

A modern office interior with a lounge area and a meeting room. The lounge area features a brown sofa, two green armchairs, and a wooden coffee table. The meeting room has a long table and orange chairs. The ceiling is high with exposed ductwork and pendant lights. A large white circle is overlaid on the image, containing the title text.

# 2020 EARTHLIGHT HANDPRINT REPORT

LIGHTING THE WAY  
TOWARD NET-ZERO

PREPARED BY

**Acuity**Brands

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## ABOUT THIS REPORT

The *2020 Acuity Brands EarthLIGHT Handprint Report: Lighting the Way Toward Net-Zero* evaluates Acuity Brands products' positive impact on decarbonization of buildings based on sound, third-party, auditable methodology.

Why a handprint report? While our corporate footprint assesses the environmental impact of our products and processes, our handprint assesses the net environmental impact of our products at the point of use, incorporating both the environmental costs of using our products and the environmental benefits of removing older, less-efficient technology. This replacement of more-consumptive technology with less-consumptive technology is an important opportunity for decarbonization that we share directly with our customers.

Our footprint is covered in our *EarthLIGHT Report* (Scopes 1 and 2, with our progress on Scope 3 to be reported starting with FY21), while this new *Handprint Report* estimates CO<sub>2</sub> reductions resulting from Acuity products and services sold in FY2020, which include LED lighting and advanced lighting and building controls. Methodology is based on the *Carbon Handprint Guide* published in 2018 by the VTT Technical Research Centre of Finland.

Additionally, this report outlines Acuity's commitment to CO<sub>2</sub> reductions from 2020 to 2030, based on rapidly growing market opportunities, particularly in decarbonizing existing buildings currently reliant on older, outdated lighting technology. Though the sizable new construction market will afford some decarbonization opportunity, this report conservatively focuses on the existing construction market, which we believe offers reliable and predictable CO<sub>2</sub> reductions. We plan to update this *Handprint Report* annually on our website to track progress while verifying and, if necessary, fine-tuning its methodologies.

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We undertook this exercise to lay out a real path to net zero that can be reviewed and validated. We welcome input from the community throughout this process and look forward to a wide collaboration.

The *Handprint Report* was developed as a facet of Acuity's EarthLIGHT initiative, the company's comprehensive approach to coordinate our efforts around Environmental, Social, and Governance topics, improve our performance, increase transparency, and better highlight our results on numerous ESG issues. EarthLIGHT enables us to fulfill our corporate responsibility, measure our performance, drive continuous improvement, and attract, develop, and retain an engaged, connected, and inspired workforce.

A comparison can be drawn between the lighting industry and the transportation industry. An electric vehicle (EV) that adds to the transportation fleet adds to the production of GHG, albeit at a lower rate than if an internal combustion engine (ICE) were selected by the consumer. In the lighting industry, Acuity's solutions for new construction operate on less than 50 percent of the GHG production than our offer in 2005. This improvement is a result of LED efficacy improvements, more stringent building codes, and the increased adoption of our automated and networked control systems. When an EV results in the recycling of an ICE, then less GHG is produced overall and a beneficial handprint can be measured. The same result is commonly achieved in the lighting industry when legacy lighting and control systems are renovated with new products. When renovating lighting, more than 50 percent of the GHG that would have been produced is avoided for the lifetime of the new products. This avoidance is measured as the positive impact of our products, or our carbon handprint.

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## A MESSAGE FROM NEIL ASHE

At Acuity Brands, we understand that lessening the impact of climate change is of vital importance to our associates, customers, communities, and investors. Sustainability is at the core of what we deliver with our products and services and who we are as a company.

In March of this year, we achieved carbon neutrality in our operations. Leading by example, we use our energy-efficient products in our own facilities while taking additional steps to minimize energy consumption, explore renewable energy options, and offset emissions by investing in environmentally beneficial projects.

We also support our customers in their efforts to reduce their Scope 2 emissions by 50 percent or more when they replace their outdated lighting with our energy-efficient products. In this way, our carbon handprint—the end-use impact of our products and services—is already strongly working toward the betterment of society.

At the Leaders Summit on Climate in April 2021, President Biden announced a new 2030 target for the United States to achieve a 50 to 52 percent GHG reduction from 2005 levels. Acuity is well positioned as a market leader to make a significant contribution to this national effort. Compared to 2005, Acuity's lighting solutions deliver higher-quality illumination at half the CO<sub>2</sub> emissions.

And as part of our goals to contribute to a sustainable future, we are also dedicated to a goal of achieving a further handprint CO<sub>2</sub> reduction of 100 million metric tons by 2030. We believe this reduction will benefit our stakeholders and our company, as we continue to build on our track record of delivering innovative and more-sustainable products and services.

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In this report, I invite you to learn about Acuity's important contribution to decarbonization, our ambitious goals for the future, and how our actions are distinctly aligned to our company's strategy and long-term success. On behalf of our 12,000 associates, thank you for joining us on this journey to greater sustainability as we continue to use our technology to solve problems in spaces, light, and more things to come.

Neil M. Ashe  
Chairman, President and Chief Executive Officer

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## ABOUT ACUITY BRANDS

Acuity Brands, Inc. (NYSE: AYI) is a market-leading industrial technology company that develops, manufactures, and brings to market innovative products and services, including lighting, lighting controls, building management systems, and location-aware applications.

Headquartered in Atlanta, Georgia, our company generates over \$3 billion in annual revenue and employ a workforce of approximately 12,000 at operations across North America, Europe, and Asia, including 18 manufacturing facilities. Acuity is a recognized industry leader and a frequent recipient of awards and recognition from media and analyst firms.

Our solutions portfolio is designed to deliver high-quality interior and exterior environments with maximum comfort and efficiency. Strengthened by more than 1,900 approved and pending global patents, our products include luminaires, lighting controls, LED drivers, lighting components, prismatic skylights, and building management systems across more than 27 brands.

These solutions enable our customers to more effectively use light and spaces to satisfy organizational goals, reduce operating costs, and minimize carbon emissions. As the building management systems market continues to evolve, our portfolio is expanding into software and services providing data analytics and location-based services.

To accomplish this strong leadership position in our industry and markets, we cultivate and adhere to core company values including integrity, innovation, and delivering on customer needs. We invest in our people, encouraging them to think and act like owners while focusing on long-term, sustainable value creation. We are committed to being a good neighbor in our communities and having a positive impact on the environment.



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## LIGHTING THE WAY TOWARD NET-ZERO

To reduce carbon emissions, the world must address the consumption as well as the generation of energy. Building operations—energy used to light, heat, and cool buildings—account for an estimated 28 percent of global carbon emissions. This makes energy efficiency improvement in buildings critical to mitigating climate change.

In the past 30 years, lighting has undergone two major technological shifts, the first to more-efficient traditional technology and automatic control devices, and the second to LED lighting and connected control systems. More recently, LED delineated into standard and premium efficiency options, while networked control systems implemented at the building or campus level show significant reductions in energy consumption.

LED lighting alone offers up to 75 percent energy savings while maintaining or improving lighting quality. By reducing both wattage and operating time, advanced control systems offer additional energy savings up to 47 percent. Further potential benefits include savings from HVAC and plug load control, highly localized control, broad adoption of dimming, the potential for color tuning to support circadian-friendly lighting strategies, and data analytics and location-based services. Improvements in energy efficiency have led to a reduction in emissions in the commercial and residential building sectors of 11.4 and 17.3 percent, respectively, since a 2005 peak, with lighting playing a strong role in these gains.

In the new construction and renovation market, important factors driving demand for energy-efficient lighting and controls are steadily strengthening energy codes and product regulations, with sustainability- and wellness-focused building standards playing a supporting role in fostering innovation. The latest lighting energy codes and standards overall require a 37 percent higher level of energy efficiency than 15 years ago.

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The annual renovation rate is less than five percent, however, and consequently, a large population of outdated buildings exists in the United States. The next big decarbonization opportunities lie in this existing building stock, which consists of an estimated 5.9 million buildings covering 97 billion square feet.

Of these, 75 percent of buildings comprising 71 percent of floorspace were built before 2000, and the majority have not received a lighting upgrade, resulting in an estimated 3.5 billion interior luminaires and 133 million exterior luminaires suitable for replacement by more-efficient LED products with connected controls. In this market, an investment of approximately \$300 billion in lighting equipment solutions would produce a decarbonization effect equal to 10 percent of electricity production or 165 million metric tons of CO<sub>2</sub>, resulting from lighting being 20 percent of electricity consumption with an estimated available energy savings of 50 percent. In the existing buildings market, important factors driving demand for energy-efficient lighting and controls are energy cost savings, utility demand-side management programs, and product regulations.

The lighting industry is undergoing a dramatic technological shift toward highly controlled LED lighting, which due to energy codes predominates in new construction and major renovations. The next major drive could be in upgrading the nation's outdated lighting stock in existing buildings to maximum energy efficiency. This is the next major opportunity for reducing carbon emissions from buildings—and a major market opportunity for Acuity Brands.



## ACUITY'S IMPACT: FY2020 CARBON HANDPRINT

As a market leader in lighting and building controls, Acuity Brands' energy-efficient products sold for renovation of building sectors in our FY2020 will avoid generation of more than an estimated 2.2 million metric tons of power plant CO<sub>2</sub> emissions annually. This is equivalent to avoiding consumption of 5.2 million barrels of oil, with total GHG emission savings equivalent to eliminating 488,000 passenger vehicles for one year.

Over the next 15 years of their product life, these energy-efficient products will continue to contribute energy savings, though the CO<sub>2</sub> impact will diminish toward 2030 based on anticipated improvements in grid efficiency.

### FY2020 Avoidance of CO<sub>2</sub> Emissions

	<u>Metric Tons</u>
Non-residential interior lighting	822,000
Exterior and residential interior lighting	446,000
Lighting and HVAC controls	1,003,000
Daylighting products	<u>11,000</u>
	<b>2,282,000</b>

### Methodology for Calculating FY2020 Handprint

When calculating carbon handprint for energy-efficient lighting products, a sound, third-party methodology is desirable. Acuity adopted the *Carbon Handprint Guide*, published in 2018 by the VTT Technical Research Centre of Finland.

The *Guide* defines a handprint as an expression of life-cycle carbon reduction potential based on replacing a baseline product with a handprint product. The baseline must be realistic and transparent. The carbon footprint for both solutions is then compared, and the difference is the handprint.

The methodology and results of our handprint calculations are summarized in the table below:

	<b>Non-residential Interior Lighting (Education, Healthcare, Hospitality, Industrial, Office, Retail)</b>	<b>Outdoor and Residential Lighting</b>	<b>Lighting and HVAC Controls</b>	<b>Passive Daylighting Solutions</b>
Baseline Solution	Commercial lighting in existing buildings designed to ANSI/ASHRAE/IES 90.1 energy standard at the time of construction x average annual hours of operation to produce baseline energy consumption.	Existing outdoor or residential luminaires using conventional lighting technology x average annual hours of operation to produce baseline energy consumption.	Commercial facilities with time-based interior lighting or HVAC controls.	Single-story industrial or retail facilities constructed without skylights.
Acuity yearly sales information	Using order input data, renovated market square footage, and market share data, Acuity product sold to renovate older facilities per vertical are converted into renovated building square footage. <sup>1</sup>	Total Acuity units sold for renovation end use.	Acuity automatic controls sales are converted to a controlled area square footage based on real-world coverage areas.	Acuity skylights sold into new construction projects are converted to building square footage area based on a typical skylight-to-floor ratio.
Power Savings	A watts per square foot savings is determined using the difference between current ANSI/ASHRAE/IES 90.1 energy standards and those in effect at construction based on average turnover rates. <sup>1,2</sup>	Wattage difference for each product sold is determined based on the legacy wattage replaced.	A wattage per square footage is assigned to each product, as well as a savings percentage based on real-world studies and ASHRAE standards.	A blended ASHRAE wattage per square foot based on blended shipments to retail and warehouse verticals is used, along with modeled energy savings %.

Hours of Operation <sup>3</sup>	Average annual hours of operation based on vertical building type.	Average annual hours of operation based on outdoor or residential.	Annual hours of operation based on vertical building type.	A conservative estimate for daylight hours is used, and building occupancy is assumed during the daytime.
Acuity Impact: Metric Tons in FY2020 <sup>4</sup>	822,000	446,000	1,003,000	11,000
Example Calculation <sup>5</sup>	150,000ft <sup>2</sup> of office renovation x 0.56 W/ft <sup>2</sup> x 4,091 hrs/year x 0.453 tonnes/MWh = 155,670 metric tons in 2020. Repeated for each of six building types shown.	5,000 XYZ units x (480W-200W) x 4,273 hrs/year x 0.453 tonnes/MWh = 2,709 metric tons in 2020. Repeated for each of thousands of product variations produced.	1,000 XYZ industrial sensors x 300 ft <sup>2</sup> /sensor x 0.45 W/ft <sup>2</sup> x 4,748 hrs/year x 0.453 tonnes/MWh = 290 metric tons in 2020. Repeated for each of thousands of product variations produced.	0.3 million ft <sup>2</sup> x 2.25% skylight/floor ratio x 0.65 W/ft <sup>2</sup> x 63.7% savings x 4,383 hrs/year x 0.453 tonnes/MWh = 11 metric tons in 2020.

<sup>1</sup>Building square footage, market share percentage, and average turnover rate of lighting infrastructure are determined using data purchased from Guidehouse, a leading lighting market research firm.

<sup>2</sup>Published ANSI/ASHRAE/IES 90.1 energy standards are used per building type to estimate the improvement in building performance achieved with a lighting retrofit.

<sup>3</sup>Hour of operation are annualized based on the U.S. Department of Energy’s *2010 U.S. Lighting Market Characterization*.

<sup>4</sup>To be conservative, the base Grid Factor of 0.453 metric tons of CO<sub>2</sub> per megawatt-hour are used in the 2020 calculation rather than the marginal rate.

<sup>5</sup>Numbers used in example calculations are not the actuals that are provided to the third party, due to confidentiality of Acuity market share information.

## ACUITY'S LEADERSHIP: 2030 CARBON HANDPRINT

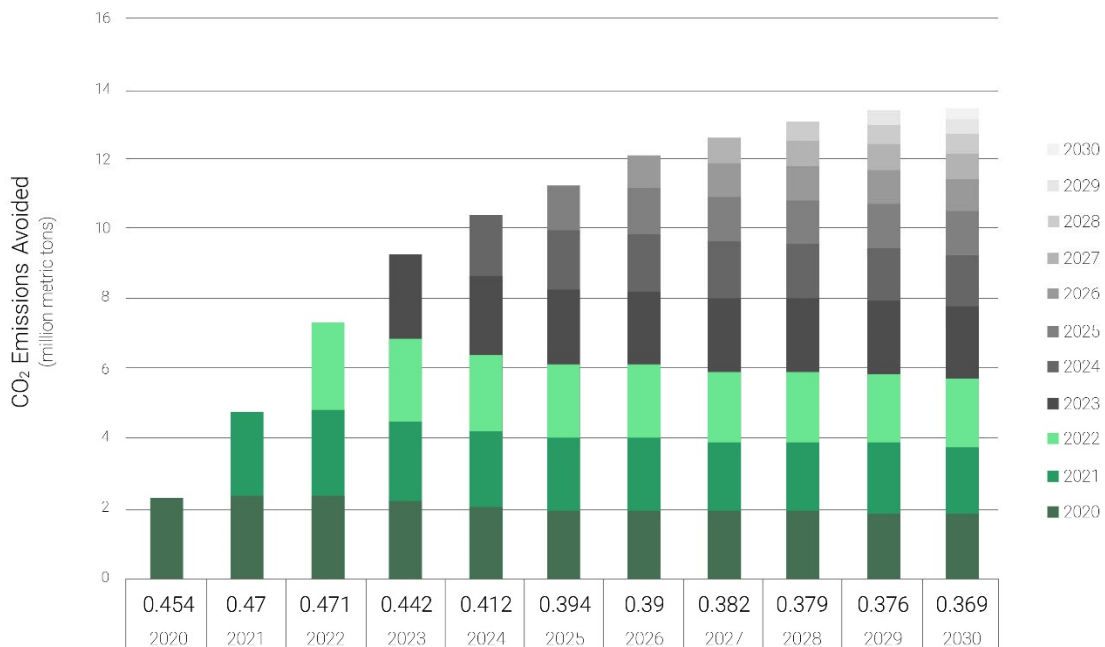
Acuity is committing to a goal of eliminating 100 million additional metric tons of CO<sub>2</sub> emissions by 2030. This is the equivalent of taking 25 coal-fired power plants offline for one year. In terms of carbon sequestration, it is equivalent to planting 122 million acres of U.S. forest. For accountability, we are measuring this impact through an auditable calculation, using Acuity product data, construction data, and building codes.

### Committed Avoidance of CO<sub>2</sub> Emissions

**2020-2030**  
**Metric Tons**

All lighting and building controls **100,000,000**

Acuity 100 Million Metric Ton Pledge



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This goal of 100 million metric tons of CO<sub>2</sub> reduction is based on *the positive impacts of customers using our lighting solutions or our handprint calculation*, eliminating the need to produce GHG emissions and thus “rolling back the clock” when compared to the previous year baseline GHG emissions. These reductions primarily arise from:

1. Providing attractive ROI to upgrade the nation’s existing installed base of lighting, which is far less efficient than our current offering.
2. Delivering effective control systems to limit the operating hours and energy usage per square foot of commercial space, for both lighting and HVAC systems.
3. Manufacturing of passive daylighting solutions which when coupled with controls eliminate the need for electric lighting during much of the daytime hours.

It is important to note that energy-efficient products we supply for new construction produce fewer GHG than ever before, but these products do *not* create a positive handprint as they are considered the baseline solution. Rather, in performing their vital functions of providing productive interior and safe outdoor environments, new products for new construction add to the GHG emissions burden on the planet, though far less than previous generations of lighting technology.

Lighting for non-residential buildings in North America is required to meet to commercial building energy codes, which limit lighting power density, expressed in watts per sq. ft. Satisfying steadily more stringent codes requires highly efficient lighting, notably LED, along with mandatory automatic controls.

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Acuity leverages its enormous breadth and depth of lighting and control products to provide solutions that meet or exceed energy codes while enabling building designers to deliver a productive, comfortable, and safe environment.

By providing cost-effective solutions, Acuity enables customers to replace outdated lighting systems and use the reduction in operating costs to provide an attractive return on investment and to deploy the savings in other uses. The lowest watts per sq. ft. option will include full-floorspace daylighting via passive solar lighting solutions combined with daylight-responsive dimming control and highly efficient LED lighting.



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## **ACUITY BRANDS DOES WELL BY DOING GOOD**

The intent behind the development of this document was to create a dialogue with the broad community of shareholders, building professionals, environmentalists, and beyond. We have used accepted, third-party data where available, made conservative assumptions where necessary, and are open to the possibility that we have missed something or that there be other useful methods of calculating impact that we may consider. We remain certain that there is opportunity in the lighting and built spaces arenas for significant reductions in carbon emissions, and we welcome your feedback.

Please engage with us via [AcuityHandprint@AcuityBrands.com](mailto:AcuityHandprint@AcuityBrands.com)

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This report is intended only to summarize certain of our efforts related to our EarthLIGHT program and is not intended to replace or supplement the Company’s audited financial statements or filings with the Securities and Exchange Commission. Undue reliance should therefore not be placed on this report. Actual results of these efforts could differ materially from the company’s summary of current plans goals and expectations. This report contains estimates, and actual results of these efforts could differ materially from the Company’s summary of current plans, goals, and expectations described in this report.