

# CORPORATE SUSTAINABILITY REPORT

UN Sustainable Development Goals  
& Greenhouse Gas Emissions Report

2020



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# Introduction



*Awesense is proud to release our inaugural Corporate Sustainability Report. This report has been compiled with help from many individuals in the organization, and has been an important project in helping us continue to drive positive environmental, societal and global impact. During a difficult year which has left many of us inside and in the same geographical region for months on end, we've viewed the global pandemic from a different perspective. It has given us a glimpse of what a clean, low-to-zero emission world could look like. COVID has allowed us to imagine a different future, where remote-working technology, a reconnection with nature, and limited business travel can have a positive impact on the environment and society.*

As a Cleantech company, whose mission is to optimize energy systems, accelerate the growth of renewable energy, and reduce carbon emissions, this report is our message to the world that we are accountable and practicing what we preach. It aims to provide transparency to all our customers, partners, and stakeholders on how we are approaching our mission, and contributing to global progress through our work.

We want to highlight our effort towards achieving the UN Sustainable Development Goals, the areas we have excelled in during the past year, and what our goals are going forward. Additionally, as a means of tracking our progress, the Awesense team has calculated our entire organization's carbon footprint. This will serve as a benchmark going forward, and we will continue trying to improve our impact on the environment.



## CEO's Statement



Dear Readers,

Awesense was born as an innovation company. Our goals focused around the importance of optimizing the world's largest machine, the energy grid. Since Awesense began its journey in 2009, energy grids now take many different shapes and sizes, with nanogrids and microgrids becoming commonplace. With the advent of distributed energy and electric vehicles, we anticipated the complexity of grid growing to levels that we would not be able to deal with. The first phase of the Awesense journey began by creating an IoT sensor device that would extract data from anywhere in the grid. Phase two saw us building analytical and operational applications to help our customers utilize their data. Now in phase three, we have developed the Awesense Digital Energy Platform, so we can provide the foundation to future of energy applications.

Growing up, recycling was paramount in our household, far before it was common practice and was my first exposure to sustainability. We had no more than one shopping bag of garbage at the end of every month due to our recycling program and reducing the amount of non-recyclable material that was bought with food and other

“Today as we grow closer to achieving **our target vision of removing 100 million tonnes of CO2** from the environment by the end of 2025”

**Mischa Steiner**

– Founder & Chief Executive Officer

goods. My mom, who led this charge at home, also planned field trips for my class to plant trees and plants in the local roundabouts and the neighborhood where it was barren.

***When I founded Awesense in 2009, I was driven by these same values my mother instilled in me. I had no interest in doing something that was not going to positively impact the world. Today as we grow closer to achieving our target vision of removing 100 million tonnes of CO2 from the environment by the end of 2025, we agree it's an ambitious goal, albeit an achievable one.***

We made tremendous progress last year by guiding energy companies in their journey to meet CO2 reduction targets, increasing the diversity of the team and striving for future increased diversity by signing the Edict Pledge. Going forward, we are committed to expanding our progress further in these areas, and are confident that this report will highlight our dedication to our goals. We will achieve this through every aspect of our organization with the choices we personally make, and also in the platform innovation enabling customers and partners to accelerate towards a decarbonized future.

***This is the first time Awesense has produced a Sustainability Report, but it is certainly not the last. Today, Awesense is positively impacting a number of organizations spanning four continents. Tomorrow, that impact will continue to grow. By tracking our progress, and by sharing it with our valued stakeholders, we will continue to positively impact the world.***

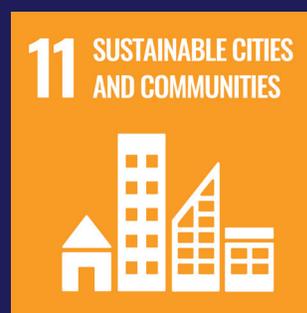
I hope you enjoy reading about our work in achieving sustainability goals, and that it inspires you to join us on our journey.



## Sustainability Development Goals (SDGs)

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**The United Nations Sustainable Development Goals are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including those related to poverty, inequality, climate change, environmental degradation, peace and justice.**



## Sustainable Development Goals:

Since inception in 2015, the 2030 Agenda for Sustainable Development seeks to strengthen universal peace and recognizes that eradicating poverty in all forms and dimensions is crucial for global development. The 17 Sustainable Development Goals and 169 target goals require urgent action to shift the world onto a sustainable and resilient path. With 2030 less than a decade away, we must do our part in taking action and implementing measures within our organization to build a sustainable future. Awesense was created with the goal to optimize the world's energy systems, drive renewable growth and reduce global emissions with our technology. This report was created to keep track of our contributions and keep us accountable in participating in this agenda to transform our world for the better.

***This report will outline the progress that we have made towards SDG goals #7 Affordable and Clean Energy, #9 Industry, Innovation and Infrastructure, #11 Sustainable Cities and Communities, and #13 Climate Action. We believe that the most crucial area of action is combating climate change, with experts forecasting a temperature rise of 2.5 to 10 degrees fahrenheit over the next century. As the world continues to burn fossil fuels, these actions contribute to the average rise of temperatures worldwide. Keeping this in mind, at Awesense we have set the goal of helping mitigate 10 million tonnes of CO2 from entering the atmosphere by 2021, and 100 million by 2025.***

Just as these problems are interlinked, the solutions to poverty, inequality, climate change and other global challenges all rely on one another. Global warming impacts our ever changing ecosystem and can threaten the well-being of others especially when extreme weather events occur. Through working to combat climate change by shifting to clean energy with renewables, we believe this can contribute to overall energy equality and equal opportunity access for many disadvantaged communities across the globe. We hope to play a part in this change. With multilateral action, advances towards the 2030 Agenda can be made as we work towards the common objective of achieving these sustainable development goals. This report presents and describes our efforts towards these goals and we welcome feedback from our stakeholders as we continue to engage and strengthen our efforts on these matters.

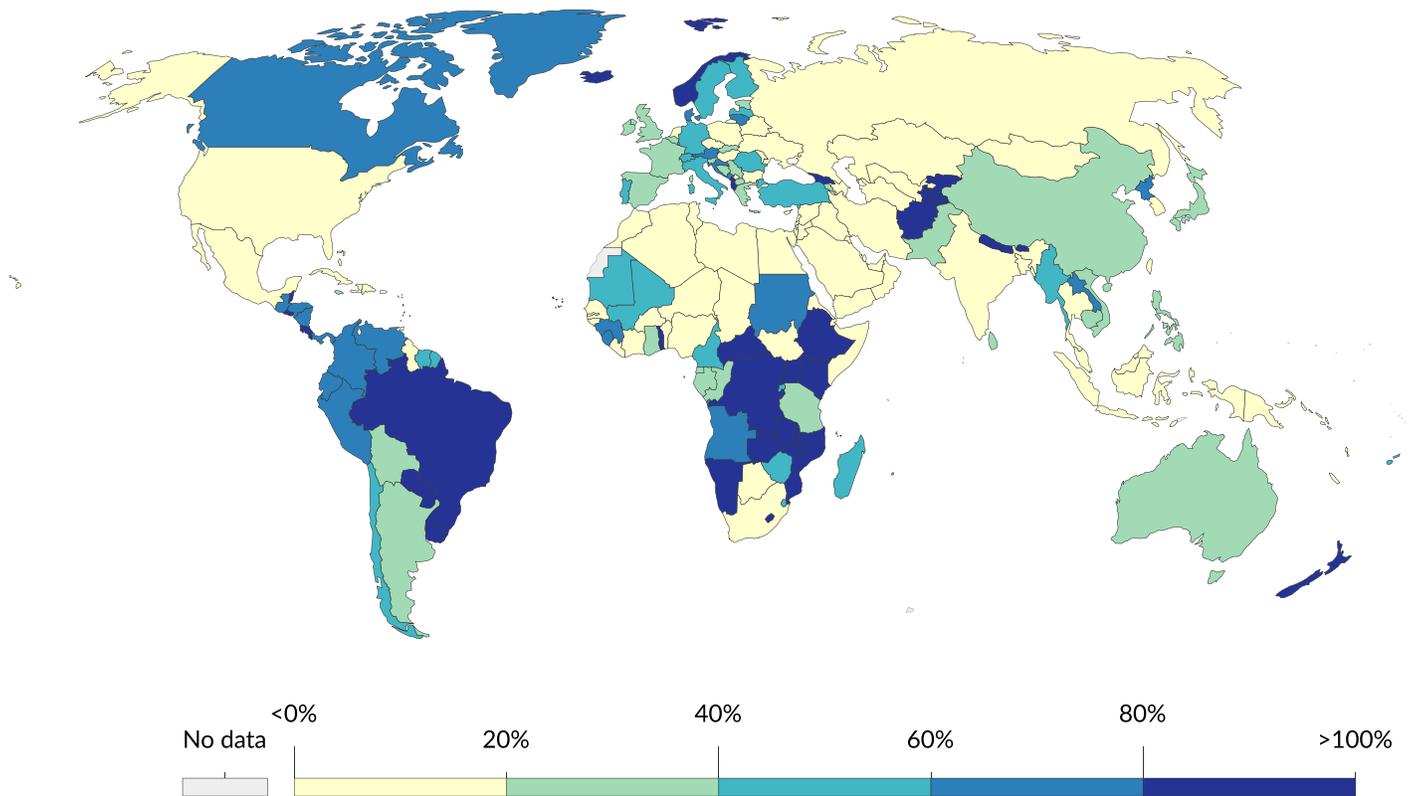


## Goal #7

# Affordable and Clean Energy

Ensure access to affordable, reliable, sustainable and modern energy for all

Renewables includes electricity production from hydropower, solar, wind, biomass, and waste, geothermal, wave and tidal sources.



Source: Our World in Data based on BP Statistical Review of World Energy & Ember (2021)

We are committed to supporting the growth of renewable energy and encourage the responsible use of all energy sources. Currently 789 million people lack electricity and more efforts in renewable energy are needed with only 17% renewable-share contributing to global energy generation. While the world is making progress with increased energy efficiency and accessibility, there are still unserved populations of those living in remote, hard-to-reach communities that are connected to a frail and overburdened grid. As for renewable energy, the technologies have shown a consistent increase with the rapid expansion of wind and solar power in specific. In order to reach the SDG target, immediate action is needed for the deployment of these modern renewables and for the government to set higher energy efficiency ambitions.

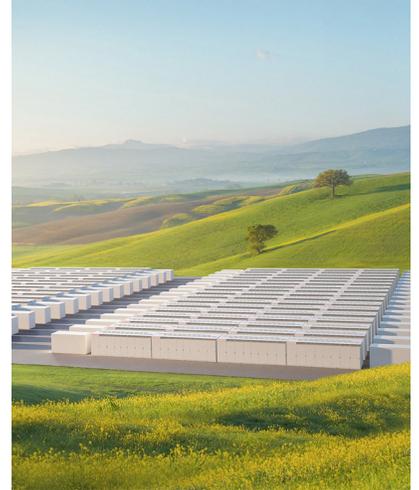
From our inception, Awesense has been driven towards enabling the energy transition and advancing the use of renewable energy through our powerful technology. One of our biggest impacts is our contribution in improving efficiency of the BC energy grid. With BC Hydro, we have helped improve efficiency by close to 80% during our work with the utility, helping save 680 GWh of energy per year and returning significant savings to the people of BC. We have also played a pivotal role in developing a Cleantech ecosystem in Vancouver, further accelerating the development and adoption of clean-energy focused technologies.

***Awesense started with a single number, 100 million- that's how many tonnes of CO2 we aim to remove from the earth by 2025. According to the World Health Organization, air pollution causes around 7 million premature deaths every year. We strive to work with utilities that source their energy from renewable generation, thereby committing to reducing the use of fossil fuels that are harming the planet and its most valuable resource- its people. Moreover, Awesense enables increased adoption of EVs and renewable energy integration, thus accelerating air pollution reduction.***

Awesense is running a variety of projects with utilities and large industrials, enabling a better understanding of the grid and the impact Distributed Energy Resources are having. The electric grid was not built to withstand the large number of renewable devices which are expected to connect to the system in the coming years. As power generation shifts from large, centralized sources owned by single entities, and moves towards smaller-scale distributed generation, the complexity of the system increases dramatically. Some regions are already seeing significant impacts due to a high penetration of small-scale renewable resources, storage and electric vehicles. As the complexity increases, so does the need to understand the impact these devices are having. Awesense enables the visibility, analysis and prediction necessary to drive renewable growth in the grid, which underpins our commitment to enabling the energy transition and a cleaner environment.

By working on projects in North and South America, Europe and Africa, we have been able to drive significant global impact and improve the affordability and sustainability of energy for many people.

We are confident in the positive impact Awesense has made with our customers and our product continues to develop in order to reach the ambitious goals we have set for ourselves. Bringing reliable and sustainable energy has been the hallmark of our business that we continue to offer to our partners.



## Goal #9

### **Industry, Innovation and Infrastructure**

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation



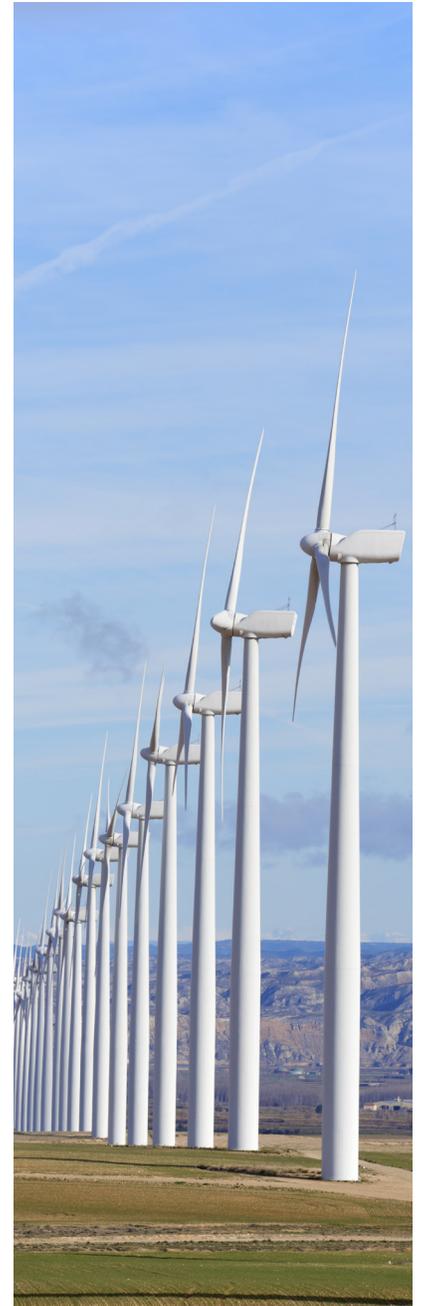
The Industry, Innovation and Infrastructure goal set out by the 2030 agenda shows that “before COVID-19, manufacturing growth [was] in decline”. Though carbon emissions are declining globally, CO2 emissions from fuel combustion have risen since 2017 despite the decoupling of GDP and carbon emissions over time. This suggests that areas of the economy still using fossil fuels, despite CO2 reduction initiatives, are hindering the progress of our overarching goal to reach a net zero world. One way to address this situation is through investment in technology that allows for efficient energy consumption- according to the United Nations, “investment in R&D is growing but needs to accelerate”. This expansion in R&D investment will comprise both physical and digital assets to enable growth that aligns globally- an initiative we are proud to support in its sustainable development.

Awesense has invested in cutting-edge product R&D to meet these objectives, an initiative that grows with the ongoing renewable energy goals for utilities of the future. Awesense has accelerated its work with large-scale industrial organizations to improve the efficiency of their plants. And by helping them integrate renewables into their energy systems, we have paved the way for them to significantly lower their carbon emissions.

***Our work in promoting the growth of Distributed Energy Resources (DERs) and Transportation Electrification (both major drivers of sustainable industrialization) has been focused on increasing our utility customers’ ability to accommodate distributed generation loads into the grid. One hurdle we have faced in growth is the inability to integrate intermittent renewable energy and mobile loads from a range of single electric vehicles (EVs) to EV fleets consisting of both medium and heavy-duty vehicles. By providing an engine which enables faster, more informed decision making on interconnection of renewable energy sources and EVs to the grid, Awesense is promoting a greater increase in renewable energy integration and EV adoption.***

Moving forward, we aim to be the digital layer that drives the decentralization and decarbonization of the energy system, a core component of the paradigm shift in motion today towards a net zero carbon future. Anything we can do to advance that direction and purpose is important as we aim to optimize humanity’s largest machine. Awesense will maintain its CO2 reduction goals, as we aim to achieve our target emissions reduction.

We will continue to address these needs by working with organizations committed to the same sustainability initiatives, not just in North America, but across the globe. By providing our innovative technology to the world, we are committed to helping build sustainable and resilient infrastructure both physically and digitally.



## Goal #11

# Sustainable Cities and Communities

Make cities and human settlements inclusive, safe, resilient and sustainable



As the world modernizes, the pace of innovation remains disparate between nations, the effects of rapid urbanization have disproportionately affected people in underserved settlements. According to the United Nations, “over 90% of COVID-19 cases are in urban areas”. At times like this, Awesense’s technology has helped utilities across the world keep the lights on at home in rural areas as people move away from saturated cities. We are deeply committed to serving all areas of the grid, including those that are often overlooked, and continue to help our partners remain sustainable and inclusive in doing so.

Working with underdeveloped communities is an important inclusivity initiative for Awesense as we aim to assist utilities across the globe to provide energy to a wide array of communities. By helping to maintain sustainable grid stability, reliability, build resilience and modernize rural legacy electric systems, we continue to help provide energy to areas that were previously underserved. Our projects in parts of Africa and South America have helped local utilities modernize their electrical systems and take the next steps forward toward the future, thereby reducing their CO2 output in the process as well.

By 2030 the United Nations aims to substantially increase resilience and adaptation to climate change and disasters. Though not all problems can be solved through foresight, several dramatic events damaging billions of dollars worth of utility assets in previous years have outlined the need to augment visibility into grid dynamics- particularly during extreme hazards, such as wildfires and storms. Understanding energy flow throughout the distribution grid is key to maintaining stable operations and resolving major issues quickly. Awesense provides advanced analytics software capable of grid-wide monitoring, giving grid operators and planners unparalleled insight into the dynamics of their network by aggregating data from all sensors and data acquisition devices available to distribution operators. With this we have increased grid resiliency and sustainable communities alongside them.

***As we move forward, the road to a cleaner future is blocked by the disparate pace of innovation between developed and emerging sectors. Awesense will continue to expand its accessibility to cater to the growing needs of emerging cities and other human settlements. And by continuing to serve our utility customers in reducing their carbon footprint, we are committed to helping communities remain safe, inclusive, resilient and sustainable.***

## Goal #13

# The Climate Action

Take urgent action to combat climate change and its impacts



Paragraph 14 of the 2030 Agenda for Sustainable Development states that climate change is “one of the greatest challenges of our time”. As climate change progresses, there will be limited availability to basic necessities including freshwater, food security and energy. Figures outlined by the United Nations show that the atmospheric CO<sub>2</sub> concentration is 146% greater than pre-industrial levels yet investment in fossil fuels continues to be higher than investments in renewable energy initiatives. The world is currently not on track to limit warming to 1.5°C, as was laid out as a global objective in the Paris Agreement of 2015. In order to avoid the extreme impacts of climate change, massive transformation in how the world produces and consumes energy as well as new investments to deploy new technologies to store and remove GHG emissions from the atmosphere is needed.

***Awesense is the fundamental layer to enable the next step in integration of renewable energy and the energy transition as a whole. The first step to decarbonization is digitalization - allowing parties to take action in optimizing how they consume and produce energy. Our focus is on utilities and industrial energy users in assisting them with their climate goals and integrating renewables into their energy systems. These initiatives speed up efforts to decarbonize society and move towards the goal set by many states and countries of zero emissions. We have enacted sustainable choices in every step of our business model with the purchase of our energy from the BC Hydro grid, powered by 95% green energy. All members of our organization have integrated environmentally conscious solutions into their lifestyles including the use of electric vehicles which has resulted in significant reductions in carbon emissions. Further workplace initiatives towards mitigating climate change are in place, including measuring and reporting on our waste, and sourcing climate-friendly consumer products for office supplies.***

We hope to continue being vocal about our environmental stance and constantly search for ways that we can help build a decarbonized future. We are confident Awesense plays a crucial role in addressing climate-related impacts and supporting the energy transition.

## Next Steps

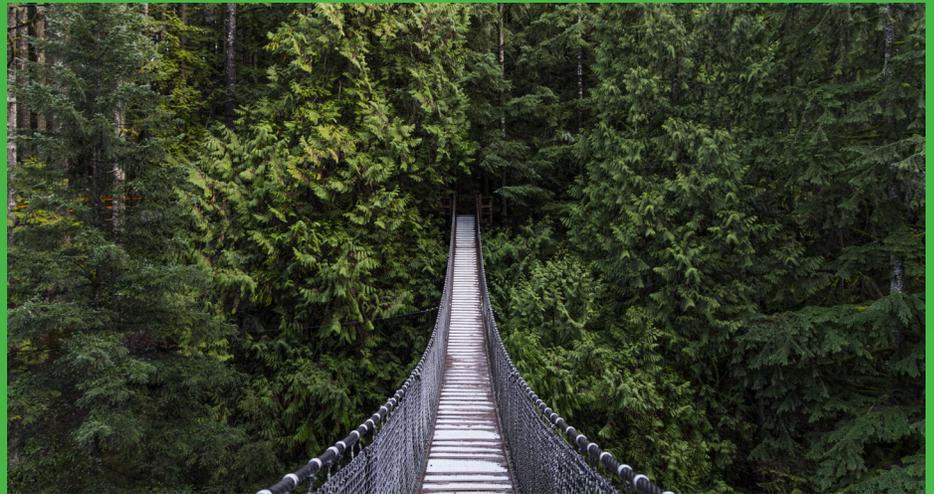
# Our commitment to the future



While Awesense is committed to focusing on these four goals, we are always striving to contribute to sustainable development in other areas. We have evaluated every aspect of our business to ensure we're choosing the most sustainable option and will continue to do so in hopes that it inspires others to follow our footsteps.

Another goal that we are closely working towards is strengthening gender equality within our workplace. We are an equal-opportunity employer and welcome applicants of all backgrounds, genders and ethnicities. With recent events we believe it is important now more than ever to highlight EDI (equity, diversity and inclusion) in the workplace and amplify the voices of BIPOC LGBTQ2S+ individuals who don't receive enough representation in this day and age. We completed the VPD Safe Place program in 2020 that certifies our offices as an LGBTQ2S+ safe space where members are welcome to stay while they call the police and wait for an officer to arrive. The mission of the VPD Safe Place initiative is to increase safety for members of the LGBTQ2S+ community through providing a safe place if they are a victim of crime or have a concern for their personal safety. We resonated with this mission and wanted to do our part in providing an inclusive environment.

As a Cleantech leader we value diversity and see the power it has in fighting against climate change with the exchange of new ideas and markets. This is why we have also signed the Edict Pledge - Empowering Diversity in Cleantech. Edict will help us make real, measurable progress in bringing diverse & inclusive voices into our workplace to help strengthen our teams across this clean energy ecosystem. The Edict pledge consists of pushing for diverse voices at all industry events, committing to interviewing diverse candidates for job openings and most importantly holding ourselves accountable for workplace inclusion.



In the last two years

90%

volume of the world's data was created

Awesense's core value centers around social responsibility and our actions are framed around by the people at our organization. We have always been open to feedback on ways to provide a welcoming environment for our employees and are looking to expand our horizons in this department.

The "data revolution" outlined in the 2030 Agenda is predicted to significantly change the role that data and statistics have in world order. The volume of data in the world is exponentially increasing with 90% of data in the world being created in the last two years and is projected to continue this growth trajectory. In line with this is the large quantities of data produced from grid-connected devices that provide useful insights on residential, business and industrial energy consumption, renewable energy generation, among other data. Awesense makes sense of the large quantities of data now being produced from the grid, and enables the operation of tomorrow's energy system.

With the increased uncertainty in today's world, we understand that these global challenges cannot be addressed by one company alone. We call for all businesses to partake in this movement and discover areas where sustainable solutions exist in hopes to preserve our environment and biodiversity for future generations. It is during these trying times that we get to see different communities come together to fight for causes they believe in. Our unique perspectives allow us to view these challenges from multiple lenses so we can determine the most effective ways to tackle them. The quantitative targets set in the 2030 Agenda are important but not the ultimate objective - the SDGs put an emphasis on the process of collaboration to bring people together from all walks of life to create a better future. With unilateral action, we are confident in the changes that can be made towards sustainable development and a just planet for all.

# Greenhouse Gas (GHG) Emissions Report

The Awesense GHG Emissions Report was designed to calculate the direct impact that we have as an organization. Outlined below are the estimated impacts from our manufacturing processes, software and data hosting, organizational costs, and employee impact.

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Making up 98% of British Columbia's business portfolio and emitting 20% of all CO<sub>2</sub> emissions, small-medium enterprises are estimated to have a large impact on Canada's economy and environment.

Awesense works with cloud providers who power their data centers via high proportions of renewable energy. Using estimated calculations provided to us from our data hosting partners and associated emission data for those locations, Awesense was responsible for approximately 6570 kWh of electricity used in data hosting and processing. Due to the high proportion of renewable share powering these data centers, this results in an estimated total of 0.8 tonnes of CO<sub>2</sub> emitted.

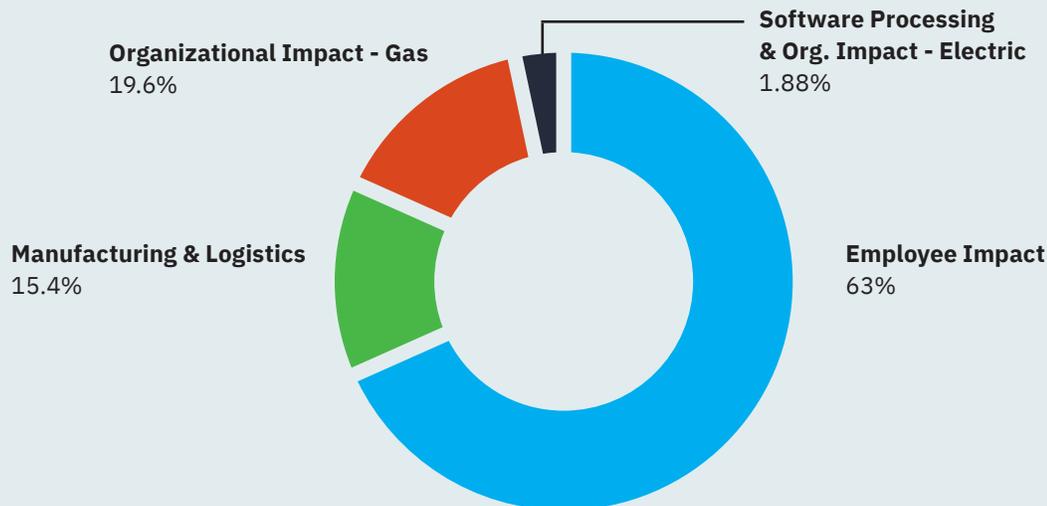
Awesense Raptor sensors are made of over 200 components that require manufacturing and shipping from around the world. Using supplier data and estimating the average emissions produced by primary components, alongside the shipping of each device, it is estimated that one Awesense Raptor sensor emits 0.005 tonnes of CO<sub>2</sub>, and likely helps reduce much more. After manufacturing, delivering and installing Awesense Raptors in 2020, our manufacturing and logistics emissions amounted to an estimated 5.57 tonnes of CO<sub>2</sub>.

As an organization, our office space consumed 47,170 kWh of electricity and 25.21 GJ of natural gas, emitting an estimated 0.6 and 7.1 tonnes of CO<sub>2</sub>, respectively. This number is surprisingly low because the BC Hydro grid is powered by over 95% hydro-powered zero-emission generation.

Awesense is a modern technology company, and has fully embraced digital technologies enabling trans-national and international collaboration without the need to travel. However, with partners and customers around the globe, travel in some circumstances has been essential. Awesense employees needed fewer than 100 flights in 2020 to help deliver our innovative solution to partners and customers, emitting a total of 14.02 tonnes of CO<sub>2</sub>. By running an internal survey and aggregating results, we have determined that overall, in 2020, Awesense's employees emitted an estimated 22.8 tonnes of CO<sub>2</sub> for all travel related purposes.

# Overall Findings

Source of Emissions	Usage	Emissions (Tonnes of CO <sup>2</sup> )
Software Processing	6,132 kWh	0.08
Organisational Impact - Electric	47,170 kWh	0.6
Organisational Impact - Gas	25.21 GJ	7.1
Manufacturing & Logistics		5.57
Employee Impact		22.8
<b>Total</b>		<b>36.15</b>



Based on our research into emissions from the SME sector, Awesense is proud to say that in 2020, our estimated 36.15 tonnes of CO<sub>2</sub> emitted as an organization is extremely low compared to other similarly sized organizations. As a venture, we are committed to maintaining this number in 2021. We will continue to deliver our innovative technology to partners around the world, in hopes that they are able to do the very same. And as we continue to address the essential sustainability goals outlined by the United Nations, Awesense is confident that 2021 will bear inspiring results.

# Summary

**Awesense is continuing its mission to decarbonize the modern energy system with our work in carbon emissions reduction.** As a progressive and innovative industry leader, we embrace the United Nations Sustainable Development Goals (SDGs) and will continue to attempt to hold ourselves accountable for achieving them. Our primary contributions in 2020 were centred on SDG goals 7, 9, 11 and 13. Similarly, we will continue to track our organizational impact on the environment through greenhouse gas emissions and strive to improve year-over-year on our global impact.

Outlined below are the highlights of what was covered in this 2020 Corporate Sustainability Report. Highlights include our primary contributions in 2020 in the four stated goals as well as our plans for continued development going forward. Lastly, organizational greenhouse gas emissions are stated and compared to average SME contributions.

- **SDG Goal #7:** Throughout 2020, Awesense worked to provide affordable and clean energy to meet this initiative as well as our own organisational goals. This focus remains unchanged and will continue to be at the forefront of our organisational mission in 2021.
- **SDG Goal #9:** A core part of Awesense's work in 2020 revolved around sustainable physical and digital infrastructure implementation. This was a crucial R&D endeavour that directly fostered innovation and inclusivity. In 2021 this initiative will continue in full force to further drive this area of growth.
- **SDG Goal #11:** Awesense worked tirelessly in 2020 to enhance grid resilience and stability in both developed and developing communities. Awesense is committed to helping communities remain safe, inclusive, resilient and sustainable in 2021, with similar and enhanced efforts in this area.
- **SDG Goal #13:** In 2020, Awesense directly worked on decarbonizing the energy grid to mitigate negative climate action. This has been the goal of our organization since our inception in 2009 and we are committed to actively continuing our work in fighting climate change in 2021.
- Awesense is an equal opportunity employer and is committed to ensuring continued efforts in gender equality. In 2020 we completed the VPD Safe Place Program, certifying our workplace as LGBTQ2S+ safe space. Awesense also signed the Edict Pledge to support growing diversity in the energy and cleantech sectors.
- As an organization, Awesense emitted a total of 36.15 Tonnes of CO<sub>2</sub> in 2020. This number was significantly lower than the amount of emissions our software removed from utility energy systems. Our primary emissions came from employee impact. Compared to the average SME, Awesense's carbon emissions were extremely low.

***Going forward, Awesense is deeply committed to maintaining and enhancing efforts in accordance with the United Nations Sustainable Development Goals. We will continue our work in the four areas outlined in this report, as well as begin fortifying the progress made in providing the world with our innovative clean energy solution. We are excited to make further progress on our commitment to sustainable growth and development this year, and we encourage all organisations to work with us in creating an inclusive, and sustainable future for our world.***

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