

GHG Emissions Reductions Recommendations for ASHRAE

Prepared for:



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Introduction

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) is non-profit professional association based in the United States that focuses on developing standards for the design and construction of heating, ventilation, air-conditioning, and refrigeration systems. With over 50,000 members located in more than 130 countries worldwide, ASHRAE is supported by a large network of local chapters and volunteers. The organization has facilities located in Georgia, Washington, D.C., and Dubai, where it directly employs over 100 people.

ASHRAE commissioned SCS Global Services (SCS) to measure the company-wide greenhouse gas (GHG) inventory for its fiscal year 2021 (July 1, 2021 – June 30, 2022), which was selected as the base year period for the greenhouse gas inventory. The organizational boundaries of the greenhouse gas inventory assessment were established using the operational control approach as defined by The Greenhouse Gas Protocol. The operational boundaries included Scope 1, Scope 2, and select Scope 3 categories.

Table 1. Base year GHG inventory results and overall contribution for ASHRAE in FY2021 in metric tons CO₂e.

FY2021	Subcategory	GHG Emissions in MT CO ₂ e	% Contribution
Scope 1	Refrigeration	284	9%
	Scope 1 subtotal	284	9%
Scope 2	Purchased Electricity	121	4%
	Scope 2 subtotal	121	4%
Scope 3	Purchased Goods & Services	1,200	38%
	Fuel and Energy Related Activities	29	1%
	Upstream Transportation & Distribution	458	15%
	Waste Generated in Operations	11	<1%
	Business Travel	794	25%
	Employee Commuting	258	8%
	Scope 3 subtotal	2,751	87%
TOTAL		3,156	100%

Table 1 depicts the breakdown of ASHRAE’s FY2021 emissions by Scope and category. Greenhouse gas emissions are classified in Scopes 1, 2, and 3. Scope 1 emissions refer to those generated from company-owned and controlled resources, such as machinery and vehicles. Scope 2 emissions arise with the generation of purchased electricity required for lighting, air-conditioning, and use of appliances. Lastly, Scope 3 emissions include indirect emissions associated across the value chain.

In FY2021, ASHRAE reported Scope 3 emissions data in six categories: Purchased Goods & Services, Fuel and Energy Related Activities, Upstream Transportation and Distribution, Waste Generated in Operations, Business Travel, and Employee Commuting.

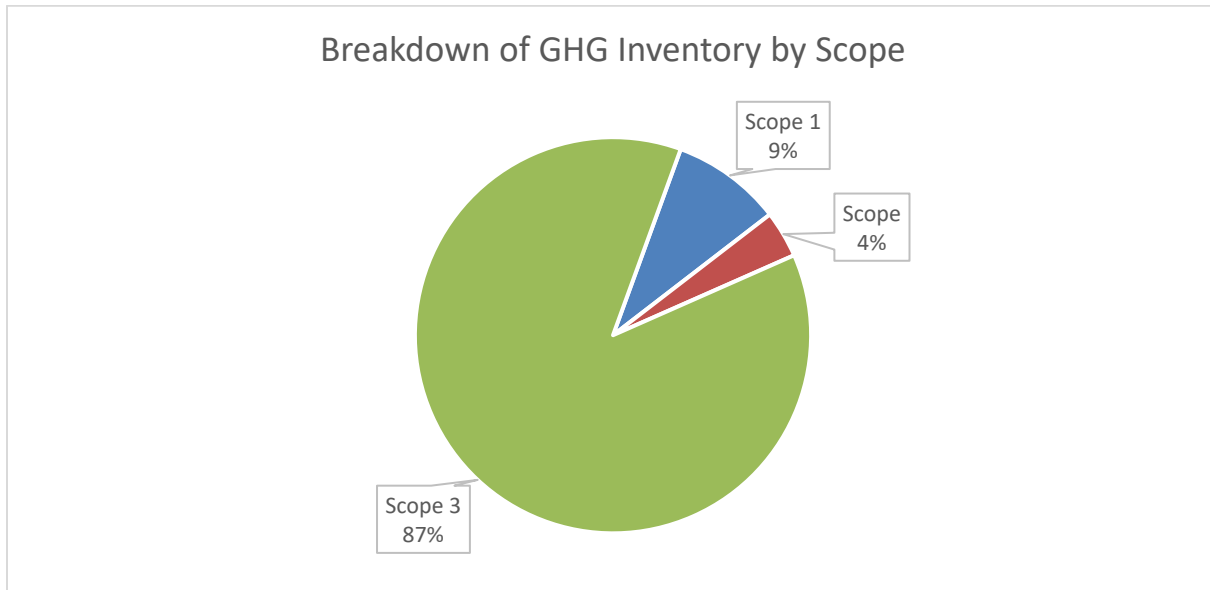


Figure 1. % Breakdown by Scope for ASHRAE in FY2021

As shown in Table 1 and Figure 1, Scope 3 emissions account for the vast majority of ASHRAE’s GHG inventory at an overall contribution of 87%. Figure 2 below depicts a more granular breakdown of ASHRAE’s emissions by source, highlighting Purchased Goods & Services and Business Travel as the two highest contributors to the overall inventory at 1200 MT CO₂e and 794 MT CO₂e, respectively.

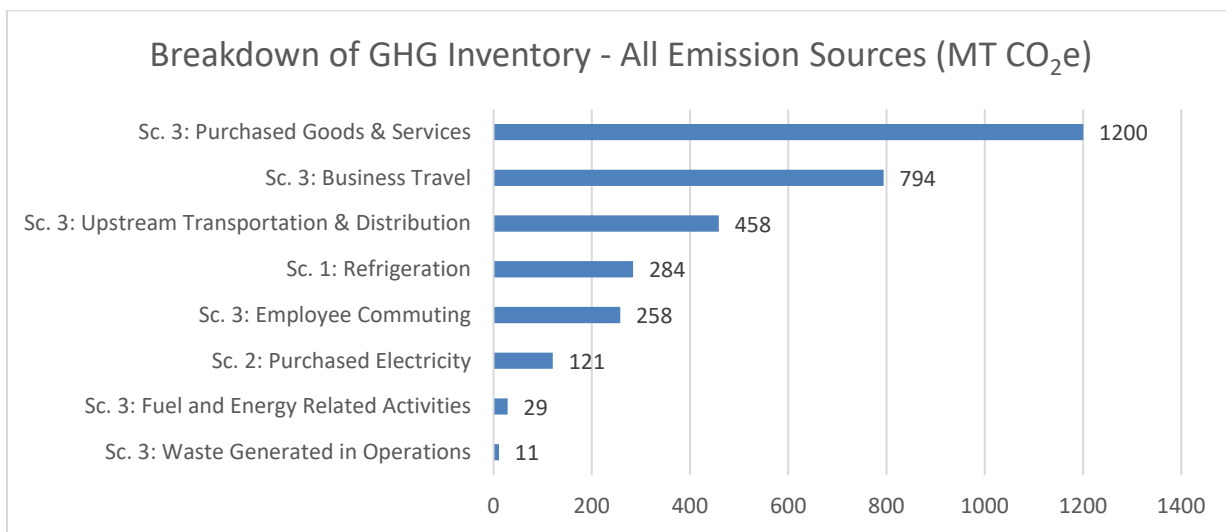


Figure 2. Total GHG emissions by source for ASHRAE in FY2021

Peer Analysis and Benchmarking

A survey¹ of 24 organizations in the nonprofit sector was conducted by “The New Humanitarian” to assess the landscape of GHG emissions assessments, the development of emissions reductions targets, and the use of carbon offsets. The results of this survey have been tabulated below and can be used to guide ASHRAE and its future sustainability-related decisions and targets.

Table 2. Carbon Assessment and Reduction Activities across Humanitarian Organizations.

	Humanitarian Organization	Carbon Footprint Assessment completed	Emissions reduction commitment	Use of carbon offsets
1	Action Against Hunger	Partial footprint. Aims to count all emissions by 2022.	Committed to reduce carbon footprint by 50% by 2030.	None currently.
2	Agency for Technical Cooperation and Development	Complete footprint: Scope 1, Scope 2, and Scope 3.	Signed the Climate and Environment Charter for Humanitarian Organizations. Also committed to reduce its footprint by at least 30% by 2025, 50% by 2030.	Offsets emissions from international flights.
3	Cooperative for Assistance and Relief Everywhere	Partial footprint: Scope 1, Scope 2, and limited Scope 3.	Signed the Climate and Environment Charter for Humanitarian Organizations. No specific reduction targets.	Currently offsetting through in-house projects rather than external credits.
4	Catholic Relief Services	Currently designing baseline study.	Signed InterAction’s Climate Compact.	None currently.
5	Danish Refugee Council	Baseline study finalized in 2021.	Signed the Climate and Environment Charter for Humanitarian Organizations.	None currently.
6	Food and Agriculture Organization of the United Nations	Partial footprint: Scope 1, Scope 2, limited Scope 3.	Committed to reduce the amount of greenhouse gases by 45% by 2030, compared to 2018 figures.	Yes; Clean Development Mechanism

¹ Salzenstein, L., & Pedersen, K. (2021, October 27). *What's the aid sector's carbon footprint?* The New Humanitarian. Retrieved June 9, 2023, from <https://www.thenewhumanitarian.org/investigations/2021/10/27/aid-sector-carbon-footprint-environmental-impact>

7	International Committee of the Red Cross	Complete footprint: Scope 1, Scope 2, and Scope 3.	Signed the Climate and Environment Charter for Humanitarian Organizations. Also committed to reduce carbon footprint by 50% by 2030, compared to 2018 figures.	None currently
8	International Federation of Red Cross and Red Crescent Societies	Unknown	Signed the Climate and Environment Charter for Humanitarian Organizations.	None currently as federation. Some national societies are.
9	International Organization for Migration	Partial footprint under UN common boundary	No specific emissions reductions targets. "Committed to mainstream environmental sustainability..."	Yes; Clean Development Mechanism
10	International Rescue Committee	Partial footprint: Scope 1, Scope 2, and business travel	Signed the Climate and Environment Charter for Humanitarian Organizations.	None currently
11	Mercy Corps	Complete footprint	Signed the Climate and Environment Charter for Humanitarian Organizations. Emissions reductions targets TBD.	None currently
12	Medecins Sans Frontieres	Partial footprint: Scope 1 and Scope 2, major Scope 3 sources	Operational entities to reduce at least 50% by 2030 to 2019 baseline.	None currently
13	Norwegian Refugee Council	Partial footprint: Scope 1 and Scope 2.	Signed the Climate and Environment Charter for Humanitarian Organizations. No specific emissions reduction targets.	None currently
14	UNOCHA	Partial footprint under UN common boundary	N/A	Yes; Clean Development Mechanism
15	Oxfam	Partial footprint: 20 members estimate emissions independently	Signed the Climate and Environment Charter for Humanitarian Organizations	None currently; but some affiliates do
16	Save the Children	Partial footprint: energy, business travel, and freight. PG&S excluded.	Signed the Climate and Environment Charter for Humanitarian Organizations	None currently

17	UNDP	Partial footprint under UN common boundary	Reducing emissions by 25% by 2025 and 50% by 2030	Yes; Clean Development Mechanism
18	UNFPA	Partial footprint: Scope 1, Scope 2, and limited Scope 3.	Reducing emissions by 30% by 2025 and 45% by 2030	Yes; Clean Development Mechanism
19	UNHCR	Partial footprint: Scope 1, Scope 2, and limited Scope 3.	Committed to reducing by minimum of 45% by 2030	Yes; Clean Development Mechanism
20	UNICEF	Partial footprint: Scope 1, Scope 2, and limited Scope 3.	Committed to reducing by minimum of 45% by 2030	Yes; Clean Development Mechanism
21	UNRWA	Partial footprint: Scope 1, Scope 2, and limited Scope 3.	TBD	None currently
22	World Food Programme	Partial footprint: Scope 1, Scope 2, and limited Scope 3	TBD	Yes; Clean Development Mechanism
23	World Health Organization	Partial footprint: Scope 1, Scope 2, and limited Scope 3.	TBD	None currently
24	World Vision	Unknown	TBD	None currently

Table 3. Survey response summary based on carbon footprint measurement.

Survey Response	# Organizations	% of Total
Partial footprint	17	71%
Complete footprint	3	13%
Baseline study under review	2	8%
Unknown	2	8%

As is evident in Table 3, many of these highlighted organizations have taken the initial steps towards quantifying their corporate emissions and clearly establishing an emissions reduction target. It should be noted that the article referenced to populate the table above was written in 2021 and there may be more updated information regarding carbon footprint assessments or emission reduction targets on the individual organization websites.

Recommendations

Table 4. GHG Emission Reduction Recommendations

#	Recommendation	Relevant Scope	Category	Focus Area(s)
1	Conduct audit of all HVAC systems to ensure maximum efficiency	Scopes 1 and 2	Refrigeration, Purchased Electricity	Fuel and energy efficiency
2	Invest in renewable energy generation via increased generation or RECs	Scope 2	Purchased Electricity	Renewable energy
3	Transition to higher-quality data collection	Scope 3	All Scope 3	Data collection
4	Conduct internal audit of waste streams	Scope 3	Waste Generated in Operations	Waste disposal methods
5	Integrating sustainable criteria into business travel decisions	Scope 3	Business Travel	Air travel and hotel stays
6	Minimize business travel wherever possible by engaging virtually	Scope 3	Business Travel	Air travel and hotel stays
7	Incentivize sustainable commuting and remote working for employees	Scope 3	Employee Commuting	Carpooling, public transit, WFH
8	Conduct educational seminars with suppliers and extended supply chain on the importance of prioritizing sustainability	Scope 3	Purchased Goods & Services, Upstream Transportation and Distribution	Supplier engagement
9	Reduce volume of print media, including publications	Scope 3	Purchased Goods & Services, Upstream Transportation and Distribution	Digitization

Rec #1 Conduct audit of HVAC systems to ensure maximum efficiency

Heating, Ventilation, and Air Conditioning (HVAC) systems can be responsible for up to 40% of energy use in a building and contribute to both Scope 1 and 2 emissions. Refrigerant recharge is captured within Scope 1, which currently contributes 9% to the overall footprint. Ventilation and air conditioning are captured under Scope 2, purchased electricity, which contributes 4% to the overall footprint. All these functions are essential for a productive working environment, but they can operate at varying levels of efficiency. There are several measures that ASHRAE can take to ensure maximum efficiency and operation of its HVAC equipment.

First, ASHRAE can get their main HVAC system surveyed annually for maintenance and specifically inquire into whether it would be beneficial to retrofit any components (i.e., compressor, fans) that are getting older and less efficient. In the case of leased spaces, this may require engaging with property managers to determine what types of checks are being conducted and with what frequency. It may even be the best option, in the long term, for ASHRAE to have a completely new and upgraded systems installed in the buildings they occupy. Second, ASHRAE can ensure that all air filters, ducts, and/or external components to the HVAC system are clean and functioning optimally. These integral components should be checked in a regular maintenance check if not already done so. Examining and implementing small changes such as those listed above has the potential to significantly reduce the Scope 1 and 2 footprint of ASHRAE.

Aside from auditing the HVAC systems, ASHRAE can consider implementing changes for natural ventilation to reduce the demand of A/C (and heating) altogether. Sunlight, local wind patterns, external/internal foliage are all elements that can be leveraged to incrementally change the inside temperature without additional energy consumption.

Pathway

ASHRAE should consult with technical experts to audit their HVAC system and determine whether it needs retrofitting or replacement. ASHRAE should also put in place a regular maintenance plan to ensure that all interior and exterior components which can collect dust, dirt, and/or other debris are cleaned periodically. In the case of leased spaces, opening a dialogue with property managers to discuss these topics may prove beneficial to obtaining greater knowledge about the efficiency of its spaces and achieving emissions reductions.

Ease of Implementation	Time	Emissions Reduction Potential
High	Less than 6 months	Greater than 5%
Medium	6 months - 3 years	2-5%
Low	Greater than 3 years	Less than 2%

Rec #2 Invest in renewable energy generation via increased generation or RECs

Given that ASHRAE is already engaged in on-site renewable energy production, the most ideal route for emissions reductions would be to increase generation to meet total demand. There are many factors to consider in order to achieve this goal, however, and there are often limitations to capacity due to physical or monetary constraints. If increased generation proves too great a task to meet energy demands for ASHRAE, Renewable Energy Credits offer an alternative to help reduce emissions.

Renewable Energy Credits (RECs) are an increasingly common strategy for companies to participate in and support green initiatives while also benefiting the GHG inventory of their company. The purchase of 1 REC represents 1 MWh of energy generated from renewable resources. If purchased within the reporting period, this renewable energy can be directed towards a company’s Scope 2 emissions total, lowering their overall footprint.

Any person or entity is eligible to purchase RECs in the amount they desire. Costs of RECs vary based on the location. Certain states have a voluntary market wherein utilities are not required to purchase a minimum number of RECs, but in other more compliance heavy states, utilities are required to purchase a minimum amount. Cost variables include size of purchase, preferences in renewable energy mixes, and current regulatory policies in place. Though it may be more cost effective to purchase from a voluntary market, purchasing RECs from nearby sites shows support for local renewable energy generation.

Additionally, ASHRAE can consider participating in the RE100 program which promotes companies to commit to sourcing 100% renewable energy for their operations. If this is of interest, ASHRAE should review the specific joining and technical criteria that have been developed by RE100². Since this is a public facing commitment, this endeavor would take a significant amount of administrative support.

Pathway

SCS recommends that ASHRAE identify any possible opportunities to increase on-site generation of renewable energy to reduce Scope 2 emissions. If this generation cannot meet total demand, ASHRAE should proceed with the purchase of RECs. ASHRAE may conduct its own research and screening to determine which types of projects to support, but should ensure that the RECs are additional, credible, and truly achieving the benefits that they claim.

Ease of Implementation	Time	Emissions Reduction Potential
High	Less than 6 months	Greater than 5%
Medium	6 months - 3 years	2-5%
Low	Greater than 3 years	Less than 2%

² <https://www.there100.org/>

Rec #3 Transition to high-quality data collection

As outlined in ASHRAE’s FY2021 GHG inventory report, several Scope 3 categories incorporated spend-based data in order to produce emissions estimates: Purchased Goods & Services, Upstream Transportation and Distribution, Waste Generated in Operations, and Business Travel. While certain emission factor databases do provide us with the ability the estimate emissions for an organization using expense data, these estimates are often conservative and do not provide the most complete picture of an entity’s emission sources.

For Purchased Goods & Services, ASHRAE can transition away from expense data by obtaining the mass of different materials or items procured, such as paper for office use or clothing used for logo wear. For Upstream Transportation and Distribution, more granular data such as total distance traveled by truck and average shipment mass could be incorporated instead of total spend. Waste Generated in Operations is another category where higher quality data remains simple; the mass of waste materials (paper, food waste) by disposal method (recycling, incineration) allows for greater specificity in emissions estimates. Lastly, ASHRAE can improve business travel data by transitioning to air miles instead of spend on airline tickets and the number of hotel nights rather than total hotel spend.

Pathway

SCS recommends that ASHRAE works internally to identify the Scope 3 categories for which data can be realistically improved in subsequent reporting periods. If necessary or helpful, ASHRAE should work with its greater supply chain to obtain high-quality data regarding the mass of materials procured, mass and distance information on freight, mass of waste materials by disposal method, and distance or number of nights data for travel and hotels, respectively.

Ease of Implementation	Time	Emissions Reduction Potential
High	Less than 6 months	Greater than 5%
Medium	6 months - 3 years	2-5%
Low	Greater than 3 years	Less than 2%

Rec #4 Conduct internal audit of waste streams

Waste generation, while a smaller component of ASHRAE’s GHG inventory, represents a simple opportunity to reduce greenhouse gas emissions in a very tangible way. As with different kinds of transportation, different kinds of waste management techniques each have footprints associated with them, some more GHG intensive than others. Recycling and composting, for example, are more climate-friendly alternatives to simply landfilling material and food waste.

Waste streams involve the entire organization and should be treated as such in order to garner further support for climate-friendly policies and reduce emissions from the source. To effectively reduce the footprint incurred by waste generation at ASHRAE, however, the organization must obtain a strong understanding of which activities are contributing to this category of emissions and where opportunities exist to mitigate their impact. As such, SCS recommends that ASHRAE conduct an internal audit of waste streams in order to better understand where to implement new emissions reduction strategies.

Pathway

Conducting an internal audit of waste streams should include as much of the organization as possible. All sources of waste should be considered, from documents to food scraps. Additionally, ASHRAE should collect as much data as possible regarding individual waste streams to identify hot-spots and more accurately report on emissions annually. Once key contributors have been identified, ASHRAE can target those areas for waste reductions, implementing strategies such as educational signage or newsletters that show employees what types of waste belong in which bins, how to deal with food waste, and so on.

Ease of Implementation	Time	Emissions Reduction Potential
High	Less than 6 months	Greater than 5%
Medium	6 months - 3 years	2-5%
Low	Greater than 3 years	Less than 2%

Rec #5 Integrating sustainable criteria into business travel decisions

For FY2021, Business Travel accounted for 25% of GHG emissions – the second highest contributing category to the overall GHG inventory. Thus, SCS strongly recommends that ASHRAE focus efforts on emissions reduction for this category. One method ASHRAE could employ to help achieve this is integrating sustainable criteria into its business travel decisions. This concept involves both qualitative and quantitative criteria, and is particularly relevant for categories such as hotels, air travel, and car rentals.

For hotels, the amount of estimated emissions per hotel night can change significantly from location to location. While often unavoidable, the impact of hotel stays can be mitigated by ensuring that any necessary hotel nights are as eco-friendly as possible. Hotel eco-certifications, for example, are a simple way to assess a hotel’s commitment to reducing environmental impacts. Global certifications such as LEED, Green Globe, Travelife, and Green Seal, among others, are all recognized schemes for conducting such assessments. There are also more regionally-specific certifications ASHRAE can use to guide its booking decisions, such as Energy Star in the US.

For air travel and car rentals, reductions in emissions can come in a more straightforward manner. When choosing flights, ASHRAE can aim for airlines that have transparent environmental goals, while also avoiding more costly (i.e. first-class) travel that incurs more consumption per seat. With car rentals, the organization can vet the vehicles it uses to ensure fuel efficiency, and potentially opt for electric vehicle usage where available.

Pathway

ASHRAE should enhance its business travel-related decisions by considering factors such as eco-certifications and company-wide environmental goals when choosing a provider for future hotels, airfare, and car rentals. Additionally, the organization can promote minimal impact from the travelers themselves by encouraging less-consumptive types of airfare or rental vehicles.

Ease of Implementation	Time	Emissions Reduction Potential
High	Less than 6 months	Greater than 5%
Medium	6 months - 3 years	2-5%
Low	Greater than 3 years	Less than 2%

Rec #6 Minimize business travel where possible by engaging virtually

Again, given the significant impact of Business Travel on ASHRAE’s 2021 GHG Inventory, it is important to take a close look at this category and evaluate any opportunities for improvement. One simple solution for this category is to implement virtual engagement over physical engagement wherever possible.

The COVID-19 global pandemic directly reduced business travel during its peak, creating an atmosphere in which remote communication and engagement became normalized. Business travel is often minimized by organizations now not just for public health and safety reasons, but also for the time and cost savings realized as a result.

Essential and non-essential travel will, in its initial stages of deliberation, seem to be a highly subjective distinction, but there are certain variables that ASHRAE can consider while making this determination at the organization level (cost, distance, etc.). Doing so will also give employees better direction at the individual level about the necessity to travel. ASHRAE leadership can put appropriate systems and tools into place so that individuals can track their travel on a yearly basis rather than an ad hoc manner.

When it comes to major conferences, ASHRAE can research and implement creative strategies that foster virtual communication online without hindering interaction. Establishing the infrastructure for meaningful, virtual engagement in major conferences – in addition to encouraging such attendance – may prove invaluable in reducing the environmental impacts of these events.

Pathway

ASHRAE should ensure that business travel-related decisions are made with a careful consideration of the environmental impact in addition to other variables such as time, cost, or value. The organization can support low-emitting modes of transportation when booking travel is under their control. Finally, ASHRAE can promote remote engagement whenever possible and ensure that meaningful interactions are taking place. Since travel to major conferences is highly ingrained in ASHRAE’s model, an appropriate organizational management and behavior change strategy will need to be leveraged.

Ease of Implementation	Time	Emissions Reduction Potential
High	Less than 6 months	Greater than 5%
Medium	6 months - 3 years	2-5%
Low	Greater than 3 years	Less than 2%

Rec #7 Incentivize sustainable commuting and remote working for employees

In light of the COVID-19 pandemic, remote working has become commonplace among companies looking to not only reduce infection risk, but to reduce overhead expenses from in-person activities. These reductions in costs are typically met with a reduction in GHG emissions, typically from reduced energy usage and commuting by employees.

SCS understands that ASHRAE has made great strides to provide remote-working opportunities for its employees through a hybrid model. We recommend that ASHRAE build upon this success by continuing to provide these opportunities in the future, allowing employees with flexible schedules to work from home and forego the need for transportation whenever possible. For employees who’s in-person presence is critical to company operations, SCS recommends ASHRAE incentivize carpooling or offer public transit vouchers to reduce the impact of commuting on ASHRAE’s carbon footprint.

To further exemplify the emissions benefits of working from home, SCS ran a mock calculation assuming all ASHRAE employees solely worked from home throughout the reporting period. An average 8-hour workday was assumed for these employees when estimating their at-home consumption (e.g., lighting, heating/cooling, electricity consumed by equipment).³ The results of this exercise suggested that ASHRAE’s employee commuting emissions could be reduced by more than 20%.

Pathway

SCS recommends that ASHRAE conducts an internal survey to assess the preferences for employees regarding remote working in lieu of in-person office days. Where possible, employees with a preference for remote work could be permitted to continue to do so at their preferred rate. Employees that have a need or preference to work in-person could be connected to organize carpools, or provided with vouchers for public transit with an equivalent buyout presented to those that participate in carpooling.

Ease of Implementation	Time	Emissions Reduction Potential
High	Less than 6 months	Greater than 5%
Medium	6 months - 3 years	2-5%
Low	Greater than 3 years	Less than 2%

³ Anthesis Group. February 2021. *Estimating Energy Consumption & GHG Emissions for Remote Workers*. https://www.anthesisgroup.com/wp-content/uploads/2021/02/Anthesis-Remote-Worker-Emissions-Methodology_Feb-2021.pdf

Rec #8 Organize educational webinars with supply chain

ASHRAE has shown its leadership in ESG by successfully pursuing its FY2021 GHG inventory and a further investigation into emissions reductions strategies. If the bandwidth exists, ASHRAE can consider taking all the learnings from these two projects, as well as actions and strategies slated for the next 5 or 10 years, and have an open and inclusive conversation with its suppliers. ASHRAE can use a webinar format to discuss challenges, successes, and opportunities for improvement that they have identified to prioritize and work to achieve year over year.

ASHRAE has a pre-established relationship of trust and professionalism with many companies in its supply chain. A nudge to transition towards more sustainable operations and decision-making will carry more weight and be better received if it comes from ASHRAE, rather than an outside consulting firm (such as SCS Global Services). Furthermore, how ASHRAE addressed and overcame challenges in its sustainability journey will offer valuable insight to many of its partners and demonstrate ASHRAE’s commitment to transparency and collaboration. This spirit is much needed in the sustainability space today and will help a broader set of companies join the transition to a low-carbon economy regardless of their prior experience or knowledge in sustainability.

These webinars will not only increase awareness of energy efficiency, energy conservation, and sustainable materials but also indirectly reduce ASHRAE’s carbon footprint (Scope 3). Thus, these webinars also serve as a legitimate and necessary means for emissions reduction.

Pathway

ASHRAE should first identify the appropriate topics, spokesperson(s), and frequency of the seminars. ASHRAE can also ask its supply chain if they are interested in learning more about any specific topics. Having decided on the logistics of the webinar, ASHRAE can lead interactive conversations and provide a platform to exchange ideas, concerns, and solutions for everyone.

Ease of Implementation	Time	Emissions Reduction Potential
High	Less than 6 months	Greater than 5%
Medium	6 months - 3 years	2-5%
Low	Greater than 3 years	Less than 2%

Rec #9 Reduce volume of print media, including publications

Print media represents a unique opportunity to reduce emissions in ASHRAE’s GHG inventory in the way that involves multiple categories, from procurement of materials and assembly (Purchased Goods & Services) to transportation (Upstream Transportation and Distribution) and any disposal activities incurred throughout the process (Waste Generated in Operations).

The primary method by which ASHRAE can reduce the volume of print media it produces is by transitioning to digital media where possible. Using digital materials reduces the need for raw materials used in manufacturing, fuels used to transport and distribute physical media, and the amount of waste created from excess materials and the eventual end-of-life disposal of finished products.

To help ensure the successful digitization of ASHRAE’s print media supply chain, ASHRAE should first determine the appetite for such media among consumers and if possible, encourage the transition to digital media using positive environmental statements. While some consumers may prefer print media regardless of impact, others may show interest in mitigating their impact on ASHRAE’s (and their own) carbon footprints.

As an additional testament to the power of digitization, the education and media company Pearson highlighted the digitization of its print supply chain as a major contributing factor in its approximately 25% reduction in GHG emissions from 2018 to 2021⁴.

Pathway

SCS recommends that ASHRAE conducts research into the demand for the print media it produces and whether or not consumers are open to digital alternatives. ASHRAE can also further encourage these alternatives through the use of positive statements that highlight the benefits of e-books, etc. from an environmental impact standpoint. Whether the organization transitions to fully or partially offering digital media in place of physical publications it is likely to have a positive, material impact on its GHG inventory.

Ease of Implementation	Time	Emissions Reduction Potential
High	Less than 6 months	Greater than 5%
Medium	6 months - 3 years	2-5%
Low	Greater than 3 years	Less than 2%

⁴ <https://plc.pearson.com/en-GB/purpose/our-esg-reporting>

Best Practices

Publicize sustainability efforts initiated by ASHRAE (past, present, future)

ASHRAE should prioritize disclosing all past, present, and future sustainability initiatives. It is clear from the successful efforts already put forward, such as the FY2021 GHG Inventory and purchase of the GHG Management Tool, that ASHRAE is committed to contributing to a sustainable and low-carbon economy. However, these efforts are not widely known by the greater public. ASHRAE can benefit from disclosing these efforts in addition to any projects that come from implementation of the GHG Emissions Reductions Strategies.

- ✓ A separate section on the ASHRAE website can be dedicated to elaborating on all sustainability efforts.
- ✓ Continue to track ASHRAE GHG inventory year over year using GHG Management Tool made by SCS Global Services.
- ✓ Use calculated GHG inventory to report emissions metrics on website, sustainability reports, disclosure platforms.

Foster communication and engagement internally to solidify company culture

ASHRAE can develop an internal communication platform for employees or open meetings for the company to come together and discuss further sustainability goals, challenges, and progress. Employees and members on the ground implementing emissions reductions strategies can have the opportunity to share solutions and general feedback on the implementation process. Resource allocation for sustainability managers will be made clear after having such meetings, but also the company culture as it pertains to sustainability will continue to strengthen.

It is important for ASHRAE to assign dedicated personnel to foster, monitor, and continuously improve the sustainability program and culture within the company. This employee should be well-versed in sustainability efforts happening at all levels.

Prioritize precise data collection and reporting to quantify emissions reductions

The peer benchmarking gave valuable insight into ongoing efforts at a variety of organizations to track, reduce, and sometimes offset emissions. ASHRAE can continue thorough documentation of all emissions reduction strategies (e.g., LED lighting, purchase of RECs, reduction of Scope 1 emissions by minimizing fuel consumption, etc.), disclosing specific reductions in consumption numbers (kWh, gallons of fuel) and describing the direct correlation to GHG emissions. These metrics will show suppliers and customers that ASHRAE is truly committed to measuring and maximizing their impact.