



KALUZA



MISSION TRANSITION: CHAPTER TWO

Kaluza's blueprint to transform energy retail

ABOUT KALUZA

Kaluza is a software-as-a-service (SaaS) business providing energy companies with real-time billing, intelligent grid services, and seamless customer experiences.

The platform was originally developed for OVO Energy, one of the largest energy suppliers in the United Kingdom, to deliver cheaper, greener, and simpler energy. OVO Energy was seeking the **flexibility, agility, and speed to market** required to enable **the future of energy**.



Kaluza Energy Retail provides the foundation of a successful, modern energy retailer. Kaluza's cloud-native platform uses real-time data to maximise bill runs — delivering accurate billing and settlements which proactively prevent debt and enable intuitive customer tools. Our proprietary agent platform provides comprehensive agent tooling in one interface, along with data-driven action recommendations. Kaluza's modular design and extensibility can be adapted to a retailer's bespoke operating model and customer base, helping increase customer lifetime value and delivering large-scale decarbonisation.

Our demand response technology, **Kaluza Flex**, is built to connect millions of smart home devices like electric vehicles, storage heaters, and home batteries and intelligently manage their charging. We are also a pioneer of the world's first and largest rollout of vehicle-to-grid technology.



At Kaluza, we believe that the energy transition can only be successful if energy companies become the drivers of change and bring every customer with them. Our technology is enabling this transformation to ensure decarbonisation becomes a simple and affordable option for our clients and their customers.

Together, we can power a world where net zero is within everyone's reach.

ABOUT THIS REPORT

Mission Transition is Kaluza's business and sustainability strategy.

It's who we are and it's how we deliver our mission: building the platform accelerating a **sustainable, affordable and resilient energy transition**.

In November 2021, we published the **first chapter of Mission Transition**. The document set Kaluza's vision to **leverage technology** to transform the business of energy retail and engage energy consumers.

This document is the **second chapter**, where we provide a detailed plan and real transparency of how Kaluza will continue to **accelerate the energy transition** and **meet its 2030 carbon negative target**. We couldn't be more excited to be sharing this with you. We welcome any comments, questions and feedback that you may have.

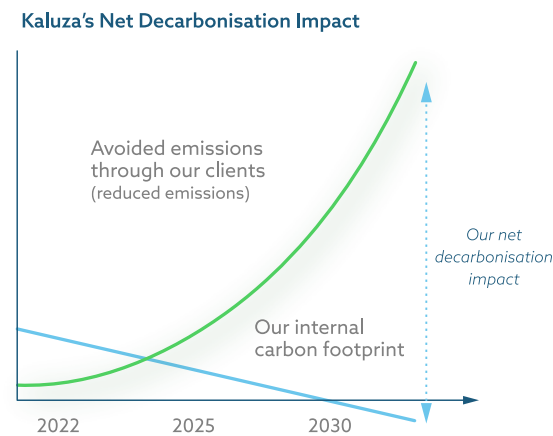


HIGHLIGHTS OF THIS REPORT

Our strategy for transforming the energy system is built on two pillars:

1. Accelerating the energy transition, and
2. Leading by example

We are incredibly proud to be able to share our market-leading targets backed up by strong implementation plans in this document.



ACCELERATING THE ENERGY TRANSITION

Kaluza leverages technology to accelerate the energy transition, supporting its clients and their customers on their decarbonisation journeys. We know we can't change the energy system overnight, so we are setting ourselves ambitious long-term targets.

By 2030, we are committing to three sustainable business goals:



All three goals are closely linked, feeding into the end goal of fighting climate change and decarbonising our energy consumption.



LEADING BY EXAMPLE

We firmly believe that every company needs to play its role in fighting climate change, regardless of their size and products they sell.

In 2021, we committed to become carbon negative by 2030 - one step further than net zero. In 2021, our baseline carbon footprint was:



2281 tonnes CO2e



~5 tonnes per Kaluza employee

By 2030, Kaluza will be a net zero company aligned to the Science Based Target (SBTi) initiative 1.5°C warming scenario. This means we need to reduce our carbon footprint by 90% across all scopes. Our 2030 business will look very different:



Our facilities will be **fully electrified and on 100% renewable energy** at a minimum



Our cloud providers will be using **24/7 carbon free energy**



We will only purchase goods and services from **suppliers who have achieved net zero**



We will have supported Kaluza **employees to decarbonise their homes**

We are not stopping there. We have committed to becoming carbon negative and from 2030 we will **remove 10 times more carbon from the atmosphere than we emit in our carbon footprint.**



LETTER FROM THE CEO

We face challenges at every turn: a pandemic, a war in Ukraine, mounting inflation, skyrocketing energy prices, and increasingly dire signals that time is running out to safeguard our climate.

We stand at a crossroads today, and it may feel like the energy transition is firmly at odds with energy affordability. It is not.

Now is the time to sever our reliance on fossil fuels. Yet the cost of the energy transition cannot be neglected — we must drive efficiencies and ferret out non-core spend across the entire energy ecosystem. And this is where Kaluza shines, delivering substantial operational savings and doubling efficiencies for our retail partners.

But these operational savings are the tip of the iceberg, and that's why I'm so passionate about Kaluza. Yes, we help ensure that retailers can survive and keep the lights on for their customers. We aspire to transform the way in which energy retailers interact with their customers so that both can thrive while accelerating the energy transition.

Now this doesn't happen overnight. We need a strong, long-term plan. And that's the very point of this document. We have set a very ambitious 2030 business goal - to be the catalyst to customers avoiding 10 million tonnes of carbon by 2030. We know that in order to get there, we must also have a platform that supports the operation of our retail clients and can deliver a frictionless service for millions of customers.

In addition, we have been working on how we will deliver our 2030 carbon negative target. In this document, we share our carbon footprint for 2021 as well as our market-leading route to SBTi's Net Zero in line with their 1.5°C scenario.

As a company we are committed to ensuring a net positive impact on the world and I hope that you will join us on this ride. The time for action is now.

Onwards.

Scott Neuman

Scott Neuman



MISSION TRANSITION AND THE U.N. SUSTAINABLE DEVELOPMENT GOALS

We are a company passionate about the energy transition. We care because of the role energy plays in people’s lives. How it powers our daily lives, how we work, how we learn. How it keeps us warm in the winter and cool in the summer. How it affects the air we breathe. How it affects our communities and livelihoods.

The energy transition is about so much more than electrons and molecules. It’s about a better planet for everyone, from a sustainability, economic and social perspective. This is why we have aligned our strategy to the United Nations’ 2030 Sustainable Development Goals (SDGs). The SDGs are a global call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. Energy plays a key role in all those areas and there are five SDGs that Kaluza continues commitment to work towards:

OUR PRODUCT



SDG 7 - AFFORDABLE AND CLEAN ENERGY

SDG 7 is at the core of what we do at Kaluza. We are passionate about bringing down costs for energy retailers and making energy more affordable for consumers as the world moves towards more renewable energy generation.



SDG 9 - INDUSTRY, INNOVATION AND INFRASTRUCTURE

Through our smart charging capabilities, we are shaping the future of the electricity grid, enabling more renewable generation and transforming consumption into more flexible, dynamic demand.

OUR PRODUCT



SDG 13 - CLIMATE ACTION

Climate action is the reason Kaluza exists. We contribute to this goal by directly avoiding carbon being released into the atmosphere via our products but also by playing our part in decarbonising our operations across all scopes.

OUR CARBON NEGATIVE TARGET



SDG 12 - ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS

Through our carbon negative target Kaluza is focused on becoming more sustainable in the ways we consume resources. We are also proactively working with our suppliers to ensure we are all on a strong net zero pathway.

PEOPLE



SDG 5 - GENDER EQUALITY

The energy and tech sectors are historically male dominated. At Kaluza, we are committed to changing this by building a culture that breaks underlying biases and encourages diversity of all forms across our sector.



PEOPLE ARE THE KEY TO MISSION TRANSITION



AT THE HEART OF OUR CULTURE ARE OUR FIVE VALUES

To achieve Mission Transition, we need to make sure we attract, inspire and nurture our biggest asset - **our people**.

Revolutionising the energy industry and decarbonising the grid is no easy feat, so it's essential we cultivate an environment where curious and determined individuals thrive and accelerate **our journey to net zero**.

We're continuously developing a progressive people experience; one that attracts the smartest individuals to Kaluza, that inspires them through the inclusive teams they'll be part of, and that nurtures them through a curated development journey.



**We're
on a mission**



**We
build together**



**We're
inclusive**



**We
get it done**



**We
communicate
with purpose**

Our values are our compass; they're how we make decisions and how we treat each other. Like all great companies, we value integrity and trust, excellence and great leadership. But what makes us unique are our values and how we live these, so that we can truly accelerate net zero for everyone.



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HOW WE ACCELERATE THE ENERGY TRANSITION

The use and production of energy (electricity, heat and transport) represents over 70% of global greenhouse gas (GHG) emissions. Renewable energies such as wind and solar can help decarbonise a large part of those emissions. This will require society to electrify large segments of the energy system and collectively move towards a more flexible consumption of energy.

At Kaluza, we are focused on accelerating the energy transition by helping to transform energy retailers to become more nimble in how they operate and bring new propositions to market faster and cheaper.

From a technical perspective, the market has proven solutions to decarbonise people's homes (e.g. electrified heat, better insulation, electric vehicles). The main challenge is convincing consumers of the need to make costly changes to their homes.

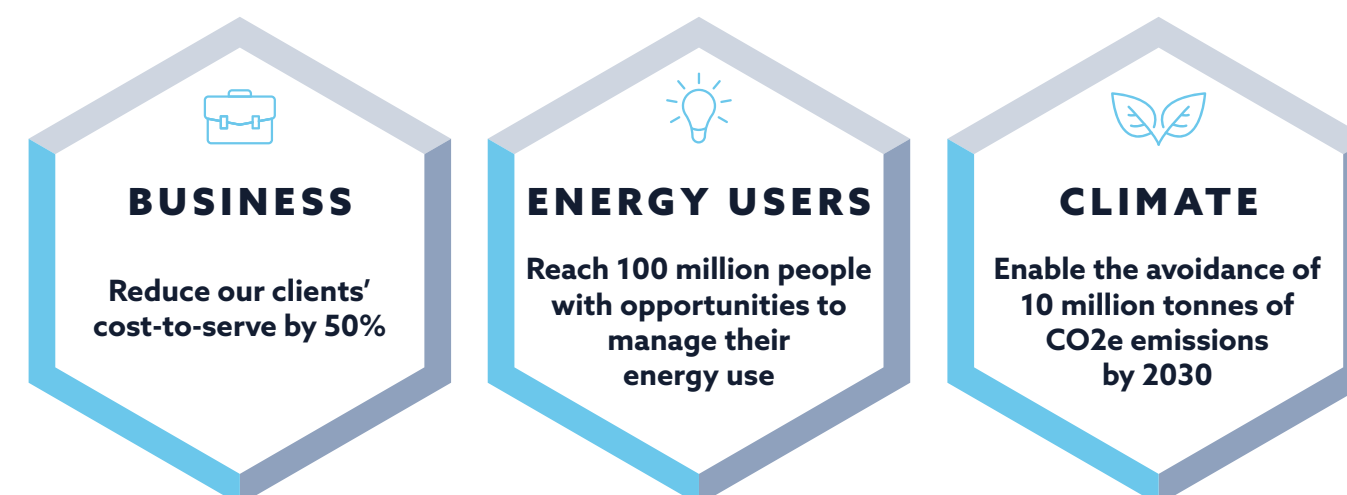
This is why Kaluza was built. To make it easier and more affordable for everyone at home to engage in the energy transition and therefore fight the climate crisis, sometimes without even noticing.



BUILDING A BUSINESS AS A FORCE FOR GOOD

Transforming the energy system takes time. This is why, for us, long-term goals are so important. They encourage us to continue innovating and they keep us focused.

We're fiercely proud to build a triple bottom line business - one that knows its doing good for people, the environment and business. By 2030, we want to have revolutionised how energy retailers run their businesses, have engaged millions of energy users and have avoided vast volumes of carbon emissions from being released into the atmosphere.



WHY THESE GOALS?

We are first and foremost building a platform for our clients. To build our goals we asked existing and potential clients about their pains and their visions for the future. We heard very similar responses from companies operating on different continents and at different scales.

Energy companies are juggling multiple priorities but the first, most immediate one is reducing their tech and operational costs. Then comes customer retention and moving beyond kWh propositions. Energy retailers also recognise the key role they play in driving decarbonisation and the opportunity it offers them to reinvent themselves and gain market advantage.

Delivering on our business goal enables us to achieve our climate and energy user goals — cost-to-serve is the vehicle to avoiding emissions. All three goals are closely tied together with avoiding carbon being the end goal.



MEASURING OUR EVERYDAY PROGRESS

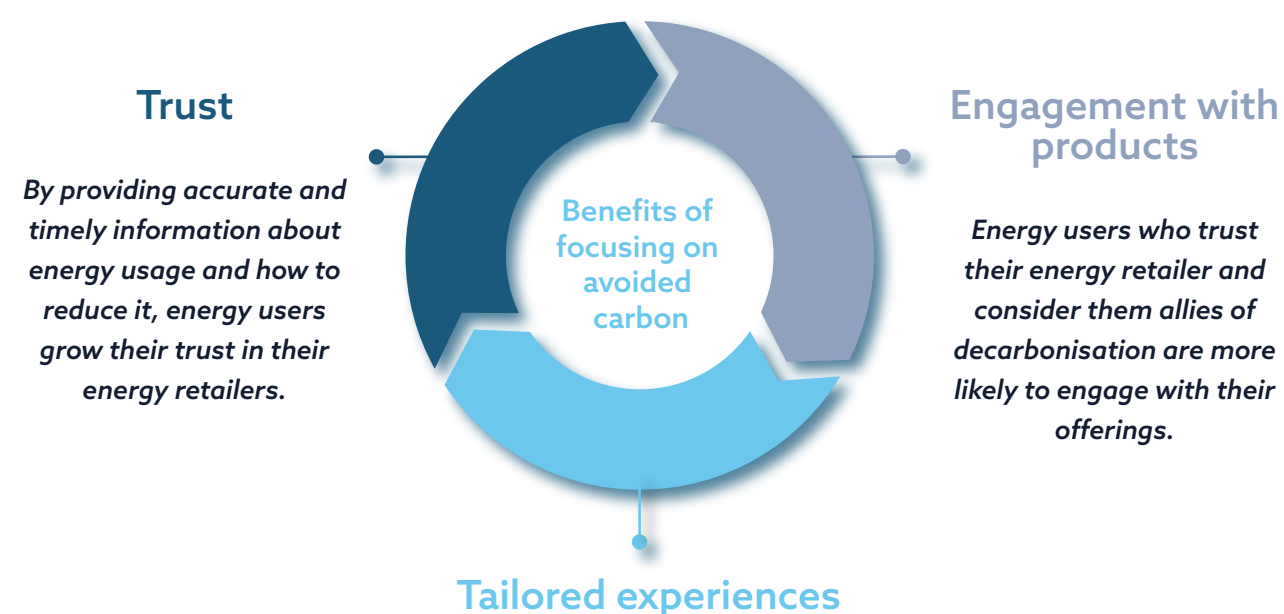
To bridge the gap between today and 2030, we have developed six relevant metrics that we will be focusing on in the short term. We strongly believe that by focusing on these areas, we will accelerate the transformation of our clients into low-cost, nimble, and green energy retailers. We also want energy users to trust and love our clients brands by delivering tailored, efficient and accurate information and experiences.

 BUSINESS	 ENERGY USERS	 CLIMATE
Cost-to-serve <i>We reduce our clients operational and tech costs</i>	Customers on the platform <i>We are a maturing company that you can trust</i>	Engaged green customers <i>Customers engage with our products</i>
Time-to-market <i>Clients bring new propositions to market at speed</i>	CSAT <i>A digital experience that customers love</i>	Avoided carbon <i>We are actively saving the planet</i>

AVOIDING 10 MILLION TONNES OF CARBON EMISSIONS BY 2030

We aim to be the engine to decarbonise people's homes. This is why we have set our target to **avoid 10 million tonnes of carbon through our products by 2030**.

Our target was carefully modelled from our business strategy and projections in the energy system for 2030. We believe that focusing on avoiding carbon is not only good for the planet, it's also great for energy retailers' businesses.

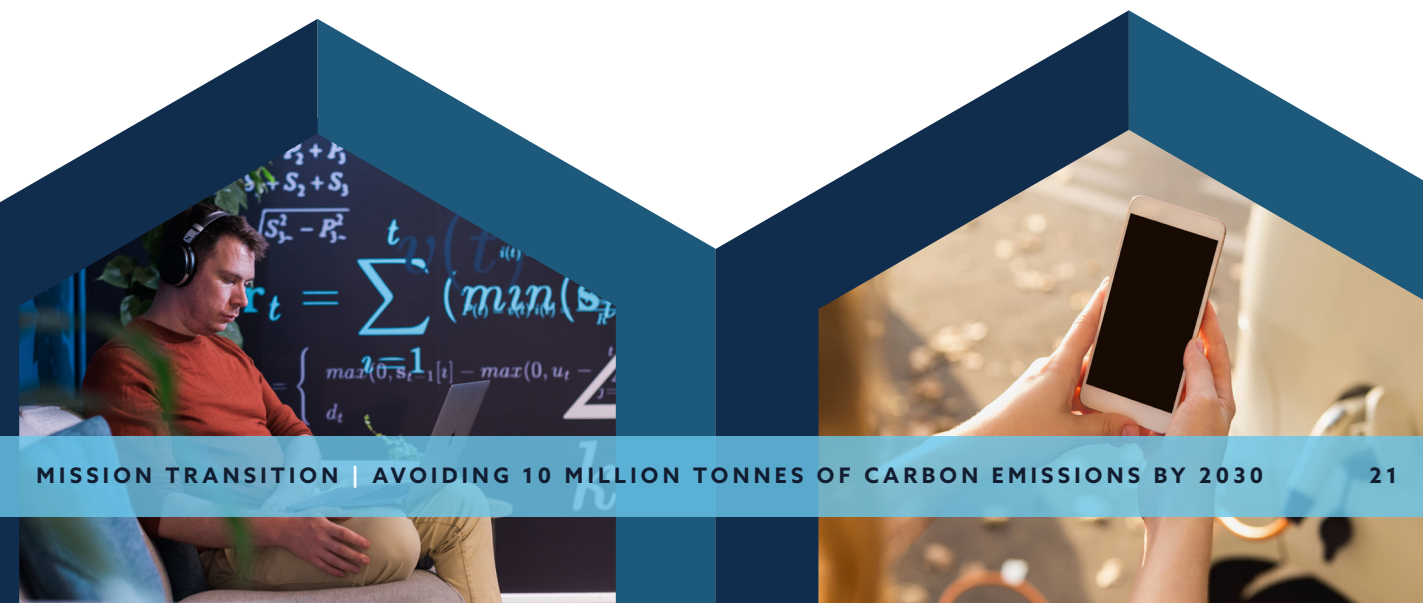


We considered three main areas of avoided emissions:

1 Driving the adoption of **low-carbon smart devices** in customers homes by providing the fastest go-to-market platform for our client's new propositions and providing them with the insights to tailor these to their customers.

2 Promoting **smarter energy usage**. We have identified that the biggest impact as the energy system decarbonises is to inform and encourage end-customers to reduce their use of energy, especially gas.

3 Leverage our **flex energy shifting capabilities** to continue building attractive propositions and provide grid services that enable the penetration of further variable renewable energy.





MEASURING OUR IMPACT

When developing our avoided emissions target a key focus was our measurement methodology. What can we claim is the result of using Kaluza’s product and what isn’t? We have based our approach on three main rules:

1

We will only include avoided carbon that we can **directly track back** to the use of Kaluza’s product and services.

2

When in doubt, we will take a conservative approach to **prevent double accounting** of emissions.

3

Our avoided emissions impact (through clients) is separate to our carbon footprint and **is not included in our carbon negative target**.

We have modelled our avoided emissions method using the U.N. Greenhouse Gas Protocol defined as: ***emission reductions which occur outside of a product’s lifecycle and value chain, but as a result of the use of the product.***

COMPARATIVE GHG IMPACT =

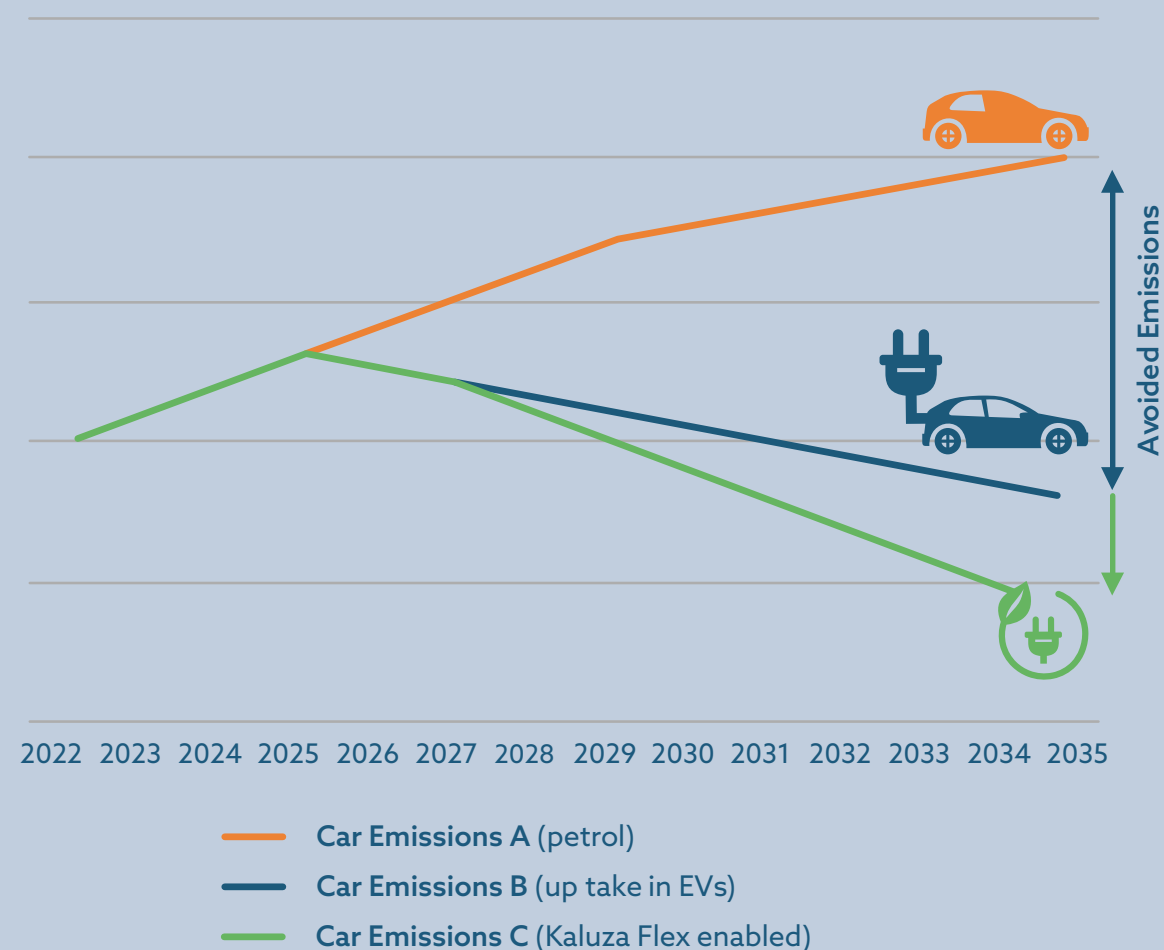
emissions of reference product – emissions of assessed product

We calculate the emissions by comparing the difference between using a Kaluza product and **not** using a Kaluza product. To work out the case of **not** using a Kaluza product, this relies on industry benchmarking and data from outside the our business.

EXAMPLE

For example, Kaluza Flex's smart charging software moves the time of charge for an electric vehicle (EV) from when the national grid is relying the most on fossil fuel power, typically 5pm - 7pm, to a time when it is less carbon intensive. We can easily calculate the emissions of using our Kaluza Flex platform, but for the baseline case we assume that EV drivers who are on our platform would normally start charging their vehicle as soon as they plug it in.

Kaluza's Carbon Avoidance



We cannot reach our 2030 target of avoiding 10 million tonnes of CO₂e alone. We need energy retailers, OEMs, insights providers to join us in this journey.

If you are one of them and you like what you've read, get in touch with us and let's accelerate the energy transition together!

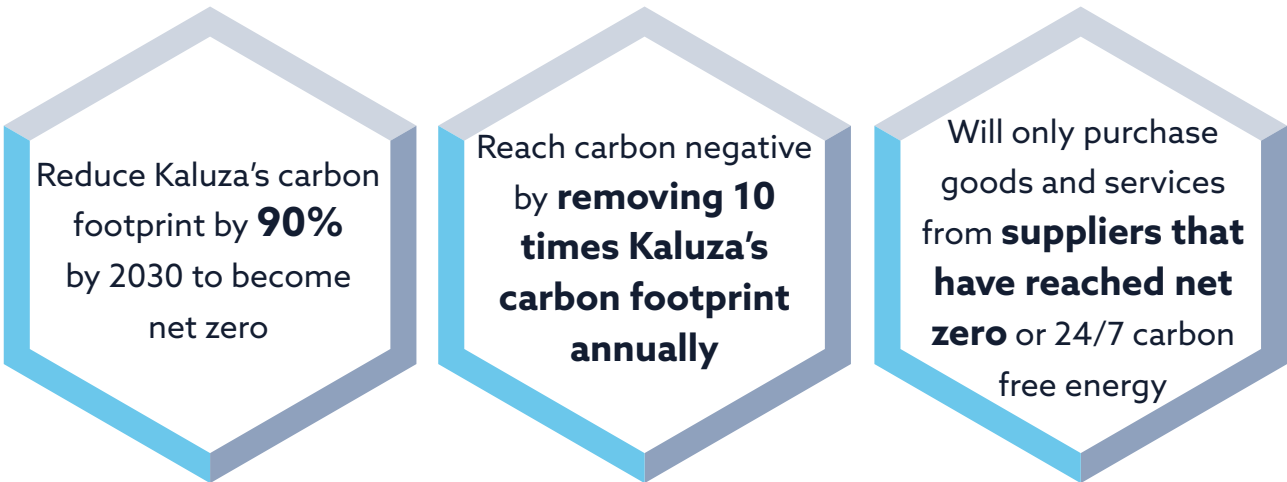


LEADING BY EXAMPLE

The most important focus area for Kaluza is ensuring that we are supporting our clients through the energy transition, this has more potential impact than any other area. However, we need to ensure our business is also aligned to a trajectory that uses the latest scientific climate change abatement models.

We have undertaken an exercise to review our carbon footprint, established a plan to get us to our carbon negative 2030 aim, and submitted this to the Science Based Targets initiative for validation.

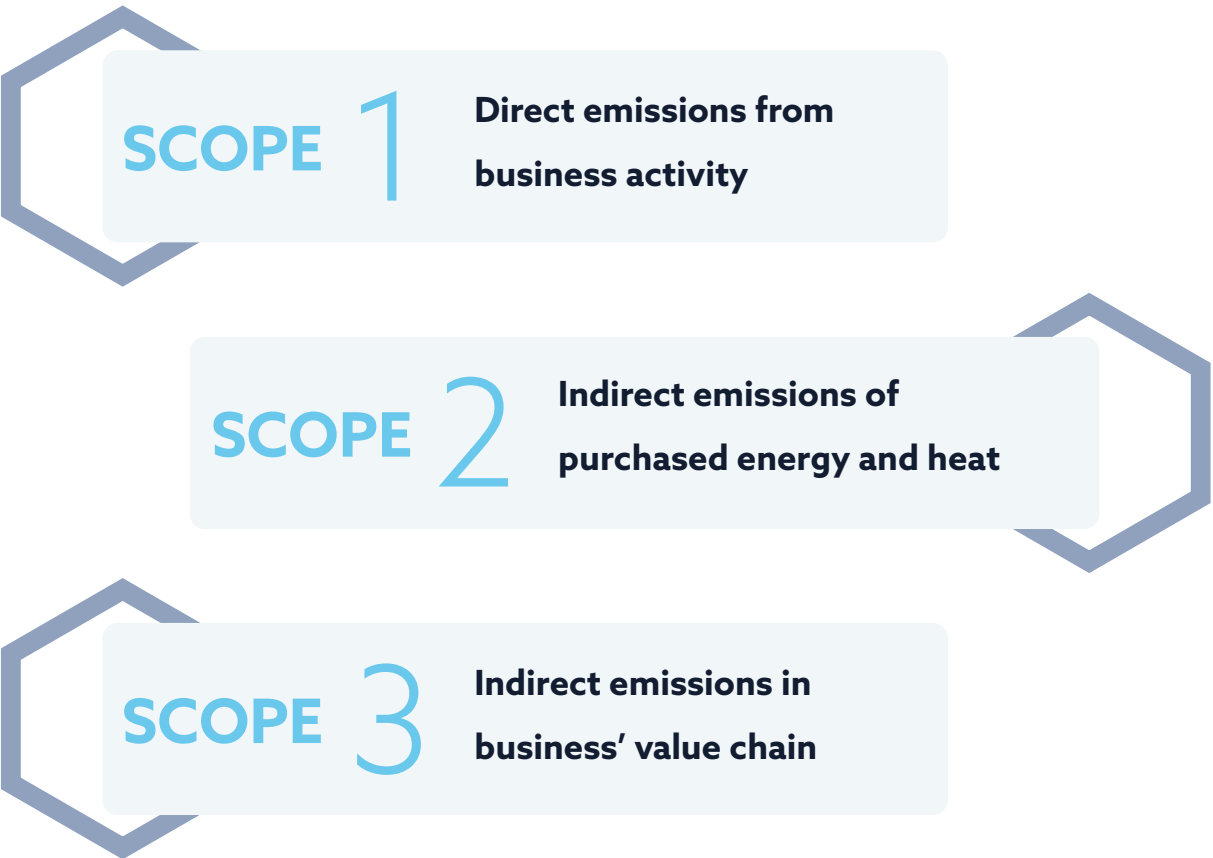
THE MAIN HIGHLIGHTS OF THIS SECTION



KALUZA'S CARBON FOOTPRINT

As a software company, Kaluza's footprint is predominantly in our Scope 3 (96%). As such, we have been as thorough as possible in calculating our carbon footprint in this area. We reviewed our value chain and have included as many emission areas of our business as we can. The calculation for each category and overall methodology can be found in the Methodology section at the end of this report.

WHAT ARE SCOPES 1, 2, AND 3?



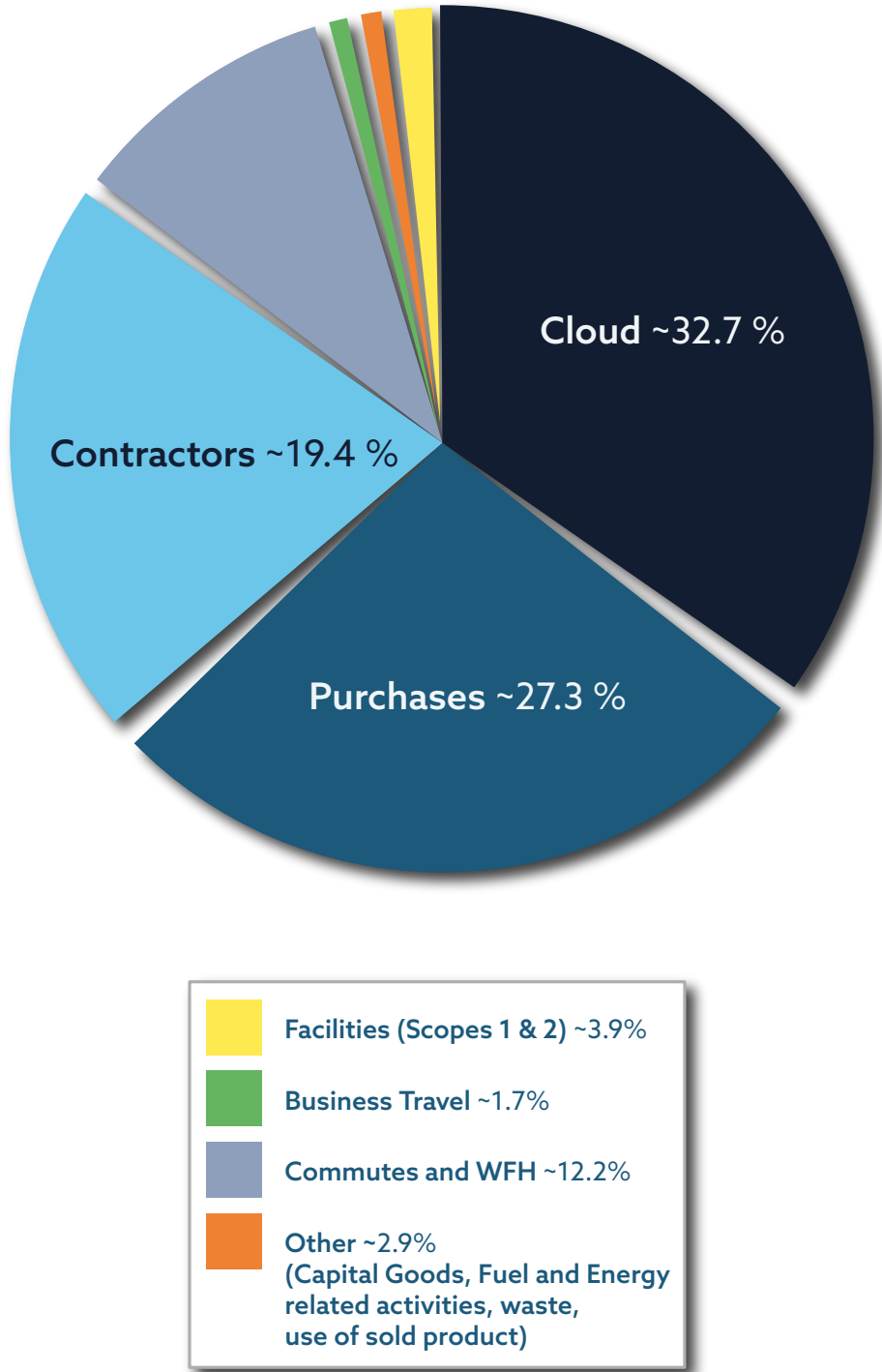


KALUZA 2021 FOOTPRINT (BASELINE)

Key	Kaluza Value Chain Emissions	Scope	Kaluza 2021 Emissions (tCO2e)	% of Total
	Scope 1 Emissions	Scope 1	28	1.2%
	Scope 2 Emissions (location-based)	Scope 2	61	2.7%
	Scope 2 Emissions (market-based)	Scope 2	0	0.0%
	Scope 3 Emissions	Scope 3	2,192	96.1%

Key	Kaluza Value Chain Emissions	Scope	Kaluza 2021 Emissions (tCO2e)	% of Total
	Purchased Goods and Services	Scope 3 - Category 1	1,810	79.4%
	Capital Goods	Scope 3 - Category 2	45	2.0%
	Fuel and energy related activities	Scope 3 - Category 3	10	0.4%
	Waste generated in operations	Scope 3 - Category 5	8	0.4%
	Business travel	Scope 3 - Category 6	38	1.7%
	Employee commuting (and homeworking)	Scope 3 - Category 7	278	12.2%
	Use of sold products	Scope 3 - Category 11	3	0.1%

A DETAILED BREAKDOWN



Our total carbon footprint for 2021 was 2281 tonnes CO2 equivalent. This works out at roughly 5 tCO2e per FTE.



OUR SCOPES 1 AND 2

All of our emissions from Scopes 1 and 2 comes from our three offices, Scope 1 from legacy heating systems. All of our facilities use renewable energy backed by certificates, but at Kaluza we want to hold ourselves to high standards so we have included our Scope 2 emissions using a location-based calculation.

NOTE: MARKET VS LOCATION

Market-based calculation: where a company includes their market activity in the scope of a carbon footprint e.g. purchasing renewable certificates.

Locations based calculation: where a company uses regional emissions intensities as the basis of their emissions for activities e.g. using the national grid intensity for electricity Scope 2 emissions.

NOTE: DATA QUALITY

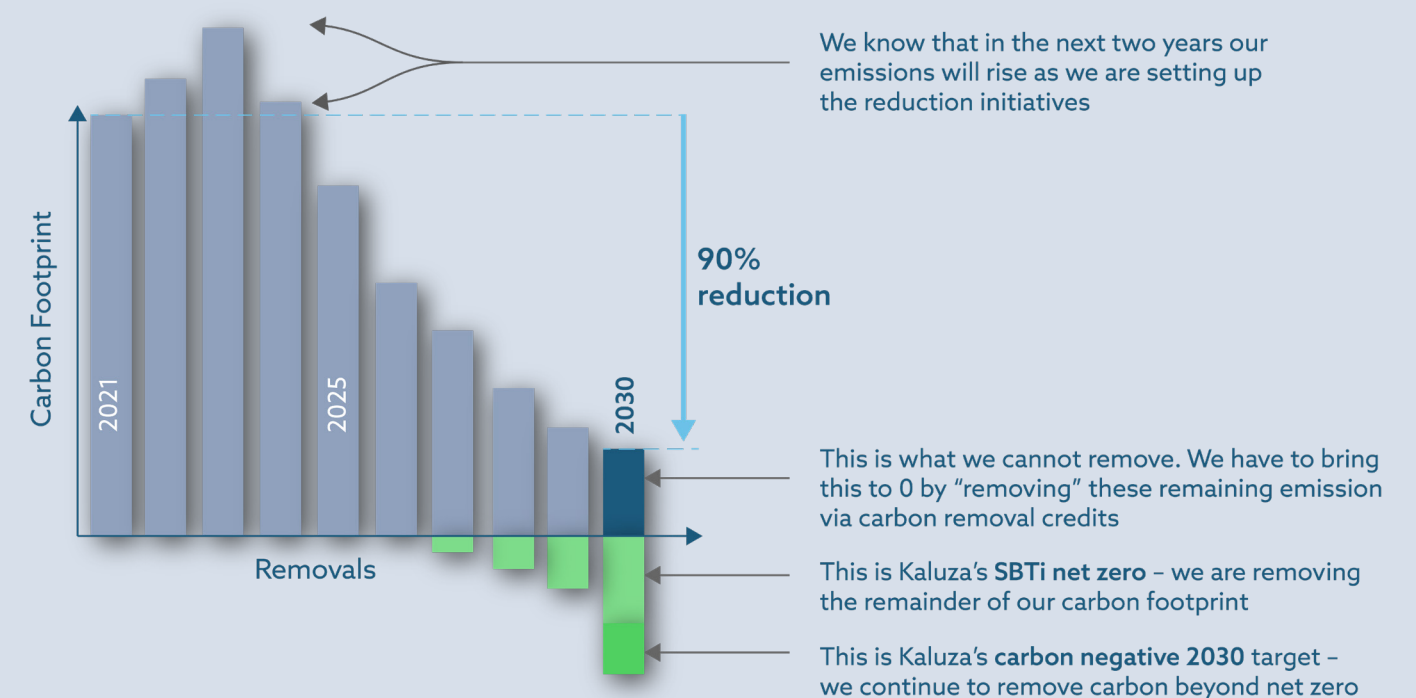
During the scoping process of our footprint baseline, we realised that the quality of data available to us from our suppliers was quite poor overall. For accurate reporting we need direct usage and emissions (locations based), yet almost all of our suppliers could only give us spend information. Critical to our Carbon Negative goal is more accurate data on our footprint. We are working with our suppliers on improving this, and more can be found in the next section on Goods and Services.



DECARBONISING KALUZA

Our decarbonisation target is to be **carbon negative by 2030, in line with SBTi's Net Zero 1.5° scenario** - requiring a 90% reduction in our Scopes 1, 2 and 3 emissions.

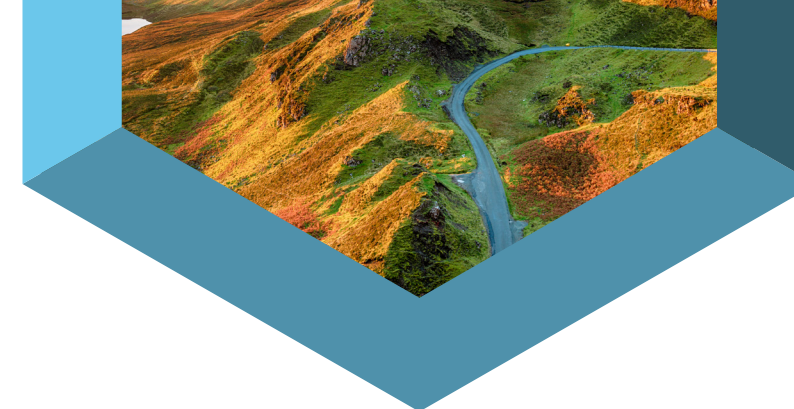
Kaluza's Carbon Footprint following SBTi



This market-leading target requires a thorough plan to get there. For each emission area of our footprint, we have laid out a short term and long term action plan. We have submitted this plan to SBTi and are awaiting verification.

REDUCTION PLAN

To achieve our goal, we need to examine our footprint areas one by one and evaluate how we will:



Scopes 1 and 2

The direct and indirect emissions from our facilities, fleet and refrigerant losses

Activity	2021 Emission	% of Total 2021 Footprint
Scope 1 (Facilities)	27.7tCO ₂ e	1.2%
Scope 2 (Facilities)	60.6tCO ₂ e	2.7%



Two-Year Action Plan

- **Scope 1:** Work with Exec and Facilities to reduce gas consumption in our offices
- **Scope 2:** Continue to lobby and support the grid to become greener

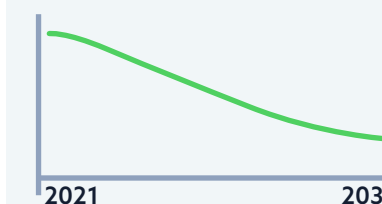


2030 Goal

- Kaluza will only have gas-free offices and confirmed renewable energy supply



Anticipated pathway to 2030



Medium Focus Level

There are uncertainties over the decarbonisation of the electricity grids.



Scope 3 – Purchased goods and services

Activity	2021 Emission	% of Total 2021 Footprint
Cloud services	745.1tCO ₂ e	32.7%
Contractors	448.8tCO ₂ e	19.4%
Business Purchases	622.2tCO ₂ e	27.3%

Cloud Services

The indirect emissions from our use of cloud storage and computing



Two-Year Action Plan

- Drive efficiencies in the way Kaluza uses their services
- Work with both cloud providers to push them to set a net zero 2030 target

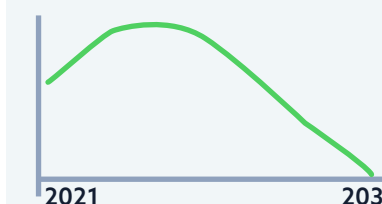


2030 Goal

- Kaluza will only work with cloud providers who have achieved SBTi net zero or 24/7 carbon free energy

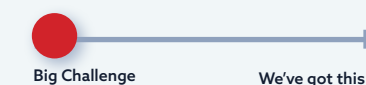


Anticipated pathway to 2030



High Focus Level

Large reliance on external parties achieving climate action. Kaluza platforms rely on these services.



Scope 3 – Purchased goods and services

Contractors

The indirect emissions from all contracted workers and business services

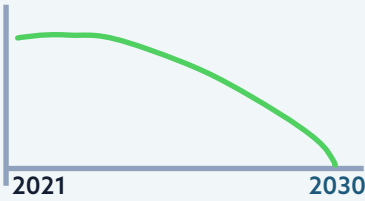
Two-Year Action Plan

- Business services: reduce dependence on these services
- Contractors: reduce use of contracted labour
- Implement Environmental Purchasing policy to guide future purchases

2030 Goal

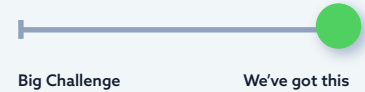
- Kaluza will only work with business service organisation that have achieved net zero

Anticipated pathway to 2030



Low Focus Level

Alignment with Kaluza business objectives. Service businesses typically have a strong net zero targets.



Business Purchases

The indirect emissions from all other purchases required to operate our business

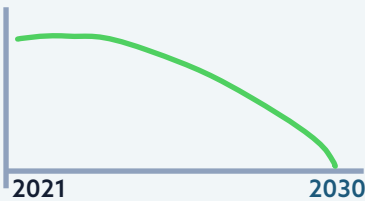
Two-Year Action Plan

- Water: continue to monitor water usage in facilities to ensure it remains low
- Other purchases: drive greater accuracy in the reporting

2030 Goal

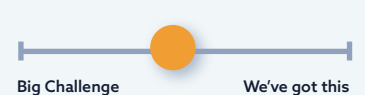
- Facilities will utilise low consumption water appliances
- Kaluza will work with only net zero suppliers

Anticipated pathway to 2030



Medium Focus Level

Reliant on other suppliers' action, but highly achievable.



Scope 3 – Capital Goods

The indirect emissions from all physical products purchased for our business

Activity	2021 Emission	% of Total 2021 Footprint
Capital Goods Purchased	45.1tCO ₂ e	2.0%

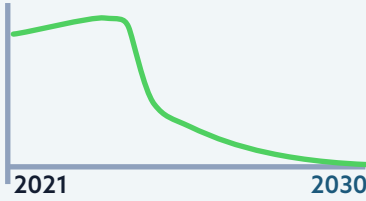
Two-Year Action Plan

- Reduce dependence of our business on physical products

2030 Goal

- Reach state of no physical goods purchased for the operation of our business
- Where goods are necessary, we're using suppliers who have achieved net zero status

Anticipated pathway to 2030



Medium Focus Level

We may require some physical goods for R&D and core business functions (e.g. IT, Facilities).



Scope 3 – Fuel and Energy T&D

The indirect emissions from transmission and distribution (T&D) of fuel and energy purchased in Scope 1 and 2

Activity	2021 Emission	% of Total 2021 Footprint
Fuel and Energy T&D	9.9tCO ₂ e	0.4%

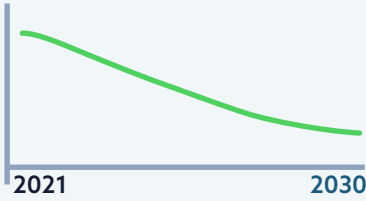
Two-Year Action Plan

- Scope 1: Work with our Executive and Facilities teams to reduce gas consumption in our offices
- Scope 2: Continue to lobby and support local

2030 Goal

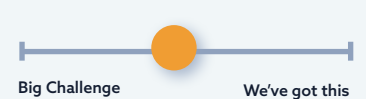
- Kaluza will only have gas-free offices and confirmed renewable energy supply

Anticipated pathway to 2030



Medium Focus Level

There are uncertainties over the decarbonisation of the electricity grids.



Scope 3 – Waste

The indirect emissions from waste produced by our business (facilities waste)

Activity	2021 Emission	% of Total 2021 Footprint
Waste Produced	8.4tCO ₂ e	0.4%

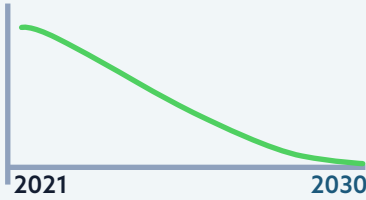
Two-Year Action Plan

- Reduce waste to landfill in our facilities by offering more recycling options

2030 Goal

- Strive for zero waste to landfill (all waste is recycled) and reduced recycling volumes

Anticipated pathway to 2030



Low Focus Level

This is well within our ability to achieve!





Scope 3 – Business Travel

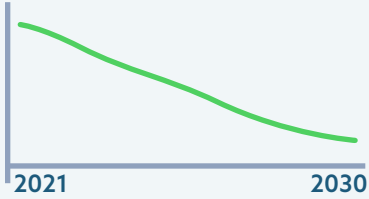
The indirect emissions from waste produced by our business (facilities waste)

Activity	2021 Emission	% of Total 2021 Footprint
Air Travel	17.5tCO2e	0.8%
Rail Travel	15.4tCO2e	0.7%
Other Business Travel (inc Hotels)	5.0tCO2e	0.2%

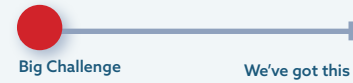
- Two-Year Action Plan**
- Air Travel: implement travel policy to reduce air travel to only when necessary
 - Rail Travel: preferred travel option. We anticipate this to increase
 - Travel policy will prefer environmentally friendly hotels and use of rail travel

- 2030 Goal**
- Reduce (not eliminate) business travel overall and prefer rail travel when necessary

Anticipated pathway to 2030



High Focus Level
Challenge is with air travel as Kaluza becomes increasingly international.



Scope 3 – Commuting and WFH

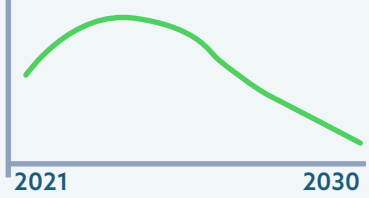
The indirect emissions from commuting into the office and working from home

Activity	2021 Emission	% of Total 2021 Footprint
Commuting	28tCO2e	1.2%
Employee Working From Home	250tCO2e	11.0%

- Two-Year Action Plan**
- Increase accuracy of the emission calculation by gaining clearer picture of commuting habits and Kaluza homes
 - Introduce "Greening Kaluza Homes" program

- 2030 Goal**
- Kaluza will support employees to have fully electrified homes
 - Kaluza will support employees to use low-carbon commuting methods

Anticipated pathway to 2030



Medium Focus Level
Removing gas from homes will reduce this but renewable electricity provision for homes needs to be addressed.



Scope 3 – Use of Kaluza Platform

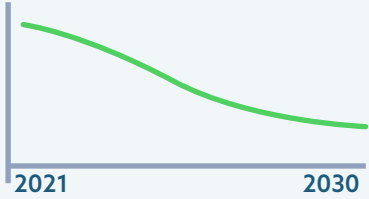
The indirect emissions from the use of Kaluza products

Activity	2021 Emission	% of Total 2021 Footprint
Use of Kaluza platform	2.8tCO2e	0.1%

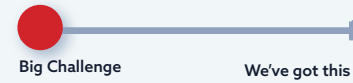
- Two-Year Action Plan**
- Work with platform design teams to reduce compute power consumption

- 2030 Goal**
- Kaluza platform interfaces have been designed to minimise power consumption without affecting performance and functionality

Anticipated pathway to 2030



High Focus Level
This is an extremely hard emission to abate due to reliance on client's employee's energy provider.



REACHING CARBON NEGATIVE

Net zero is becoming a hygiene factor and many companies are realising that we need to go beyond. We are one of those companies. We believe that reducing emissions is not enough and that as highlighted in the latest IPCC report we need to start massively removing carbon from the atmosphere.

This is why from 2030, Kaluza will remove 10 times more carbon from the atmosphere than we emit in our carbon footprint.

We aim to do that by leveraging carbon removal offsets. We will continue to pay close attention to the market and invest in the most promising solutions. In the next few years though, our investment in sustainability will be focused on reducing our carbon emissions of our business, in alignment with the Science Based Target initiative.

THE START OF THIS JOURNEY

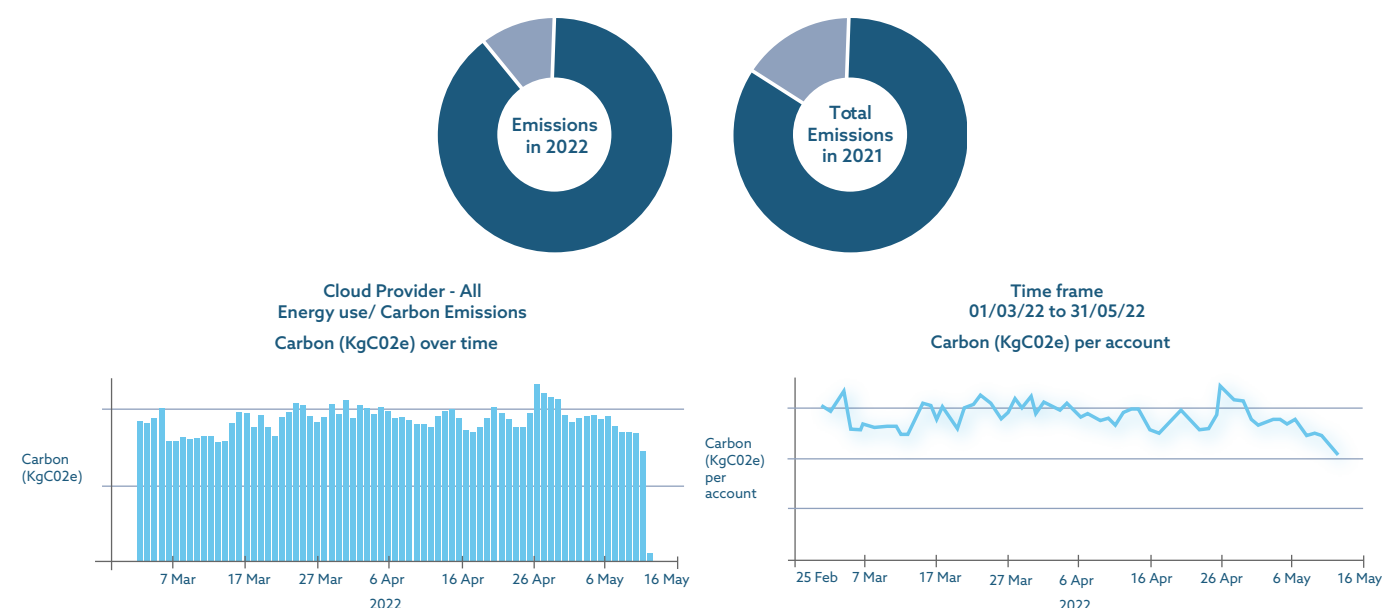
We've already begun this journey. Given cloud services is the largest emission area for our business, we have started a number of projects to begin reducing our impact here. Cloud providers are a large chunk of our Scope 3 emissions and without addressing how we are going to reduce our emissions or decouple them from our growth we would not be able to meet our carbon negative company targets.

CLOUD CARBON VISIBILITY TOOL

The first step in decarbonising our cloud emissions is to understand the emissions in more detail. We wanted to be able to identify, when, where and how we are using the cloud. To actually create actions from insights, we need to break down these emissions by teams and more granular time frames to track progress and measure success.

So we built our Cloud Carbon Visibility tool; a dashboard which allows everyone at Kaluza to track carbon emissions and energy usage over time from our cloud providers, broken down by different levels such as squads, teams, type of usage etc. It also tracks progress over time and per account on the platform to see whether we're scaling efficiently. We use key figures such as percentage reduction/increase and comparison figures with last year to give us an indication of our progress.

Understand energy use and carbon emissions from cloud computing over time.



In creating this dashboard, we can track carbon emissions across the business, creating actionable insights for individual teams and evaluate how we are doing against our wider carbon targets, giving us early warning signs if we are off track. We have then been able to track the success of our other cloud emission reduction initiatives, such as Green Software Development.

GREEN SOFTWARE DEVELOPMENT

Having created the Cloud Carbon Visibility tool and the actionable insights, we then realised there were common themes in the actions our teams could take.

We compiled these common actions into our Green Software Development handbook - a collection of recommendations that reduce the impact of our cloud services across a number of technologies at varying stages of the development process. It is data-driven, with recommendations being backed up by real-world data from teams; helping us to categorise recommendations based on their impact, and to tailor the handbook to individual teams needs.

Developer time is always short, and the climate crisis waits for no-one, which is why we put a focus on manageable recommendations. We do not encourage engineers to make radical changes to their codebase, instead suggesting they action whichever recommendations they are able to within an hour. We then encourage larger effort actions to be acted upon when developing new services or rebuilding old ones.

We believe that by encouraging a culture of sustainability across the Kaluza community we can reduce our energy use, and therefore emissions, of our cloud services whilst we scale up our customer base. This decoupling of our emissions from our growth is fundamental to achieving our Carbon Negative 2030 target.

Although we are just at the beginning of our journey, we will continue to expand the handbook with more advice and soon make it available to others outside the Kaluza community.

CASE STUDY: QUERY CONSOLIDATION

A team was performing several large queries that were resulting in around 200kgCO₂e of emissions per day. Using the Green Software Development handbook, they combined their queries into a simpler, single query. They also consolidated their data into a single cloud location.

This meant that they saved enough usage to reduce their emissions by 97%.

TECH ZERO

To further show our commitment to reaching SBTi net zero and carbon negative, as well as engage with our community of technology companies, we are a proud member of Tech Zero. Tech Zero is a group of fast-growing UK tech companies, working together to tackle the climate crisis and make the UK the number one destination for green investment.





METHODOLOGY

ASSESSING ENERGY TRANSITION METHODOLOGY - AVOIDED EMISSIONS

Being one step removed from any actions that lead to avoiding emissions, we had to build a strong methodology to claim any impact. We wanted to ensure that our approach was in line with the latest industry guidance and that we would feel proud to share it publicly. Therefore, any avoided emissions claim we make will be based on these principles.

1 We measure our impact by comparing the baseline carbon intensity vs realised carbon intensity
a. Baseline is defined as the non-Kaluza or pre-Kaluza product use case

2 We must be able to prove that the avoided emissions are the result of a direct Kaluza intervention. We will measure this using:
a. A/B testing for new products
b. Correlation between product access and energy consumption
c. Tracking direct engagement with Kaluza generated lead

3 We always favour location based data vs market based claims

4 We favour publicly available data to develop our baseline and to calculate realised avoided emissions intensities.

5 All calculations are reviewed to prevent double counting or over/under calculation of emissions.

6 Calculations will aim to be conservative estimates where actual data is unavailable.

7 Targets will stay relevant to the needs of the market, our clients, and their end consumers



METHODOLOGY

CARBON FOOTPRINT METHODOLOGY

At Kaluza we believe in being as transparent as we can and not hide away from the challenges we face.

PRINCIPLES

At Kaluza, we acknowledge that carbon accounting varies from case to case, with existing methodologies acting as guides requiring adaptation to situations. To ensure objectivity and high standards are upheld in the carbon reporting process, the following principles were defined. These principles should be referred to when decisions are under consideration.



ALIGN WITH GHG PROTOCOL

The basis of the carbon calculation method will be the GHG Protocol. See Appendix.



OPERATIONAL BOUNDARY

GHG Protocol defines two boundary conditions, Financial and Operational. For this methodology, the Operational boundary condition is used.



CONSERVATIVE FIRST

This methodology looks to take the most reasonable conservative approach where possible; favouring a more conservative of two options to prevent underestimation of emissions.



MATERIALITY DEFINITIONS

This method will include a materiality threshold where elements will be out of scope if they don't represent a significant emissions value. However, the total discounted emissions value should itself also not represent a significant emission.



ACCURACY AND COMPLETENESS

Data and calculation methods should be as accurate as possible without compromising completeness of covered emissions. The priority is to calculate the entire carbon footprint at a minimum.



DATA CONTROLS

All data inputs will have appropriate controls in place to ensure their accuracy by the data owner. The methodology and outputs will be verified externally.

**This methodology will be reviewed on an annual basis to ensure the relevance of our approach and reach greater degrees of accuracy on data inputs and calculator methods.



KALUZA'S CARBON FOOTPRINT SCOPE

INCLUSIONS

SCOPE 1

Buildings

Emissions associated with the combustion of fuels in the premises that Kaluza is accountable for, including gas, diesel and refrigerant loss

SCOPE 2

Buildings

Emissions associated with the electricity use in the premises that Kaluza is accountable for, including gas, diesel and refrigerant loss

SCOPE 3

Category 1 - Purchased goods and services

Emissions associated with the combustion of fuels in the premises that Kaluza is accountable for, including gas, diesel and refrigerant loss

Category 2 - Capital goods

Indirect emissions associated with purchased capital goods

EXCLUSIONS

Fleet

Kaluza has no fleet vehicles

Fleet

Kaluza has no fleet vehicles

Category 4 - Upstream Transportation

Kaluza has no or negligible upstream transportation of goods

Category 8 - Upstream leased assets

Kaluza has no leased assets upstream that aren't accounted for elsewhere

INCLUSIONS

Category 3 - Fuel and energy related

Emissions associated with the transmission and distribution of energy purchased in our Scopes 1 and 2

Category 5 - Waste

Indirect emissions as a result of food, recycling and general waste in our facilities

Category 6 - Business travel

Emissions associated with transportation and habitation of employees travelling for work

Category 7 - Employee Commuting

Commuting - emissions as a result of employees travelling to their place of work.
Working from Home - emissions from lighting, computing power and heating employee homes whilst they are working there

Category 11 - Use of sold product

Indirect emissions associated with computation power of using Kaluza product interfaces

EXCLUSIONS

Category 9 - Downstream transportation

Kaluza doesn't transport any produced goods

Category 10 - Processing sold products

Kaluza's processing sold products is captured in Category 1

Category 10 - Processing sold products

Kaluza's products have no end of life footprint

Category 13 - Downstream leased assets

Kaluza has no downstream leases of assets

Category 14 - Franchises

Kaluza doesn't operate franchises

Category 15 - Investments

Kaluza has no responsibility over investment emissions



DATA SOURCES

As with many carbon footprint accounting exercises, at Kaluza we have combined a number of data sources to create what we see is an accurate picture of our emissions. Our preference of data is as follows

- 1. Real use data** - showing actual use of an emission source, e.g. facilities data showing actual energy use
- 2. Locations based emissions data** - where real use data is unavailable, we have used a locations based methodology using national grid information for each location, e.g. for some of our cloud emissions we have used locations based emissions intensity
- 3. Spend based data** - where real use data is unavailable, we have used spend based data with industry estimation intensity factors to estimate emissions
- 4. Industry factors** - where real use data is unavailable and location estimations aren't relevant, we have used industry factors to estimate emissions, e.g. we have used UK DEFRA emissions factors to estimate commuting emissions

It is worth noting that, in line with UN Greenhouse Gas Protocol guidelines, we have used only locations based methods in our Scope 3 calculations. This has meant rejecting data from suppliers where they have used a market based calculation for our emissions.

The source of our carbon footprint data is so important. We have seen that the better the data provided by suppliers, the more accurate our footprint calculation. However, more importantly, better data means we are more likely to be able to take action.

One of the biggest sources of emissions for our business is the software and computing used to create our platforms. 90% of the emissions in this area have been calculated using a spend based method, as the supplier does not provide usage data. In some cases, the supplier has given us emissions data with a market based calculation which we have rejected.

The other 10% has given us data to a high degree of usability, and it's this data that has already shown the greatest improvements through the engineering projects mentioned in the section on Reaching Carbon Negative.

It is fundamental for us to get a greater transparency of data from suppliers for us to reach carbon negative by 2030.





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Cassie Harman
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