calculation steps	No calculations were done on the original data set. The data is delivered by housing associations themselves. The data is used to calculate a weighted average for the total registration time for social housing. Only municipalities where more than 70% of the data was available, are available in this dataset.
Limitations	Data is available for 231 municipalities and the most recent data available is of 2020
SDG	SDG 11.1
Data quality estimate	2 – Non-audited data, or other primary data. Data is not audited, but is supplied by housing associations themselves and therefore reliable.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Total registration time for social housing per municipality
Data file	0-meting wachttijden sociale huurwoningen 2020.xlsx
Data Source	NOS op 3
Year	2020
Last update	24-4-2021
Date of download	25-1-2022
Link to webpage	https://app.nos.nl/op3/socialehuur/#/
Filters used to obtain the datafile	Not applicable
Internal location	Klantgroepen\Gemeenten\SDG_11.1_Wachttijden sociale huurwoningen
Data quality estimate	3 – Non-audited data, or other primary data. Data is not audited, but is supplied by housing associations themselves and therefore reliable.
Unit of measurement	Months
Selections	Not applicable

Data missing	Data for 121 municipalities is missing, as housing associations did not deliver (enough) data to make the calculations
Print Screens	Klantgroepen\Gemeenten\SDG_11.1_Wachttijden sociale huurwoningen\Printscreens

7.2.17 Air pollution - Nitrogen oxides (NOx) emissions

Topic	Description
Data	Emission to air of nitrogen oxides (NOx) including nitrogen dioxide in kg. Data on nitrogen oxide emissions per municipality obtained from RIVM: http://www.emissieregistratie.nl
Calculation steps	Step 1: Source-data Source data has been collected for the years 2019 (0-measurement) and 2020 (1-measurement). Calculation steps on the original dataset with emission-data have not been performed. The original dataset 346 regions, i.e. 345 municipalities (2022) and one region (region code 9999, Noordzee) that does not match any municipality. This last region will be neglected in the results.
Limitations	The most recent emission data available is of 2020. Emission data from region Noordzee is excluded from this calculation as it cannot be assigned to specific municipalities. The total of the emissions in the calculated dataset is therefore an underestimation of the total emission of the Netherlands. Emission data in the Netherlands is measured in kilograms per municipality. Since this unit, kilograms, does not have a surface area dependency, the measured values do not have a direct relationship with public health. For that purpose, the concentrations of several air pollutants have been included in this monitor. Emission data is used as an indicator for environmental sustainability.
SDG	SDG 15
Data quality estimate	3 – Average data that is peer/(sub)sector-specific.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Emission of NOx in kg per municipality
Data file	Emissies_NOx_NH3_20192020.xlsx
Data Source	RIVM (www.emissieregistratie.nl)
Year	2019&2020
Last update	09-2022
Date of download	26-01-2023
Link to webpage	https://data.emissieregistratie.nl/export
Filters used to obtain the datafile	Stof: Stikstofoxiden (als NO2), Methaan Jaar: 2019, 2020 Per locatie; gebiedsindeling: Gemeenten
Internal location	\Klantgroepen\Gemeenten\SDG_15_Luchtverontreiniging

Data quality estimate	3 Data is collected by RIVM on basis of organization reports and calculations of emissions in processes. The uncertainty factor is relatively large, however, approximately 18% on the scale of the Netherlands and somewhat larger per municipality. For further information see: https://www.emissieregistratie.nl/over-emissieregistratie/kwaliteit-van-de-emissiecijfers
Unit of measurement	Kg
Selections	Decimal point (.)
Data missing	Not applicable
Print Screens	\Klantgroepen\Gemeenten\SDG_15_Luchtverontreiniging\Printscreens\Schermafbeelding 2023-01-26_luchtemissies.png

7.2.18 Air pollution - Methane (NH3) emissions

Topic	Description
Data	Emission to air of methane (NH3) in kg. Data on methane emissions per municipality obtained from RIVM: http://www.emissieregistratie.nl
Calculation steps	Step 1: Source-data Source data has been collected for the years 2019 (0-measurement) and 2020 (1-measurement). Calculation steps on the original dataset with emission-data have not been performed. The original dataset 346 regions, i.e. 345 municipalities (2022) and one region (region code 9999, Noordzee) that does not match any municipality. This last region will be neglected in the results.
Limitations	The most recent emission data available is of 2020. Emission data from region Noordzee is excluded from this calculation as it cannot be assigned to specific municipalities. The total of the emissions in the calculated dataset is therefore an underestimation of the total emission of the Netherlands. Emission data in the Netherlands is measured in kilograms per municipality. Since this unit, kilograms, does not have a surface area dependency, the measured values do not have a direct relationship with public health. For that purpose, the concentrations of several air pollutants have been included in this monitor. Emission data is used as an indicator for environmental sustainability.
SDG	SDG 15
Data quality estimate	3 – Average data that is peer/(sub)sector-specific. Score / Quality requirement 1 – Audited data or actual primary data 2 – Non-audited data, or other primary data 3 – Average data that is peer/(sub)sector-specific 4 – Proxy data on the basis of region or country 5 – Estimated data with very limited support

Topic	Description
Data	Emission of NH3 in kg per municipality
Data file	Emissies_NOx_NH3_20192020.xlsx
Data Source	RIVM (www.emissieregistratie.nl)
Year	2019&2020
Last update	09-2022

Date of download	26-01-2023
Link to webpage	https://data.emissieregistratie.nl/export
Filters used to obtain the datafile	Stof: Stikstofoxiden (als NO2), Methaan Jaar: 2019, 2020 Per locatie; gebiedsindeling: Gemeenten
Internal location	\Klantgroepen\Gemeenten\SDG_15_Luchtverontreiniging
Data quality estimate	3 Data is collected by RIVM on basis of organization reports and calculations of emissions in processes. The uncertainty factor is relatively large, however, approximately 29% on the scale of the Netherlands and somewhat larger per municipality. For further information see: https://www.emissieregistratie.nl/over-emissieregistratie/kwaliteit-van-de-emissiecijfers
Unit of measurement	Kg
Selections	Decimal point (.)
Data missing	Not applicable
Print Screens	\Klantgroepen\Gemeenten\SDG_15_Luchtverontreiniging\Printscreens\Schermafbeelding 2023-01-26_luchtemissies.png

7.2.19 Total area of protected nature

Topic	Description
Data	Total area of nature protected as Natura2000 or NNN site
Calculation steps	By means of geospatial analyses the surface area percentage covered by N2000 and/or NNN sites of each municipality have been calculated. The steps taken in ArcGIS are: N2000 and NNN maps are dissolved. By means of pairwise intersect the protected nature map is divided into the municipalities. Geometry attributes are calculated and statistics summarized for the protected nature map as well as the municipality map, thereby obtaining the percentage of surface area coverage.
Limitations	There are other types of legal protection of nature sites. These are however negligible in size compared to N2000 and NNN. Thereby, maps of these protected areas are not available and have thus not been included in this indicator.
SDG	SDG 15.1
Data quality estimate	2 – Non-audited data, or other primary data

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Map of N2000 sites
Data file	Natura2000.gpkg
Data Source	Nationaal georegister (Ministerie van Landbouw, Natuur en Voedselkwaliteit)
Year	2022
Last update	13-12-2022

Date of download	06-12-2022
Link to webpage	https://www.waarstaatjegemeente.nl/jive?workspace_guid=50c9fe92-c238-458d-83a1-a63892e41d40 https://nationaalgeoregister.nl/geonetwork/srv/dut/catalog.search#/metadata/280ed37a-b8d2-4ac5-8567-04d84fad3a41?tab=general
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Gemeenten\SDG_15_Oppervlakte beschermde natuur\Ruwe data
Data quality estimate	2
Unit of measurement	Not applicable
Selections	Not applicable
Data missing	Not applicable
Print Screens	\Klantgroepen\Gemeenten\SDG_15_Oppervlakte beschermde natuur\Printscreens

Topic	Description
Data	Map of NNN sites
Data file	nnn_data_nl_16_11_2022_niet_Inspire_klaar.gpkg
Data Source	IPO / BIJ12
Year	2022
Last update	08-12-2022
Date of download	08-12-2022
Link to webpage	https://www.waarstaatjegemeente.nl/jive?workspace_guid=50c9fe92-c238-458d-83a1-a63892e41d40 https://nationaalgeoregister.nl/geonetwork/srv/dut/catalog.search#/metadata/c7d8d77b-8c47-4309-8c58-9b12b086407f?tab=relations
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Gemeenten\SDG_15_Oppervlakte beschermde natuur\Ruwe data
Data quality estimate	2
Unit of measurement	Not applicable
Selections	Not applicable
Data missing	Not applicable
Print Screens	\Klantgroepen\Gemeenten\SDG_15_Oppervlakte beschermde natuur\Printscreens

Topic	Description
Data	Map of municipalities of 2022
Data file	Gemeentegrenzen_2022.gpkg
Data Source	PDOK
Year	2022
Last update	05-2022

Date of download	08-12-2022
Link to webpage	https://www.waarstaatjegemeente.nl/jive?workspace_guid=50c9fe92-c238-458d-83a1-a63892e41d40https://nationaalgeoregister.nl/geonetwork/srv/dut/catalog.search#/metadata/04d7ce1c-32dc-42d0-89a9-a642d6bc5e45
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Gemeenten\SDG_15_Oppervlakte beschermde natuur\Ruwe data
Data quality estimate	2
Unit of measurement	Not applicable
Selections	Not applicable
Data missing	Not applicable
Print Screens	\Klantgroepen\Gemeenten\SDG_15_Oppervlakte beschermde natuur\Printscreens

7.2.20 Public green space

Topic	Description
Data	Public green space
Calculation steps	No calculations were done on the original data set. The percentage of trees and low greens of the total surface of the public space. The map presents an image of the locations of public green space in the Netherlands. All trees, bushes and low vegetation are being presented in a grid map with a resolution of 10 x 10 meters. The percentage of vegetation is expressed in the color green per grid cel. This map is a composition of the maps “Bomen in Nederland”, “Struiken in Nederland”, and “Lage vegetatie in Nederland”, but vegetation in agricultural areas is being included as well.
Limitations	No limitations
SDG	SDG 11.7
Data quality estimate	2 – Non-audited data, or other primary data.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Public green space
Data file	Openbaar groen 2021 heringedeeld.csv
Data Source	Climate Adaptation Services via Waarstaatjegemeente.nl

Year	2021
Last update	2021
Date of download	11-1-2022
Link to webpage	https://www.waarstaatjegemeente.nl/jive?workspace_guid=50c9fe92-c238-458d-83a1-a63892e41d40
Filters used to obtain the datafile	Duurzame leefomgeving: Klimaatadaptatie Klimaatadaptatie: Openbaar groen Percentage: Oppervlakte openbare ruimte groen totaal zonder agrarisch In m^2: Oppervlakte openbare ruimte groen
Internal location	\Klantgroepen\Gemeenten\SDG_11_Openbaar groen\Openbaar groen 2021 heringedeeld.csv
Data quality estimate	2 – This data contains the number of squared meters and percentage of greenery in public space per municipality. This data is collected by Climate Adaptation Services
Unit of measurement	Surface area percentage (surface area in m^2)
Selections	Not applicable
Data missing	Not applicable
Print Screens	\Klantgroepen\Gemeenten\SDG_11_Openbaar groen\Oude data\Openbaar groen WSJG - 05-10-2022.png

Topic	Description
Data	Regional division of municipalities 2021
Data file	Kopie van gemeenten-alfabetisch-2021.xlsx
Data Source	Dutch Central Bureau of Statistics
Year	2021
Last update	1-1-2021
Date of download	12-1-2022
Link to webpage	https://www.cbs.nl/nl-nl/onze-diensten/methoden/classificaties/overig/gemeentelijke-indelingen-per-jaar/indeling-per-jaar/gemeentelijke-indeling-op-1-januari-2021
Filters used to obtain the datafile	Not applicable
Internal location	\Klantgroepen\Gemeenten\Basisbestanden\Gemeentelijke indelingen\Gemeenten alfabetisch 2021.xlsx
Data quality estimate	1 – Regional division of municipalities as stated by the Dutch government
Unit of measurement	Not applicable
Selections	Not applicable
Data missing	Not applicable
Print Screens	\Klantgroepen\Gemeenten\Basisbestanden\Gemeentelijke indeling\Indeling gemeenten 2021.PNG

8 Healthcare institutions

8.1 General factsheet

Topic	Description
Portfolio covered	91.37 % of NWB Bank's portfolio is covered for this customer group. This percentage is an indication of the completeness of the dataset. It is calculated by looking at the collected data for the customers in the loan portfolio of NWB Bank. The percentage is lower than 100% percent if there are missing data. The missing data are either not available or it was not possible to collect or calculate these data correctly.
Indicators	- Energy consumption: natural gas - Energy consumption: electricity - GHG emission
Limitations	None.

8.2 Factsheet per data source used per indicator

8.2.1 Energy consumption healthcare institutions – electricity (kWh)

Topic	Description
Data	Energy consumption data from healthcare institutions are obtained from three largest network operators in the Netherlands (Enexis, Liander and Stedin). Data of the total balance sheet per healthcare institute per year, are coming from their own annual reports.
Calculation steps	Energy consumption data was received from three largest network operators in the Netherlands based on cadastral parcels owned by healthcare institutions. The following steps has been performed by Republiq: 1. Inventory of all healthcare institutions; 2. Inventory of all cadastral parcels owned by healthcare institutions; 3. Inventory of all buildings owned by healthcare institutions; 4. Request to three network operators; 5. Processing consumption data; 6. Estimate missing consumption data; 7. Creating the overview of consumption data per healthcare institution. *Inventory of all healthcare institutions* NWB Bank has provided an overview of healthcare institutions from its portfolio at 31-12-2021. *Inventory of all cadastral parcels owned by healthcare institutions* Republiq has inventoried the properties of the healthcare institutions via Kadaster. Kadaster has provided an overview of the cadastral parcels and associated rights for each institution. *Inventory of all buildings owned by healthcare institutions* In this step Republiq has looked for the buildings on the cadastral parcels from step 2. First, Republiq has matched the results from Kadaster with BAG (Basisregistratie Adressen en Gebouwen). Then, they have looked at whether they could link additional buildings by performing a spatial match.

	1. For part of the parcels Kadaster provided an VBO-id (verblijfsobject-ID). This VBO-id is an unique ID for the building or buildings that are placed on the parcel. Republiq has joined the set from Kadaster with the BAG on VBO-id to find the corresponding addresses. 2. Republiq has performed a spatial match by combining a shapefile of cadastral parcels with a shapefile of all buildings in the Netherlands. This has resulted in a list with all parcels and the corresponding buildings placed on this parcel. Republiq has joined this list on parcel-ID with the result from Kadaster to obtain the buildings that are placed on the parcels in ownership of healthcare institutions. 3. Republiq has combined the results from the match on VBO-id and the spatial match to obtain a list with all parcels and corresponding addresses. If several healthcare institutions have rights for the same parcel, Republiq has let the right of ownership prevail over other rights. The result of this step has been an overview of 57,508 unique addresses with the corresponding institution. *Request to three network operators* Due to privacy reasons it is not allowed to provide energy consumption data for individual buildings. It is allowed to provide these for cluster of buildings (10 to 15 buildings). Republiq therefore has made clusters of the buildings, taking into account the owner of the buildings and the type of building. Where possible, clusters consisted only of buildings of the same owner. Clusters were made as followed: 1. The network operator has been assigned to the buildings. This was done on the basis of address details and the area division of the operators (see: https://data.overheid.nl/dataset/gebiedsbedrijven-netbeheers-elektriciteit--gas-en-water). Republiq only has requested energy consumption data from the three largest network operators (Enexis, Liander and Stedin). Together they provide approximately 95% of the buildings with energy data. For buildings that fall in an area of another operator Republiq has made an estimate of the energy consumption. 2. The request for energy consumption data was at the level of unique addresses. Republiq therefore has grouped the data by zip code, house number, and house number addition. The number of unique addresses has been counted per institution. 3. Republiq has made clusters of at least 15 addresses. Where possible, they have created multiple clusters per institution. 4. Republiq has created joint clusters for healthcare institutions with fewer than 15 unique addresses. They have calculated the average surface area of the buildings per institution. Then they have created clusters of at least 15 buildings, in which the buildings of healthcare institutions with a comparable surface area ended up in the same cluster. Approximately 40% of the healthcare institutions have been part of a joint cluster. Which is approximately 10% of the buildings. Surfaces are calculated according to BAG. *Processing consumption data* From the network operators Republiq has received per cluster the standard annual energy consumption (in Dutch standaard jaarverbruik (SJV)). They have divided this by the average surface of buildings from a cluster to obtain energy consumption data per m^2. The energy consumption data per m^2 has been assigned to the individual buildings belonging to a cluster. Next, Republiq has performed a check on outliers. When the electricity consumption of an establishment was higher than 200 kWh per m^2 or lower than 5 kWh per m^2, they have marked this as unreliable and have replaced this value with an estimated value. When the gas consumption of an establishment has been higher than 100 m^3 per m^2, they have marked this as unreliable and have replaced this value with an estimated value. *Estimate missing consumption data* Republiq has used the actual consumption data to calculate an average value for electricity usage and gas usage. This has been done per year for different classes of building years and surfaces. For the buildings with missing consumption data an estimation for gas and electricity has been assigned on the basis of the building period and surface class.

	Overview per healthcare institution For each healthcare institution Republiq has grouped the following measures: - Total surface of building (m^2) - Total electricity consumption (in kWh) - Average electricity consumption (in kWh per m^2)
Limitations	It is not possible to assign actual consumption data to every building. For the buildings where this is not possible, Republiq has made an estimation of the consumption data.
SDG	7
Data quality estimate	The electricity consumption is based as much as possible on actual building energy consumption. However, due to privacy reasons it is not allowed to provide energy consumption data for individual buildings. It is allowed to provide these for cluster of buildings (10 to 15 buildings). Where possible, clusters consisted only of buildings of the same owner. If this was not possible, buildings of different owners have been clustered. For the buildings with missing consumption data an estimation for gas and electricity has been assigned on the basis of the building period and surface class. Because the actual building energy consumption had to be clustered and in some cases for the buildings with missing data an estimation was made the data quality score is 3.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Energy consumption healthcare institutions
Data files	Original files (datafiles received from Republiq): 1. Energieverbruik zorginstellingen 2018-2020-2021.xlsx 4.Energieverbruik zorginstellingen 2021.xlsx
Data Source	Republiq
Year	2021
Last update	Not applicable
Date of download	21-9-2022
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Original files: Klantgroepen\Zorginstellingen\SDG_7_Elektriciteitsverbruik\Ruwe data
Data quality estimate	3 - Average data that is peer/(sub)sector-specific Due to privacy reasons it is not allowed to provide energy consumption data for individual buildings. It is allowed to provide these for cluster of buildings (10 to 15 buildings). Where possible, clusters consisted only of buildings of the same owner. If this was not possible, buildings of different owners have been clustered. For the buildings with missing consumption data an estimation for gas and electricity has been assigned on the basis of the building period and surface class. Because the actual building energy consumption had to be clustered and in some cases for the buildings with missing data an estimation was made the data quality score is 3.
Unit of measurement	Natural gas use in Nm^3 Electricity use in kWh
Selections	Republiq has delivered the data at the level of the healthcare institutions so no selection was necessary
Data transformation	Republiq delivered the data at the level of the healthcare institutions so no transformation was necessary
Data missing	2021: Data is missing for 15 healthcare organizations

Print screens	In folder: Klantgroepen\Zorginstellingen\SDG_7_Elektriciteitsverbruik\Printscreens\20220921 downloaden van Republiq data zorginstellingen.png

Topic	Description
Data	Healthcare institutions
Data file	Internal location Republiq
Data Source	NWB Bank
Year	2021
Last update	22-11-2021
Date of download	22-11-2021
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Internal location Republiq
Data quality estimate	2 - Non-audited data, or other primary data
Unit of measurement	Not applicable
Selections	Not applicable
Data missing	Not applicable
Print Screens	Internal location Republiq

Topic	Description
Data	Cadastral parcels in ownership of healthcare institutions
Data file	Internal location Republiq
Data Source	Kadaster
Year	2021
Last update	09-12-2021
Date of download	09-12-2021
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Internal location Republiq
Data quality estimate	2 - Non-audited data, or other primary data
Unit of measurement	Not applicable
Selections	Not applicable
Data missing	Not applicable
Print Screens	Internal location Republiq

Topic	Description
Data	Energy consumption (Enexis)
Data file	Internal location Republiq
Data Source	Enexis
Year	2021
Last update	23-12-2021
Date of download	23-12-2021
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Internal location Republiq
Data quality estimate	3 - Average data that is peer/(sub)sector-specific

Unit of measurement	kWh for electricity
Selections	Not applicable
Data missing	For some clusters we did not receive consumption data. This can have several causes: Enexis could not find an address (this is most often the case for addresses with an add-on. For example house number 1-A) The address is assigned to a connection for large consumption (grootverbruik). Net operators are not allowed to share this data.
Print Screens	Internal location Republiq
Topic	Description
Data	Energy consumption (Liander)
Data file	Internal location Republiq
Data Source	Liander
Year	2022
Last update	12-01-2022
Date of download	12-01-2022
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Internal location Republiq
Data quality estimate	3 - Average data that is peer/(sub)sector-specific
Unit of measurement	kWh
Selections	Not applicable
Data missing	For some clusters we did not receive consumption data. This can have several causes: Liander could not find an address (this is most often the case for addresses with an add-on. For example house number 1-A) The address is assigned to a connection for large consumption (grootverbruik). Net operators are not allowed to share this data.
Print Screens	Internal location Republiq

Topic	Description
Data	Energy consumption (Stedin)
Data file	Internal location Republiq
Data Source	Stedin
Year	2022
Last update	14-01-2022
Date of download	14-01-2022
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Internal location Republiq
Data quality estimate	3 - Average data that is peer/(sub)sector-specific
Unit of measurement	kWh
Selections	Not applicable
Data missing	For some clusters we did not receive consumption data. This can have several causes: Stedin could not find an address (this is most often the case for addresses with an add-on. For example house number 1-A) The address is assigned to a connection for large consumption (grootverbruik). Net operators are not allowed to share this data.
Print Screens	Internal location Republiq

Topic	Description
Data	Values for gas and electricity (used for estimation)
Data file	Bijlage 1 – Kengetallen energieverbruik
Data Source	Republiq
Year	2022
Last update	18-1-2022
Date of download	18-01-2022
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Internal location Republiq
Data quality estimate	3 - Average data that is peer/(sub)sector-specific
Unit of measurement	kWh for electricity and Nm^3 for gas
Selections	Not applicable
Data missing	Not applicable
Print Screens	Internal location Republiq

List of the calculation sheets	Location
Energiedata NWB Bank.csv Lening NWB Bank met jaartallen.csv	Klantgroepen\Zorginstellingen\SDG_7_Elektriciteitsverbruik\Brondata voor SQL
PCAF_zorg_NWB	Klantgroepen\Zorginstellingen\ SDG_7_Elektriciteitsverbruik\Database en scripts voor SQL
20221222 script voor koppeling energiedata aan leningportefeuille.sql	Klantgroepen\Zorginstellingen\ SDG_7_Elektriciteitsverbruik\Database en scripts voor SQL
NWB elektraverbruik en gasverbruik 2021.xlsx	Klantgroepen\Zorginstellingen\ SDG_7_Elektriciteitsverbruik\Bestanden uit SQL

8.2.2 Energy consumption healthcare institutions – natural gas (Nm^3)

Topic	Description
Data	Energy consumption data from healthcare institutions (in total and per m^2) are obtained from three largest network operators in the Netherlands (Enexis, Liander and Stedin).
Calculation steps	Energy consumption data was received from three largest network operators in the Netherlands based on cadastral parcels owned by healthcare institutions. The following steps has been performed by Republiq: 1. Inventory of all healthcare institutions; 2. Inventory of all cadastral parcels owned by healthcare institutions; 3. Inventory of all buildings owned by healthcare institutions; 4. Request to three network operators; 5. Processing consumption data; 6. Estimate missing consumption data; 7. Creating the overview of consumption data per healthcare institution. *Inventory of all healthcare institutions* NWB Bank has provided an overview of healthcare institutions from its portfolio at 31-12-2021 and 31-12-2020. *Inventory of all cadastral parcels owned by healthcare institutions*

	Republiq has inventoried the properties of the healthcare institutions via Kadaster. Kadaster has provided an overview of the cadastral parcels and associated rights for each institution. *Inventory of all buildings owned by healthcare institutions* In this step Republiq has looked for the buildings on the cadastral parcels from step 2. First, Republiq has matched the results from Kadaster with BAG (Basisregistratie Adressen en Gebouwen). Then, they have looked at whether they could link additional buildings by performing a spatial match. 1. For part of the parcels Kadaster provided an VBO-id (verblijfsobject-ID). This VBO-id is an unique ID for the building or buildings that are placed on the parcel. Republiq has joined the set from Kadaster with the BAG on VBO-id to find the corresponding addresses. 2. Republiq has performed a spatial match by combining a shapefile of cadastral parcels with a shapefile of all buildings in the Netherlands. This has resulted in a list with all parcels and the corresponding buildings placed on this parcel. Republiq has joined this list on parcel-ID with the result from Kadaster to obtain the buildings that are placed on the parcels in ownership of healthcare institutions. 3. Republiq has combined the results from the match on VBO-id and the spatial match to obtain a list with all parcels and corresponding addresses. If several healthcare institutions have rights for the same parcel, Republiq has let the right of ownership prevail over other rights. The result of this step has been an overview of 57,508 unique addresses with the corresponding institution. *Request to three network operators* Due to privacy reasons it is not allowed to provide energy consumption data for individual buildings. It is allowed to provide these for cluster of buildings (10 to 15 buildings). Republiq therefore has made clusters of the buildings, taking into account the owner of the buildings and the type of building. Where possible, clusters consisted only of buildings of the same owner. Clusters were made as followed: 1. The network operator has been assigned to the buildings. This was done on the basis of address details and the area division of the operators (see: https://data.overheid.nl/dataset/gebiedsbedrijven-netbeheers-elektriciteit--gas-en-water). Republiq only has requested energy consumption data from the three largest network operators (Enexis, Liander and Stedin). Together they provide approximately 95% of the buildings with energy data. For buildings that fall in an area of another operator Republiq has made an estimate of the energy consumption. 2. The request for energy consumption data was at the level of unique addresses. Republiq therefore has grouped the data by zip code, house number, and house number addition. The number of unique addresses has been counted per institution. 3. Republiq has made clusters of at least 15 addresses. Where possible, they have created multiple clusters per institution. 4. Republiq has created joint clusters for healthcare institutions with fewer than 15 unique addresses. They have calculated the average surface area of the buildings per institution. Then they have created clusters of at least 15 buildings, in which the buildings of healthcare institutions with a comparable surface area ended up in the same cluster. Approximately 40% of the healthcare institutions have been part of a joint cluster. Which is approximately 10% of the buildings. Surfaces are calculated according to BAG. *Processing consumption data* From the network operators Republiq has received per cluster the standard annual energy consumption (in Dutch standaard jaarverbruik (SJV)). They have divided this by the average surface of buildings from a cluster to obtain energy consumption data per m^2. The energy consumption data per m^2 has been assigned to the individual buildings belonging to a cluster. Next, Republiq has performed a check on outliers. When the electricity consumption of an establishment was higher than 200 kWh per m^2 or lower than 5 kWh per m^2, they have marked this as unreliable and have replaced this value with an estimated

	value. When the gas consumption of an establishment has been higher than 100 m^3 per m^2, they have marked this as unreliable and have replaced this value with an estimated value. *Estimate missing consumption data* Republiq has used the actual consumption data to calculate an average value for electricity usage and gas usage. This has been done per year for different classes of building years and surfaces. For the buildings with missing consumption data an estimation for gas and electricity has been assigned on the basis of the building period and surface class. *Overview per healthcare institution* For each healthcare institution we group the following measures: - Total surface of buildings (m^2) - Total gas consumption (in Nm^3) - Average gas consumption (in Nm^3 per m^2)
Limitations	It is not possible to assign actual consumption data to every building. For the buildings where this is not possible, Republiq has made an estimation of the consumption data.
SDG	SDG 7.3
Data quality estimate	*3.* Due to privacy reasons, it is not allowed to provide energy consumption data for individual buildings. It is allowed to provide these for cluster of buildings (10 to 15 buildings). Where possible, clusters consisted only of buildings of the same owner. If this was not possible, buildings of different owners have been clustered. For the buildings with missing consumption data an estimation for gas and electricity has been assigned on the basis of the building period and surface class. Because the actual building energy consumption had to be clustered and in some cases for the buildings with missing data an estimation was made the data quality score is 3.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Energy consumption healthcare institutions
Data files	Original files (datafiles received from Republiq): 1. Energieverbruik zorginstellingen 2018-2020-2021.xlsx 4.Energieverbruik zorginstellingen 2021.xlsx
Data Source	Republiq
Year	2020-2021
Last update	Not applicable
Date of download	21-9-2022
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Original files: Klantgroepen\Zorginstellingen\SDG_7_Elektriciteitsverbruik\Ruwe data
Data quality estimate	3 Due to privacy reasons it is not allowed to provide energy consumption data for individual buildings. It is allowed to provide these for cluster of buildings (10 to 15 buildings). Where possible, clusters consisted only of buildings of the same owner. If

	this was not possible, buildings of different owners have been clustered. For the buildings with missing consumption data an estimation for gas and electricity has been assigned on the basis of the building period and surface class. Because the actual building energy consumption had to be clustered and in some cases for the buildings with missing data an estimation was made the data quality score is 3.
Unit of measurement	Natural gas use in Nm^3 Electricity use in kWh
Selections	Republiq has delivered the data at the level of the healthcare institutions so no selection was necessary
Data transformation	Republiq delivered the data at the level of the healthcare institutions so no transformation was necessary
Data missing	2021: Data is missing for 18 healthcare organizations
Print screens	In folder: Klantgroepen\Zorginstellingen\SDG_7_Elektriciteitsverbruik\Printscreens\20220921 downloaden van Republiq data zorginstellingen.png

Topic	Description
Data	Healthcare institutions
Data file	Internal location Republiq
Data Source	NWB Bank
Year	2021
Last update	22-11-2021
Date of download	22-11-2021
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Internal location Republiq
Data quality estimate	2 - Non-audited data, or other primary data
Unit of measurement	Not applicable
Selections	Not applicable
Data missing	Not applicable
Print Screens	Internal location Republiq

Topic	Description
Data	Cadastral parcels in ownership of healthcare institutions
Data file	Internal location Republiq
Data Source	Kadaster
Year	2021
Last update	09-12-2021
Date of download	09-12-2021
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Internal location Republiq
Data quality estimate	2 - Non-audited data, or other primary data
Unit of measurement	Not applicable
Selections	Not applicable
Data missing	Not applicable
Print Screens	Internal location Republiq

Topic	Description
Data	Energy consumption (Enexis)
Data file	Internal location Republiq
Data Source	Enexis
Year	2021
Last update	23-12-2021
Date of download	23-12-2021
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Internal location Republiq
Data quality estimate	3 - Average data that is peer/(sub)sector-specific
Unit of measurement	m^3 for gas
Selections	Not applicable
Data missing	For some clusters we did not receive consumption data. This can have several causes: Enexis could not find an address (this is most often the case for addresses with an add-on. For example house number 1-A) The address is assigned to a connection for large consumption (grootverbruik). Net operators are not allowed to share this data.
Print Screens	Internal location Republiq

Topic	Description
Data	Energy consumption (Liander)
Data file	Internal location Republiq
Data Source	Liander
Year	2022
Last update	12-01-2022
Date of download	12-01-2022
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Internal location Republiq
Data quality estimate	3 - Average data that is peer/(sub)sector-specific
Unit of measurement	Nm^3 for gas
Selections	Not applicable
Data missing	For some clusters we did not receive consumption data. This can have several causes: Liander could not find an address (this is most often the case for addresses with an add-on. For example house number 1-A) The address is assigned to a connection for large consumption (grootverbruik). Net operators are not allowed to share this data.
Print Screens	Internal location Republiq

Topic	Description
Data	Energy consumption (Stedin)
Data file	Internal location Republiq
Data Source	Stedin
Year	2022
Last update	14-01-2022
Date of download	14-01-2022
Link to webpage	Not applicable

Filters used to obtain the datafile	Not applicable
Internal location	Internal location Republiq
Data quality estimate	3 - Average data that is peer/(sub)sector-specific
Unit of measurement	m^3 for gas
Selections	Not applicable
Data missing	For some clusters we did not receive consumption data. This can have several causes: Stedin could not find an address (this is most often the case for addresses with an add-on. For example house number 1-A) The address is assigned to a connection for large consumption (grootverbruik). Net operators are not allowed to share this data.
Print Screens	Internal location Republiq

Topic	Description
Data	Values for gas and electricity (used for estimation)
Data file	Bijlage 1 – Kengetallen energieverbruik
Data Source	Republiq
Year	2022
Last update	18-1-2022
Date of download	18-01-2022
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Internal location Republiq
Data quality estimate	3 - Average data that is peer/(sub)sector-specific
Unit of measurement	m^3 for gas
Selections	Not applicable
Data missing	Not applicable
Print Screens	Internal location Republiq

List of the calculation sheets	Location
Energiedata NWB Bank.csv Lening NWB Bank met jaartallen.csv	Klantgroepen\Zorginstellingen\SDG_7_Gasverbruik\Brondata voor SQL
PCAF_zorg_NWB	Klantgroepen\Zorginstellingen\ SDG_7_Gasverbruik\Database en scripts voor SQL
20221222 script voor koppeling energiedata aan leningportefeuille.sql	Klantgroepen\Zorginstellingen\ SDG_7_Gasverbruik\Database en scripts voor SQL
NWB elektraverbruik en gasverbruik 2021.xlsx	Klantgroepen\Zorginstellingen\ SDG_7_Gasverbruik\Bestanden uit SQL

8.2.3 GHG emissions per healthcare institution

Topic	Description
Data	Energy consumption data from healthcare institutions are obtained from three largest network operators in the Netherlands (Enexis, Liander and Stedin). Data of the total balance sheet per healthcare institute per year, are coming from their own annual reports. Geographically based annual averages (provinces/NUTS2) for commuting distance data is coming from the Dutch Central Bureau of Statistics (CBS). Just as

	the Geographically based annual averages (provinces/NUTS2) for business travel distance and distance travelled per means of transportation data.
Calculation steps	Scope 1 emissions are the direct GHG emissions of the organizations. For healthcare organizations, these emissions result from the use of natural gas for heating of buildings, or for disinfection of medical tools. Scope 2 emissions include the indirect GHG emissions from the generation of purchased or acquired electricity, steam, heating or cooling consumed by the healthcare institution. Because steam, heating or cooling use per healthcare institution is unknown, scope 2 will be based on the emissions from purchased electricity. Energy consumption data was received from three largest network operators in the Netherlands based on cadastral parcels owned by healthcare institutions. The following steps has been performed by Republiq: 1. Inventory of all healthcare institutions; 2. Inventory of all cadastral parcels owned by healthcare institutions; 3. Inventory of all buildings owned by healthcare institutions; 4. Request to three network operators; 5. Processing consumption data; 6. Estimate missing consumption data; 7. Creating the overview of consumption data per healthcare institution. *Inventory of all healthcare institutions* NWB Bank has provided an overview of healthcare institutions from its portfolio at 31-12-2021. *Inventory of all cadastral parcels owned by healthcare institutions* Republiq has inventoried the properties of the healthcare institutions via Kadaster. Kadaster has provided an overview of the cadastral parcels and associated rights for each institution. *Inventory of all buildings owned by healthcare institutions* In this step Republiq has looked for the buildings on the cadastral parcels from step 2. First, Republiq has matched the results from Kadaster with BAG (Basisregistratie Adressen en Gebouwen). Then, they have looked at whether they could link additional buildings by performing a spatial match. 1. For part of the parcels Kadaster provided an VBO-id (verblijfsobject-ID). This VBO-id is an unique ID for the building or buildings that are placed on the parcel. Republiq has joined the set from Kadaster with the BAG on VBO-id to find the corresponding addresses. 2. Republiq has performed a spatial match by combining a shapefile of cadastral parcels with a shapefile of all buildings in the Netherlands. This has resulted in a list with all parcels and the corresponding buildings placed on this parcel. Republiq has joined this list on parcel-ID with the result from Kadaster to obtain the buildings that are placed on the parcels in ownership of healthcare institutions. . Republiq has combined the results from the match on VBO-id and the spatial match to obtain a list with all parcels and corresponding addresses. If several healthcare institutions have rights for the same parcel, Republiq has let the right of ownership prevail over other rights. The result of this step has been an overview of 57,508 unique addresses with the corresponding institution. *Request to three network operators* Due to privacy reasons it is not allowed to provide energy consumption data for individual buildings. It is allowed to provide these for cluster of buildings (10 to 15 buildings). Republiq therefore has made clusters of the buildings, taking into account the owner of the buildings and the type of building. Where possible, clusters consisted only of buildings of the same owner. Clusters were made as followed:

	1. The network operator has been assigned to the buildings. This was done on the basis of address details and the area division of the operators (see: https://data.overheid.nl/dataset/gebiedsbedrijven-netbeheers-elektriciteit--gas-en-water). Republiq only has requested energy consumption data from the three largest network operators (Enexis, Liander and Stedin). Together they provide approximately 95% of the buildings with energy data. For buildings that fall in an area of another operator Republiq has made an estimate of the energy consumption. 2. The request for energy consumption data was at the level of unique addresses. Republiq therefore has grouped the data by zip code, house number, and house number addition. The number of unique addresses has been counted per institution. 3. Republiq has made clusters of at least 15 addresses. Where possible, they have created multiple clusters per institution. 4. Republiq has created joint clusters for healthcare institutions with fewer than 15 unique addresses. They have calculated the average surface area of the buildings per institution. Then they have created clusters of at least 15 buildings, in which the buildings of healthcare institutions with a comparable surface area ended up in the same cluster. Approximately 40% of the healthcare institutions have been part of a joint cluster. Which is approximately 10% of the buildings. Surfaces are calculated according to BAG. *Processing consumption data* From the network operators Republiq has received per cluster the standard annual energy consumption (in Dutch standaard jaarverbruik (SJV)). They have divided this by the average surface of buildings from a cluster to obtain energy consumption data per m^2. The energy consumption data per m^2 has been assigned to the individual buildings belonging to a cluster. Next, Republiq has performed a check on outliers. When the electricity consumption of an establishment was higher than 200 kWh per m^2 or lower than 5 kWh per m^2, they have marked this as unreliable and have replaced this value with an estimated value. When the gas consumption of an establishment has been higher than 100 m^3 per m^2, they have marked this as unreliable and have replaced this value with an estimated value. *Estimate missing consumption data* Republiq has used the actual consumption data to calculate an average value for electricity usage and gas usage. This has been done per year for different classes of building years and surfaces. For the buildings with missing consumption data an estimation for gas and electricity has been assigned on the basis of the building period and surface class. *Overview per healthcare institution* For each healthcare institution Republiq has grouped the following measures: - Total electricity consumption (in kWh) - Total gas consumption (in Nm^3) The total electricity consumption per healthcare institution has been converted into kg CO_2 equivalent using the emission factor for electricity from unknown sources (0.405 kg CO_2-eq / kWh) and natural gas use (1.785 kg CO_2-eq /Nm^3). The amount of GHG emissions has been divided by the factor 1000, to result in ton GHG emissions for scope 1 and 2. **Scope 3** Scope 3 should cover all other indirect emissions (not included in Scope 2). In this report, scope 3 is incomplete and only emissions from employee commuting has been included in the calculations. From the datasets of the Ministry of Health, Welfare and Sport available for 2021 the number of employees in FTE were used for the calculations.

	According to the average distance a person travels per year by bus/tram/metro, train, bike, car as driver, car as passenger, foot, and other mode of transport (7 travel types), the percentage of travelling per travel type has been calculated. The average distance a person travels per year is available at province level (CBS statline). The average distance a person travels per year from and to work and for business is assigned to the healthcare institution based on the province in which the institution is located. For every type of transport (except for other mode of transport), the number of employees in fulltime-equivalent (FTE) has been multiplied by the average distance a person travels per year for work and by percentage of transport type to come to the number of kilometer travelled per year with the travel types (except for other mode of transport). Afterwards, the kilometers per year per travel type has been multiplied by the corresponding emission factor resulting in kilogram GHG for each travel type. For car as driver and car as passenger the total kilometer travelled per year has been first divided by 1.39 (Conversion factor for travel kilometers to vehicle kilometers (the average occupancy rate of cars is 1.39 per car) (www.CO2emissiefactoren.nl, 2021) and then this has been multiplied by the corresponding emission factor resulting in kilogram GHG (0.163 kg CO_2/vehicle kilometer). The kilogram GHG for each travel type has been added up to result in scope 3. The amount of GHG emissions has been divided by the factor 1000, to result in ton GHG emissions for scope 3. The following emission factors have been used: - Bus /Tram/Metro: 0.052 kg CO_2-eq / passenger kilometer for the year 2021; - Train (unknown type): 0.002 kg CO_2-eq / passenger kilometer for the year 2021; - Car (average type, weight class medium heavy, fuel mix 79.3% petrol, 15.8% diesel, 1.5% lpg, 3.0% petrol-hybrid, 0.2% electric): 0.163 kg CO_2-eq / vehicle kilometer for the year 2021.
Limitations	It is not possible to assign actual consumption data to every building. For the buildings where this is not possible, Republiq has made an estimation of the consumption data. Ideally, emissions from other sources in the primary process of healthcare organizations should be taken into account as well. For example emissions of other gasses from ambulances and trauma helicopters used for medical procedures. Unfortunately, the data provided on these issues is insufficient to be able to make reliable estimations. Therefore, only natural gas use is taken into consideration under scope 1. Scope 3 should cover all other indirect emissions (not included in Scope 2). Only a small part of scope 3 is covered for the healthcare institutions. The part that is covered is based on proxy data and therefore data quality is poor. In the calculation of scope 3, the number of employees (in FTE) has a major impact on the results. The used mobility data from CBS is based on people that work 30 hours per week or more. It was not possible to choose a working week of 40 hours. So this selection of people is larger than the group of people that works between 36 and 40 hours per week (1 FTE). These mentioned factors have an effect on the data quality.
SDG	SDG 13
Data quality estimate	*Scope 1 and 2: data quality score 3.* The GHG emissions are based as much as possible on actual building energy consumption. However, due to privacy reasons it is not allowed to provide energy consumption data for individual buildings. It is allowed to provide these for cluster of buildings (10 to 15 buildings). Where possible, clusters consisted only of buildings of the same owner. If this was not possible, buildings of different owners have been clustered. For the buildings with missing consumption data an estimation for gas and electricity has been assigned on the basis of the building period and surface class. Because the actual building energy consumption had to be clustered and in some cases for the buildings with missing data an estimation was made the data quality score is 3.

	Scope 3: data quality score 5. The GHG emissions are calculated based on average car information. Make, model, and type are unknown and distance traveled is based on local or regional statistical data. Therefore, data quality score is 5. See option 3b in Table 5-16 on page 106 of the report Financed Emissions, The global GHG accounting & reporting standard Part A.[21]

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Energy consumption healthcare institutions
Data files	Original files (datafiles received from Republiq): 1.Energieverbruik zorginstellingen 2018-2020-2021.xlsx 3.Energieverbruik zorginstellingen 2020.xlsx 4.Energieverbruik zorginstellingen 2021.xlsx Edited files: 20221221 toewerk bestand aardgasverbruik en elektriciteitsverbruik naar totaal bestand voor SQL NWB Bank.xlsx
Data Source	Republiq
Year	2020-2021
Last update	Not applicable
Date of download	21-9-2022
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Original files: Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Ruwe data Edited file: Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Voorbewerking data
Data quality estimate	3 The GHG emissions are based as much as possible on actual building energy consumption. However, due to privacy reasons it is not allowed to provide energy consumption data for individual buildings. It is allowed to provide these for cluster of buildings (10 to 15 buildings). Where possible, clusters consisted only of buildings of the same owner. If this was not possible, buildings of different owners have been clustered. For the buildings with missing consumption data an estimation for gas and electricity has been assigned on the basis of the building period and surface class. Because the actual building energy consumption had to be clustered and in some cases for the buildings with missing data an estimation was made the data quality score is 3.
Unit of measurement	Natural gas use in Nm^3 Electricity use in kWh
Selections	Republiq has delivered the data at the level of the healthcare institutions so no selection was necessary
Data transformation	Republiq delivered the data at the level of the healthcare institutions so no transformation was necessary

[21] https://carbonaccountingfinancials.com/standard. PCAF(2022). Financed Emissions, The global GHG accounting & reporting standard Part A.

Data missing	For the years 2020 and 2021 the following number of healthcare institutions are missing in the final results of GHG emissions: 2020: 22 from the 197 healthcare institutions in the loan portfolio of 31-12-2021. 2021: 18 from the 197 healthcare institutions in the loan portfolio of 31-12-2021.
Print screens	In folder: Klantgroepen\Zorginstellingen\SDG_11_CO2emissies zorginstellingen \Printscreens\20220921 downloaden van Republiq data zorginstellingen.png

Topic	Description
Data	Concern codes and KvK data per healthcare institution
Data files	Original files: DigiMV2021_dataset_20220715_1600.xlsx DigiMV2020_prd_202111213_1200.xlsx DigiMV2019_20210816_concernbreed_deel1.xlsx DigiMV2018_20210816_concernbreed_deel1.xlsx x7conc_total_VOLLEDIG.xlsx. Edited file: 20220725 concerncodes en kvknummers This datafile shows which healthcare institution is located in which municipality. This data is needed to know in which province the healthcare institution is located to know the average distance a person travels per year from and to work and for business. We used data from 2017 up to and including 2021 to have a complete dataset.
Data Source	CIBG; Ministerie van Volksgezondheid Welzijn en Sport
Year	2017 up to and including 2021
Last update	Unknown
Date of download	Several dates in July 2022
Link to webpage	https://www.jaarverantwoordingzorg.nl/gegevens-bekijken/verantwoordingsgegevens-per-verslagjaar-datasets
Filters used to obtain the datafile	Not applicable
Internal location	Original datafiles: Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Ruwe data Edited datafile: Klantgroepen\Zorginstellingen\ SDG_13_CO2 impact\Voorbewerking data
Data quality estimate	2 Data is acquired by CIBG from individual annual reports of healthcare organizations. The source data in the annual report is audited, the composite dataset of CIBG is not.
Unit of measurement	Not applicable
Selections	Not applicable
Data transformation	Not applicable
Data missing	Not applicable
Print screens	In folder: Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Printscreens\Download locatie datasets ministerie Volksgezondheid, Welzijn en Sport.png

Topic	Description
Data	Villages and cities overview in the Netherlands
Data file	Woonplaatsen _in_Nederland_2021_25072022_103720.xlsx
Data Source	CBS, Statline
Year	2021
Last update	1-4-2021
Date of download	25-7-2022

Link to webpage	https://opendata.cbs.nl/statline/#/CBS/nl/dataset/84992NED/table
Filters used to obtain the datafile	Woonplaatsen: Woonplaatsen op alfabet Onderwerp: gemeentenaam, gemeentecode, provincienaam, provinciecode
Internal location	Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Ruwe data
Data quality estimate	1
Unit of measurement	Not applicable
Selections	Not applicable
Data transformation	Not applicable
Data missing	Not applicable
Print screens	In folder: Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Printscreens\woonplaatsen nederland 2021 v1.png t/m woonplaatsen nederland 2021 v10.png

Topic	Description
Data	Average mobility per person per year (part 1: data on province level)
Data file	Original file: Mobiliteit_per_persoon_persoonskenmerken_en-regio_s_11072022_133129.xlsx Sheet: Mobiliteit_per_persoon_persoo Edited file: 20220711 totaal afstanden per provincie.xlsx
Data Source	CBS, Statline
Year	2018-2019-2020-2021 For this report, data of the years 2020 and 2021 has been used. In case data of a particular year was missing, data of the previous year was used when available.
Last update	8-7-2022
Date of download	11-7-2022
Link to webpage	https://opendata.cbs.nl/statline/#/CBS/nl/dataset/84713NED/table?ts=1603811773192
Filters used to obtain the datafile	Populatie: 12 jaar of ouder Marge: waarde Regio's: provincies Reismotieven: van en naar het werk & zakelijk, beroepsmatig Persoonskenmerken: participatie: werkzaam 30 uur pw of meer Geslacht: totaal mannen en vrouwen Onderwerp: gemiddeld per persoon per jaar / afstand Perioden: 2018-2021
Internal location	Original file: Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Ruwe data Edited file: Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Voorbewerking data
Data quality estimate	3 With sample surveys, such as the ODiN, information is collected from only part of the population. The estimated results based on the sample data are generally not equal to the actual values and therefore have margins of inaccuracy. For more information, see https://www.cbs.nl/nl-nl/onze-diensten/methoden/onderzoeksomschrijvingen/korte-onderzoeksbeschrijvingen/onderweg-in-nederland
Unit of measurement	km
Selections	Not applicable
Data transformation	Some data was missing. See for the transformation Data missing
Data missing	For some provinces data was missing. If possible the missing data was filled with data from another year for that province. If data from another year was not available the missing values were filled with data from a larger region of the Netherlands from data file

	Mobiliteit_per_persoon_persoonskenmerken_motieven_en_regio_s _11072022_133807.xlsx E.g.: the data for province of Zeeland was missing, therefore data of West-Nederland was used. These adjustments are shown in the data file: Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Voorbewerking data\20220711 totaal afstanden per provincie.xlsx sheet "invullen van missende data" and "data per provincie".
Print screens	In folder: Klantgroepen\Zorginstellingen\SDG_13 impact\Printscreens\20220711 mobiliteit_per_persoon_afstand_perjaar_provincie.png

Topic	Description
Data	Average mobility per person per year (part 2: data on level of a region larger than province)
Data file	Original file: Mobiliteit_per_persoon_persoonskenmerken_motieven_en_regio_s _11072022_133807.xlsx Sheet: Mobiliteit_per_persoon_persoo Edited file: 20220711 totaal afstanden per provincie.xlsx
Data Source	CBS, Statline
Year	2018-2019-2020-2021 For this report, data of the years 2020 and 2021 has been used. In case data of a particular year was missing, data of the previous year was used when available.
Last update	8-7-2022
Date of download	11-7-2022
Link to webpage	https://opendata.cbs.nl/statline/#/CBS/nl/dataset/84713NED/table?ts=1603811773192
Filters used to obtain the datafile	Populatie: 12 jaar of ouder Marge: waarde Regio's: landsdelen: Noord-Nederland, Oost-Nederland, West-Nederland en Zuid-Nederland Reismotieven: van en naar het werk & zakelijk, beroepsmatig Persoonskenmerken: participatie: werkzaam 30 uur pw of meer Geslacht: totaal mannen en vrouwen Onderwerp: gemiddeld per persoon per jaar / afstand Perioden: 2018-2021
Internal location	Original file: Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Ruwe data Edited file: Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Voorbewerking data
Data quality estimate	3 With sample surveys, such as the ODiN, information is collected from only part of the population. The estimated results based on the sample data are generally not equal to the actual values and therefore have margins of inaccuracy. For more information, see https://www.cbs.nl/nl-nl/onze-diensten/methoden/onderzoeksomschrijvingen/korte-onderzoeksbeschrijvingen/onderweg-in-nederland
Unit of measurement	km
Selections	Not applicable
Data transformation	Not applicable
Data missing	Data in this file was used to fill up the missing values in data file: Mobiliteit_per_persoon_persoonskenmerken_en-regio_s _11072022_133129.xlsx Sheet: Mobiliteit_per_persoon_persoo

Print screens	In folder: Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Printscreens\20220711 mobiliteit_per_persoon_afstand_perjaar_landsdelen.png

Topic	Description
Data	Transportation methods used per person per province
Data file	Mobiliteit_per_persoon_persoonskenmerken_vervoerwijzen_en_regio_s _18072022_120958 gewijzigd 20-2-2023.xlsx Sheet: Mobiliteit_per_persoon_persoo
Data Source	CBS, Statline
Year	2018-2019-2020-2021 For this report the years 2020 and 2021 have been used.
Last update	8-7-2022
Date of download	18-7-2022
Link to webpage	https://opendata.cbs.nl/statline/#/CBS/nl/dataset/84709NED/ table?ts=1603813016233
Filters used to obtain the datafile	Populatie: 12 jaar of ouder Geslacht: totaal mannen en vrouwen Persoonskenmerken: werkzaam 30 uur pw of meer Vervoerswijzen: totaal / personenauto (bestuurder) / personenauto (passagier) / trein / bus-tram-metro / fiets / lopen / overige vervoerswijze Onderwerp: gemiddeld per persoon per jaar / afstand Periode: 2018 -2021 Marge: waarde Regio's: totalen / landsdelen / provincies / overig
Internal location	Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Ruwe data
Data quality estimate	3 With sample surveys, such as the ODiN, information is collected from only part of the population. The estimated results based on the sample data are generally not equal to the actual values and therefore have margins of inaccuracy. For more information, see https://www.cbs.nl/nl-nl/onze-diensten/methoden/onderzoeksomschrijvingen/korte-onderzoeksbeschrijvingen/onderweg-in-nederland
Unit of measurement	km
Selections	Not applicable
Data transformation	In the sheet "Mobiliteit_per_persoon_persoo" some data was missing for provinces. In sheet "data gebruikt voor berekeningen" the missing values for provinces was filled with data from a larger area than provinces or the value for the Netherlands.
Data missing	For the missing values the lowest possible available geographic scale level was used. E.g.: if the data for the province of Groningen is missing, than the data for Noord-Nederland (LD) was used. If that data was not available too, the data for the whole Netherlands was used. The transformed data is in sheet: "Data gebruikt voor berekeningen".
Print screens	In folder: Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Printscreens\20220718 mobiliteit vervoerswijzen afstand per persoon per jaar v1.png t/m v3.png

Topic	Description
Data	FTE per healthcare institution
Data files	Original files: DigiMV2020_prd_202111213_1200.xlsx sheet: rowdata DigiMV2021_dataset_20220715_1600.xlsx sheet: rowdata Edited datafiles:

	20220707 FTE zorginstellingen 2020.xlsx 20220729 FTE zorginstellingen 2021.xlsx
Data Source	CIBG; Ministerie van Volksgezondheid Welzijn en Sport
Year	2020-2021
Last update	Unknown
Date of download	July 2022
Link to webpage	https://www.jaarverantwoordingzorg.nl/gegevens-bekijken/verantwoordingsgegevens-per-verslagjaar-datasets
Filters used to obtain the datafile	Not applicable
Internal location	Original files: Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Ruwe data Edited files: Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Voorbewerking data
Data quality	2 Data is acquired by CIBG from individual annual reports of healthcare organizations. The source data in the annual report is audited, the composite dataset of CIBG is not.
Unit of measurement	FTE
Selections	Not applicable
Data transformation	Sum of personnel in paid employment, self-employed persons and hired staff.
Data missing	Not applicable
Print screens	In folder: Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\ Printscreens\Download locatie datasets ministerie Volksgezondheid, Welzijn en Sport.png

List of the calculation sheets	Location
20220729 zorginstellingen.csv Emissiefactoren_totaaloverzicht.csv Energiedata NWB Bank.csv FTE zorginstellingen met jaartallen gewijzigd 20-2-2023.csv Jaarkilometers per persoon met jaartallen.csv Lening NWB Bank met jaartallen.csv Voertuiginformatie algemeen met jaartallen gewijzigd 20-2-2023.csv Woonplaatsen nederland 2021.csv	Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Brondata voor SQL
PCAF_zorg_NWB	Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Database en scripts SQL
PCAF_zorg_def_script data republiq NWB Bank 2020.sql PCAF_zorg_def_script data republiq NWB Bank 2021.sql	Klantgroepen\Zorginstellingen\SDG_13_CO2 impact \Database en scripts SQL
TotaaloverzichttonCO2_zorg_2020.csv TotaaloverzichttonCO2_zorg_2021.csv	Klantgroepen\Zorginstellingen\SDG_13_CO2 impact\Bestanden uit SQL

9 Projects – Renewable Energy

9.1 General factsheet

Topic	Description
Portfolio covered	100 % of NWB Bank's portfolio is covered for this customer group. This percentage is an indication of the completeness of the dataset. It is calculated by looking at the collected data for the customers in the loan portfolio of NWB Bank. The percentage is lower than 100% percent if there are missing data. The missing data are either not available or it was not possible to collect or calculate these data correctly.
Indicators	- Total renewable energy
Limitations	None.

9.2 Factsheet per data source used per indicator

9.2.1 Total renewable energy

Topic	Description
Data	Data on actual energy production in 2021 has been obtained from NWB Bank.
Calculation steps	Not applicable
Limitations	Not applicable
SDG	7
Data quality estimate	Data has been obtained from the windfarms themselves, but the data is not audited. Therefore, data quality score is 2.

Score	Quality requirement
1	Audited data or actual primary data
2	Non-audited data, or other primary data
3	Average data that is peer/(sub)sector-specific
4	Proxy data on the basis of region or country
5	Estimated data with very limited support

Topic	Description
Data	Energy production
Data file	Email with name: Data windparken tbv berekenen vermeden emissies NWB
Data Source	NWB Bank
Year	2021
Last update	Not applicable
Date of download	Not applicalbe
Link to webpage	Not applicable
Filters used to obtain the datafile	Not applicable
Internal location	Klantgroepen\Projecten\SDG_7_Hernieuwbare energie

Data quality estimate	2 Data is not audited, but data comes from the wind farms themselves.
Unit of measurement	Energy production: kWh
Selections	Not applicable
Data missing	Not applicable
Print Screens	Not applicable

List of the calculation sheets	Location
NWB werkelijke productie windenergie 2021 nulmeting.xlsx	Klantgroepen\Projecten\SDG_7_Hernieuwbare energie

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About Het PON & Telos

Improving social decision-making

Het PON & Telos is a social knowledge organization at the heart of society. We consider it our mission to improve social decision-making. We do this by linking scientific knowledge to practical knowledge. In this process every voice counts! We collect, investigate, analyze, and interpret opinions and facts using stimulating approaches and innovative methods. In doing so, we are always focused on sustainable development: the harmonious connection between social, environmental and economic objectives. In this way we contribute to the quality of society at large, now and in the future.

With a multidisciplinary and creative team of nearly 30 research consultants, we work mainly for local and regional authorities in the Netherlands, but also for corporate bodies, banks, care and welfare institutions, funds, and social organizations. We work closely with civic organizations and other knowledge institutions and are an official partner of Tilburg University. We use our knowledge and insights to advise initiators, policy-makers and managers. This enables them to make informed choices and give a positive impulse to the society of tomorrow.

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