



Transitioning to Green Hospitals and Healthcare Facilities

Brad Pollitt, Laura Stillman, and Randy Keiser

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We're in the midst of a sea change as the public understanding of the urgency of climate change has steadily risen to a critical point, sparking a growing number of policies incentivizing meaningful actions. From global climate agreements to federal and regional regulations down to climate pledges of individual organizations, these converging environmental policies and regulations will have a significant financial impact on healthcare systems' operations. At the same time, the average cost for hospital construction has risen more than 50 percent over the past three years.

BALANCING COMMITMENTS DURING A SEA OF CHANGE

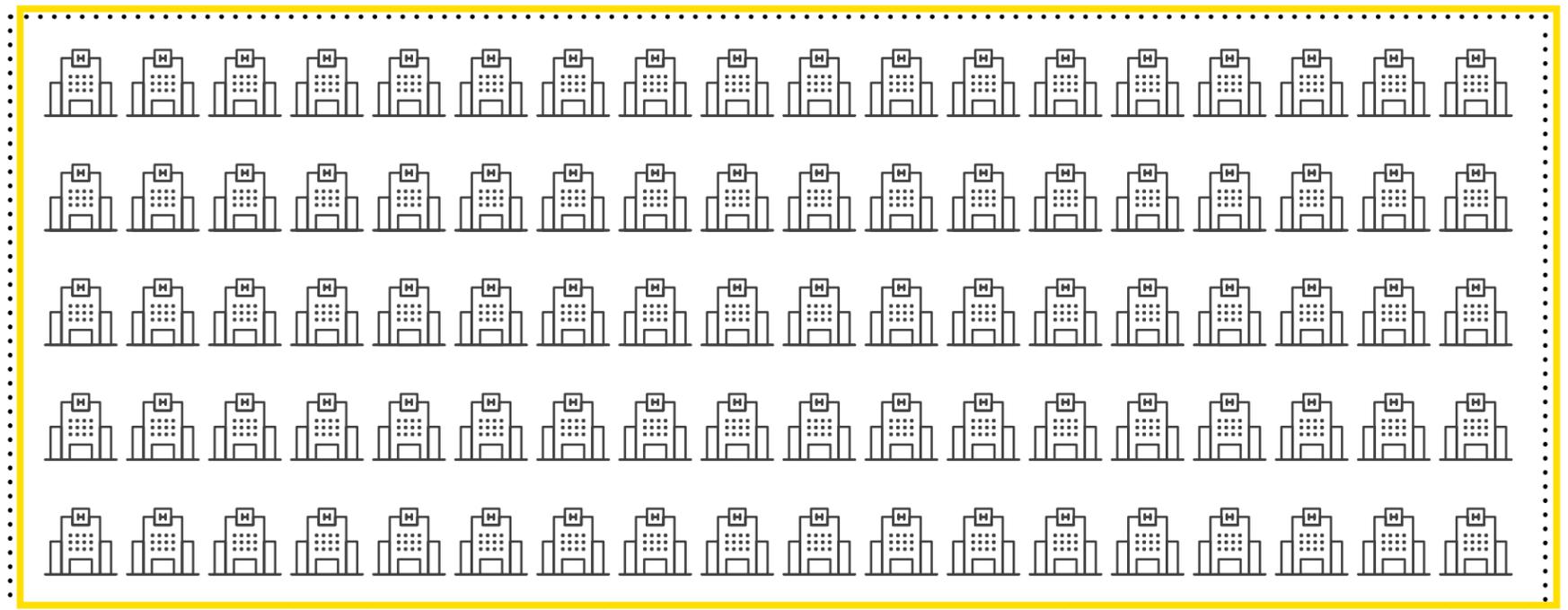
How can organizations balance a commitment to preserving the planet for future generations with a commitment to today's requirements to provide the best care possible?

Let's start by looking at recent and upcoming regulations. On Earth Day 2022, the White House and the Department of Health and Human Services launched the [Health Sector Climate Pledge](#). This is a voluntary commitment to climate resilience and emissions reduction that includes cutting greenhouse gas emissions 50 percent by 2030 and achieving net-zero emissions by 2050.

Health Sector Climate Pledge Signee Requirements:

- Publicly account for progress annually
- Designate an executive-level lead for the organization's work on reducing emissions
- Conduct an inventory of Scope 3 emissions by the end of 2024
- Develop and release a climate resilience plan for continuous operations by the end of 2023
- Anticipate the needs of community groups at disproportionate risk for climate-related harm

 = 10 Hospitals signed into Health Sector Climate Pledge



OVER 130 ORGANIZATIONS REPRESENTING MORE THAN 900 HOSPITALS HAVE SIGNED THE HEALTH SECTOR CLIMATE PLEDGE SO FAR. ALTHOUGH THERE ARE NO DATA-REPORTING REQUIREMENTS OR PENALTIES YET, ADDITIONAL GUIDELINES AND REPORTING TOOLS CAN BE EXPECTED IN THE FUTURE.

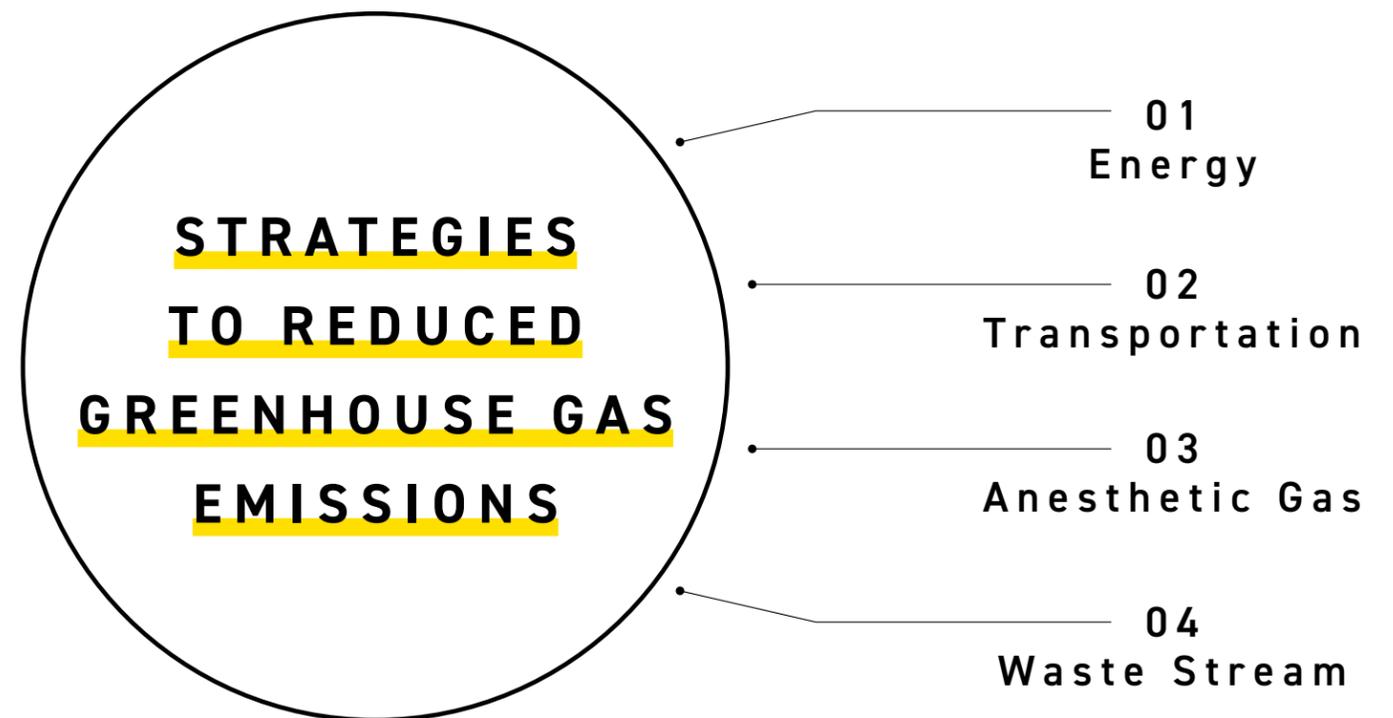
The Joint Commission is also launching a voluntary Sustainable Healthcare Certification to address environmental sustainability for hospitals with a focus on decreasing greenhouse gas emissions and waste. To receive certification, hospital leaders will need to designate an individual responsible for the oversight of activities to reduce greenhouse gas emissions. Hospitals will also need to develop written goals and action plans to measure and reduce greenhouse gas emissions in at least three of the following areas:

- Energy use (Scope 1)
- Purchased energy (Scope 2)
- Anesthetic gas use
- Pressurized metered dose inhaler use
- Fleet vehicle gasoline consumption
- Solid waste disposal

These commitments to reduce greenhouse gas emissions have the potential for a major impact on public health, and the amount and scope of such regulations can only be expected to increase. However, when considering all sources of greenhouse gas produced by the healthcare industry, Scope 1 and 2 emissions from healthcare providers [account for only 18 percent](#).

While many of the causes of greenhouse gas may appear to be outside an organization's direct control, the American Hospital Association has released a [green operations guide](#) for organizations to make decisions that will help them meet these requirements.

WE'LL FOCUS ON FOUR OF THE MOST IMPACTFUL AREAS TO REDUCE GREENHOUSE GAS EMISSIONS:



ENERGY

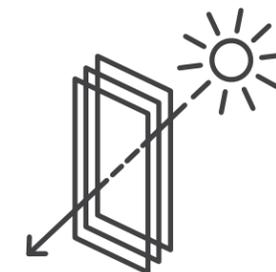
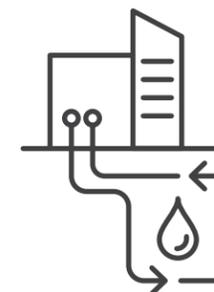
STARTING WITH THE GOOD NEWS, REDUCING ENERGY CONSUMPTION LEADS TO REAL COST SAVINGS, WHICH CAN HELP OFFSET SOME OF THE COST FOR ACTIONS IN THE OTHER AREAS ON THIS LIST.

A couple of simple steps are shutting down or dialing back air conditioning in spaces when they are not in use and replacing fluorescent lighting with LED lights. In addition to being more energy efficient, LED lights don't contain toxins such as mercury. Both air change rates and lights can be controlled by automated systems like timers and motion sensors, which are relatively easy to install. They require an initial investment but lead to significant long-term savings.

When purchasing any new appliances, such as a hot water heater, air conditioner, or refrigerator, look for ones with the best Energy Star rating. Most existing hospitals will buy a relatively small amount of these new appliances or equipment each year, so this is an incremental, deliberate approach to increasing energy efficiency that won't require a major cost upfront. For new buildings or renovations, organizations can improve efficiency by reducing the amount of glass on the building's exterior or using high-efficiency or triple-pane glass. Tightening the building envelope by reducing air leakage and increasing insulation can further reduce the amount of energy required to heat and cool the building.

Going further, investing in a building automation system provides even more control over energy management. Almost every piece of building equipment on the market today has monitoring points attached to it, and even a basic system can connect those points to monitor each element. Again, doing it one at a time over the long term, starting with the current building elements that are least efficient, allows for incremental improvement.

Finally, the ultimate goal is to move beyond fossil fuels. How local power companies source electricity is beyond the control of healthcare organizations, but moving in the direction of all-electric utilities will set up organizations to eventually eliminate Scope 2 emissions when power companies fulfill their responsibility to the community to produce green electricity.



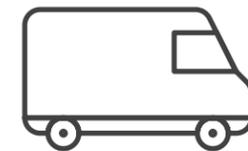
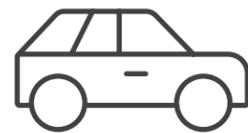
TRANSPORTATION

IN ADDITION TO THE ENERGY-INTENSIVE EQUIPMENT WITHIN THE BUILDING, DECISIONS MADE AROUND TRANSPORTATION CAN ALSO PLAY A SIGNIFICANT ROLE IN REDUCING GREENHOUSE GAS EMISSIONS.

Replacing an entire fleet with electric cars all at once isn't realistic, but when purchasing new vehicles, hospitals should develop environmental criteria for electric or lower emission vehicles and encourage visitors and employees to drive electric vehicles by adding charging infrastructure to facilities.

By conducting employee commute surveys, organizations can determine the most common mode of transportation and incentivize greener options like ride sharing, public transportation, park and ride, and bicycling. Organizations can also reduce transportation emissions by grouping purchase orders and reducing the number of trips to clinics by packaging orders together, as well as prioritizing distributors and suppliers who are committed to sustainable practices and materials.

The expansion of telehealth over the past few years has eliminated vehicle emissions from hundreds of thousands of potential trips to the doctor. Although it remains to be seen if the federal government will continue to reimburse payments for virtual visits or if insurance companies will increase reimbursements, incentivizing telehealth can have a considerable impact.



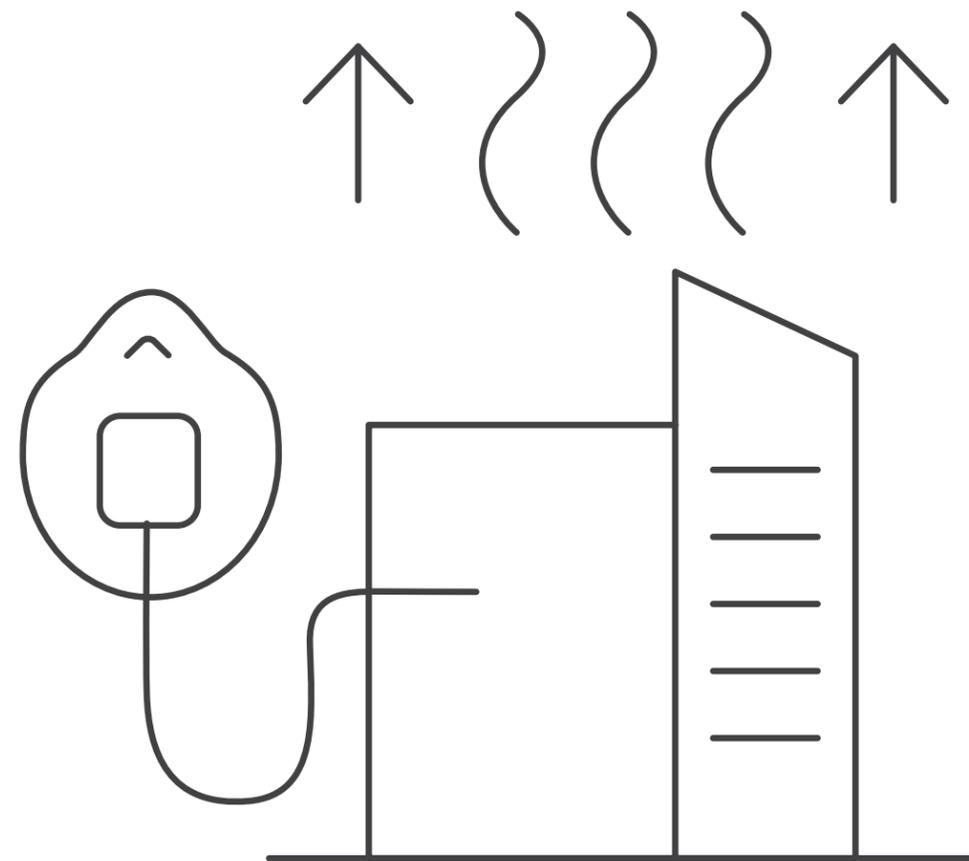
ANESTHETIC GAS

ALL ANESTHETIC GASES USED IN HEALTHCARE ARE GREENHOUSE GASES, WHICH TRAP HEAT IN OUR ATMOSPHERE, AND SOME OF THESE GASES ARE HUNDREDS OR THOUSANDS OF TIMES WORSE FOR THE ENVIRONMENT THAN CARBON DIOXIDE.

Because only a very small percentage of nitrous oxide and similar anesthetic gases are actually metabolized in the body, virtually all of the greenhouse gas is exhaled out into the environment.

Working with physicians and anesthesiologists, organizations can measure and monitor the use of gases to ensure they're not being overused. Manage anesthesia choices with clinicians and document gas flow rates in the clinical record.

While the use of anesthetic gas is unlikely to be completely eliminated, one impactful way to lower the amount going into the environment is decommissioning nitrous oxide piping within the hospital. Even the best piping systems have some level of micro leaks, especially as washers and sealants age. Utilizing individual tanks instead of embedded pipes can significantly reduce the amount of gas expelled into the atmosphere, and removing these piped gas lines from the plans for new buildings will save on construction cost. For an existing building, it is worth considering the trade-off with the emissions associated with delivering or transporting bottled gas.



WASTE STREAM

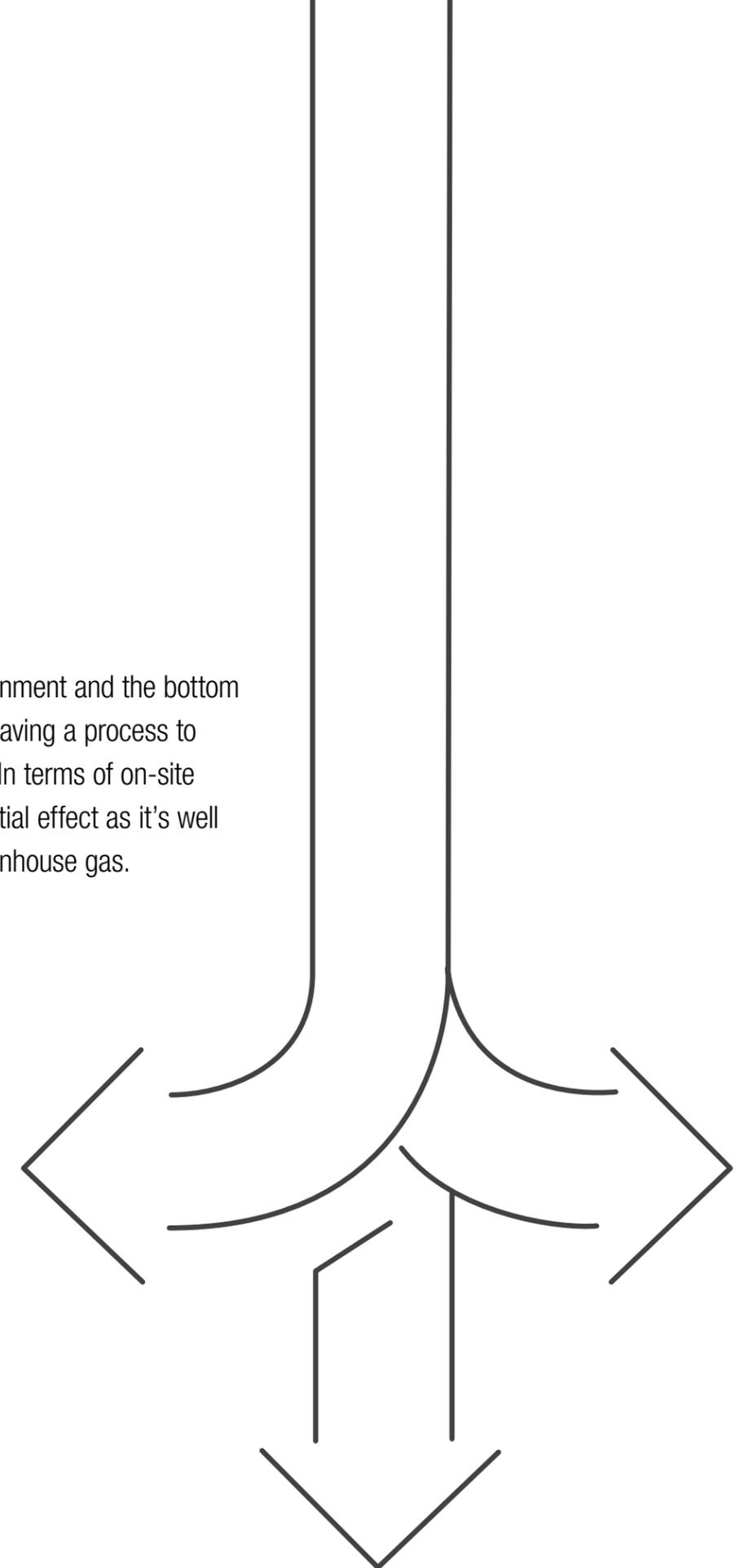
EVERYONE KNOWS THE PHRASE REDUCE, REUSE, RECYCLE. WHILE PRACTICALLY EVERY HOSPITAL HAS A RECYCLING PROGRAM, REUSING IS MORE CHALLENGING.

Reuse includes identifying and using downstream products made of recycled materials to contribute to a circular economy.

The debate over disposable versus reusable tools is ongoing. The best solution for an individual facility may depend on a number of factors, so it is worth researching whether a single-use disposable surgical instrument has a lower environmental impact than a reusable instrument that is shipped to a processing center to be cleaned with water, chemicals, and a steam bath, then repackaged and shipped back to the organization.

How a healthcare organization disposes of waste entails a number of elements from transportation to handling and packaging. Disposing of biohazardous waste is more expensive than regular waste, and the shipping and treatment requirements are more taxing on the environment, so hospital leaders likely already know that it's best to avoid putting anything into a biohazard waste bin if it's not required. But at the bedside, this decision is often left to an individual for questions such as if a slightly bloodied bandage needs to go in biohazard waste. Some organizations have relocated their biohazard containers to the soil holding room to lower the chances of someone accidentally throwing something into that biohazard container.

Reducing food waste is another action that helps the environment and the bottom line. Monitoring how much perishable food is needed and having a process to divert any excess to food banks also helps the community. In terms of on-site food options, designing a plant-forward menu has a tangential effect as it's well documented that the production of meat creates more greenhouse gas.



IMPLEMENTING A PLAN

ENERGY SAVINGS AND EMISSIONS REDUCTIONS CAN BE ACHIEVED WITH GOOD PLANNING, BUT LIKE ALL CHANGE INITIATIVES, IMPLEMENTING GREEN INITIATIVES REQUIRES BUY-IN AND EFFECTIVE LEADERSHIP.

It comes down to balancing commitments, both preserving the planet for future generations and providing the best care.

This requires reconciling competing interests such as costs, contracts, and existing partnerships. There is not a one-size-fits-all plan, so work within your institutional dynamic to customize a plan that is right for your organization. Meanwhile, observe what works for other organizations and borrow ideas from other's successes.

Whether planning for a new facility or renovation or managing an existing building, a commitment from executive leaders demonstrating why and how these programs can be successful is critical. When possible, having a dedicated role assigned to tracking, planning for, and achieving the goals laid out by these emissions regulations establishes their importance as opposed to adding these tasks to the plate of a leader on top of their regular responsibilities. And strong commitment from a visible member of the community, such as a healthcare system, can be a platform for education and inspire meaningful positive change.



ABOUT THE AUTHORS —



Brad Pollitt, AIA, NCARB,
VP Design, Planning and Construction,
Moffitt Cancer Center

Prior to his current role, Brad served as Vice President, Facilities at UF Health. During his tenure there, he oversaw the development of over \$1.5 billion of construction, renovation, and capital improvement and managed more than six million square feet of facilities. A licensed architect and frequent lecturer on facility management topics, he is a trusted healthcare facilities leader with over 35 years of experience.



Laura Stillman, Principal & National
Healthcare Practice Leader,
Flad Architects

A 30-year veteran and healthcare partner at Flad, Laura excels at leading projects, managing practice areas, and providing strategic planning. As Healthcare Practice Leader, Laura oversees Flad's healthcare group and serves as principal-in-charge for major healthcare projects, most recently leading the design team for Lee Memorial's new Health Village in Estero, FL and the UF Health Shands Cardiovascular and Neuromedicine Tower at the UF Health main campus.



Randy Keiser, Senior Vice President
& National Healthcare Director,
Turner Construction Company

Randy's 42-year career at Turner has been dedicated to hospital construction, encompassing over 250 projects and \$3.5 billion annually. He has led the sustainable hospital construction of many industry-leading projects, including one of the first to achieve net zero energy and carbon certification from USGBC and ILFI and a stand-alone hospital designed to be net-zero using on-site renewable energy.

*For more information or to
start a conversation, contact:*

Kimberly Reddin AIA, LEED® AP BD+C, WELL AP
Principal, Director of Sustainability

kreddin@flad.com

608.232.1360

Flad.com