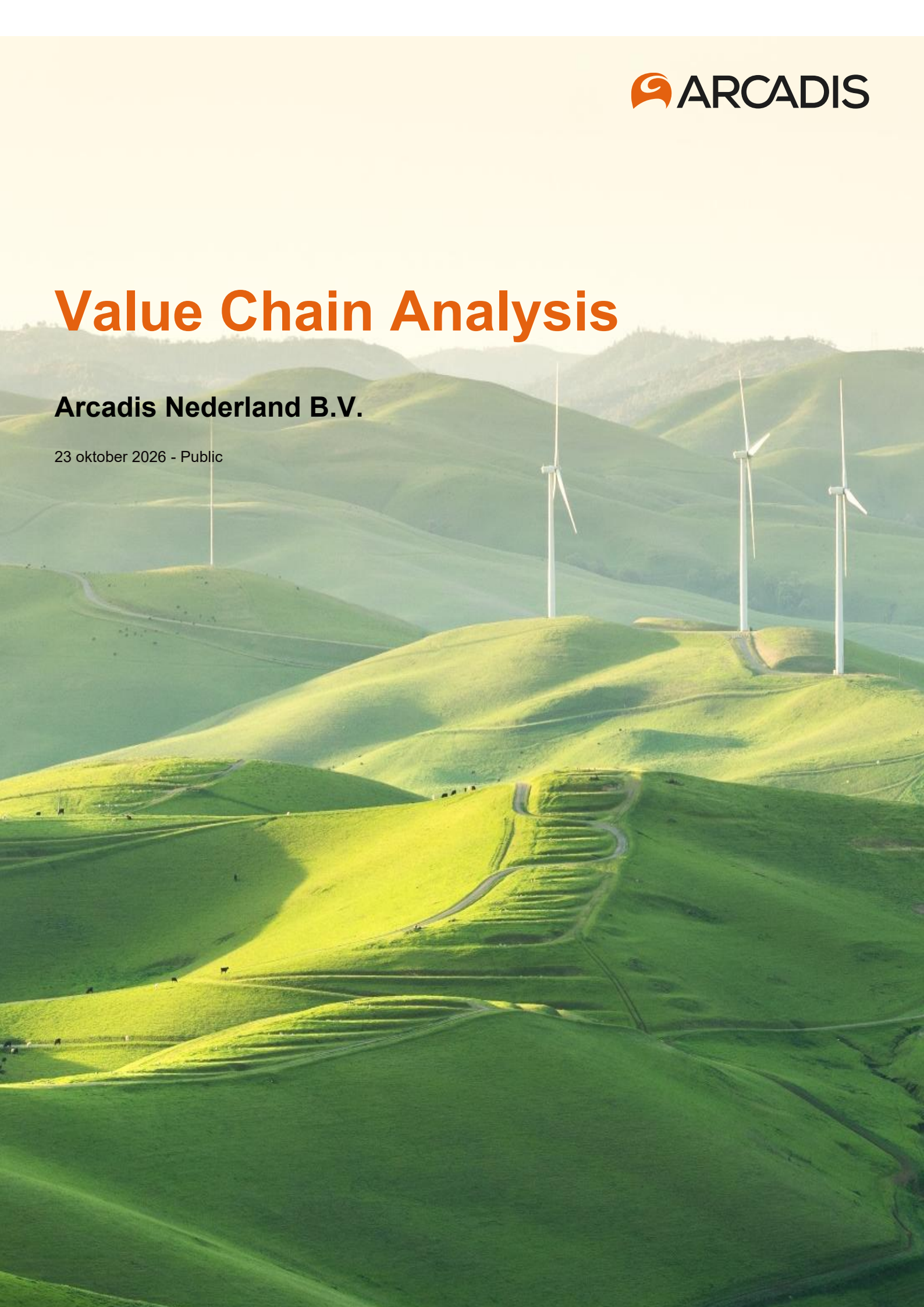
Value Chain Analysis

Arcadis Nederland B.V.

23 oktober 2026 - Public



ARCADIS NEDERLAND B.V.

Arcadis Nederland B.V.
Postbus 220
3800 AE Amersfoort
Nederland

Index

1 Summary 4

2 Introduction 6

2.1 Arcadis and its value chain 6

2.2 Why a value chain analysis 6

2.3 Reading guide 6

3 Value chain analysis 7

3.1 Step 1: Direct relations 7

3.2 Step 2: Mapping 8

3.2.1 Arcadis Entities 8

3.2.2 Suppliers 8

3.2.3 Customer 9

3.3 Step 3: Allocation 11

3.4 Step 4: Analysis 12

3.4.1 Suppliers 12

3.4.2 Customers 12

3.4.3 Collaboration 14

3.5 Step 5: Reduction 14

3.5.1.1 Alphabet Lease 14

3.5.1.2 Magnit 16

3.5.2 Customers 17

3.5.2.1 ProRail 17

3.5.2.2 Rijkswaterstaat 18

3.5.2.3 TenneT 19

3.5.2.4 NAM 21

3.5.3 Feasibility 22

3.5.4 Conclusion 23

3.5.5 Discussion 23

Colofon 24

1 Summary

The primary objective of this value chain analysis is to gain a comprehensive understanding of all processes involved in delivering Arcadis' products and services—from sourcing raw materials to reaching end customers. This approach enables Arcadis to identify innovative solutions while highlighting the most significant environmental impacts. By mapping the value chain, Arcadis strengthens its competitive position and supports long-term strategic goals related to climate action and sustainability of itself and its relations.

In support of the CO_2 Performance Ladder and Arcadis' Climate Transition Plan (CTP), this analysis follows the steps outlined under section 3.A.5 of the ladder. It quantitatively and qualitatively allocates emissions across suppliers and customers, focusing on Scope 1 (direct emissions), Scope 2 (indirect emissions from purchased energy), Scope 3 (other indirect emissions from the value chain), and Other Influenceable Emissions (OIE). The analysis is designed to be dynamic, evolving as more data and reduction opportunities become available.

Arcadis' direct CO_2 emissions are relatively limited and predominantly linked to mobility, such as business travel. However, the indirect impact through the value chain—encompassing materials, transportation modes, construction, and deconstruction—far outweighs the firm's own footprint. This underscores the importance of including partners and stakeholders to drive system-wide change.

Supplier Analysis

Major suppliers analyzed include Alphabet, Antea Group, and Magnit Global Netherlands BN B.V. The analysis identifies that emissions from suppliers such as Alphabet are highly significant, especially in scope 3, which covers indirect emissions from purchased goods and services. Magnit Global contributes mostly through their scope 1; however, their scope 3 is currently limited to business travel only.

Customer Analysis

Key customers include ProRail, Rijkswaterstaat (RWS), NAM and TenneT. The analysis reveals that RWS, in particular, has extensive emissions resulting primarily from ship operations and from large-scale construction projects. RWS aims to reduce emissions by increasing biofuel use and electrifying fleets, but further breakthroughs could be achieved by adopting climate-positive infrastructure, such as carbon-storing road materials and modular bridges. ProRail and TenneT also show substantial emissions linked to operations and maintenance, with opportunities for reduction through sustainable procurement and innovative engineering. NAM does not provide any information on their emissions and therefore an indicative estimation generated with Copilot (AI) has been made, showing that large part of the emissions result from the combustion of the natural gas and oil that NAM produces (scope 3, use of sold products). Arcadis can mainly contribute through its work on decommissioning, remediation and environmental advice.

Allocation and Reduction Opportunities

Emissions are allocated to Arcadis based on a spend-based approach, estimating Arcadis' share of customer emissions proportionally to the revenue or costs associated with each relationship. This provides an initial but rough estimate, as actual impact may vary depending on the nature of services procured or delivered. The emissions of the suppliers allocated to Arcadis are estimated using the results from the Arcadis Global Hotspot analysis and the distribution of scope 1, 2, and 3 found in the companies' year reports.

The analysis identifies key reduction opportunities across Scope 1, 2, and 3, prioritizing the most impactful and feasible options. These include electrification of fleets, adoption of renewable energy, standardization of circular and climate-positive construction methods, and closer collaboration with suppliers and customers to accelerate decarbonization. Many of these initiatives target our relation's Scope 3, which generally result in OIEs for Arcadis as we might be able to contribute to significant reductions in the value chain by the advice we deliver, leading to avoided emissions. The most impactful relationships—such as Alphabet, Magnit Global, ProRail, RWS, and TenneT—are prioritized for joint action, while partners with low emissions or missing data are noted as areas for future improvement.

By engaging the entire value chain, Arcadis moves beyond traditional benchmarks of sustainable impact and enables its partners to reach shared climate goals. This holistic, collaborative approach allows Arcadis and its stakeholders to not only meet regulatory demands but also to innovate, reduce costs, and enhance resilience against climate risks. The ongoing assessment and updating of this analysis ensure that Arcadis remains at the forefront of sustainability in the

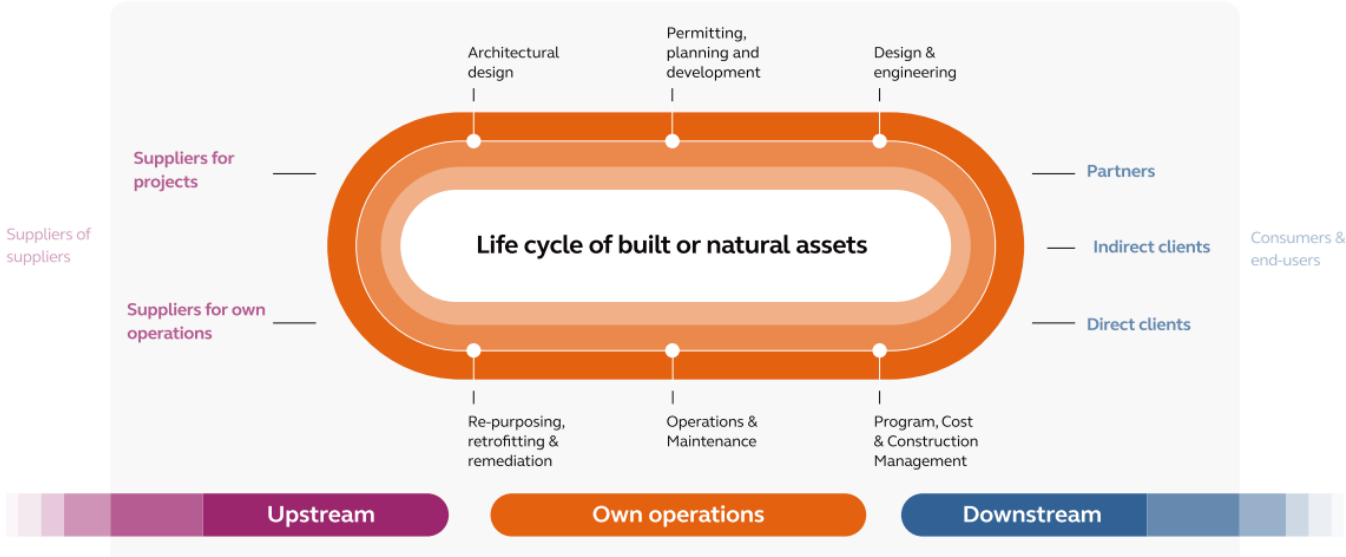
natural and built environment, driving meaningful change both within its own operations and across the broader value chain.

2 Introduction

2.1 Arcadis and its value chain

Arcadis Nederland BV (Arcadis) is a global design and consultancy firm specializing in the natural and built environment. Its services primarily focus on buildings, infrastructure, hydraulic engineering, and the environment, where it focuses on design, consultancy, engineering, project, and management services. In our projects we work in a value chain with many different partners; upstream, as well as downstream. The whole value chain has a much larger impact on sustainability (specifically CO_2-emissions) than Arcadis alone. Arcadis fulfills an advisory role, where our own emissions are relatively limited and largely composed of mobility emissions. Looking at the whole value chain, we have a much larger impact; materials being used in construction, means of transport being used and methods of construction, as well as deconstruction.

As part of our commitment to sustainability and in support of our CTP, we conduct the following value chain analysis to identify where the most significant CO_2 emissions occur and to understand how we, together with our partners, can reduce them. This analysis helps us assess not only our own impact, but also the energy and CO_2 targets of our partners. It allows us to move the boundaries of sustainable impact beyond its traditional benchmarks and support each other in reaching share climate goals.



2.2 Why a value chain analysis

This value chain analysis is based on the requirements of handbook 4.0 of the CO_2-performance ladder, where Arcadis is certified on level 3. A value chain analysis is conducted to gain a comprehensive understanding of all the steps and processes involved in delivering our products and services, from sourcing raw materials to reaching our end customers. By systematically mapping and evaluating each link in the chain, we can identify areas of inefficiency, potential cost savings, and opportunities for innovation. Importantly, the analysis also highlights where the most significant environmental impacts occur, such as greenhouse gas emissions or resource consumption. This holistic perspective not only strengthens our competitive position and resilience but also ensures we can meet stakeholder expectations, comply with evolving regulations, and make informed decisions that support our long-term strategic goals.

2.3 Reading guide

This analysis covers identification of direct relationships including both suppliers and customers (§3.1); a deeper look into the supply chain beyond our direct partners (§3.2); allocation calculations to determine Arcadis's share of emissions of the relation (§3.3); suggestions on emission reduction actions for suppliers and customers (§3.4); and, finally, an overview of comprehensive scope 1, 2, 3, and OIE reduction opportunities (§3.5).

3 Value chain analysis

This section focuses on value chain analysis as a tool for identifying and reducing emissions across business operations following the steps described under 3.A.5 of the CO_2 performance ladder. By examining the direct relationships with suppliers and customers, we allocate emissions to understand each stakeholder's contribution to our overall environmental footprint. This analysis pinpoints key areas for improvement and highlights opportunities for collaboration to implement sustainable practices. By engaging the entire value chain, we can effectively reduce emissions and promote environmental responsibility.

3.1 Step 1: Direct relations

Step 1 is to identify our direct relationships in the value chain, we first create an overview of our upstream relationships suppliers or other parties who directly receive payments from us estimating each party's share (as a percentage) of our total expenditures, excluding labor costs and taxes, so that together these parties account for at least 80% of our spending. Similarly, we create an overview of our downstream relationships, customers or other parties from whom we directly receive income estimating each party's share of our total revenues again covering at least 80% in total. For both overviews, we then select the top relationships that together represent at least 50% of the financial value; these are identified as our most important direct relationships. An overview of these companies and their relevance is provided in table 1.

Table 1: Direct relations overview: suppliers.

Supplier	Type of supplier	Organization activity
Arcadis Global B.V.	Arcadis supplier	Purchased goods & services
Antea Group	Engineering firm	Purchased goods & services (mobility, places, resilience)
Arcadis GEC B.V.	Arcadis Global Excellence Center supplier	Purchased goods & services
Arcadis N.V.	Arcadis supplier	Purchased goods & services
Alphabet	Lease cars	Fuel consumption lease cars, electricity consumption lease cars
Magnit Global Netherlands BN B.V.	Contract management	Purchased goods & services

Table 2: Direction relations overview: customers.

Customer	Type of customer	Organization activity
ProRail B.V.	Rail infrastructure	Commercial public transport
Rijkswaterstaat	Government organization	Capital goods
TenneT TSO B.V.	Grid infrastructure	Electricity distributor/upstream transportation and distribution
Nederlandse Aardolie Maatschappij B.V.	Government organization	Capital goods

3.2 Step 2: Mapping

In step 2 we further map our value chain to a high level, building on the Insights & Interactions (I&I) analysis from step 3.A.4-1. This mapping includes a description of the value chain, the relevant direct relationships identified earlier, and where possible, the suppliers, customers, and end users of these direct relationships. Additionally, we identify the main emission sources, the associated (production) processes, and our own sphere of influence within the value chain.

3.2.1 Arcadis Entities

Arcadis Netherlands is a leading consultancy and engineering firm specializing in sustainable solutions for the built and natural environment. Arcadis NL's activities range from design and engineering to project management, to the creation of digital solutions and environmental consultancy. Arcadis NL is part of a broader organizational structure resulting in various cashflows between branches. Specifically, Arcadis Global B.V., Arcadis GEC B.V., and Arcadis N.V. play an important role.

Arcadis Global B.V. acts as a central management and coordination hub for global operations, facilitating the roll-out of strategic initiatives and ensuring consistency across regions.

Arcadis GEC B.V. provides specialized technical, engineering and digital services to Arcadis offices worldwide, supporting project delivery with centralized expertise and digital tools.

Arcadis N.V. functions as the publicly listed parent company, responsible for overall governance, strategic direction, and group financial reporting.

In our organizational boundary analysis, a more detailed analysis was done on the operational control of the entities. While these internal branches have a significant financial impact on Arcadis Netherlands, their direct operational activities remain limited. Most of the correspondence between these parties pertains to management, support, digital services, and internal contracts rather than large-scale field activities or material-intensive construction. Consequently, we decide not to incorporate these parts of Arcadis in our value chain analysis as they do not produce significant CO_2 emissions within Arcadis Netherlands.

3.2.2 Suppliers

Antea Group is a global engineering and environmental consulting firm that provides sustainable solutions across various industries. Their services typically include environmental management, health and safety consulting, sustainability strategy, remediation, and risk assessment. They work with clients to develop tailored solutions that address specific challenges, often focusing on areas like water management, energy efficiency, waste reduction, and regulatory compliance. Arcadis and Antea collaborate on a variety of initiatives, leveraging both Antea's and Arcadis' competencies in multidisciplinary projects.

Antea is expected to work with various parties like software suppliers, technology and IT suppliers, environmental monitoring equipment and sensors, construction and material companies, office supplies and facilities services. The most evident emissions sources are expected to be datacenters, machinery use, and transportation of equipment. Production processes like manufacturing of hardware components, cement and concrete production, highly intensive machinery, and fossil-fuel-based electricity generation are processes where Antea Group can have influence by demanding CO_2-footprints of suppliers, selecting suppliers that use renewable energy, advising on sustainable alternatives for, among others, construction materials.

Examples of customers of Antea Group are Government Agencies, municipalities, private sector companies, utilities, real estate developers, industrial clients, NGOs, educational institutions. Emissions are most likely to come from public transportation, energy consumption and heating of public buildings, factories and production lines, transportation of goods, fossil-fuel-based electricity generation, water treatment and chemical manufacturing. Production processes around road construction, waste treatment, raw material processing, transport, smelting, energy use in buildings are processes where Antea Group can have influence by conducting energy audits, recommending and assisting in energy-efficient technologies, and advising on sustainable construction techniques.

Alphabet Lease is a division of Alphabet Inc. focused on providing business mobility solutions, specifically in vehicle leasing and fleet management. As part of the BMW Group, they offer services such as vehicle leasing, fleet management,

sustainability solutions, telematics, and technology. Alphabet Lease is currently the main supplier of lease vehicles for Arcadis and provides the aforementioned services.

Suppliers of Alphabet Lease are vehicle manufacturers, energy suppliers, maintenance and repair services and technology and telematics providers. Emissions come from production, logistics and material extraction, energy generation, waste generation, data centers, extraction, and refining fossil fuels. Related production processes include vehicle assembly, battery production for EVs (Electrical Vehicles), energy generation, maintenance and repairs, and development of telematics devices and software. Alphabet Lease can influence these processes by prioritizing greener production processes and requiring carbon footprints of suppliers, help expand the network of green charging stations, promoting the use of recycled parts, and partnering with providers that use low-energy data centers.

Customers of Alphabet Lease are mostly large corporations, SMEs (local retailers, service-based businesses), public sector organizations (municipal governments, healthcare providers), delivery and logistics companies, and individual entrepreneurs and professionals. Emissions mostly come from logistics, fuel combustion, delivery and service vehicles, and inefficient driving. Related production processes are healthcare logistics, logistic operations for transporting goods and services, and vehicle production. Alphabet Lease can help reduce emissions by collaborating with municipalities to introduce shared mobility options, driver training by promoting eco-driving techniques, and provide cost-effective leasing options for electric vehicles.

Magnit Global Netherlands BN B.V. provides contingent workforce management and staffing services, connecting organizations with temporary and external workers and the suppliers providing this workforce. Its activities include the sourcing and management of contingent workers, contract and payroll management, compliance management, and administrative support throughout the hiring process. Within Arcadis, Magnit has been selected as the service provider for hiring temporary employees and supports activities such as pre-engagement checks, administration, payroll management, contractor care and contract management.

Suppliers of Magnit Global Netherlands BN B.V. primarily include staffing agencies, recruitment companies, payroll and employment service providers, and other suppliers of contingent labor. Magnit operates a supplier network through which staffing suppliers gain access to client opportunities and uses a vendor-neutral model for managing these suppliers. As Magnit's core service is workforce management rather than the production of physical goods, relevant value-chain emissions are mainly associated with the activities required to supply and deploy workers. Potential emission sources therefore include commuting and business travel of contingent workers, energy use associated with office activities, and the operation of digital and administrative services. Magnit can potentially influence upstream emissions through supplier selection and engagement, for example by integrating environmental criteria into procurement and encouraging suppliers to reduce emissions associated with workforce deployment and business operations.

Customers of Magnit Global Netherlands BN B.V. are organizations that make use of contingent workers and outsourced workforce-management services. Its services are aimed at organizations seeking support with sourcing, managing and administering a flexible workforce. Arcadis is one such customer: Magnit manages hiring requests for temporary workers for Arcadis in the Netherlands through its HiringDesk. Downstream emissions can consequently arise from the work and travel of contingent workers and from energy and resource consumption associated with the activities they perform for customers. Magnit can potentially influence these emissions by supporting customers in sustainable workforce policies, facilitating lower-emission travel and working arrangements, and providing information that enables customers to consider sustainability in their contingent workforce decisions.

3.2.3 Customers

ProRail B.V. manages and maintains railway infrastructure in the Netherlands. Its key tasks include track maintenance, traffic control, infrastructure development, safety management, and promoting sustainability, ensuring efficient and reliable rail operations. ProRail is an important customer of Arcadis as a lot of projects revolve around infrastructural designs, inspection and evaluations of existing assets, sustainability focused advice, safety and risk studies, and digitalization.

Suppliers of ProRail include construction companies, energy providers, technology suppliers, materials suppliers, logistics providers. Emissions can come from mining and refining raw materials, producing concrete, steel and other construction materials, heavy machinery used in railway construction and maintenance, transportation of materials to project sites, and energy generation. Related production processes are construction of rail tracks, bridges and stations, distribution of energy through the grid, development and production of advanced signaling systems and automated control technologies, production of railway tracks, sleepers and ballast. ProRail can be of influence by choosing

contractors that use recycled materials or low-carbon alternatives, encourage suppliers to switch to electric or hybrid construction machinery, support suppliers in developing renewable energy projects, and improve logistics of transportation.

Customers of ProRail are passenger train operating companies, freight operators, other public transport operators, companies that use rail freight for product transport. Emissions come, e.g., from train manufacturing, diesel trains, passenger services (energy use in station buildings, ticketing systems, etc.), logistic operations (loading, and transferring goods), and indirect emissions from passenger's use of cars. Production processes include but are not limited to manufacturing and maintenance processes. ProRail can play a part here by expanding electrification and renewable energy use, support low-emission technologies, and upgrading train stations with energy efficient technologies and green building materials.

Rijkswaterstaat (RWS) is the Dutch government agency responsible for managing and maintaining the country's infrastructure. Its key tasks include water management, road infrastructure, sustainable mobility, and environment. Arcadis assists RWS in numerous activities, like water safety and water management, design and maintenance of infrastructure, incorporation of sustainability and circularity in construction, and other guidance in complex projects.

Suppliers of RWS include construction companies, material suppliers, dredging and water management companies, energy providers, technology and monitoring equipment suppliers, and waste management and recycling services. Emissions come from diesel-powered machinery, production of construction materials, transportation, from mining and quarrying raw materials, cement and steel production, power generation, manufacturing of equipment, and waste sorting and landfills. RWS can influence the emissions by requiring suppliers to use low-emission or electric equipment, promote the use of recycling materials, implement policies to enforce zero-emission construction sites, requiring suppliers to report on emissions, collaborate with energy providers to improve efficiency in energy generation and reduce losses in the grid.

Customers of RWS consist of transport and logistics companies, passenger transport operators, ports and maritime users, farmers and industrial companies, recreational users, and emergency and crisis response organizations. These customers generate emissions primarily through transportation (road, rail, and waterway usage), energy consumption, industrial operations, and infrastructure development. RWS helps its customers reduce their environmental impact by promoting sustainable mobility, supporting the shift to low-emission transport options (e.g., rail and waterway freight), and facilitating the integration of renewable energy. By investing in green infrastructure, such as EV charging networks, energy-efficient traffic management systems, and circular construction practices, RWS encourages its customers to adopt more sustainable practices.

TenneT TSO B.V. operates the high-voltage electricity grid in the Netherlands and parts of Germany. It ensures a reliable power supply, develops infrastructure, facilitates cross-border electricity exchange, and integrates renewable energy sources. TenneT is an eminent customer as Arcadis delivers designs for high-voltage infrastructure, as well as grid modifications for renewables, asset management and digitalization. Moreover, Arcadis' sustainable focus provides valuable insights on environmental impact and permit management.

Suppliers of TenneT consist of construction and engineering companies, cable and component manufacturers, technology and IT providers, energy suppliers safety and maintenance services, professional services and consultancy. Emissions are generated through the use of construction equipment, material production, transportation, and the use of data centers, connected to, among others, the upgrading and expanding of grid capacity and manufacturing of high-voltage cables and transformers. TenneT can influence these emissions by encouraging the use of electric construction equipment, prioritizing the use of recycled steel and low-carbon concrete, and partnering with service providers that prioritize sustainability in their operations.

TenneT's customers are energy providers, distribution network operators, industrial consumers, renewable energy developers, indirectly residential consumers, government and regulatory bodies. Emissions come from maintaining and operating distribution networks, industrial processes such as manufacturing, operation of machinery and equipment. TenneT can be of influence by accelerating grid connections and capacity expansion, encouraging the development of community energy projects, and work with the government to shape policies that promote grid modernization.

Nederlandse Aardolie Maatschappij B.V. (NAM) is responsible for oil and gas extraction in the Netherlands. Its focus is on exploring, producing, and managing natural gas and oil resources, including handling the impacts of extraction, such as addressing earthquake-related issues in Groningen. The main connection between Arcadis NL and the NAM

runs through the remediation and environmental consultancy that Arcadis delivers. Many projects deal with soil and ground investigations, remediation measures, or provide advice on compliance and risk management. In addition, the company supports the NAM with decommissioning infrastructure, restoration, and stakeholder engagement processes. In doing so, Arcadis assists the NAM in reducing its environmental impact.

Suppliers include drilling and equipment manufacturers, engineering and construction firms, and environmental service providers. Key emission sources from this supply chain include CO_2 and methane emissions from drilling operations, energy-intensive processes in equipment manufacturing, and transportation-related emissions from logistics. NAM can influence its suppliers by adopting stringent sustainability criteria in procurement practices, such as prioritizing suppliers with low-carbon technologies and efficient drilling equipment. Furthermore, NAM can drive innovation by collaborating with suppliers to develop and implement cleaner extraction technologies, enhance waste management practices, and integrate renewable energy solutions into operations.

Customers include energy companies, industrial manufacturers, utility providers, petrochemical companies, and fuel retailers who rely on their oil and gas products for energy production, manufacturing processes, and distribution to end-users. The primary emissions associated with NAM's customers stem from the combustion of fossil fuels, leading to CO_2 and other greenhouse gas emissions, as well as potential methane leaks during transportation and storage. These customers utilize NAM's hydrocarbons in power generation, heating, and as raw materials in industrial processes, which are energy-intensive and contribute significantly to their carbon footprints. NAM can influence its customers by promoting the use of cleaner technologies and offering products with a lower carbon intensity. Additionally, NAM can facilitate the transition to renewable energy by investing in and developing natural gas as bridge fuel, thus encouraging customers to reduce their reliance on higher-emission fuels like coal and oil.

3.3 Step 3: Allocation

Allocating emissions of other organizations to Arcadis has been estimated as follows:

For each supplier and customer, their reported emissions have been used to estimate what the Arcadis share in those emissions is based on purchasing and sales numbers. Starting from this year, where possible, emission numbers originate from a hotspot analysis performed by Arcadis Global (for supplier data). This hotspot analysis estimates our scope 3 purchased goods and services CO_2-emissions from supplier survey data or spend based data when specific supplier data is not available.

For client data, the Arcadis share in the customers' emissions was determined using a spent-based estimate, where our share in emissions is estimated based on our share in their purchased goods and services. This method knows some limitations as it does account for differences in emissions intensity between different types of purchased goods and services. Furthermore, the emissions provided below are based on the location-based emissions, rather than the market-based emissions. Various companies compensate their location-based emissions by purchasing green energy, this reduces their market-based emissions. However, we advocate the importance of total energy reduction. Consequently, we argue that one should incorporate all produced emissions in this analysis.

Table 3: Allocation of scope 1, 2, and 3 emissions (ton CO2-eq).

Supplier	Scope 1 (ton CO_2-eq)	Scope 2 (ton CO_2-eq)	Scope 3 (ton CO_2-eq)
Antea Group	135	15	832
Alphabet Lease*	0.1	0.1	231
Magnit Global Netherlands BN B.V.	614	178	134

*Alphabet Lease was not part of the Arcadis Global hotspot analysis. Therefore, the allocation of these emissions is an estimate based on the annual (sustainability) reports of the BMW group organizations (Alphabet Lease does not provide information for itself), and how much of the customers purchase value is generated by Arcadis. In reality these amounts may differ.

Table 4: Allocation of scope 1, 2, and 3 emissions (ton CO2-eq).

Customer	Scope 1 (ton CO_2-eq)	Scope 2 (ton CO_2-eq)	Scope 3 (ton CO_2-eq)
ProRail B.V.	345	1.234	24

Rijkswaterstaat	336	2	4.263
TenneT TSO B.V.	78	1.145	3254
Nederlandse Aardolie Maatschappij B.V.	12.428	0.0	229.427

*Some of the relations either missed general emission figures or did not yet specify between separate scope emissions, resulting in empty cells. Also, the allocation of these emissions is a very rough estimate based on the annual (sustainability) reports of said organizations, and how much of the customers purchase value is generated by Arcadis. In reality these amounts may differ.

3.4 Step 4: Analysis

Step 4 highlights the most relevant value chain partners and demonstrates how they can contribute to reducing the emissions identified in step 3. In any case, overtime, we will engage in dialogue with each direct relation to explore potential opportunities. Nevertheless, the current state and lack of accuracy of the emission data does not allow for specific targetization of sub-categories in the third scope of our suppliers and customers.

We focused our analysis on the relationships where sufficient data was available. Due to data limitations, the assessment of Nederlandse Aardolie Maatschappij (NAM) is based on an indicative estimation generated with Copilot (AI) rather than on reported figures, and should therefore be interpreted with caution (see §3.4.2). We also chose to exclude Antea Group as their practices closely mirror those of Arcadis, making a separate evaluation redundant.

3.4.1 Suppliers

Table 3 demonstrates ANL's set of suppliers. This table shows that most of the estimated emissions lie within the scope 3 category, and although our estimate is quite rough at the moment, it shows what we already know; scope 3 emissions are a significant portion and show us how important it is to look for reduction opportunities in the value chain. Specifically, Alphabet shows relatively high Scope 3 emission levels. These numbers are likely skewed towards higher gradations as these numbers originate from the BMW group. The exact national (Dutch) numbers are missing, or distinct activities are not yet outlined within the different emission scopes of said companies. Magnit Global Netherlands BN B.V. is new in our list of largest suppliers.

Alphabet

As mentioned, the exact emissions for our mobility supplier is difficult to pinpoint. Yet, Alphabet has relatively large scope 3 emissions compared to their scope 1 and 2 emissions. Alphabet could invest in greener production options or deliveries. For example, suppliers who use green steel (HYBRIT, EAF, or hydrogen-based steelmaking), material passports that serve as proof of origin and track the CO_2 emissions of raw materials. Moreover, general circularity practices and material reuse are crucial in reducing CO_2 supply chain emissions. Encouraging suppliers to adopt circular economy principles could drastically benefit the scope 3 emissions in the long-term. Leasing emissions could be reduced by incentivizing and creating smart shared-vehicle programs.

Magnit Global Netherlands BN B.V.

Compared to the other suppliers, Magnit has a larger scope 1 than scope 2 and 3. They communicated that their scope 3 currently only consists of business travel. Furthermore, the CO_2-footprint of 2025 that is available at this time only covers the first half year of 2025. It can be expected that more insights will be obtained in the future. Magnit has the most opportunity by reducing their gasoline and petrol use. They were already able to reduce this by 36% last year.

3.4.2 Customers

According to table 4, our main customers show relatively high emission levels in Scope 3, except for ProRail, who has a relatively high scope 1. RWS and Tennet have a greater share of emissions in the second or third scope. For NAM scope 3 emissions are especially dominant due to useage of oil and gas.

ProRail

The main contribution to ProRail’s emissions comes from scope 1. Their total current scope 1 emissions are assembled by four main categories, infra, mobility, stations, and workplaces. Infra emissions originate from point heating, which

mostly occurs in colder winter months. Mobility corresponds with work-travel and gas usage is the main contributor for stations and workplaces. Scope 2 is relatively small and covers electrical usage and district heating. Likewise, scope 3 is relatively small and covers business travel with private vehicles and planes.

ProRail's two primary candidates for emission reduction are infra and mobility. Point heating is an important factor in the efficiency of the Dutch railway system yet also consumes large amounts of energy. Various technologies exist to further reduce emissions by upgrading legacy systems with low-energy heaters or adopting smart weather-responsive controls. In addition, ProRail could benefit from an additional influx of electrically powered company vehicles to reduce the emission figure produced by its fleet operations.

RWS

Due to a lack of specified data, figures from the ministry of Infrastructure and Water management (IenW) sustainability report were used, which includes Rijkswaterstaat (RWS) as a distinct branch in the IenW. RWS has relatively large CO_2 emissions as many of its operations include large constructions projects and the frequent use of ships. Roughly 60% of IenW's CO_2 emissions come from RWS ships, and 11% and 9% are attributed to the car fleet and governmental airplane respectively. Scope 2 has relevant emission, yet RWS considers her emissions 0 for this Scope, as all electricity is derived from wind energy. Contrary, scope 3 is relatively large and contains emissions related to infrastructural building projects, fairway and road maintenance.

As mentioned, most of the scope 1 emissions stem from ship operations. RWS mentions the reduction of emissions from this group as a distinct strategy target. It aims to increase bio-fuel consumption yet does not mention the possibility of increasing the electrical consumption of its fleet. According to its current trajectory, RWS is unlikely to attain fleet neutrality by 2030. However, electrical fleet options have become increasingly standardized, like electrical tugboats produced by Damen. In addition, more emphasis could be placed on the electrification of company cars.

Moreover, scope 3 is strongly related to the built environment and breakthroughs in this area could reduce emissions drastically. Operations could become more eco-friendly by standardization of climate-positive and circular infrastructure, such as carbon-storing road materials, modular bridges, and energy-harvesting roads.

Tennet

Tennet has the bulk of its emission divided across scope 2 and 3. Scope 2 has relatively large location-based emissions (mainly grid losses), which are countered by the purchasing of renewable green energy, specifically Guarantees of Origin. In addition, Tennet actively invests in optimizations of their grid designs to reduce grid losses. However, the scope 3 emissions are quite significant as this covers the emissions produced by the construction, transport, installation of assets like cables, steel towers, and overhead lines. Moreover, most of these emissions are derived from upstream production for materials such as steel, aluminum, copper, plastics and concrete.

Especially scope 3 emissions could benefit from a reduction. Tennet made a program (Decarbonizing Supply Chain) that is aimed at developing and implementing sustainable sourcing across its chain. It's said that Tennet relies heavily on the innovations that suppliers offer, demonstrating a willingness to adopt new technologies. The outlined materials are emission intensive to produce and would surely benefit from technologies like the aforementioned HYBRIT-program, or other initiatives like hydrogen blast furnaces for steel production. However, specific materials require specific solutions, which should be mapped out and organized to effectively reduce emissions. Another measure that Tennet could adopt is the standardization of material passports, which require in-depth information about the origin and production of specific materials.

NAM

NAM does not publish a complete, consolidated overview of its emissions. Therefore, the figures in this section are based on an estimation generated with Copilot (AI), using publicly available production data for 2025 and Dutch emission factors. This estimation has clear limitations: the results are indicative, have not been verified by NAM, and Scope 1, location-based Scope 2 and the remaining Scope 3 categories in particular are subject to considerable uncertainty. The figures should therefore be interpreted as an order of magnitude rather than as reported values.

According to this estimation, the vast majority of NAM’s emissions fall under scope 3, specifically the use of sold products: the combustion of the natural gas and oil that NAM produces. Scope 1 is considerably smaller and mainly

originates from fuel use for production, compression and gas storage, flaring, venting and diffuse methane emissions, and operational transport and mobile equipment. Scope 2 is negligible on a market-based basis, as NAM covers its electricity use with Guarantees of Origin, while a location-based figure could not be determined. The remaining scope 3 emissions are relatively limited and relate to, among others, capital goods and decommissioning activities, purchased services, transport by third parties, waste and the upstream fuel supply chain.

Within its own operations, NAM's main reduction potential lies in Scope 1: further reducing flaring, venting and diffuse methane emissions, which NAM already indicates it is working on, and improving the energy efficiency of production, compression and storage. The dominant Scope 3 emissions, however, come from NAM's core business. They can only be reduced structurally by lowering fossil production volumes and shifting towards low-carbon activities. Arcadis mainly supports NAM with decommissioning, remediation and environmental advice. Through this work, we can help limit the emissions of dismantling and restoration activities. Finally, more transparent and complete emissions reporting by NAM would allow a more accurate analysis and allocation in future versions of this value chain analysis.

3.4.3 Collaboration

At Arcadis, we recognize that meaningful progress in reducing emissions across the value chain can only be achieved through close collaboration with both our suppliers and our customers. Our approach is rooted in partnership, actively working with our stakeholders to identify opportunities, sharing best practices and co-developing innovative solutions that drive decarbonization. Current emission data presents challenges in targeting specific sub-categories, yet our commitment remains to engage in constructive dialogue with each direct relation and map a clear path forward.

Three main beliefs underline our collaborative attitude. First, we regard data transparency and sharing crucial in the attainment of a deeper understanding of our emissions and those of our direct connections. Open communication and transparent reporting allow for the development of joint mechanisms. Second, the path to Net-Zero is riddled with obstacles and requires the adoption of innovative technologies and circular principles. This includes the everlasting search for new technologies supporting the transition to low-carbon material, promoting design for disassembly, and encouraging the efficient reuse of resources. Through knowledge sharing and pilot projects, we can help suppliers and customers accelerate the uptake of sustainable practices and together reduce scope 3 emissions. Third, we embed sustainability into procurement processes and collaborate on initiatives that drive collective impact. Whether through supporting sustainable sourcing, or co-developing low-carbon mobility solutions, Arcadis offers expertise in integrating sustainability into procurement and project delivery.

Another aspect of the collaboration is the biannual dialogue with a supplier or customer. Since the implementation of handbook 4.0 we have had a dialogue with NS and RWS. A dialogue with Antea Group will be planned for the second half of 2026. Please find the reports from these conversations here: 3.D.5 - Value chain dialogues.

3.5 Step 5: Reduction

This step focuses on identifying opportunities for reduction across our value chain. It serves as an initial assessment to pinpoint where the greatest reduction potentials exist, the possibilities for making a meaningful impact, and their locations within scope 1, 2, 3, and OIE categories.

The analysis considers feasibility, expected timelines, and potential implications arising from these opportunities. The aim of this section is to provide a clear overview of reduction opportunities, which will be updated as more information becomes available.

Again, the most impactful relations are analyzed: our suppliers Alphabet and Magnit, and our customers: ProRail, RWS, Tennet and NAM. Likewise, Antea is not included in the last section as their emissions are comparatively low, and their operations are quite similar to Arcadis in her practices.

3.5.1.1 Alphabet Lease

Scope 3 emissions are indirectly generated through the value chain. This is a critical area of concern for our mobility supplier Alphabet. Although direct emissions (Scope 1 and 2) are generally easier to measure and manage, scope 3 emissions are more substantial. Encompassing activities like raw material extraction, vehicle manufacturing, leasing operations and remarketing. We intend to align reduction initiatives with this section of emissions.

Material passports

First, Scope 3 consideration for our mobility supplier could include demanding material passports. Traceability and transparency of material origin and production methods allow for effective emission phaseouts. Passports can help certify specific parts and incentivize recycled contents and reduce dependency on virgin material extraction. Various academic entities have tested and advocated its potential when implemented appropriately.[1] Specifically, the use of carbon intensive materials like aluminum is expected to increase towards 2050.[2] EV's use more wrought aluminum leading to a surplus of alloys which can only be mitigated by sorting technologies and increasing vehicle lifetime. Current policies mostly address the use-phase emissions, instead of the production phase. Moreover, research estimates that cumulative global GHG emissions could be reduced by 13-26 Gt CO_2e-eq for passenger vehicles, depending on the scenario.[3] They suggest that the best options to reduce vehicle emissions are material substitution, efficient use of materials, ride-sharing, and lightweight builds.

Currently, Arcadis has +/- 400 operational lease vehicles originating from Alphabet. Arcadis could potentially use her position as a substantial customer to request that a number of future cars is produced more sustainably. The exact number of cars, and the ability of Alphabet to incorporate such an initiative should be assessed in collaboration. Yet, this could incentivize both parties to reassess their value chain and implement material passports in the most critical parts. Due to the complexity of the measure, it is expected to be researched and potentially be implemented on medium to long term time horizon.

Electrification of vehicles

Second, where Arcadis already has acted and implemented policy on, is electrification of our lease vehicle fleet. Our policy ensures that every new lease car is an electric vehicle. In addition to that, we purchase 100% green electricity for our vehicles. For more details on this, please see our climate transition plan. This reduces our mobility-related emissions as the initial production of electrical vehicles boosts early emissions, but use-emissions are lower, reducing the overall emissions in the long run.

Ride sharing

Third, another important initiative to consider is ride sharing. Ride sharing could reduce emissions through various corridors, like a reduction in vehicles required (production and use). Research even suggests that it alters driver's behavior, resulting in less fuel consumption due to lower driving speeds. According to their estimations, ride sharing could reduce fuel consumption between 15% and 23%.[4] In addition, others found similar results and suggest that miles traveled could be reduced by 33%.[5] Resulting in a substantial emission reduction. Some even claim that large-scale ride sharing could significantly assist in mitigating the dependence on bioenergy and CO_2 capture and storage.[6]

The potential impact of ride sharing is still difficult to assess for the specific situation of Arcadis. Namely, lease vehicles are already shareable by contract, yet the take-up of car sharing is still below par with the desired benchmark. Arcadis would have to internally assess which employees might benefit, and are willing, to ride- or car-share. It would then have

---

[1] Berger, K., Schöggl, J. P., & Baumgartner, R. J. (2022). Digital battery passports to enable circular and sustainable value chains: Conceptualization and use cases. *Journal of Cleaner Production*, *353*, 131492.

[2] Billy, R. G., & Müller, D. B. (2023). Aluminium use in passenger cars poses systemic challenges for recycling and GHG emissions. *Resources, Conservation and Recycling*, *190*, 106827.

[3] Pauliuk, S., Heeren, N., Berrill, P., Fishman, T., Nistad, A., Tu, Q., ... & Hertwich, E. G. (2021). Global scenarios of resource and emission savings from material efficiency in residential buildings and cars. *Nature communications*, *12*(1), 5097.

[4] Yan, L., Luo, X., Zhu, R., Santi, P., Wang, H., Wang, D., ... & Ratti, C. (2020). Quantifying and analyzing traffic emission reductions from ridesharing: A case study of Shanghai. *Transportation Research Part D: Transport and Environment*, *89*, 102629.

[5] Cai, H., Wang, X., Adriaens, P., & Xu, M. (2019). Environmental benefits of taxi ride sharing in Beijing. *Energy*, *174*, 503-508.

[6] Akimoto, K., Sano, F., & Oda, J. (2022). Impacts of ride and car-sharing associated with fully autonomous cars on global energy consumptions and carbon dioxide emissions. *Technological Forecasting and Social Change*, *174*, 121311.

to confer with its lease suppliers what specific options are available, and what additional incentives might need to be provided.

Table 5: Reduction possibilities Arval & Alphabet

Scope 3	Short	Medium	Long
Material passports	Converse with Arval and Alphabet about the possibility of sustainable procurement	Request 1-10 vehicles constructed in accordance with material passports	Only accept lease cars that incorporate material passports in their production
EV Transition	Move to 80% EV's	Move to 100% EV's	Reduce the number of lease cars and increase longevity
Car sharing	Increase car sharing among employees	Reduce the number of lease cars and further increase car sharing	Make car sharing the norm, relative to individual use

Potential negative effects

Material passports were introduced with the intent to reduce emissions in the most critical areas of the supply chain. However, that is not to say that it cannot produce any negative effects. For example, it could induce additional complexity for suppliers as requirements of data collection and certification increase. In turn, this may increase operational costs, which is particularly challenging for suppliers with tight margins. Likewise, additional monitoring could incentivize suppliers to engage in greenwashing practices. Moreover, it could result in the exclusion of smaller suppliers that cannot meet passport requirements. And research suggests that overemphasis on production might inadvertently neglect other lifecycle phases.

The increase of EVs creates a higher demand for electricity on the grid. It requires additional charging stations and a more efficient infrastructure to sustain increased demand. In addition, necessary materials for the batteries need to be extracted and could have negative social and environmental effects locally.

Ride sharing also has negative effects. One must consider that car manufacturers and lease operators are likely to sell or lease less cars, due to the reduction in demand. It could also increase car use as ride sharing becomes a competing option with other types of commuting like public transport, walking, or biking. Moreover, the use and its effectiveness depend on the context in which this initiative operates. People living in rural areas might be disproportionately affected by ride sharing, as it might be an unappealing option for less population dense areas.

3.5.1.2 Magnit

Magnit Global has set a verified Net Zero target for 2030 and reports on its Scope 1, 2 and 3 emissions. The company states that it operates on 100% renewable energy and is taking measures such as retiring company vehicles and using renewable energy credits as part of its decarbonisation efforts. Compared to the other suppliers assessed by Arcadis, Magnit Global Netherlands BN B.V. has a relatively large share of Scope 1 emissions compared to Scope 2 and 3 emissions. Therefore, further reductions in direct emissions, alongside continued attention to indirect emissions associated with its operations and value chain, offer relevant opportunities for reducing Magnit's overall footprint.

In general, there are several options for Magnit to further reduce its emissions. In the short term, Magnit can continue reducing direct emissions by phasing out fossil-fuelled company vehicles and stimulating low-carbon alternatives for business travel and employee mobility. Further reductions may also be achieved by limiting unnecessary travel and encouraging the use of public transport or electric mobility where possible. Magnit Global already identifies the retirement of company vehicles as part of its sustainability approach. Arcadis can support this transition by engaging with Magnit on the emissions associated with the services purchased by Arcadis and by encouraging transparent and increasingly supplier-specific emissions reporting.

Over the medium term, Magnit can further reduce emissions associated with its offices and business operations through energy efficiency and continued renewable electricity procurement. As Magnit already states that it operates on 100% renewable energy, the focus can increasingly shift towards reducing underlying energy consumption rather than solely addressing the carbon intensity of purchased electricity. In addition, improving the quality and granularity of Scope 3 data can help identify the parts of Magnit's value chain where further reductions are possible.

In the long term, Magnit can work towards its 2030 Net Zero target[7] by addressing residual emissions across its entire value chain and increasingly engaging suppliers and business partners on their emissions. As a customer, Arcadis can contribute by discussing emissions data and reduction opportunities with Magnit and by incorporating sustainability performance into supplier engagement. This can help Arcadis improve insight into the emissions associated with purchased services while simultaneously encouraging further reductions within its supply chain.

	Short	Medium	Long
Energy use reduction	Further phase out fossil-fueled company vehicles and reduce emissions from business travel	Reduce energy consumption and improve the quality and granularity of Scope 3 emissions data	Engage suppliers and business partners to reduce residual value-chain emissions and work towards Net Zero

3.5.2 Customers

3.5.2.1 ProRail

ProRail could achieve the most reduction of CO_2 emissions by reducing their scope 1. These scope 1 emissions are made up by infra mobility. Therefore, the focus should be on reducing emissions from these categories.

Impact on OIEs

Infrastructure

As mentioned before, infra emissions mostly come from natural gas use for point heaters and the heating of offices and other buildings. As the use is dependent on the weather, it is possible that in colder years, more emissions occur. However, in the short term, ProRail is lowering the temperature at which the point heaters turn on[8]. This is done in close collaboration with the weather bureau Weerplaza, to have up to date information on the temperature. This not only decreases the necessity and the associated emissions of natural gas. During the use of gas for the point heaters, methane leaks out. Thus, a reduction of natural gas use lowers the scope 1 emissions of ProRail as well. Estimating the impact of lowering the start temperature is difficult; however, monitoring the energy use of the point heaters should provide insights into the impact of the measure for future analyses. Arcadis can help ProRail due to our specialism in decarbonization strategies and management systems so we can avoid emissions resulting in OIE impact.

On the medium term, the replacement of 2.700 gas operated point heaters could reduce the scope 1 emissions even further[9]. On the long term, ProRail can research which points heaters are less useful and remove any unnecessary ones. This takes a thorough investigation which might take several years to account for different weather conditions. Also, the current point heaters lose a considerable amount of heat to the ballast and the other surroundings[10]. Research into the development of more efficient point heaters can help reduce the energy required, directly reducing the emissions. Arcadis could possibly help with feasibility studies, examining which point heaters are least efficient and assessing possible heat retention technologies and insulation materials.

[7] https://magnitglobal.com/about/esg-impact accessed on 22-10-2026

[8] Wisselverwarming uit | ProRail accessed on 3-10-2025

[9] Stapt ProRail over op elektrische wisselverwarming | ProRail accessed on 3-10-2025

[10] Lotfi, A., Yousuf, A., & Virk, M. S. (2024). Study of Heat Distribution in Railway Switch Using Resistive Heater in Cold Climate Conditions. *Applied Sciences*, *14*(18), 8151.

Mobility

Mobility emissions are mostly caused by using fossil fueled cars. Transitioning to an electrical fleet helps reduce ProRail scope 1 emissions significantly. This transition should be started as soon as possible and should be completed in the medium term. In the long term, an increase in efficient mobility hubs with shared electric vehicles, bikes, and other options, might reduce the need for less sustainable options of transportation.

Table 6: Reduction possibilities ProRail

	Short	Medium	Long
Infra	Turning of point heaters when weather is mild.	Transitioning to only electrical point heaters.	Removal of unnecessary point heaters and research to more efficient heaters.
Mobility	Start switching from fossil fueled cars to EVs	Complete switch from fossil fueled cars to EVs	Increase in efficient mobility hubs

Potential negative effects

There should be a focus on the possible transition of emissions between scopes. Electrifying the fleet and point heathers lowers the scope 1 emissions, however, the electricity needs to come from renewable sources to prevent emissions being counted for scope 2.

Moreover, the transition to EV's has similar potential negative effects as mentioned in Alphabet's "negative effects" section.

3.5.2.2 Rijkswaterstaat

RWS reports emissions in scope 1, 2, and 3. However, the emissions they report are largely related to their mobility (vehicle fleet, ships, plane travel)[11] and not the GWW-projects they execute, which is where a large share of its emissions are located. These scope 3 emissions come from built environment projects they take on, such as: coastline care and channel maintenance, road paving, road, dike and rail equipment, and civil engineering structures like bridges and tunnels.

Regarding scope 1 and 2 emissions, in the short term, RWS can prioritize switching its ships to biofuels, which can rapidly lower direct emissions while maintaining operational flexibility. For the government's aviation activities, reducing the number of flights and optimizing routes for greater fuel efficiency are practical first steps.

Impact on OIEs

Materials and machinery

For scope 3, RWS emissions are not just related to mobility, but largely made up of (raw) materials used in construction works, and heavy machinery used in these projects. The two reduction pathways (short term) for this largely focus on reducing machine-related emissions by utilizing biofuels in heavy machinery, or more ideally using electrical machinery. Material-related emission reductions can best be accomplished by using less raw materials and improving circularity. It requires smart maintenance to be able to increase lifespan and re-use of materials to be able to use less materials. RWS is currently using these strategies to work towards their 2030 goals. This would significantly reduce their Scope 3 emissions, and would result in positive OIE impact for Arcadis as these initiatives avoid additional emissions. As Arcadis, we are working together with RWS on the replacement & renovation of civil engineering structures. Here lies a large potential to focus on circularity in our engineering services where possible, while still prioritizing the function and safety of these structures.

[11] Rijksrederij Rijkswaterstaat accessed on 6-10-2025

Mobility

In the medium term for scope 1 and 2, a strategic rollout of electric vehicles across the government fleet and a gradual transition to hybrid or electric ships will further decarbonize transport operations. For aviation, adopting newer, more efficient aircraft and exploring the possibility for alternative propulsion technologies will contribute to emissions reduction. Scope 3 should focus further on reducing machine emissions and circularity or reuse of materials.

Looking at the long term, deploying drones for certain monitoring and inspection tasks instead of ships could significantly reduce energy consumption and operational emissions, as drones are more efficient for specific tasks like surveying waterways or infrastructure. Arcadis can support RWS throughout these phases by advising on the permitting processes for drone deployment, helping assess the technical and regulatory feasibility of new transport technologies, and conducting emissions impact analyses. Additionally, Arcadis could provide strategic advice for sustainable mobility planning, ensuring that Rijkswaterstaat's transition towards low-carbon operations is both practical and aligned with regulatory requirements. This would result in significant impact on avoided emissions and thus OIEs.

Table 7: Reduction possibilities RWS

	Short	Medium	Long
Mobility	Implement biofuels	Electric mobility	Different way of monitoring and inspecting
Materials and machinery	Advising on reuse of materials used in structures or circular. Encouraging use of zero emission machines.	Similar to short term.	Similar to short term.

Potential negative effects

While transitioning to biofuels and electrifying the fleet can significantly reduce Scope 1 emissions for Rijkswaterstaat, these solutions also present notable challenges and potential negative effects. The use of biofuels in shipping, for example, can lead to higher levels of OIEs. Additionally, the large-scale adoption of electric vehicle, ships and machines, while beneficial for direct emissions, could result in increased Scope 2 emissions if the electricity supply is not fully renewable potentially offsetting some of the intended carbon savings. The initial investment and infrastructure upgrades required for electrification can also strain budgets and operational resources. Regarding circularity of materials, it may require relatively large amounts of energy to make some materials suitable for reuse. Furthermore, the transition to drone-based monitoring, though energy-efficient, may face regulatory hurdles and require new skills and processes, which could slow implementation. These factors highlight the importance of careful planning, risk assessment, and ongoing evaluation to ensure that sustainability initiatives deliver real and lasting benefits without unintended consequences.

3.5.2.3 TenneT

Tennet is the 4th largest customer of Arcadis, and, just like ProRail, they are mostly busy with construction and expansion of the Dutch electricity grid. This explains the high scope 2 and 3 emissions. For this analysis we will focus on the scope 3 emissions, as we expect that Tennet is more involved in reducing their scope 2. Therefore, scope 3 shows the best potential for additional reduction of emissions.

Impact on OIEs

Construction

As mentioned before, the scope 3 emissions are mostly caused by construction, transport, installation of assets like cables, steel towers, and overhead lines[12]. The other emissions come from upstream production for materials such as steel, aluminum, copper, plastics, and concrete.

On the short term, Tennet needs to continue the use of lower carbon concrete and recycled steel. This is essential since the production of concrete and steel are massive contributors to CO_2 emissions. Consequently, this would avoid a large number of emissions, potentially resulting in impact on OIEs for Arcadis if we advice on the use of these low carbon options. Also, during the realization phase of the projects, a contractor that uses the more sustainable options is preferred. Arcadis can help here with the preconditions for contact management by selecting contractors that are willing to work with sustainable materials.

An initiative on the medium term can be to only use recycled copper for future power transformers and shunt reactors. This is already done in Germany but could also be implemented in the Netherlands. Arcadis can assist by helping find the locations of high copper presence and obtaining this copper when it becomes available.

The most difficult task for Tennet is the fact that they need to expand to cover the increasing demand. This is a long-term process, which does not help the reduction of their own footprint. Sustainable design is of the most important here. Arcadis can help with its broad knowledge of sustainability in projects, like route maps to net-zero, but also during the design phase of buildings.

Since Arcadis is involved with projects from the start, Arcadis could deliver impact on reducing emissions by taking it into account from the start. Namely, Arcadis can help with the policy aspect.

Collaboration

The transport of materials that need to be installed is also a big share of the emissions. Since the number of construction activities will only increase due to the pressure on the grid/grid congestion, it is key that emissions from the transport are limited if possible. However, correspondence with an internal expert suggests that the possibilities of sustainable construction and transportation are often limited. Although sustainability is of great concern, efficient project finalization generally surmounts sustainability ambitions. Regulations, policies, and complex permitting processes make it a strenuous task to integrate environmental aspirations. Nevertheless, the conversation also indicated that sustainable construction depends on various parties. Specifically, the collaboration between regulators and contractors could yield additional benefits in terms of sustainable returns. For example, it is difficult to build electrical infrastructure or attain electrical equipment for construction by yourself. Joint investments make it easier to transition to sustainable construction.

On the short term, we would like to continue the open discussion on sustainable construction, thereby thinking in possibilities with Tennet. On the medium term, we want to explore the possibility of co-investing into equipment so Tennet can work more sustainably on projects simultaneously. Low-emission equipment is not widely available currently. On the long term this would transform into a steady base of green equipment for Tennet to work with.

Table 8: Reduction possibilities Tennet

	Short	Medium	Long
Construction and installation of assets	Continue the use of lower carbon concrete and recycled steel and sustainable contract management	Switch to 100% recycled copper use.	Sustainable design

[12] Integrated Annual Report 2024 accessed on 3-10-2025

Collaboration	Continue open discussion	Co-investment into equipment	Create a steady base of green equipment to supplement construction

Potential negative effects

Project costs could potentially increase as more sustainable contractors are hired, or more recycled materials are used in construction. Lower carbon concrete, recycled steel or copper often have higher upfront costs due to limited supply and additional processing requirements. In addition, the effectiveness of the project is highly dependent on the accessibility of resources, as some resources might not be attained locally. As mentioned, project delays are commonplace, it generally takes more time to move through the legislative landscape and procure the proper materials and expertise for projects. This is exacerbated by additional difficulty in stakeholder alignment between regulators, contractors and suppliers. Lastly, operational and technical risks could occur if proceeded without caution. Recycled materials have different properties when considering durability and maintenance cycles. Likewise, sustainable materials or new construction methods could be incompatible with existing assets, requiring additional retrofits or adaptations.

3.5.2.4 NAM

As described in §3.4.2, NAM's emissions are estimated to be dominated by Scope 3 emissions from the use of sold oil and gas. Scope 1 emissions mainly relate to production, compression and storage, including fuel consumption, flaring, venting and diffuse methane emissions. The underlying figures are indicative Copilot (AI) estimates rather than verified emissions reported by NAM. Consequently, the opportunities below provide a qualitative direction for further discussion, not quantified reduction targets or commitments by NAM. Structural reductions in emissions from sold products require lower fossil production volumes and a shift towards low-carbon activities. Arcadis' most direct opportunities to contribute lie in its existing work on decommissioning, remediation and environmental consultancy.

Impact on OIEs

Decommissioning and remediation

In the short term, Arcadis can discuss opportunities with NAM to reduce emissions within dismantling, soil investigation and restoration projects. Building on the material and machinery approaches described for the other customers, this could include comparing remediation alternatives, limiting unnecessary transport and encouraging low-emission equipment where technically feasible. Environmental advice and risk assessments should remain central to selecting measures that reduce emissions without compromising remediation requirements or safety. Project-specific information on fuel use, material flows and transport would help establish a baseline against which alternatives can be assessed.

Over the medium term, NAM could incorporate the outcomes of these assessments into procurement and project planning. Potential measures include selecting contractors that can demonstrate lower-emission working methods, improving transport logistics and reusing or recycling recovered materials where their condition and environmental quality allow. Arcadis can support the comparison of alternatives and the integration of sustainability criteria into project advice. In the long term, lessons from individual projects could inform a more consistent approach to low-carbon decommissioning and site restoration.

Operational emissions and collaboration

For NAM's own operations, the priorities identified in §3.4.2 are reducing flaring, venting and diffuse methane emissions and improving the energy efficiency of production, compression and storage. In the short term, dialogue with NAM could clarify the available emissions data, ongoing measures and opportunities relevant to Arcadis' assignments. Over the medium term, more complete reporting and project-level monitoring could support the assessment of reduction measures. In the long term, structural reductions in the dominant emissions from sold products depend on NAM's wider transition away from fossil production. Arcadis' influence on these strategic decisions is more limited than its influence on the environmental performance of the projects it advises on. The proposed time horizons therefore remain indicative and require discussion with NAM.

Table 9: Reduction possibilities NAM

Opportunity	Short	Medium	Long
Decommissioning and remediation	Assess lower-emission alternatives for equipment, transport and remediation methods.	Integrate feasible measures into procurement and planning; encourage suitable material reuse and recycling.	Apply lessons across projects to support low-carbon dismantling and site restoration.
Operational emissions	Discuss measures to reduce flaring, venting, methane leakage and operational fuel use.	Assess efficiency improvements in production, compression and storage using better emissions data.	Address residual operational emissions alongside the transition towards low-carbon activities.
Data and collaboration	Clarify data gaps and identify opportunities within Arcadis' assignments.	Improve reporting and monitor project emissions against defined reference scenarios.	Use verified results to update the value chain analysis and assess contributions to OIEs.

Potential negative effects

Lower-emission methods may involve additional investment, limited equipment availability and changes to project schedules. Reuse and recycling require careful assessment of contamination, material quality and applicable requirements; carbon reduction should not take precedence over safe dismantling or effective remediation. Material processing and transport can also offset part of the expected benefits, making comparison across the full project lifecycle important. Similarly, reducing NAM's production does not automatically establish an equivalent reduction in wider emissions if production is replaced elsewhere. Finally, the uncertainty of the underlying emissions estimates limits the reliability of any quantified reduction claim. Feasibility, environmental trade-offs and actual outcomes should therefore be assessed with NAM before measures or targets are adopted.

3.5.3 Feasibility

Feasibility is a critical factor when evaluating and implementing sustainability initiatives across the value chain. It determines whether an initiative can be practically realized. When we refer to feasibility, we consider multiple criteria: technical feasibility, which considers the availability and maturity of required technologies; financial feasibility, evaluating whether the initiative is cost-effective and if its economic benefits outweigh the costs; legal and regulatory feasibility, examining how easily the initiative complies with existing laws and regulations; and sustainability, ensuring alignment with environmental objectives and long-term viability.

The different initiatives mentioned all differ highly in context. Some are specific to mobility partners, others depend largely on technological innovations, and few could be highly reliant on collaboration between parties. Consequently, a thorough assessment of the initiatives is quite strenuous. In general, more knowledge is required to fully assess the effectiveness and ease of implementation. Therefore, we advocate the following approach:

First, it is important for every initiative to first assess whether other initiatives are more suitable for the specific situation. Second, we aim to further assess this in our stakeholder engagement. Specifically, the collaboration and interactions with suppliers and customers help us to understand the constraints and opportunities. After which, we aim to perform a more detailed feasibility study to attain a clearer perspective on the implementation, scope, and timeline of the initiative. The dialogue with the supplier or customer will also help determine the feasibility of the proposed initiatives. Depending on that outcome, one can weigh the pros and cons and decide on an implementation plan.

OIE strategy

Arcadis' vision is centered on delivering sustainable solutions for the built and natural environment. We combine digital innovation with technical expertise to address global challenges such as climate change, energy transition, and urban livability. This value chain assessment directly reinforces this ambition for improved quality of life for all. Moreover, it adds to the Climate Transition Plan by expanding our internal viewpoint on emissions by including an external perspective aimed at reducing our Scope 3 emissions.

The value chain extends beyond the firm's operations and touches upon our OIEs, eventually mapping the entire journey from raw material sourcing to end customer delivery. Arcadis is committed to maximizing her positive impact on the

environment, thus, acknowledges that the greatest sustainability gains often lie up- and downstream in the value chain. Moreover, Arcadis is an active participant in local and global communities, trying to bring together various stakeholders to accomplish sustainable projects. This relates to the main ideology of the value chain assessment, which compels collaborative action between parties in order to reach the emission goals.

3.5.4 Conclusion

This value chain analysis provided comprehensive insights into Arcadis Netherlands' environmental impact by systematically mapping our direct relationships with key suppliers and customers. By allocating emissions across the value chain, we have identified the most significant emission scopes of our direct relations. After which we assessed possible opportunities for effective decarbonization. The nature and origin of our partner's emissions is highly dependent on the industry of the company. Namely, our mobility supplier (Alphabet) emits the most in vehicle manufacturing, leasing operations and fuel consumption, where Magnit emits most in their scope 1. On the contrary, customers (RWS, Tennet, and ProRail) generate most of their emissions downstream, predominantly through infrastructure development and operational activities.

Arcadis can leverage its advisory expertise to collaborate on innovative solutions, like electrification of fleets, adoption of circular economy practices, or enhancing energy efficiency in buildings. Yet, engaging suppliers and customers in joint decarbonization initiatives will be critical to achieving meaningful reductions in Scope 3 emissions and advancing sustainability across our value chain.

3.5.5 Discussion

In conducting this value chain assessment of ANL, we encountered significant limitations regarding data availability and quality. A portion of our suppliers and customers currently do not report emission data, or, where data is provided, it is often not disaggregated into Scope 1, 2, or 3 emissions or location based (Netherlands). As a result, we were compelled to exclude some of our partners from this analysis. Moreover, the lack of information restricts our ability to perform an exact analysis of emissions across the entire value chain. We propose various technologies and initiatives aimed at reducing emissions across the different scopes of our suppliers and customers. However, due to the data gaps, it is challenging to accurately assess both the scale and the potential effectiveness of these interventions. Furthermore, this makes the precise quantification of expectations and targets very difficult to realize. As such, the absence of distinct baselines makes it a strenuous task to quantify the precise impact that these initiatives could have on reducing emissions.

We acknowledge the significance of robust, transparent, and comprehensive emissions data for effective value chain management and climate action. As such, we actively pursue the improvement of the data collected. Specifically, we engage with our suppliers and partners to encourage greater reporting and disclosure, striving to enhance the reliability of future assessments. Yet, given the current limitations, the findings and projections formulated in this assessment should be regarded as estimations based on the best available information. While we make every effort to ensure the validity of our analysis, we acknowledge that the absence of complete data produces uncertainty in our conclusions. We are committed to the continuous improvement of both our data collection practices and our emissions reduction efforts.

Colofon

VALUE CHAIN ANALYSIS

KLANT
Arcadis Nederland B.V.

AUTEUR
Arcadis Netherlands B.V.

DATUM
23 oktober 2026

Over Arcadis

Arcadis is dé wereldwijde partner op het gebied van datagedreven duurzame ontwerp-, engineerings- en consultancyoplossingen voor de natuurlijke en gebouwde omgeving. We zijn met zo'n 34.000 architecten, data-scientists, ontwerpers, ingenieurs, projectplanners, waterbeheer- en duurzaamheidsexperts. Allemaal gedreven door onze passie: 'Improving quality of life'. Als onderdeel van onze inzet om een planeet-positieve toekomst te versnellen, werken we met onze klanten samen om duurzame projectkeuzes te maken. Daarbij combineren we digitale en menselijke innovatie en omarmen we toekomstgerichte vaardigheden binnen de sectoren milieu, energie en water, gebouwen, transport en infrastructuur. We zijn actief in meer dan 30 landen en behaalden in 2025 een bruto omzet van €4,9 miljard.

www.arcadis.com

Arcadis Nederland B.V.

Postbus 220
3800 AE Amersfoort
Nederland

T +31 (0)88 4261 261

Arcadis. Improving quality of life