



**O&M MEETS ESG:
OPTIMIZING YOUR
BUILDINGS FOR IMPACT**



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INTRODUCTION

In 2023, a thoughtful approach to ESG (environmental, social, governance), the de facto framework for evaluating high-impact, values-driven companies, is essential to corporate success.¹

More than a quarter of global investors say that ESG is central to their investment thesis²: ESG-focused institutional investment is expected to reach \$33.9 trillion by 2026.³ And demand isn't only clustered on the investment side: 83% of consumers think companies should be actively shaping ESG best practices, and 86% of employees prefer to support or work for companies that reflect their values related to sustainability, health, and more.⁴ Building operations, due to their resource intensity and connection to human health, have long represented an avenue for realizing all three of the components of ESG. And with the growing spotlight on ESG, a focus on high-performing operations and maintenance is more important—and more valuable—than ever.

KEY TERMS

Building operations and maintenance, often shortened to building O&M, refers to the activities involved in the day-to-day management, upkeep, and preservation of a building's functionality, performance and condition. It encompasses a range of tasks and processes aimed at ensuring the smooth operation, comfort, safety, and efficiency of the building, spanning inspections, monitoring, cleaning, servicing, repair and replacement of building components and systems.⁵

ESG stands for environmental, social and governance, and is a means by which companies can be evaluated by investors and other key stakeholders with respect to a broad range of socially desirable ends.⁶



“E” (ENVIRONMENTAL) — BUILDING OPERATIONS THAT SUPPORT ENVIRONMENTAL SUSTAINABILITY

Building operations make up 30% of global energy consumption, generate 27% of the world’s total energy-related emissions⁷, and are recognized as one of the highest users of freshwater resources.⁸ They also contribute significantly to global waste challenges: The largest study of commercial building waste, conducted in November 2022, found that 62% of the trash discarded in buildings is actually recyclable or compostable.⁹ Without question, building operations that are designed to reduce the use of precious resources can provide tremendous benefits to the triple bottom line and a company’s overall ESG strategy.

Additionally, building operations are closely tied to the overall resilience of the built environment, or its ability to withstand and adapt to various disturbances, like natural disasters and climate change impacts, while maintaining functionality, safety and performance. Operating a building to higher energy efficiency standards can increase the ability of the building to maintain habitable conditions in the event of a heating or cooling system loss¹⁰ — and buildings can contribute to grid stability by managing their overall electrical demand in response to current conditions.¹¹ These are all critical components of future-proofing our society.

“S” (SOCIAL) — MAINTAINING SPACES THAT PROVIDE TANGIBLE HEALTH BENEFITS

People spend, on average, approximately 90% of their time indoors¹², meaning that aspects of the indoor environment, like air quality, have an outsized impact on overall health: A Stanford University study found that a person’s immediate environment plays a bigger role in determining the state of their immune system than genes.¹³ Operating and maintaining buildings that prioritize healthy spaces can create significant returns in employee and occupant satisfaction, happiness, productivity and a reduction in sick days.¹⁴



“G” (GOVERNANCE) — REALIZING COST SAVINGS AND TRANSPARENT REPORTING

The governance component of ESG extends to a company’s ethical standards and long-term financial performance: a thoughtful approach to O&M, replete with audits and monitoring, can streamline ESG reporting efforts while also driving meaningful cost-savings.¹⁵

High-performing, energy efficient buildings can save \$0.50 per square foot on janitorial expenses annually, and \$0.53 per square foot on utility expenses annually.¹⁶ The benefits of better ventilated spaces can add up to \$7,500 per person per year, realized in employee productivity.¹⁷

Money saved through better building operations practices can be re-invested into ESG-focused programs that support the mental and physical health of employees or causes and nonprofits that reflect that company’s mission and values, and create tangible returns for key stakeholders.



ENGAGING KEY STAKEHOLDERS

Typically, building facilities teams execute the O&M program, but highly effective strategies engage an array of stakeholders for success, including company leadership, occupants and tenants. Each of these groups contribute in different ways to compound the ESG-related benefits that can be reaped from optimal building operations & maintenance protocols.

FACILITIES TEAM: LEADERSHIP AND BEST PRACTICES

O&M sits squarely with facilities team leadership, who may oversee a combination of both in-house and outsourced staff and specialists.

● *Assessment*

Creating or updating an ESG-focused approach to O&M often starts with an assessment to provide a systematic look at all aspects of current practices, extending to management structure, policies and the user requirements that influence them. An assessment incorporates interviews with relevant O&M team members and corporate leaders (who can shed light on top priorities in the ESG strategy), a review of building equipment condition, building documentation and service contracts, tests of equipment and controls, and the gathering and analysis of trend data (like energy use, IEQ, etc.).¹⁸

All of these points of analysis can indicate where improvements to O&M are needed in order to align with a company's specific ESG goals, which enhancements are the most cost-effective, and the order in which they should be rolled out based on both of the preceding variables.

● *Programs and policies*

Assessments act as the basis for future O&M protocols, programs and policies. Establishing and documenting how operations and maintenance will be carried out for all core building functions—energy & water use and efficiency, site maintenance, renovations, purchasing, cleaning, etc.—will ensure proper alignment with ESG targets and milestones.



● *Monitoring*

An assessment can also be a first step toward ongoing monitoring of key building performance aspects, like energy consumption, indoor air quality and employee satisfaction, if it is not yet fully realized in the existing O&M strategy. Smart building tech, sensors and surveys may become standard features of a building's O&M protocols, and above all, setting recurring milestones to assess progress and pinpoint inefficiencies or changes in performance as quickly as possible will ensure monitoring technologies are put to good use.¹⁹

OCCUPANTS: STEWARDS OF ESG

The actions of building occupants can further enhance the efforts of the facilities team across most categories, from energy and water use to waste generation. Occupant engagement, in an O&M capacity, refers to a building-wide culture in which empowered building occupants are aware of and accountable for their own energy and water use, waste disposal habits, and use of toxic chemicals.²⁰

Educational materials delivered directly to occupants and posted throughout the building can provide guidance on how their actions can reduce or optimize resource consumption, from using low flow toilets properly to understanding where to dispose of waste, recyclables and compost. Global and regional holidays and campaigns, like Bike to Work Week, Earth Week, and World Water Day can provide timely and relevant touchpoints for education.

Regular occupant experience surveys can also provide critical information on how building operations are affecting the health and happiness of the people inside. This is a key feedback loop for optimized operations by the facilities team that can also contribute to transparent ESG reporting.²¹



TENANTS: GREEN LEASING

Green leases represent a way for landlords and tenants to work together on ESG initiatives: they involve leasing terms that call for sourcing energy from renewables, reducing carbon emissions from building operations and decreasing both waste and water use.²² Globally, 34% of occupiers have green lease clauses in place, a percentage that is expected to grow to 40% by 2025.²³

For buildings with tenants, green leases are a must-have for an O&M strategy that benefits all parties involved.



STRATEGIES TO MEET ESG OBJECTIVES THROUGH O&M

Effective O&M strategies focused on improving human experience and reducing environmental impact are well documented and accessible, making them achievable for most buildings: it's simply a matter of selecting and prioritizing the tactics that reflect a company's unique corporate ESG goals.

“E” — O&M PRACTICES FOR ENVIRONMENTAL SUSTAINABILITY

When it comes to the “E” in ESG, there are plenty of interventions that can be made at the O&M level to reduce resource consumption and provide real sustainability and financial returns.

● *Energy audit*

As part of the assessments conducted by the facilities team, a building energy audit, which is a comprehensive look at a building's energy performance and consumption patterns, can yield many insights on how to improve energy efficiency.

In order to gain a detailed understanding of the building's energy consumption, teams should:

- Collect and review utility bills, occupancy patterns, operational schedules, and historical energy data.
- Conduct a physical inspection of key energy-consuming systems such as HVAC, lighting, insulation, windows, and appliances, evaluating their condition, efficiency, and potential for improvement.
- Analyze energy consumption patterns and identify areas of energy waste or inefficiency using energy modeling software or technology that monitors energy use in real time.²⁴

To improve performance, energy audits can be used to develop a detailed list of energy-saving measures, including: equipment upgrades, operational adjustments, behavior changes, or renewable energy integration. Additional work to forecast ROI by comparing upfront costs to the potential energy savings and payback periods can prioritize the most impactful O&M measures and create a roadmap for the future.

Staying attune to real-time energy performance can help identify anomalies, and ensure any problems are addressed in a timely manner. Methods and technologies used for energy performance monitoring include energy management systems (EMS), smart meters, submetering, data loggers, sensor networks, building automation systems (BAS) and software programs.²⁵



● *Water and waste*

Waste and water audits can illuminate ways to use fewer resources and, in the case of waste, identify opportunities to divert more to recycling or compost vs. the landfill.

A waste audit includes sorting and categorizing a sample of building waste in order to identify areas where either improved composting and recycling practices can be implemented in order to increase the proper disposal of waste, or where waste reduction efforts can be targeted.²⁶

Conducting a water audit for a building involves systematically assessing water consumption patterns, identifying areas of water waste, and recommending measures for water conservation and efficiency. This process includes:

- Collecting data on water consumption in the building by way of utility bills, water meter readings and water-use records.
- Assessing the efficiency of plumbing fixtures, such as faucets, toilets, showers, and urinals.
- Installing or analyzing water meters to monitor water consumption in different areas or systems within the building.²⁷

As with energy, ongoing monitoring of water use and waste generation is recommended to keep operations goals in alignment with actual building performance.

Beyond audits, which are likely to generate an array of optimizations to make a given project or building more efficient, programmatic measures of an O&M strategy can map to ESG objectives, like establishing rainwater harvesting or reuse for a given building, or moving beyond recycling to create a composting program as part of a building's waste management efforts.



“S” — O&M PRACTICES FOR SOCIAL COMPONENTS, INCLUDING HUMAN HEALTH

● *Purchasing policy*

Sitting at the nexus of both environmental and health-focused O&M strategies is a company’s purchasing policy, which reduces environmental and human harm from materials purchased. Selecting products that contribute to healthy indoor air quality (such as low- or zero-VOC products, and those that avoid chemicals of concern) and that are made from rapidly renewable, recycled or local materials can add up to significant positive impacts.²⁸

O&M teams can develop a purchasing policy that is communicated to relevant team leads to ensure adherence throughout the organization. This way, these values can extend to all purchases, from those that sit squarely with the facilities team (like furniture, electric-powered equipment and lighting) to those that may be owned by other teams, like notebooks, envelopes and desk accessories, as well as food and beverage throughout the building. There are a wide variety of relevant certification programs/philosophies to support in purchasing decisions, including:

- Cradle to Cradle
- Forest Stewardship Council
- Health Product Declaration
- Environmental Product Declaration
- Declare
- ANSI/BIFMA Furniture Sustainability Standard
- Product Lens
- GreenScreen
- TRUE (or other zero waste indicator)
- EPEAT
- ENERGY STAR
- Recycled materials, local sourcing, bio-based products, responsible producers, low-emitting / non-toxic products



● *Indoor air quality*

In order to prioritize human health indoors, O&M efforts should focus closely on indoor air quality, meeting, at minimum, the requirements of established standards (such as ASHRAE) with regular monitoring in place. Additionally, testing and monitoring for indoor pollutants, particulate matter, relative humidity and other air quality components will ensure ongoing excellence.²⁹

Indoor air can be two to five times more polluted than outdoor air, a phenomenon that has increased in recent decades in part due to synthetic building materials, furnishings, tobacco smoke, pesticides and cleaners, all of which fall under the purview of building O&M and can be mitigated through source control, as dictated by the building's purchasing policy.³⁰ (Source control refers to limiting chemical emissions by selecting low-emitting products.³¹)

● *Green cleaning*

Green cleaning policies can ensure safer air quality and the avoidance of toxic chemicals for both the facilities staff utilizing these products in the regular cleaning and maintenance of the building, and the building occupants exposed to their effects. These policies specify the products that should be used in the regular cleaning and maintenance of the building, as well as how to handle, store and dispose of cleaning chemicals to minimize environmental contamination.³²

● *Integrated pest management*

Managing pests in an environmentally responsible manner that focuses on long-term prevention, monitoring, and non-chemical control methods, a strategy called integrated pest management (or IPM), minimizes the use of pesticides to further benefit human health. By implementing physical barriers and non-chemical pest control methods, pesticide exposure is reduced, and fewer pesticide-related VOCs and other chemicals are released into the indoor air of the building. IPM also reduces the need for pest control operators to handle and apply potentially hazardous chemicals.³³

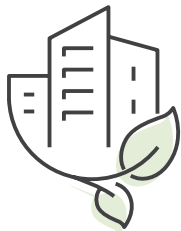
“G” — O&M PRACTICES FOR ETHICAL GOVERNANCE

Assessing the impacts of a sustainability and health-oriented O&M program rely on reporting frameworks, technologies and tools, like GRESB, which can be used to comply with best ESG practices for transparent reporting, an important aspect of corporate governance. Reporting tools can help organizations calculate important ESG components, including their scope 1, 2 and 3 emissions, all of which are tied to building operations in large and small ways:

- Scope 1: Direct greenhouse gas emissions that occur from sources controlled or owned by the organizations, such as buildings.
- Scope 2: Indirect emissions associated with the purchase of electricity, steam, heat or cooling, which are also building related.
- Scope 3: Emissions that result from assets that are not owned or controlled by the reporting organizations, but that are part of its value chain.³⁴

Calculating emissions is a central piece of ESG reporting, and seeing the direct correlation to building performance, and how it can be improved through O&M strategies, is further indication of the powerful link between building operations and ESG in general.

Beyond reporting, the cost-savings inherent to better building operations are well documented from an ROI perspective: Green buildings can save 10% in operational costs in a single year, which maps to fiscal responsibility and potential give-back components of ESG.³⁵



CONCLUSION

In order to build a high-performing company in 2023 and beyond, a corporate ESG strategy is essential to attract ongoing investment and top talent, and to retain users and customers. Beyond these business benefits, ESG provides a framework for operating a company or institution that seeks to build a better world by prioritizing environmental sustainability, human health and well-being, and ethical business practices. Building operations sit at the nexus of these goals, and a fine-tuned program that spans best practices and engages key stakeholders throughout can enable an organization to move farther and faster with ESG.

REFERENCES

- ¹ Harvard Law School Forum on Corporate Governance. (2023). ESG: Trends to Watch in 2023. Retrieved from <https://corpgov.law.harvard.edu/2023/03/04/esg-trends-to-watch-in-2023/>
- ² Harvard Law School Forum on Corporate Governance. (2023). ESG Global Study 2022. Retrieved from <https://corpgov.law.harvard.edu/2022/06/17/esg-global-study-2022/>
- ³ PwC. (2022). ESG-focused institutional investment seen soaring 84% to US\$33.9 trillion in 2026, making up 21.5% of assets under management: PwC report. Retrieved from <https://www.pwc.com/gx/en/news-room/press-releases/2022/awm-revolution-2022-report.html>
- ⁴ PwC. (2021). Beyond compliance: Consumers and employees want business to do more on ESG. Retrieved from <https://www.pwc.com/us/en/services/consulting/library/consumer-intelligence-series/consumer-and-employee-esg-expectations.html>
- ⁵ National Institute of Building Sciences. (2017). Facilities Operations & Maintenance—An Overview. Retrieved from <https://www.wbdg.org/facilities-operations-maintenance>
- ⁶ Harvard Law School Forum on Corporate Governance. (2020). Introduction to ESG. Retrieved from <https://corpgov.law.harvard.edu/2020/08/01/introduction-to-esg/>
- ⁷ International Energy Agency (IEA). (2022). Tracking Clean Energy Progress. Retrieved from <https://www.iea.org/topics/tracking-clean-energy-progress>
- ⁸ Journal of Environmental Management. (2020). Environmental impact of water-use in buildings: Latest developments from a life-cycle assessment perspective. Retrieved from <https://pubmed.ncbi.nlm.nih.gov/32148271/>
- ⁹ The Journal of Solid Waste Technology and Management. (2022). Waste Characterization Study of Pre-COVID-19 Commercial Office Buildings. Retrieved from https://www.researchgate.net/publication/367596834_Waste_Characterization_Study_of_Pre-Covid-19_Commercial_Office_Buildings
- ¹⁰ U.S. Department of Energy. Resilience. Retrieved from <https://betterbuildingssolutioncenter.energy.gov/resilience/about>
- ¹¹ Building and Environment. (2016). Ten questions concerning integrating smart buildings into the smart grid. Retrieved from <https://www.sciencedirect.com/science/article/abs/pii/S0360132316303171>
- ¹² United States Environmental Protection Agency. (2021). Indoor Air Quality. Retrieved from <https://www.epa.gov/report-environment/indoor-air-quality>
- ¹³ Stanford Medicine. (2015). Environment, not genes, plays starring role in human immune variation, study finds. Retrieved from <https://med.stanford.edu/news/all-news/2015/01/environment-not-genes-plays-starring-role-in-immune-variation.html>
- ¹⁴ Harvard T.H. Chan School of Public Health. (2017) 'Healthy' buildings can improve workers' performance. Retrieved from <https://www.hsph.harvard.edu/news/hsph-in-the-news/healthy-buildings-can-improve-workers-performance/>
- ¹⁵ S&P Global. (2020). What is the "G" in ESG? Retrieved from <https://www.spglobal.com/en/research-insights/articles/what-is-the-g-in-esg>
- ¹⁶ ENERGY STAR. The Business Case for Operating an Energy-Efficient Portfolio of Buildings. Retrieved from https://www.energystar.gov/buildings/save_energy_commercial_buildings/comprehensive_energy_management/business_case
- ¹⁷ International Journal of Environmental Research and Public Health. (2015). Economic, Environmental and Health Implications of Enhanced Ventilation in Office Buildings. Retrieved from <https://pubmed.ncbi.nlm.nih.gov/26593933/>
- ¹⁸ Portland Energy Conservation, Inc. (1999). Operation and Maintenance Assessments: A Best PRactice for Energy-Efficient Building Operations. Retrieved from <https://www.energystar.gov/sites/default/files/buildings/tools/Operations%20and%20Maintenance%20Assessments.pdf>
- ¹⁹ Cognizant. (2023). Smart buildings/smart facilities. Retrieved from <https://www.cognizant.com/us/en/glossary/smart-buildings>
- ²⁰ BuildingGreen. (2011) Occupant Engagement: Where Design Meets Performance. Retrieved from <https://www.buildinggreen.com/feature/occupant-engagement-where-design-meets-performance>
- ²¹ Building and Environment. (2020) Targeted occupant surveys: A novel method to effectively relate occupant feedback with environmental conditions. Retrieved from <https://www.sciencedirect.com/science/article/abs/pii/S0360132320305035>
- ²² JLL. (2021). How are green leases supporting real estate's decarbonization drive? Retrieved from <https://www.us.jll.com/en/trends-and-insights/workplace/how-are-green-leases-supporting-real-estates-decarbonization-drive>
- ²³ JLL. (2021). Decarbonizing the Built Environment. Retrieved from <https://www.jll.co.uk/en/trends-and-insights/research/decarbonizing-the-built-environment>
- ²⁴ U.S. Department of Energy. (2011) A Guide to Energy Audits. Retrieved from https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-20956.pdf
- ²⁵ U.S. Department of Energy. Energy Management Information Systems. Retrieved from <https://betterbuildingssolutioncenter.energy.gov/alliance/technology-solution/energy-management-information-systems>
- ²⁶ United States Environmental Protection Agency. (2023). Instructions on Conducting Waste Assessments. Retrieved from <https://www.epa.gov/smm/instructions-conducting-waste-assessments>
- ²⁷ Alliance for Water Efficiency. (2023). Resources and Tools. Retrieved from <https://www.allianceforwaterefficiency.org/impact/resources-tools>
- ²⁸ U.S. Green Building Council (USGBC). (2023). Sustainable purchasing policy. Retrieved from <https://www.usgbc.org/credits/mrp1>
- ²⁹ United States Environmental Protection Agency. (2022). An Office Building Occupants Guide to Indoor Air Quality. Retrieved from <https://www.epa.gov/indoor-air-quality-iaq/office-building-occupants-guide-indoor-air-quality>
- ³⁰ United States Environmental Protection Agency. (2021). Indoor Air Quality: What are the trends in indoor air quality and their effects on human health? Retrieved from <https://www.epa.gov/report-environment/indoor-air-quality>
- ³¹ FacilitiesNet. Source Control, Ventilation and IAQ. Retrieved from <https://www.facilitiesnet.com/iaq/article/Source-Control-Ventilation-And-IAQ--10619>
- ³² U.S. Green Building Council (USGBC). (2023). Green cleaning policy. Retrieved from <https://www.usgbc.org/credits/existing-buildings-schools-existing-buildings-retail-existing-buildings-hospitality-exist-32>
- ³³ Journal of Environmental Health. (2015). Environmental health professionals work the bugs out--school integrated pest management. Retrieved from <https://pubmed.ncbi.nlm.nih.gov/26058222/>
- ³⁴ World Economic Forum. (2022). What is the difference between Scope 1, 2 and 3 emissions, and what are companies doing to cut all three? Retrieved from <https://www.weforum.org/agenda/2022/09/scope-emissions-climate-greenhouse-business/>
- ³⁵ U.S. Green Building Council (USGBC). (2023). Benefits of green building. Retrieved from <https://www.usgbc.org/press/benefits-of-green-building>